

PRELIMINARY REPORT OF THE SIXTH SEASON OF THE DANISH-GERMAN JARASH NORTHWEST QUARTER PROJECT 2016

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with an appendix by Christoph Eger*

Introduction

Between 24th July and 30th August 2016, the Danish-German team from Aarhus University (Denmark) and Ruhr University Bochum (Germany) conducted its sixth campaign in the Northwest quarter of the ancient city Gerasa, modern Jarash, in Northern Jordan.

On the basis of the results from the 2011–2015 campaigns, which included architectural, geodetic and geophysical surveys as well as the excavation of eighteen trenches, it was decided to lay out six new trenches. One trench was placed on the south slope, three trenches from the 2015 excavations were extended, one trench was related to the north-west corner of the so-called Ionic Building and another trench was placed at the highest point of the Northwest Quarter, an area that was initially investigated in 2012. The trenches were chosen to gain further insight into the settlement history of the North-

west Quarter of the city. The project, directed by Achim Lichtenberger and Rubina Raja, is funded by the Carlsberg Foundation, the Danish National Research Foundation (grant number: DNRF 119), Deutsche Forschungsgemeinschaft (DFG), the EliteForsk Prize, and H. P. Hjerl Hansens Mindefondet for Dansk Palæstinaforskning¹.

Based on results from the 2011–2015 campaigns, it was decided to continue the explorations located partly in areas already excavated (**Fig. 1**). The areas close to the rock-cut room in Trench A on top of the hill and the Middle Islamic courtyard house nearby were chosen for further studies, as they are located on the highest point of the Northwest Quarter and had yielded crucial information in earlier campaigns (Lichtenberger and Raja 2012, 2015a, 2015b; Kalaitzoglou, Lichtenberger and Raja 2013, 2017, 2021; Lichtenberger, Raja and Sørensen 2013,

1. The team consisted of Directors Prof. Dr. Achim Lichtenberger and Prof. Dr. Rubina Raja; Head of field Dr. Georg Kalaitzoglou, Head of registration Dr. Heike Möller, Architect Nicole Pieper (Vienna), Conservator Margit Petersen (Viborg Museum, Denmark); Dr. William T. Wootton (King's College, London, UK), who examined the mosaic finds; Dr. Holger Schwarzer (University of Münster, Germany), who examined the ancient glass finds and Dr. Christoph Eger (Xanten, Germany), who examined the metal finds; the sampling for geochemistry and environmental history was continued by Prof. Dr. Ian Simpson (University of Stirling, UK), Dr. Genevieve Holdrige and Dr. Søren Munch Kristiansen (both UrbNet, Aarhus University, Denmark); and Ingrid and Dr. Wolfgang Schulze (Essen, Germany) cleaned and re-examined the Late Byzantine and Early Islamic coinage of the years 2012 to 2016 after the campaign. Furthermore, the team included the following members: Christin Braeck, Malene Byø, Charlotte Kjær Christensen, Philip Ebeling, Holger Fleischer, Max Herbst, Gitte Lambertsen Hjortlund, Jesper Vestergaard Jensen, Marion Jobczyk, Hans-Peter Klossek, Signe Krag, Signe Bruun Kristensen, Mie Egelund Lind, Kevin Luijter, Line Egelund Nielsen,

Mette Normann Pedersen, Alex Hunter Peterson, Julie Thomsen Raunstrup, Alexander Reso, Michael Schwab, Kristine Thomsen and Steff Elgaard Wiklund. We also thank Gry Barfod (AGIR and Urbnet, Aarhus University, Denmark), Jesper Olsen (Aarhus AMS Centre and UrbNet, Aarhus University, Denmark), Thomas Birch (UrbNet, Aarhus University, Denmark) as well as Stephen Merkel and Michael Prange (Deutsche Bergbaumuseum Bochum, Germany) for input on a variety of materials, which are currently undergoing further analyses but appear here in preliminary form. We would like to thank the director general of the Department of Antiquities, Dr. Monther Jamhawi, for authorizing the 2016 campaign and the director of the Department of Antiquities in Jarash, Ali Al Khayyat, for his and his staff's support during our campaign, as well as assistance in his capacity as representative. Furthermore, thanks go to our other representatives of the Department of Antiquities, Bilal Boreni and Iman Kuran, who were an invaluable help during our campaign. Many thanks also go to Christina Levisen and Eva Mortensen, who undertook extensive editing of this report, and to Dieter Korol for helping with the identification of some of the Late Antique architectural decorations.

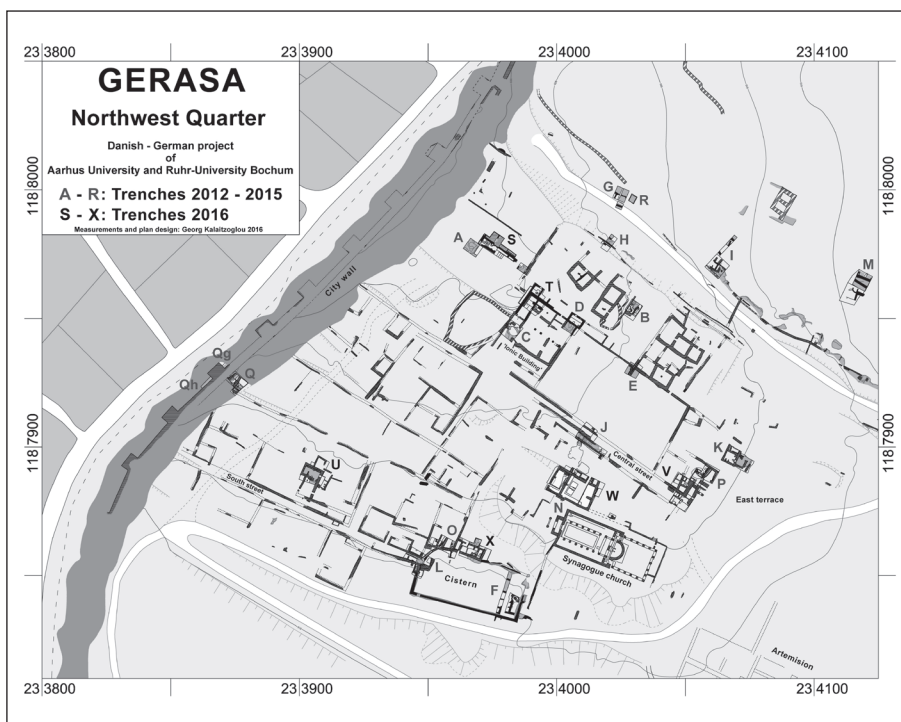
2017, 2021; Kalaitzoglou *et al.* in press). Next to Trench A, Trench S was laid out. Trench T was laid out across the north-west corner of the so-called Ionic Building to explore the construction history of this Middle Islamic house. Trench V, situated next to the Umayyad house in Trench P, excavated in 2015, continued the exploration of the so-called East Terrace in order to gain further insight into the ground plan of this building and investigate further destruction deposits of the earthquake of 749AD. With Trench X, located east of the house in Trench O at the north-west corner of the large multi-phase cistern on the southern hill-slope, the investigation of the relationship between the large water reservoir and this building was continued. On the southern hill-slope, Trench U was laid out above the ruins of a building north of the so-called South Street to allow further investigations of the settlement history between the Roman cistern and the city walls. Already in 2015, a hall with well-preserved mosaics had been excavated in Trench N, situated directly north of the so-called Synagogue-Church. With Trench W, the plan was to unearth most of the hall in order to gain more stratigraphic and chronological data for determining the relationship between this building and the church nearby, as well as the Roman cave complex situated immediately north of the hall (Trenches J and N).

In total, the six trenches, S to X (**Fig. 1**), covered an area of approximately 548m². Altogether, 168,428 finds (diagnostic as well as undiagnostic) were processed during the campaign. A collection is presented in the catalogue, including metal, architectural elements, stone artefacts, terracotta, jewellery, worked bones and pottery [a reference to the relevant catalogue number and plate is given whenever evidence is discussed in the text]. The material chosen for the catalogue includes finds that are important for the interpretation and characterization of the context, either because of their date of production or because of their function.

General Outlook

After the 2016 campaign, samples were taken to Denmark and Germany for further studies; among these were charcoal, mortar, glass and raw glass, pottery and tesserae. Furthermore, all coins found during the 2016 campaign as well as selected coins of the last years' campaigns were on loan for cleaning and further studies.

Elemental mass spectrometry and petrography was undertaken on various pottery samples, and these results – together with analyses done already in 2015 – will contribute towards a comprehensive understanding of the local and regional fabric compositions.



1. Plan of the Northwest Quarter with Trenches A-X (2012-2016).

Main Discoveries

One of the main discoveries of the 2016 campaign was a Roman-period cistern in Trench S. A contemporary building had stood on top of the cistern, and this – along with the cistern – was completely destroyed and intentionally back-filled at a later point in time. Neither the complete layout or function of the building nor the reason for its destruction is fully clear (Lichtenberger and Raja 2015b). However, the building seems to be a large monumental complex. Another important addition to our knowledge of the site was the discovery of a sediment basin in Trench X, north of the large multi-phase cistern, connected with the concrete floor already partly excavated in 2015 (Trench O). It is the oldest structure discovered north of the cistern, and was reused in Byzantine times as the floor of a later building.

Trench U on the south slope contributed insight into the extension of the Umayyad settlement in the Northwest Quarter. In contrast to the area next to the large multi-phase cistern where all the Byzantine buildings were destroyed and intentionally backfilled, it is now clear that parts of the settlement further east remained in use throughout the period until the earthquake of 749AD.

The continued excavation of the Umayyad courtyard house in Trench V on the east terrace uncovered the south-western part and entrance of this extensive Early Islamic building complex. The discovery of the first earthquake victim in the Northwest Quarter also counts among the finds. The remains of a young person, probably female, were found between large wall-stones and collapsed soil close to the door inside the entrance corridor. Apart from this discovery, the destruction context offers insight into especially the pottery and other inventory immediately prior to the destruction caused by the earthquake in 749AD.

The excavation of the Mosaic Hall in Trench W, which consisted of two parts, provides additional information about the construction of the hall, Umayyad architectural changes and the effects of the earthquake on the building.

The excavated north-west corner of the Middle Islamic courtyard house in Trench T attests the multi-phase building history of this Middle Islamic edifice and will help to subdivide and

refine the chronology of the material culture of the Middle Islamic period.

General Remarks on the Pottery

The 2016 excavations shed light on closed contexts, such as the destruction layers caused by the earthquake in Trench V or the Middle Islamic courtyard house in Trench T, which provide new data for the chronological series of pottery in Early and Middle Islamic times. This can now be related to a better understanding of changing dining habits, food-preparation and consumption patterns over the centuries [*cf.* also Trenches K and P from earlier excavations [Kalaitzoglou, Lichtenberger and Raja in press; Kalaitzoglou *et al.* in press]].

In the Roman to Early Islamic periods, Jarash was a pottery-production centre. The natural preconditions were favourable and ensured easy access to clay resources for the production of pottery in high quantity over the centuries. Since, in general, production was determined by functional aspects – especially if aimed mainly at the local or regional market – it was very standardized. After a functional shape was developed, hardly any changes were made over the following centuries. This is evidenced in Jarash. The local pottery production covers all groups: tableware, cooking and common ware as well as storage jars and amphorae with a very limited variation of types.

As already seen in previous years, imported pottery was rare in comparison with local productions. However, the few imported finds, regional and supra-regional, do offer insight into the exchange network of Gerasa/Jarash. The repertoire of the 2016 finds includes tableware, cooking ware and amphorae. Represented among the imported finds is African Red Slip Ware (**Pl. 4.27-28**), a tableware produced in the region of today's Tunisia, and – to a lesser extent – the Late Roman C Ware (LRC), which was made in Asia Minor at Phocaea (**Pl. 4.30-31**). One object found in the top soil of Trench S is unique: a cooking-ware lid (**Pl. 4.29**) of North African production. The export of African Cooking Ware was common in Late Roman and Byzantine times throughout the Mediterranean world. However, in Northern Jordan, finds are rare, and it is the first piece published from Jarash (Uscatescu 1992, 124-124).

Imported amphorae from Roman or Byzantine times are scarce compared to local ones found in this year's contexts. The locally or regionally produced bag-shaped types are common and occur in different variations (*cf.* **Pls. 11.63-65** and **12.66-67**).

One single find of an imported amphora in Trench W can be attributed to the Coan Dressel 2-4 production (**Pl. 13.71**). Byzantine/Early Umayyad finds such as the Late Roman 1 Amphora, probably produced in Cilicia or Cyprus (**Pl. 13.72**), demonstrate the connection between Gerasa and Eastern Mediterranean trade networks. Outstanding are the finds of the 749AD destruction layers in Trench V. At least ten bag-shaped amphorae (**Pl. 13.69-70**) were reconstructed. These were produced in one of the 8th century AD kilns in Egypt, probably along the Nile Valley (Dixneuf 2011: 149).

Roman-period material derives mostly from fill layers in Trenches S and W. The earliest finds are produced in the 2nd century AD. Roman-period material, however, is scattered all over the Northwest Quarter, and residual finds of Roman potsherds can be observed in much younger contexts as well. Several well-preserved cooking pots were found in Trench S (see **Fig. 6**; **Pls. 1.1** and **1.3-5**) (Lichtenberger and Raja 2015b).

Particularly in Trench V, but also in other trenches, sherds of the last occupation phase before the earthquake of 749AD were discovered (Lichtenberger and Raja 2015b). The destruction layers preserved the inventory of the buildings at the time of devastation, and the large amounts of pottery allow for analysis of the changes in production techniques and style in Umayyad times. Particularly noteworthy are new decoration patterns such as, for example, zig-zag patterns or a combination of incised zig-zag patterns and combed designed lines (*e.g.* **Pls. 5.37-38**, **6.39** and **9.54**). However, new developments in the production of very traditional types can also be traced, as in the case, for example, of large grey basins that are very common since Byzantine times. While the well-known productions survive, more developed types occur with a less elaborated rim and simple combed decoration (**Pl. 7.43-44**). The function of these large basins still remains unclear, but other vessels that can be clearly

attributed to a specific use attest to new traditions of food preparation and dining habits. Stoves or braziers (**Pl. 5.37**), for example, document an elaborated way of cooking, and the existence of large “pans” or bowls documents changes in dining habits. Instead of using small plates, bigger bowls are used for eating (**Pl. 5.38**). Changes can also be documented in the production process itself: a new “red ware” occurs which is more intense in colour and points to a different firing technique (*e.g.* **Pls. 8.51** and **10.57-59**) (see Merkel and Prange in: Kalaitzoglou *et al.* 2021).

Middle Islamic (Ayyubid/Mamluk) sherds were uncovered especially in the Middle Islamic courtyard house in Trench T (**Pls. 14.73-78** and **15.79-84**). Noteworthy are well-preserved ovens (*tabuns*) of Middle Islamic times in the same trench (**Pl. 15.85**). The use of *tabuns* is common in the region and known from older evidences in the Northwest Quarter as, for example, one of Umayyad date found *in situ* in Trench X. It was made of a reused Grey Ware basin that was turned upside down in the ground (**Pl. 7.45**). The youngest pottery find is a fragment of a pipe from a top soil layer of Trench S (**Pl. 17.95**). It is the second Ottoman pipe found in the Northwest Quarter (Kalaitzoglou *et al.* in press).

Stratigraphy and Contexts

Trench S

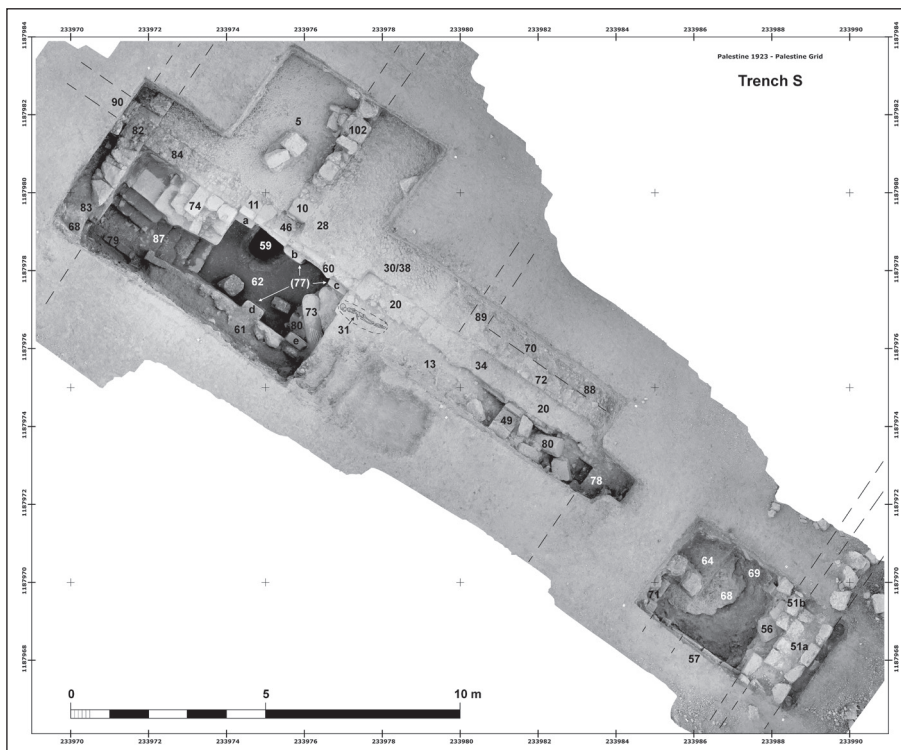
Trench S is situated on the hill-top plateau next to Trench A (see **Fig. 1**) [Trench supervisor was Max Herbst]. Trench A was excavated during the 2012 campaign. In Trench A, the southwest corner of a rock-cut room was found, which was systematically backfilled (Kalaitzoglou, Lichtenberger and Raja 2013: 58-63). According to the dating of several cooking-pot deposits in the fill and their radiocarbon dates, this filling took place in the later 3rd century AD (Lichtenberger and Raja 2015b). The aim of Trench S was to find the north-east corner of the structure and to clarify its function and potentially the reasons for the filling-in of the complex. What had initially seemed to be a simple room lined with mortar turned out to be a well-constructed cistern measuring 14.2m in length and 7.2m in width, with two chambers that were separated by a wall structure and supported by

arches (**Fig. 2**). While the cistern's state of preservation was good, the building above it was destroyed, and the building debris was used to fill the cistern in the process of closing it. The evidence from Trench S might modify the date of the filling, established in Trench A, since we cannot exclude the possibility that the closure of the cistern happened a century later, during the 4th century AD. A radiocarbon date from the cistern suggests that it was established, at the latest, during the 1st century AD, and this is an indication that the cistern is related to the roughly contemporary cistern on the south slope of the Northwest Quarter (Lichtenberger *et al.* 2015). Both cisterns might be related to the so-called Northwest Aquaduct, which was investigated by D.D. Boyer (Boyer 2016).

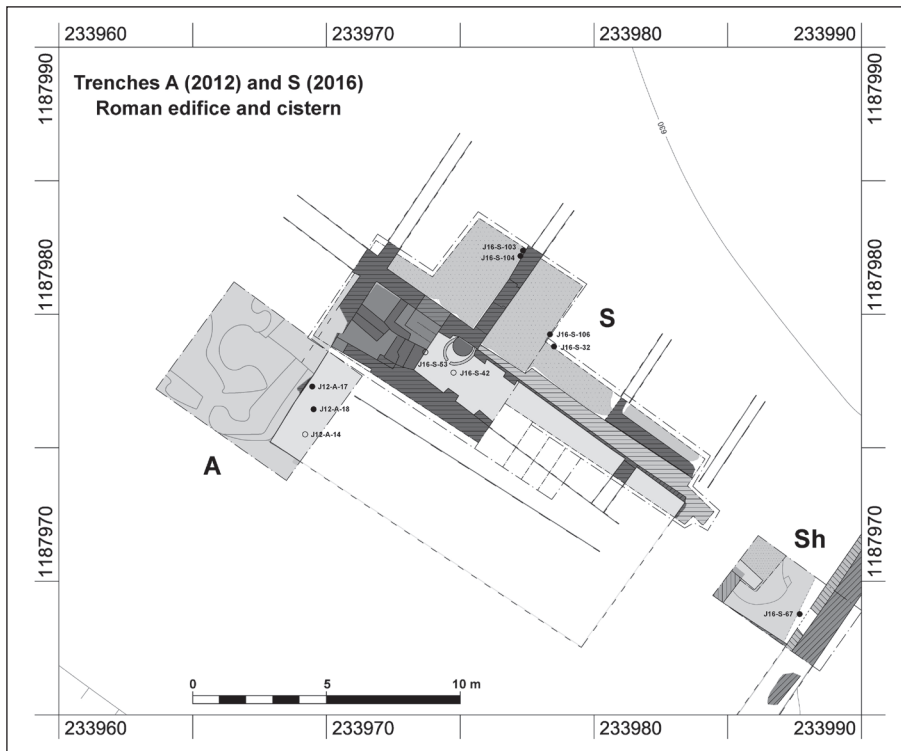
The Roman-Period Building with Cistern

Trench S yielded the remains of a monumental structure of Roman date, which consisted of a building and a cistern. The function of this prominent building, whose initial phase - according to radiocarbon data - dates to the 1st century AD [J16-Scd-59-5], has not been determined yet, but at one point during the later Roman period, this building was intentionally destroyed. The cistern had an elaborate entrance with a staircase leading down into it.

The excavated parts of the cistern were cut into the bedrock, and in its upper sections, its western (ev. 82), northern (ev. 11, 20, 60 and 84) and eastern sides (ev. 78) were stabilized by walls. Inside the cistern, an east–west-oriented wall structure (ev. 61) was located, which was connected with the western wall (ev. 82) and the bedrock (ev. 68), dividing the cistern into two compartments (**Fig. 3**). The northern compartment is 2m wide, whereas the southern compartment is between 4.0m and 4.3m wide. Pilasters (ev. 77a-e) constructed at regular intervals along the northern side of the cistern and the intermediate wall carried the roof of the cistern. An intact arch (ev. 49) in the eastern part of the northern cistern chamber and the remains of an arch (ev. 77c) attest that at least the northern chamber in the cistern was spanned by arches. The cistern was accessed by a staircase (ev. 74) located in the north-west corner, which turned ninety degrees halfway. The staircase led to a door that allowed access to the cistern (ev. 87). To the right of the staircase, a semicircular settling basin (ev. 59) was situated. The staircase and the door on the western side of the northern chamber show that the cistern could only have been filled with water up to a level below the threshold (ev. 87). The framing (ev. 79) of an opening, which was set



2. Trench S, excavated structures.



3. Trenches A and S, Roman edifice and cistern with cooking-pot deposits.

from the south against the staircase (ev. 74) and between the western bedrock (ev. 68) and the intermediate wall (ev. 61), thus lies above this maximum filling level.

The walls in Trench S did not only enclose the cistern but also served as the walls of the building, which was established above the cistern and extending further north. Since, in Trench A, no wall structures were found outside the cistern, it is probable that the building extended primarily north of the cistern. Since these walls were intentionally removed all the way down to their foundations, we rely on the remaining structures and the preserved concrete floors to establish the ground plan of the building above the cistern (Figs. 2-3). Distinguishable is a west room with a floor (ev. 5) between the walls (ev. 10/102, 82 and 11/84) (see Fig. 2). The room continues further north beyond the limits of the trench. The walls of the west room were not constructed directly on top of the cistern wall (ev. 20) but rest on a thin foundation of soil and small stones (ev. 46). Inside the room, a floor foundation (ev. 45) was laid, on which a mortar floor (ev. 5) was placed. The foundation (ev. 45) was set against both the wall foundation layer (ev. 46) and the walls (ev. 10/102 and 11/84). From this room, the cistern was accessible by a door in the middle of

the southern wall (ev. 11/84). The lowest part of a door-frame preserved in the eastern wall (ev. 10/102) shows that the west room was accessible from the east. The mortar floor (ev. 5) was laid on top of the foundation layer (ev. 45) of soil and small stones. The wall (ev. 90), of which only a small part was excavated, proves that another room was situated west of this room. Not only the door in the wall (ev. 10/102) but also the limits of the floor (ev. 28) indicate that east of the west room, another room was situated, which extended to the east and north. Since the floor (ev. 28) was cut at the northern limit of the cistern during the destruction of the complex, and since the tops of the arches (ev. 49 and 77c) lie below the floor level, it is likely that the floor (ev. 28) once covered the eastern part of the cistern. Like the mortar floor (ev. 5) in the west room, also the mortar floor (ev. 28/30/38) of the east room rests on a floor foundation (ev. 33). This central room was delineated to the east by the north-south-running wall (ev. 89), of which only the mortar foundation (ev. 89) was preserved and against which the floor (ev. 28/30/38) [All three evidences belong to the same mortar floor. Ev. 28 is the smooth surface layer, ev. 30 is the middle layer with pebbles embedded into mortar, and ev. 38 is the mortar and stone underlay of the

floor] was set from the west. East of this wall, another room was situated, which extended in a northerly direction. This eastern room was limited towards the south by the remains of the poorly built wall (ev. 72). Although this room is oriented parallel to the cistern, its southern limit does not reach the cistern. The central room therefore enclosed the eastern room, also from south. The south and west walls (ev. 72 and ev. 89) of the east room were constructed on top of a thin soil foundation (ev. 66), which covered the mortar layer (ev. 85) above the cistern's north wall (ev. 20). Inside the east room, the floor foundation (ev. 88) was set against the wall foundation (ev. 66) and the base of the wall (ev. 72). This floor foundation was covered by the underlay (ev. 70) of a floor that was made of mortar and soil. It ran against the underlay (ev. 38) of the mortar floor (ev. 28) in the central room. Since all the walls and floors rest on foundation layers, it is obvious that they are contemporary and built on an even mortar surface (ev. 34) that surrounded the northern edge of the cistern. However, since these foundation layers did not contain any finds, we await the dating of the charcoal samples to get a date for the construction of the rooms.

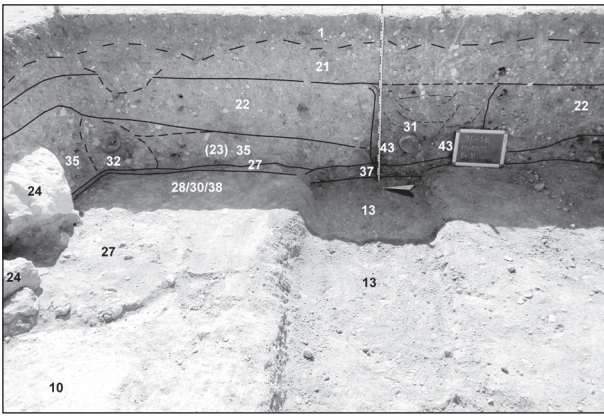
Aside from the well-constructed walls and compact floors, which were made of pebbles embedded into a hard mortar (ev. 30 and 38) and covered by a smooth mortar layer (ev. 5 and 28), only traces were found of the former interior of the building. In the north-west corner of the staircase (ev. 74), five layers of partly painted and unpainted wall plaster (ev. 75) were attached to the southern face of the wall (ev. 84). The use of wall plaster with a floral design in the entrance area of the cistern suggests that the building was elaborate, and that the cistern did not purely serve a functional purpose. This is underlined by a column drum (ev. 73) found in the cistern fill, which was lined with stucco and decorated with spiral fluting, as well as several fragments of stucco profiles (ev. 54). Although only the cistern and parts of the connected building were unearthed, it is obvious that the complex was not a simple house.

Since the building was destroyed and deliberately sealed, primary datable finds that can be connected directly with the Roman building are not at hand. A selection of exclusive finds (Pl.

20.111-114) found in the fill (ev. 13/105) at the top of the stairs could stem from the original house inventory, but these were without doubt thrown into the cistern at the time of the closing of the complex. However, at least the dating of the destruction and the backfilling of the cistern provide us with a *terminus ante quem* for the cistern complex.

The Destruction of the Roman Cistern Complex

The destruction of the Roman building with the cistern was intentionally and systematically undertaken. All the walls closest to the cistern seem to have been completely dismantled, and some of the stones were thrown into the cistern. Of the wall (ev. 10), only the lowest course of stones remained in place at the northern end of the trench. With the exception of single stones and limited concentrations of smaller stones (ev. 25 and 36), no accumulation or layers of debris were detectable on top of the room floors (ev. 5 and 28). However, the composition of the cistern fill suggests that beside the debris of the building, other material was also used to fill the cistern. Most of the homogeneous filling material consisted of a brownish soil (ev. 13) [Ev. 8, 17 and 37 and the eastern part of ev. 105 are the same and belong to this brownish fill. It is the same brownish fill material that in 2012 in Trench A was labelled ev. J12-A-6, J12-A-10, J12-A-16, J12-A-19 and J12-A-22] mixed with larger and smaller construction stones (ev. 80), stones of the arches as well as architectural elements such as the column drum (ev. 73). A thick layer of small- to medium-sized and mostly rounded stones (ev. 14) that hardly contained any soil covered this fill layer [In Trench A, this concentration of backfilled stones was labelled ev. J12-A-13]. Above this stone fill, additional layers of brownish soil were deposited (ev. 8, 13, 15-19, 27 and 37), of which ev. 27 and 37 also covered the southern parts of the Roman floors (Fig. 4). These fill portions were of a brighter colour, because the soil was mixed with the mortar of the removed walls. The remains of the building north of the cistern and parts of the cistern fill were then covered by additional fill layers. The western part was covered with a thick layer of yellowish and clayish soil (ev. 4) mixed with pieces of mortar and wall plaster, whereas the area east



4. Trench S, fill layers and deposits above the cistern, view from the west.

of the wall (ev. 10) was covered with a layer of greyish soil (ev. 35) mixed with smaller stones and pieces of mortar. Neither the brownish soil nor the small- to medium-sized stones stem from the construction material of the Roman building.

The dating of the filling activity has been done with reference to several independent criteria. The backfill (ev. 13) contained, aside from some building ceramics (tiles: **Pl. 18.96-99**; tubuli: **Pl. 19.105-106**; chimney: **Pl. 19.108**), mainly pottery of Roman to Late Roman date (**Pl. 3.21**) as well as some Roman to Late Roman lamps – some intact, some broken (**Pl. 16.86-88**). Only four underweight coins (minimi) were found, also Late Roman in date [The find numbers are J16-Sa-13-41, J16-Sc-13-8-9 and J16-Sc-13-16]. Embedded into this fill were the base of a Roman cooking-pot (ev. 42) and a complete cooking pot (ev. 53) **Pl. 1.5**), also of Roman or Late Roman date. Especially the last one resembles the shape and type of the deposited cooking pots found in 2012 in the same fill of Trench A (Kalaitzoglou, Lichtenberger and Raja 2017; 36-37, figs. 96-97). From the fill (ev. 13), several radiocarbon dates were extracted, and they allow a date in the 3rd to early 5th century AD. The upper smaller fill portions (ev. 15, 16, 17, 18 and 19) contained only small and non-diagnostic sherds and some fragments of wall plaster (ev. 12).

Regarding the date of the filling of the cistern, two interpretations are possible: one interpretation takes ev. 13, which dates to the 3rd century AD, as the date; the other privileges the layers on top of ev. 13, which hint at a 4th century AD date. These layers are either the upper fill

of the cistern or a second phase of post-cistern use.

In ev. 8, which belongs either to the upper part of the fill (ev. 13) or to the second phase, apart from some pottery fragments, two Late Roman coins were found [J16-Sa-8-1x is a Late Roman bronze coin (AE3), and J16-Sb-8-13 is a Maiorina of Constantius Gallus minted in Siscia (351-354 AD)]. The following evidence also belongs either to the upper fill or to a second phase: the fills (ev. 37, 27 and 35) form a sequence, and from the northern part of the cistern, they reached in a northerly direction, stretching across the cistern (**Fig. 4**). Ev. 37 contained only non-diagnostic sherds and coins. The thin fill layer (ev. 27) covered the Roman mortar floor (ev. 28) and contained mostly small and non-datable sherds, except one Cententionalis of Constantius II (J16-Sb-27-1x) that was minted between 337 and 361 AD. Above this layer, an open fireplace (ev. 26) was found.

In the eastern part of the trench, the fill layer (ev. 35) was the last portion of the fill that covered the fireplace, the cistern fill and the remains of the walls (**Fig. 4**). It contained smaller and bigger sherds of Roman to Late Roman date and a fragment of a Grey Ware basin, which obviously is an intrusion from the overlying younger fill layer (ev. 22). In the west room, the fill (ev. 4) covered the floor (ev. 5) and filled the space between the walls. In addition to some non-diagnostic sherds and two broken vessels (ev. 103 and ev. 104), it contained large amounts of plaster, mortar and tesserae.

According to the dating results in Trench S and in Trench A, the destruction of the building and the filling of the cistern most probably took place in the 3rd or the 4th century AD. The date depends on whether the upper fill layers and the fireplace belong to the original closing phase of the cistern, or whether they belong to a second phase after the cistern had been already closed.

Cooking-Pot Deposits

In the fill layer of Trench A, several cooking-pot deposits were found. The intentional deposition of cooking pots in Trench S differs from the situation encountered in Trench A (Lichtenberger and Raja 2015b). In the fill (ev. 13) of the northern cistern chamber, cooking-pot

deposits are lacking (see **Figs. 3** and **6**). Although a small Late Roman cooking pot (ev. 53) (**Pl. 1.5**) was found between two large blocks next to the staircase (ev. 74), its position and the fact that it was empty attest that the cooking pot was simply thrown into the fill. A similar interpretation is possible for a cooking-pot base (ev. 42) that was filled with ashes and found in the undisturbed fill (ev. 13) between the pilasters (ev. 77b and 77d). In this case, it is more likely that the broken part of a used cooking pot was thrown into the fill than the bottom of a vessel only was deposited. In the backfill outside the cistern, however, cooking-pot deposits are well attested. In the baulk next to the corner of sectors b, e and j, two cooking pots (ev. 32/48 (**Pl. 1.1**) and 106 (**Pl. 1.3**)) were found in close proximity. The pots were positioned upright in a pile of stones that was surrounded by the fill (ev. 35) (**Fig. 4**). The deposited Roman cooking pot (ev. 67) either belongs to the backfill deposits, or it was placed in a foundation fill above the bedrock. Although only a limited area was excavated outside the cistern, the spatial distribution of the deposits seems to indicate that the water reservoir, in addition to the deposits found inside, was also encircled by vessel deposits from outside during the backfilling.

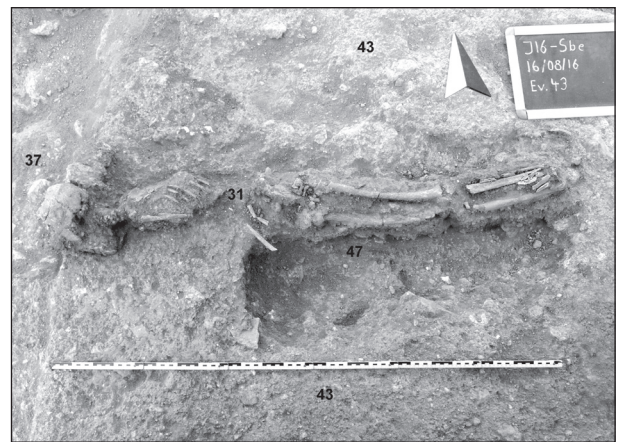
The Islamic Burial

The fill layers (ev. 4 and 35) must have covered the cistern for a while prior to further activities. Stratigraphically, the next context is the fill layer (ev. 22) through which a pit was later dug, and a burial (ev. 31) was placed into the Late Roman fill (ev. 35) (**Fig. 4**). The burial is an inhumation of a young female lying on her right side and facing south, indicating that this was an Islamic burial (**Fig. 5**) (Eger 2015: 255-261, esp. 261). Apart from the bones, only a simple earring made of copper was found in connection with the body. The pit that was excavated for the inhumation was more than twice as wide as the body, and it was filled with a mixture of soil, mortar and small stones (ev. 43), which functioned as bedding for the body (**Fig. 5**). The body was sunk into this bedding (ev. 47) and covered with the previously excavated soil. The upper limits of the burial pit were invisible, whereas its horizontal extension was clearly indicated by the compact bedding (ev. 43), which

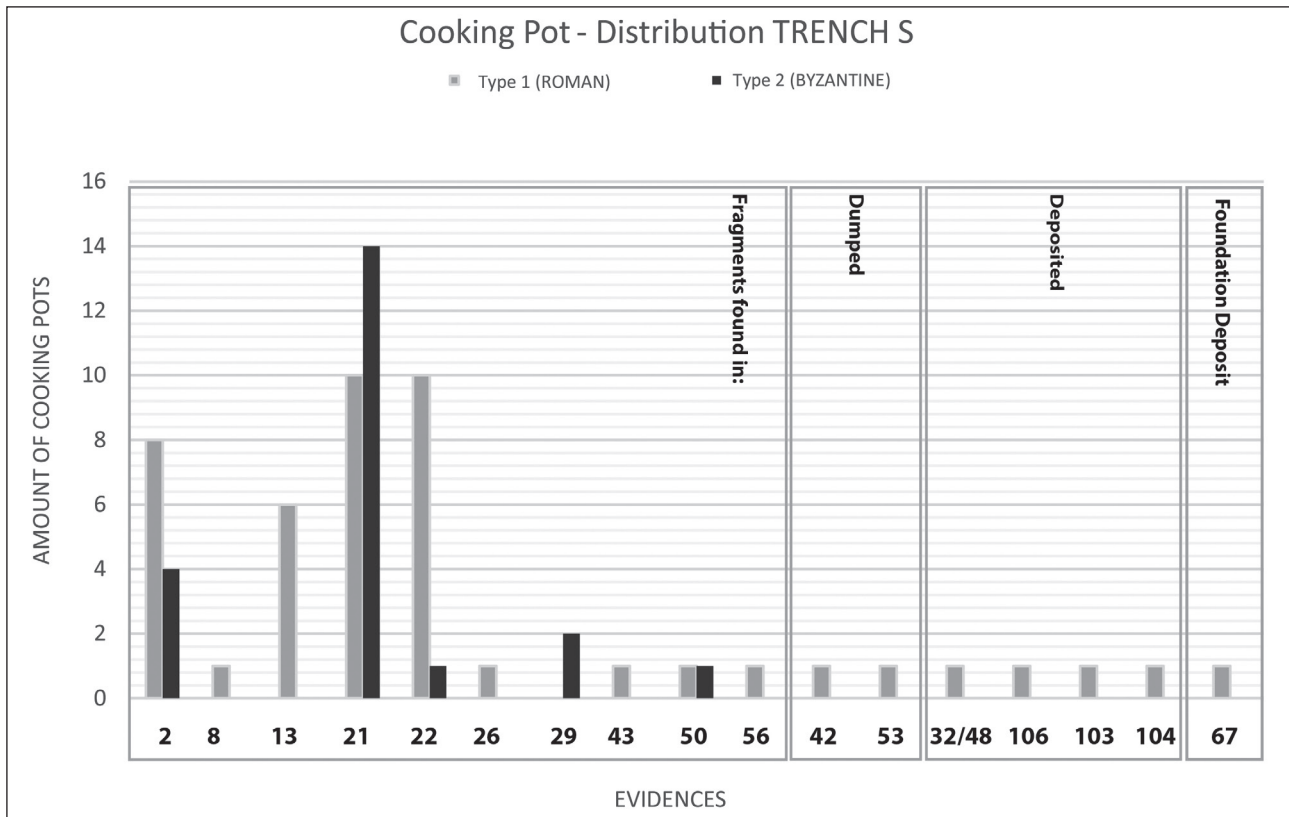
also covered the cistern fill (ev. 37). Since both the Late Roman fill (ev. 35) and the bedding (ev. 43) were covered by the layer (ev. 22), it is most probable that the grave was excavated from the top level of the layer (ev. 22). The covering layer (ev. 22) is an almost 40-cm-thick fill that covers the entire area around the cistern. A Late Roman Amphora 1 (similar to **Pl. 13.72**) and fragments of Grey Ware basins attest that this layer already contained Umayyad material. The long time span between the Late Roman filling activities and the burial must have affected the surface and upper part of the fill (ev. 35), but in the contact zone between the Late Roman fill and the younger fill, a clear boundary was not detectable. The dating evidence inside the burial pit is sparse, because the bedding layer (ev. 43) contained only a few sherds of Roman to probable Byzantine date. The thick layer (ev. 21) above ev. 22 is mixed, and - if not disturbed - was deposited in modern times, as evidenced by a glass marble found in it. Above this follows only the surface layer of the modern soccer pitch. The exact date of the Islamic burial remains unclear. Until 749AD, this area was clearly intramural, which makes it more probable that the burial post-dates the earthquake. Therefore, at this point, it is more likely that the burial is of Middle Islamic date and related to the adjacent Middle Islamic hamlet.

Sector h

Sector h was initially excavated in an attempt to find the north-east corner of the Roman cistern, but later - in this sounding of about 15m² - multiphase structures were unearthed which



5. Trench S, sector e, Islamic female inhumation (ev. 31) above the cistern fill, view from the south.



6. Trench S, graph of the cooking pots and cooking-pot deposits.

spanned the time from the Late Roman to the Umayyad periods (see **Figs. 2-3**).

Phase 1 (Late Roman)

The oldest structure discovered in Sector H is an east–west-running wall (ev. 57) that was built on top of and partly against the bedrock (ev. 68). This wall extends beyond the western limits of the excavation square. Whether it also extended much further east is not clear but depends on the dating of the quarry works that were detected all over this area, leaving steep steps in the lower terrain east of the wall. If the wall is older, it could have extended further east; if it is younger than the quarrying, it should have stopped at the point where the Byzantine retaining wall (ev. 51a) began, and we have to assume that the wall (ev. 57) was set against a similar Late Roman retaining wall. Since the eastern part of the trench was not excavated down to bedrock, this remains unsolved. A door or just an opening in the western part of the wall (ev. 57) seems to have been closed in a later period – or perhaps, it was destroyed when the area was backfilled. The relative date for the wall (ev. 57) is indicated by the younger walls, which were either built

against it or cover it in places. An approximate date is given by the foundation deposit of a Late Roman cooking pot (ev. 67 (**Pl. 1.4**) in the fill (ev. 65). This fill covered the bedrock (ev. 68) as well as pockets of residual clay (ev. 69) and served as the foundation of the mortar and soil floor (ev. 64). However, it also protected the base of the wall (ev. 57). The fill (ev. 65) is therefore contemporary with the construction of the wall (ev. 57), and both belong to the same Late Roman construction phase in which the floor (ev. 64) was installed. The layout and function of this Late Roman room could not be clarified, but it is obvious that it did not belong to the older Roman cistern complex.

Phase 2 (Late Roman or Early Byzantine)

In a later phase, when the wall (ev. 57) was still standing and the floor (ev. 64) was still intact, a short north–south-running wall (ev. 71) was built into the room. This wall does not continue further north, but was set against the northern face of the older wall (ev. 57) and could thus have been part of an added room, or the southern wall of a door giving access to the west. Since no younger floor was found, the

floor of the earlier phase (ev. 64) was used in this phase as well. There are no finds connected with this building phase that help us to specify its date or function.

Phase 3 (Byzantine)

In this phase, the area was considerably altered and the north–south-oriented, two-faced terrace wall (ev. 51a) was installed. Whether this wall covered or replaced an older terrace wall has not been clarified, as it has not been possible to excavate the area where both the fill (ev. 65) and the floor (ev. 64) meet the wall (ev. 51a), without removing the younger wall (ev. 51b). Since the two-faced retaining wall (ev. 51a), however, was built against and on top of the remains of the wall (ev. 57), the fill (ev. 65) as well as the floor (ev. 64) must have been cut when it was built. The function of this more than 25m-long wall was to establish a terrace and to retain the higher area west of it. This was necessary, since the bedrock east of the terrace lies some 3.5m deeper (see **Fig. 1**). The steepness of the terrain was most probably caused by the open quarry work, which underlay the younger structures on the hilltop. A possible reason for the construction of this terrace wall is the establishment of the more than 70m-long, rectangular building complex located south-east of the terrace (see **Fig. 1**). The results of Trenches C, D, E, J and T attest that this complex was built in the Byzantine period and was in use until the earthquake of 749AD.

The west side of the terrace wall was first filled with a backfill and foundation layer (ev. 56), which covers the floor (ev. 64) and also contained debris and larger stones - like a cubic marble block (ev. 63). On top of this, another layer (ev. 50) was deposited in order to fill and level the area west of the terrace wall. Ev. 50 consists of a looser, brownish soil but contains larger stones as well. Both layers were laid against the back of the terrace wall (ev. 51a). The two-part division of the terrace fill west of the wall (ev. 57) seems to correspond with the two succeeding fill layers (ev. 22 and 21) above the cistern. However, the composition and dating of the layers show that only the upper layer (ev. 50) corresponds with the lowest post-Roman layer (ev. 22) above the cistern, and that the lower foundation fill (ev. 56) did

not reach the area around the cistern. The finds in this layer (ev. 56) are chronologically homogeneous and stem from the Byzantine period. The covering fill (ev. 50) holds more and mixed finds ranging chronologically from Roman to Late Byzantine/Umayyad times. The top of the upper fill (ev. 50) was disturbed, firstly, by the construction of the younger wall (ev. 51) and, secondly, by modern soil movements associated with the installation of the soccer pitch.

Phase 4 (Umayyad)

In this phase, an additional wall face (ev. 51b) was built into the upper part of the terrace fill (ev. 50) against the Byzantine terrace wall. Finds from the upper part of the terrace fill (ev. 50) suggest that this took place in Umayyad times. Of this wall, only the lowermost stone course was preserved, and it follows the visible part of the Byzantine terrace wall. Both walls were covered by top soil (ev. 1), which is contaminated by modern objects down to the top of ev. 50.

Correlating the results in both parts of Trench S, it is obvious that the area above the covered cistern was not occupied by building structures in a later period, and that the accumulation of post-Roman fill layers in the cistern area was caused indirectly by the construction of the large, rectangular Byzantine building complex, which required the construction of the terrace wall (ev. 51a) (see **Fig. 1**).

Trench T

Trench T was laid out across the north-western corner of the so-called Ionic Building. This building is an almost square courtyard house constructed in Middle Islamic times above the ruins of a Byzantine-period complex (see **Fig. 1**) [Trench supervisor was Jesper Vestergaard Jensen. The trench covers about 80m² in total]. The trench included interior parts of the building as well as exterior areas in order to examine remains of the Middle Islamic phase and the remains of the earlier complex, which is known to have been located here from earlier years' excavations (**Fig. 7**).

The Ionic Building was roughly rectangular, measuring 23.4×19m. It formed the main feature of a Middle Islamic hamlet in the centre of the Northwest Quarter (Kalaitzoglou, Lichtenberger



7. Trench T, excavated structures.

and Raja 2013; 2017). The Byzantine complex was a large, rectangular structure (75×35m), the exact function of which is not determined yet. The complex had been partly reused in the Umayyad period and was destroyed by the earthquake of 749AD. The main aim of Trench T was to further investigate the date and the function of the Middle Islamic house.

Earlier years' excavations had included Trench C, in the south-western corner of this building, which was explored in 2012 (e.g. Kalaitzoglou, Lichtenberger and Raja 2013: 68-75, figs. 15-21). The Middle Islamic structures in this trench had already been partly destroyed by illicit excavations, which had led to almost all remains of younger phases being removed. A circular bottle-shaped cistern and some structures of Byzantine to Umayyad date remained intact, but these had

been excavated and backfilled already in Middle Islamic times. Therefore, both the older Byzantine to Umayyad and the younger Middle Islamic remains in Trench T should provide us with sufficient data for a closer dating of the occupation phases. Trenches C and D, excavated in 2013, covering the north-eastern and south-western corners of the same building (Kalaitzoglou, Lichtenberger and Raja 2017), had added important knowledge of both phases.

North of the northern wall, an undisturbed kitchen room was excavated, which dates back to the Byzantine period and was destroyed by an earthquake in Umayyad times. Inside the limits of the courtyard house, the remains of this earlier phase were destroyed and removed to establish the later Middle Islamic house. Above a deliberate backfill, two succeeding levels of simple clay

floors were detected in Trench D, but they were partly lost due to erosion. The finds associated with these floor levels were therefore too scanty to establish a clear chronological sequence, but it was, nonetheless, obvious that this building had gone through several alterations over time. The new Trench T was therefore laid out to contribute to our knowledge of the Middle Islamic phases and deliver further information about the older Byzantine and Umayyad phases.

Building Phase 1 (Byzantine to Umayyad)

In sector b, immediately north of the Middle Islamic courtyard house, an additional small room was found, which measured 3.6×3.1m. Since no walls were detected leading west, neither from this room nor from the long west wall (ev. 2), it is apparent that the western end of the huge Byzantine complex had been reached. The existence of another room, situated east of the north-west room, is indicated by the door (ev. 63) in the eastern wall (ev. 62) of the excavated room and by an additional north-south-oriented wall at a distance of 3.75m (see **Figs. 1** and **7**).

Excavation of Trenches D and E had already shown that the north side of the more than 70m-long complex was flanked by a row of smaller rooms. Although excavation did not go beyond floor level, it is probable that the north-western room was also constructed on top of worked bedrock that relates to an older stone quarry. The room was delineated by four walls, with a thickness of between 0.5-0.6m. The southern wall (ev. 3a) of the room is an extension of the long, but relatively narrow, north wall (0.7m) of the entire complex (**Fig. 1**). This wall is in line with the sections already unearthed in Trench D (ev. J13-D-5) and Trench E (ev. J13-E-2a). The west wall (ev. 28) and the east wall (ev. 62) of the north-western room were probably built against this wall. It was not clarified whether these walls bind into the south wall (ev. 3a), because the areas in which these walls meet the southern wall were covered by a younger wall (ev. 3b) and were therefore not excavated. However, the north wall (ev. 61) binds into both walls, suggesting that the room was constructed in a single event.

Two doors were found: a door (ev. 65) with a threshold (ev. 77) was situated in the eastern part of the northern wall (ev. 61), and a second door (ev. 63) was positioned in the southern

part of the eastern wall (ev. 62), giving access to the room located eastwards. Both doors opened to the south, to the inside of the room. As in Trench D, there was no connection between the rooms north of the long wall and those south of it. Associated with this room was a mortar floor (ev. 76) and some stone steps (ev. 78), both set against the threshold of the northern door. Since the floor (ev. 76) was set against both the stone steps (ev. 78) and the threshold (ev. 77), the flooring must belong to the last phase of the room. Since the excavation did not go further down inside the room, it is unclear whether or not the mortar floor (ev. 76) covers an older floor. However, also in the kitchen in Trench D, only one floor was found above bedrock.

Compared with the kitchen in Trench D, the north-western room was about 1.7m shorter but extended about 1m further to the north. No window was found in this small room, which was built against the northern wall (ev. 3a) of the huge complex. Together with the adjacent room, a unit of two rooms of about 8.5m in length was once situated at the north-western end of the complex. It is obvious that, although the small rooms were set out in a row along the north wall of the complex, the rooms varied in their dimensions and did not, in their original shape, make up an even north façade.

At its western end, the north wall (ev. 3a) formed a corner with the wall (ev. 2). This wall was much thicker (approximately 1.05m) and constituted the western boundary of the complex, continuing for at least 26m to the south [In Trench C, this wall rests on bedrock, and in the 2012 campaign, it was labelled ev. J12-C-54a]. Inside the complex, only few traces of Byzantine structures were discovered; all remaining walls and floors seem to belong to the Middle Islamic building phases. At a distance of only 1.45m and parallel to the north wall (ev. 3a), the remains of a 1.0m-thick wall (ev. 68 and 82) were unearthed. This wall was covered by the younger wall (ev. 4), and its western continuation was cut at some point, so that it does not meet the west wall (ev. 2). Although this wall continues further to the east, below the Middle Islamic structures, it is not possible to determine what kind of room or structure this massive wall belongs to. The distance of only 1.45m between the wall (ev. 68/82) and the northern wall

(ev. 3a) points to this having been a corridor between the two walls. A row of square beam supports found in the southern face of the north wall (ev. 3a) must have belonged to a second floor inside the building, since they are placed too low to correspond with the Middle Islamic floor levels. However, no finds were related to this first building phase, but the condition of the walls and the alterations and overlying layers prove that this building complex was in use until it was destroyed by a heavy earthquake, probably the earthquake of 749AD.

Building Phase 2 and Earthquake Destruction (Umayyad)

The only discernable alteration in the second building phase is the construction of a wall (ev. 81) blocking the eastern door (ev. 63) of the north-western room. Thereafter, the neighbouring room was not accessible from the north-western room. This leads to the conclusion that the neighbouring room had a northern or an eastern door leading outside or into another room further east. The floor (ev. 76) was still in use when the rooms were separated.

This building phase was destroyed by an earthquake. This explains why the walls are in bad condition and bulging in a south-eastern direction. The thin soil layer (ev. 75) covering the floor (ev. 76) contained a mixture of fragmented pottery sherds ranging from Roman to Byzantine/Early Umayyad date, including an imported Late Roman C bowl of 5th century production (Pl. 4.30), late Byzantine/Early Umayyad basins (Pls. 5.36 and 6.41) and two intact Jarash lamps of 6th/early 7th century production (Pls. 16.89 and 17.92). The late Byzantine to Umayyad date seems to correlate with the finds from the thick debris layer (ev. 72) of compact yellowish soil (ev. 72) and tumbled stones (ev. 80). In this undisturbed debris layer, fragments of tableware, cooking and common ware, and transport vessels were found, all Umayyad production. It is therefore likely that this part of the building was destroyed in the earthquake of 749AD.

Building Phase 3 (1st Middle Islamic Phase)

Several hundred years after the earthquake, a large square courtyard house (the Ionic Building) was constructed over the ruins. For the

construction of this 23.4×19.0m building, the terrain was cleared and levelled, and new walls were constructed to support the reused older walls and create the new interior rooms. Against the old north wall (ev. 3a), a new and slightly thinner wall (ev. 3b) was set against the wall from outside. It covered the joins of the older room walls (ev. 28 and 62) with the older north wall (ev. 3a). Although such an additional wall is lacking in Trench D, a similar situation was encountered further east in Trench E where, in Middle Islamic times, walls were set against and on top of older walls (see Fig. 1) (see the preliminary field report of the 2013 season: Kalaitzoglou, Lichtenberger and Raja 2017). At a distance of about 3.5m east of the west wall (ev. 2), the long wall (ev. 4) was built, running from the south against the older north wall (ev. 3a), which formed the inner wall face of the new massive north wall. Although the wall (ev. 4) looks like one of the oldest structures, it does not belong to the Byzantine phase because, in Trench C, the same wall rests on a fill above bedrock and older structures (*cf.* Kalaitzoglou, Lichtenberger and Raja 2013: 72, figs. 19-20, ev. J12-C-15). Between the west wall (ev. 2) and the newly built wall (ev. 4), a long rectangular room was created along the western side of the house, with a length of 9.3m and a width of 3.4m. The length of the room is given by a wall with a door south of the trench, which connects the walls (ev. 2 and 4). In the middle of the east wall of the west room, a door (ev. 8) with a threshold (ev. 73) was built, which opens into the room. This seems to be the layout of the north-west corner of the house in the first Middle Islamic building phase, and it corresponds with the elongated room already excavated on the opposite side in Trench D (see Fig. 1). Associated with these structures is a thin mortar floor (ev. 71) inside the oblong east room, which was set against the threshold. The older wall (ev. 68/82) was not completely removed or cut down to floor level, but it was built over by the wall (ev. 4) (see Fig. 7), indicating that this wall was planned to be integrated into the new ground plan – probably as a boundary, separating a small northern compartment of 1.36m in depth from the rest of the long room.

Outside the building, three different parts of a single walk-on level were found. Immediately

west of the house, this compact yellowish soil layer was identified and labelled ev. 54 and 55. North of the building, this layer lies at a slightly higher level – above the capstones of the Byzantine/Umayyad north-west room – and was heavily destroyed by the stone debris of the abandonment deposits that accumulated on top of the walk-on level. It is likely that the levelled walls of the older rooms served as retaining walls for the new walk-on level that was installed along the sloping northern side of the courtyard house. However, two *tabuns* (ev. 27 (Pl. 15.85) and 39) installed on top of each other, on top of the deliberate fill consisting of stones (ev. 79) and soil (ev. 35), confirm that the top of this underfloor terracing (ev. 35) marked the walk-on level in this area, above the ruins of the Byzantine north-western room (see Fig. 9). Furthermore, the later *tabuns* attest that the same walk-on level was in use throughout the Middle Islamic phase.

The layout of the first Middle Islamic building phase east of the long west room is unknown, since this area was not excavated down to bedrock, in order to preserve the younger structures. Nevertheless, the excavation in Trench D proved that, on the eastern side of the house, a similarly elongated east room was situated (see Fig. 1). This suggests, for the courtyard house, a more or less symmetrical ground plan in its original layout.

The dating of this layout relies on the finds belonging to the construction fills, which were uncovered exclusively outside the house, above the Umayyad destruction deposit (ev. 72/80) and inside the house under a later kitchen east of the elongated west room. The bulk of finds in the terracing deposit (ev. 35) inside the older north-west room are Umayyad but also include an earlier Byzantine and one Late Roman coin. A concentration of pottery (ev. 66) was embedded into the fill (ev. 35) and exclusively contained sherds of Umayyad date (Pls. 1.8, 2.13, 10.56 and 10.59). A large fragment of Handmade Geometric-Painted Ware (HMGPW) in ev. 35 (Pl. 15.81) shows that this backfill was brought in only in Late Ayyubid to Mamluk times.

Inside the house, a terracing deposit was only reached east of the wall (ev. 4) and below the floor-foundation fill of the later kitchen in

the east room. Also this fill (ev. 52) held a mixture of older and younger finds – for example, a metal hook with the remains of a chain (Pl. 23.139), but the youngest objects are three painted Middle Islamic sherds datable between 1250-1300AD and 1300-1400AD (Pls. 14.75 and 15.80).

Building Phase 4 (2nd Middle Islamic Phase)

Characteristic of the second Middle Islamic building phase is the alteration of the interior layout of the Ionic Building. The floor level inside and outside the elongated west room was raised about 0.45m. Above the fill layers (ev. 70 and 67) and the concentration of larger stones (ev. 74), a thin mortar floor (ev. 64) was constructed. In the door, the fill layer (ev. 69) covered the threshold to the same level. This considerable lifting of the floor level necessitated a remodelling of the door opening, which was now too low in height. As it was impossible to raise the door lintel, the entire wall (ev. 4) had to be made higher which – in turn – would have necessitated the lifting of the roof. Thus, the installation of a higher floor level in the west room points to an extensive reconstruction of at least the western part of the house. Since the area east of the wall (ev. 4) was not excavated to a corresponding level, the extent of this reconstruction remains unclear. However, a remodelling of this area is highly probable because the new floor level extended above the fill (ev. 69), also in an easterly direction. This must have caused the same problem of raising the threshold and lintel levels in the adjacent doorways.

The bad state of preservation of the threshold (ev. 73) in the door (ev. 8) seems to indicate that it was used for a fairly long time prior to the reconstruction. The thin fill layer (ev. 70), which covers the older mortar floor (ev. 71), contained only older objects of Late Byzantine to Umayyad date, but the covering fill (ev. 67) held a fair quantity of Middle Islamic pottery whose youngest date is probably early Mamluk (Pl. 14.78) [apart from Roman to Umayyad pottery and a few Late Roman coins and some jewellery (see pl. 22.124), the excavated part of the fill contained seven painted, one green-glazed, 26 slipped unpainted Middle Islamic sherds and one fragment of a storage jar].

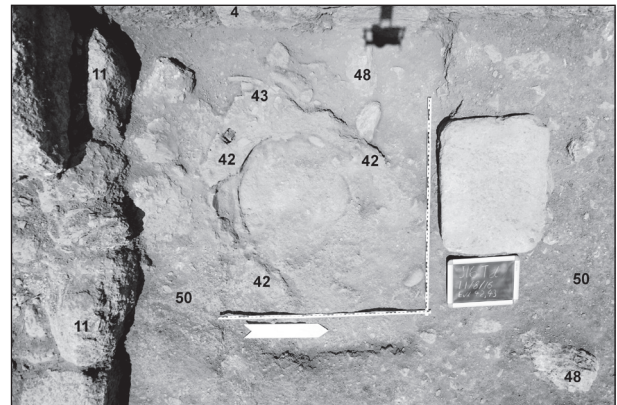
Building Phase 5 (3rd Middle Islamic Phase)

In this phase, further massive alterations of the interior layout of the house took place. Of these activities, more evidence is detectable in the west room, such as the raising of the floor level by another 0.4m, connected with the installation of a new threshold in the door (ev. 8) as well as the construction of a bench along the west wall (ev. 2). East of the west room, a new room was established with a high floor level, which served, most likely, as a kitchen. South of it, a hallway was established with a walk-on level corresponding to the floor level inside the west room.

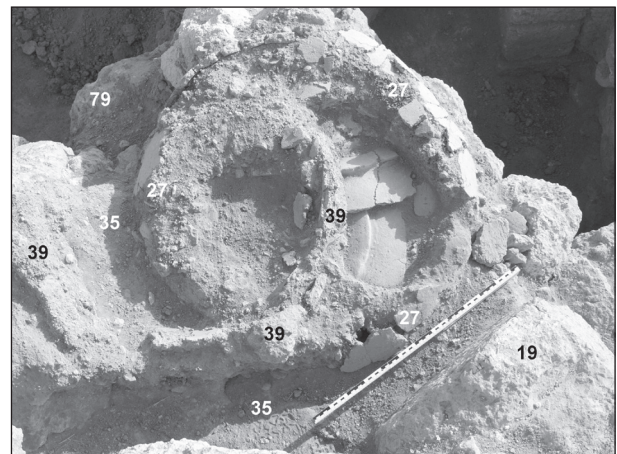
The building sequence can be described as follows. First, into the door (ev. 8) and into the upper part of the earlier floor (ev. 64), a long rectangular stone (ev. 36/58) was set, which served as the new threshold of the door. On top of the older floor, a stone foundation was placed, and on top of it, a bench-like structure (ev. 24) was built along the inner side of the west wall (ev. 2/6). The bench was not built with massive masonry, but the approximately 0.2m wide gap between the bench and the wall was filled with soil and small stones (ev. 25). The interior of the room was then partly filled (ev. 60), and stone steps (ev. 38) were set against the new threshold (ev. 36/58). The backfill (ev. 60) served as a foundation layer for the new, compressed clay-soil floor (ev. 37), which covered the Byzantine wall (ev. 82). The area east of the west room seems to have been excavated down to the deliberate fill (ev. 52), and then the area was also covered with a layer of soil (ev. 50) and stones (ev. 48 and 51), on top of which a thick wall (ev. 11) was built. The wall (ev. 11) is about 3m long and up to 1.1m thick and is set from the east against the northern side of the door (ev. 8) in the wall (ev. 4). It forms the southern boundary of a new room established north of it. Between the eastern end of the wall (ev. 11) and the north wall (ev. 3a), a wall (ev. 57) just 0.45m thick was constructed, which forms the eastern limit of the room. Of this wall, only the lowermost course of stones was preserved, but it is most likely that a door was situated close to its northern end. Although south of the new east room, above the fill, a simple clay floor was laid (ev. 59), the interior of the new east room was filled up to a higher level, above the

remains of the Byzantine wall (ev. 68). The remains of two successive *tabuns* (ev. 43 and 42) on top of the fill (ev. 50) (**Fig. 8**) prove that this room was used as a kitchen, and furthermore, they indicate that, on this level, a simple clay floor was situated, of which the larger part was destroyed by tumbled wall stones (ev. 16) or by erosion (on the term '*tabun*', cf. Ebeling and Rogel 2015).

Although the excavation reached the fill layer (ev. 52), an earlier floor was not found beneath the kitchen. South of it, in the newly created hallway, a sequence of floors and foundation fills corresponding with the west room sequence is discernable, if the fill layer (ev. 69) and the correlating floor levels (ev. 37 and 59) are taken into account. It is thus probable that this sequence was removed in the northern part when the kitchen was built. That the kitchen is a younger addition is also indicated by the wall structures situated further east (see **Fig.**



8. Trench T, sector d, older and younger *tabun* (ev. 43 and 42) inside the Middle Islamic courtyard house.



9. Trench T, sector b, older and younger *tabun* (ev. 27 and 39) outside the Middle Islamic courtyard house, view from the south.

1). There, the remains of a room are visible at ground level with a round pillar base. Since its massive southern wall is not in line with the south wall of the kitchen (ev. 11), it is impossible to install a door between the two walls. One gains the impression that this room was originally longer, and that the pillar base situated in the centre before the western end of the room was dismantled.

A date for this last building activity is given by the youngest artefacts found in the floor foundations. The foundation fill (ev. 60) below the new floor (ev. 37) contained not only worn Byzantine- to Umayyad-period sherds, but also larger pieces of Middle Islamic pottery (Pl. 14.78). Contemporary with this fill is an assemblage of six large Middle Islamic vessel fragments, which were laid against the new threshold (ev. 36/58). All examples are of HMGPW. In the fill (ev. 50) below the kitchen, among the older pottery, only a few Middle Islamic sherds were found, which cannot be dated accurately (Pl. 15.83). Into the top of the hallway floor (ev. 59), three fragments of Middle Islamic pottery were embedded, among which was a single piece of Middle Islamic Green Glazed Ware.

After this last occupation phase, the house was abandoned and natural decay started. The floors inside the house and the walk-on levels outside the house were covered by several abandonment deposits mixed with debris of the walls [The evidences are given in stratigraphic order: in the hallway: ev. 17 (soil) with ev. 18 (stones); in the kitchen: ev. 47 (soil) and ev. 13 (soil) with ev. 16 (stones); in the west room ev. 41 (soil), ev. 26 (stones), ev. 10 (soil) with ev. 15 (stones) and ev. 7 (soil); west of the house: ev. 21/45 (soil) with ev. 33/49 (stones) and ev. 22 (soil) with ev. 23 (stones); south of the house: ev. 29 (soil) with ev. 34 (stones) and ev. 19 (stones) with ev. 20 (soil)]. Most of the deposits were affected by erosion, and the uppermost layers were disturbed in modern times. For example, a small piece of plastic was found in ev. 20. The datable finds from the largely undisturbed lower deposits help to estimate the duration of the last utilization phase. The youngest pottery in the soil layer (ev. 13) above the kitchen floor stems from the Mamluk (Pl. 14.74) to Early Ottoman periods (Pl. 15.84). In the layer (ev. 10) above the west room floor

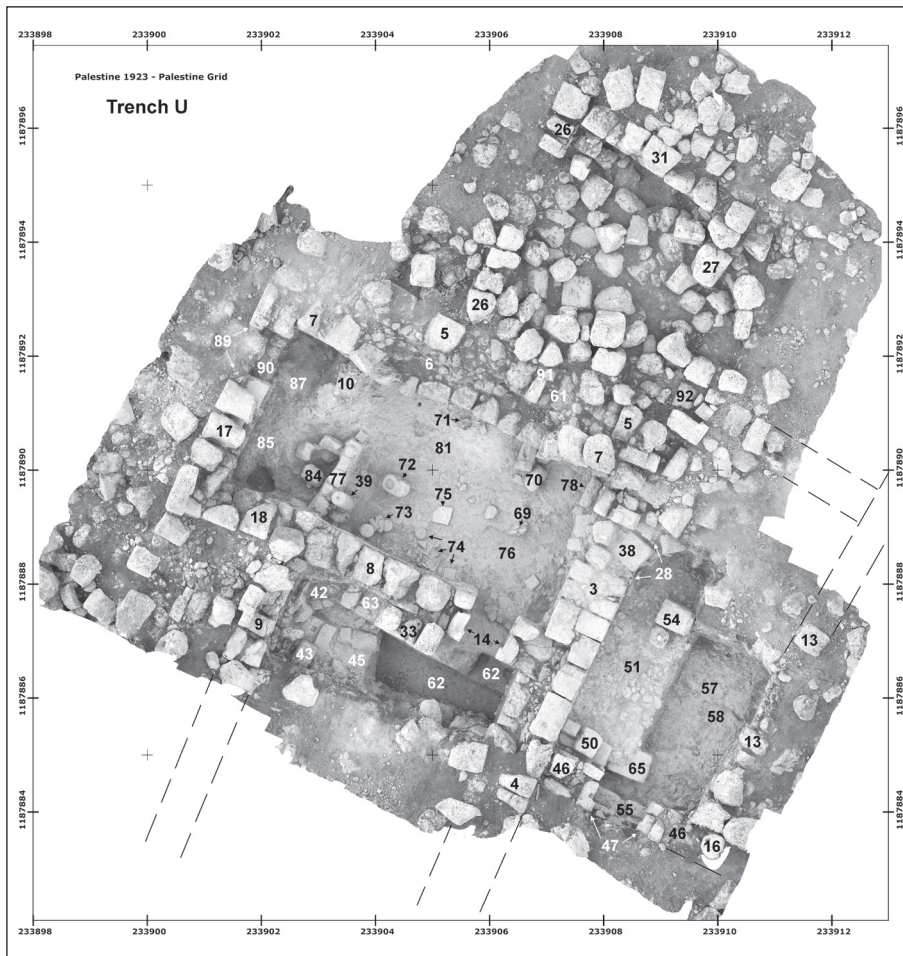
(ev. 37), fragments of two large bowls were found which can be dated to around 1400AD and later (similar bowls: Pl. 14.77-78). It is therefore likely that the courtyard house was in use until the end of the Mamluk or beginning of the Ottoman period before it was abandoned.

Among the numismatic finds in Trench T, not a single coin of the Middle Islamic period came to light. Since a reliable chronology for the Middle Islamic common wares and for the Handmade Geometric-Painted Wares is not yet established, a precise dating of the building phases is not yet possible. A series of samples for radiocarbon dating was taken. The analysis is underway, and we hope to refine the pottery chronology for the Middle Islamic period based on these new data.

Trench U

The aim of Trench U was to explore a section of the western part of the south slope [Trench supervisor was Gitte Lambertsen Hjortlund]. The trench was laid out over a building north of the so-called South Street, and this building was connected to a long wall, which was part of a larger building complex (see Fig. 1). The building was part of the residential complex situated on a terrace, which was limited to the south by the South Street and extended in an easterly direction to the large Roman cistern and along its northern edge (see Fig. 1). Immediately west of the building in Trench U, a steep slope was situated. This must originally have been retained and stabilized by walls. About 7m north of the building, another east-west-oriented terrace was situated on a higher level. The elongated rectangular core of the house was north-south oriented and L-shaped. It measured about 13m in length and was up to 6m wide. It was divided into at least a northern room, the so-called north-western room, and a southern room. An eastern and another northern room were added in later phases. Of this building complex, only the northern part of about 90.2m² was excavated. The division by sectors a to d was laid out according to the known rooms, which were already visible on the surface (Fig. 10).

Since the residential area along the South Street had already come to light in Trenches L and O, dating exclusively to the Byzantine period, it seemed probable that the building remains



10. Trench U, excavated structures.

north of the street would also stem from this period. Similar to the trenches further east, it became obvious that the building complex in Trench U went through several phases. However, these covered exclusively the Umayyad period.

Open Quarry Work

Like in other trenches, especially on top of the hill, the walls were built on top of bedrock-cut walls or in areas where the bedrock had been levelled (Kalaitzoglou, Lichtenberger and Raja 2013; 2017). These rock dressings obviously belonged to an older stone quarry situated here, since they predate the construction of the house. This situation is underlined by a vertical step with a height of about 1.08m between the west and the south room of the core building. The higher floor level of the north-west room (617.01m asl) was neither accessible from the bottom of the levelled rock (615.94m asl), nor were traces of a rock-cut or built staircase found in the south room. Since no contexts

were unearthed which have been connected with the quarry activities, only a relative date of the quarry can be established, predating the construction of the Umayyad building complex.

Building Phase 1 (Early Umayyad)

In the first building phase, most probably only the core building was established. It consisted of at least two main rooms divided by a wall (ev. 8). The communication between the two rooms was provided by a door (ev. 14), which was situated in the eastern part of the wall (ev. 8). The elongated south room stretches between the walls (ev. 4 and 9). It is 7.15m long and 4.2 to 4.7m wide. About 5.2m south of the wall (ev. 8), a door is situated in the western wall (ev. 9) of the south room, and it is probable that, in the opposite wall (ev. 4), an additional door was situated, but the southern part of the room was not excavated (see **Fig. 1**). The north-western room was rectangular in shape and extended further west beyond the line of the western wall of the south room (ev. 9). In its original

layout, without the later-added wall (ev. 7), the room measured about 6.15m in length and 3.4-3.5m in width. All the walls and rooms of this phase were built on top of quarry walls and levelled bedrock areas. For unknown reasons, especially the eastern wall (ev. 3 and 4) is about 1m thick and thus much stronger than the north wall (ev. 5: 0.7m) or western walls (ev. 17: 0.7m and ev. 9: 0.65m). Even the dividing wall (ev. 8) between the west and south rooms is only 0.75m thick, and the same holds for its western extension (ev. 18). Since the thickness of the walls does not correspond with the rock steps, it is possible that the building was initially planned to be separated from the eastern part of the building complex.

In this first building phase, three doors (ev. 14, 28 and 89) gave access from three directions into the north-west room, and a window (ev. 91) situated in the eastern part of the north wall (ev. 5) provided the room with light (**Fig. 10**). In later stages, the eastern (ev. 28) and western (ev. 89) doors were blocked as well as the window (ev. 91). None of the doors had thresholds, indicating that wooden frameworks were used in the door openings.

Two floors can be assigned to the first building phase. The floor of the west room consisted, in its northern part, of the levelled bedrock surface (ev. 81 and 85) and, in the other parts, of a mortar layer (ev. 76 and 87) with some embedded stone slabs, which covered either the bedrock or, in the western part, a thin layer of residual clay (ev. 82) in the rock depressions. While the mortar floor (ev. 87) in the western part of the room was badly damaged and preserved only in patches, the mortar floor in the eastern part (ev. 76) must have been renewed, at least partly, since small areas are preserved, running against the base of the younger wall (ev. 7). The floor in the south room consisted of a thin mortar layer (ev. 66), which was laid partly on top of the upper bedrock edge (ev. 62), and it covered a thick fill deposit of soil (ev. 45) and stones (ev. 67) above the deeper parts of the bedrock (ev. 62). Although this floor, too, was preserved only partly, being badly damaged by the collapsed walls, it is certain that this was the only floor, and that it was set against the pilaster (ev. 33), the niche (ev. 63) and the basin installation (ev. 43) (**Fig. 10**). These installations

must therefore belong to the first building phase as well.

The wall-like pilaster (ev. 33) with a length of 1.15m and a width of 0.45m was built from the south against the middle part of the wall (ev. 8) (**Fig. 10**). It is probable that it supported an arch spanning from north to south. The pilaster (ev. 33) rests on bedrock (ev. 62), and against its western side, a niche-like structure (ev. 63) was constructed. Both the niche and the pilaster were covered by the plaster (ev. 37). The niche (ev. 63) most probably belonged to an installation west and south of it. There, in front of the walls (ev. 8 and 9), a rounded basin was situated, which was surrounded by a layer of stones (ev. 43) connected by mortar (ev. 44). The inside of the low basin was lined with plaster (ev. 42), which was set against the wall plaster (ev. 37). This shows that the basin was lined with plaster after the pilaster (ev. 33) and that the niche (ev. 63) had been built and covered with the wall plaster (ev. 37). Since the stones (ev. 43) around the basin, however, were set into the top of the fill (ev. 45), and because the floor (ev. 66) was set against these stones, it is certain that the basin as well as the niche and the pilaster belong to the same construction process. The purpose of such an installation, comprising a built niche with a flat base and a rounded basin sunk into a stone base above the floor, is not clear. Since the floor (ev. 76) shows traces of a renewal, none of the installations in the north-west room can be assigned to the first building phase with certainty, but it is likely that the low banister wall (ev. 77/83), which separates a larger eastern compartment from a smaller western compartment, belongs to the first building phase. This wall rests on bedrock (ev. 81) and was set directly against the wall (ev. 8). Both walls were then lined by wall plaster (ev. 24), against which the mortar floor (ev. 76) was laid. If only the northern part of the floor was renewed, the banister wall must belong to the first building phase.

A date for the construction of the core building is given by the foundation fill (ev. 45). The fill (ev. 82) under the mortar floor (ev. 87) in the western part of the north-west room contained no datable objects. The fill (ev. 45) had to protect the base of the wall (ev. 4), which is the southern part of the east wall (ev. 3/4), and

it was built on top of the bedrock (ev. 62) along the upper edge of the 1m-high rock wall. In this foundation fill, below the floor level (ev. 66), pottery sherds, tiles (Pls. 18.101 and 19.104) and coins were found. The youngest sherds stem from the Late Byzantine to Umayyad periods (similar to Pl. 6.42), and as well as two Minimi, a pre-reform Umayyad fals was also found [J16-Uc-45-2x. It is an Umayyad pre-reform fals of phase 1 (Pseudo-Byzantine). J16-Uc-45-4x is a Late Roman Minimus, and J16-Uc-45-5x is a Minimus of undetermined date]. If this Umayyad backfill (ev. 45) is not the restoration of an older fill, the building complex must have been constructed in (early?) Umayyad times. Two Late Roman Minimi and a Byzantine coin found in the floor foundation (ev. 59) under the oldest floor (ev. 57) in the east room do not contradict this conclusion, since such coins were also in circulation in the Early Umayyad period [J16-Ud-59-1x is a Byzantine Follis of Justinian I, minted in Antioch. J16-Ud-59-2x, and J16-Ud-3x are Minimi of Late Roman date]. An indirect confirmation of the Umayyad construction date derives from radiocarbon dates of the collapsed wall underlay in the western part of the north-western room (Fig. 11). Three radiocarbon dates are available from this destruction deposit (ev. 80). Whereas one is old, both younger ones point to an early Umayyad date [Sample no. 25899 (J16-Uc-80-3), Department of Physics and Astronomy, Aarhus University (Denmark), C₁₄ age 1477±34BP, d13C (AMS) -23.00±1.00, calibration curve IntCal13, 1σ 556-622AD, 2σ 536-650AD (94.3%). Sample no. 25900 (J16-Uc-80-5), Department of Physics and Astronomy, Aarhus University (Denmark), C₁₄ age 1375±47BP, d13C (AMS) -25.00±1.00, calibration curve IntCal13, 1σ 614-679AD, 2σ 582-716AD (89.6%). Sample no. 25901 (J16-Uc-80-8), Department of Physics and Astronomy, Aarhus University (Denmark), C₁₄ age 1788±37BP, d13C (AMS) -26.00±1.00, calibration curve IntCal13, 1σ 145-325AD, 2σ 131-337AD]. Therefore, the collapsed walls must have been built after the youngest radiocarbon date of the middle of the 7th century AD.

The layout of the Umayyad core building was obviously not altered for a long period, and even the addition of the east room caused only minor modifications.

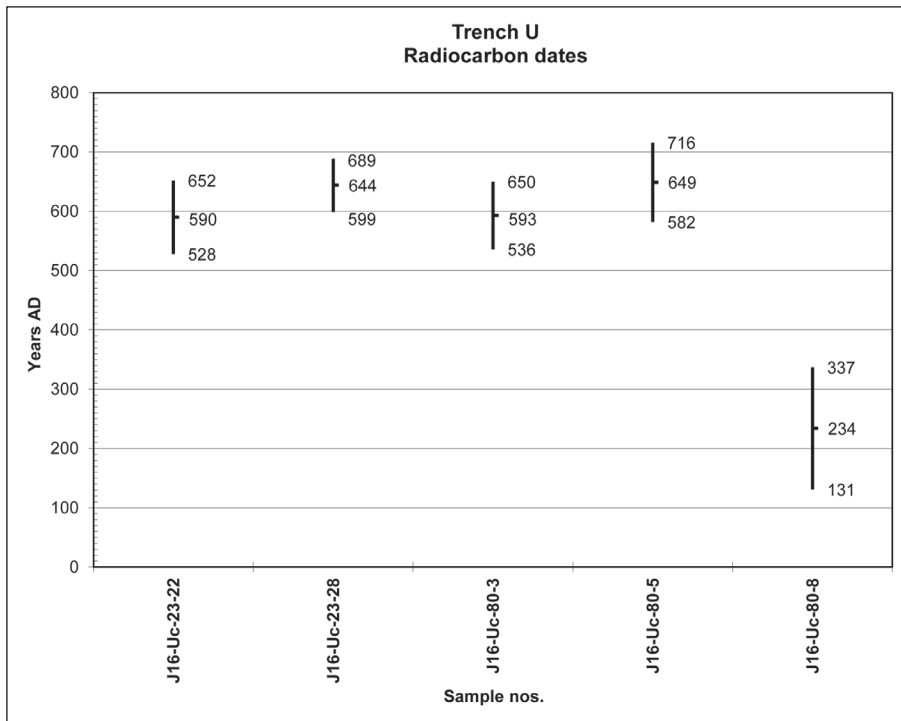
Building Phase 2 (Umayyad)

In this phase, the long rectangular east room was built from the east against the core building. Although only the southern half of the room was fully excavated and, in the northern half, only the surface was cleaned, it is evident that the room was north–south oriented and measured 7.6m by 3.5m. A wall joining with the eastern wall (ev. 13) in its northern half and leading for at least 4.3m in an easterly direction indicates that the east room was also connected to a larger complex extending to the east (see Fig. 1).

Whereas the southern wall (ev. 46) was set directly against the east wall (ev. 3/4) of the core building, the northern wall (ev. 92) bent from the north around the north-east corner of the core building. Both walls were connected by the eastern wall (ev. 13), which shows traces of an additional door. In the south-east corner of this building, an upright-standing column drum was integrated into the wall (ev. 13). Since the same feature was found several times in the Umayyad edifice in Trench V, it seems as if it was a common feature in Umayyad times to integrate column drums into the masonry. The only door (ev. 47) found was situated in the centre of the south wall (ev. 46), with a threshold (ev. 55). Connected with this building phase is a thin mortar layer (ev. 57), which covered both the bedrock (ev. 59) and a layer of residual clay (ev. 59), which filled gaps and depressions in the bedrock. The mortar floor (ev. 57) was not only laid against the walls and the door (ev. 47), but also against the threshold (ev. 55) and a base (ev. 50) in the south-west corner of the room. This base was built of stones and soil and rested on the bedrock. It is likely that it served as a bench next to the door.

In the core building, most probably no alterations took place in this phase. That the western door (ev. 89) was closed in this phase is possible but cannot be proved. According to similar floor levels in the core building and the newly established east room, the eastern door (ev. 28) of the north-west room remained accessible. This door connected the new and the old parts of the house.

A precise dating of the second Umayyad building phase and the construction of the east room is not possible, since only very few finds



11. Trench U, graph displaying the radiocarbon dates.

were associated with the foundation layers and the floor.

Building Phase 3 (Umayyad)

In this phase, the floor level inside the east room was raised. Above the old floor (ev. 57), a fill layer (ev. 56) was laid, and a single stone step (ev. 65) was set into the fill (ev. 56), behind the south door. The difference between the fill (ev. 56) and the top of the stone step (ev. 65) was evened out by another fill (ev. 52). The top of this compact yellowish-brownish fill layer (ev. 52) served as a new walk-on level inside the east room. Although the new walk-on level reached a higher level than the threshold (ev. 55) of the south door (ev. 47), the door was still in use. The gap between the stone step (ev. 65) and the threshold (ev. 55) was filled with a loose, brownish soil (ev. 53). While the east room was still accessible from the south, the passage through the east door (ev. 28) of the west room had to be blocked by a wall (ev. 38). This was necessary because the new walk-on level was higher than the door base. On top of the walk-on level (ev. 52), three short limestone drums were found in front of the east wall (ev. 13). One was positioned horizontally (ev. 48) on the floor, secured by small stones and two very short drums (ev. 49a and b) with differing diameters; these were positioned upright about

0.3-0.4m south of the first drum. The assembly looks like a simple working space in which one could sit on the lying drum and process things on the standing drums. The worn condition of the top sides of the standing drums seems to support this assumption.

In the foundation fill (ev. 56), small and worn fragments of Byzantine and Early Umayyad pottery were found. Amongst them were small fragments of Jarash Bowls and Jarash lamps, as well as tile fragments (**Pl. 18.102**) and notable amounts of mosaic tesserae, of which some were glass. Two Late Roman coins and a Byzantine Follis give a terminus post quem [J16-Ud-56-8 and J16-Ud-56-21 are Late Roman Minimi, probably of the 5th century AD, and J16-Ud-56-9 is a Follis of Justin II minted in year 9 (574AD) in Cyzicus]. Ev. 52, the upper part of the walk-on level, contained highly fragmented and worn sherds of mixed date, ranging from the Late Roman to the Umayyad periods. Fragments of large basins (similar to **Pl. 5.36**) occurred frequently. Therefore, it is possible to conclude that the third phase is an Umayyad phase, postdating relatively the earlier Umayyad phases.

Building phase 4 (Umayyad)

In the fourth building phase, large-scale alterations took place. Against the northern side

of the core of the building and the north-west corner of the east room, a new room was constructed. This north room is delimited by three walls (ev. 26, 27 and 31) and seems to have a single entrance where the western wall (ev. 27) meets the east room (see **Fig. 10**). The construction of the north room must be the reason why a new wall face (ev. 7) was set from the inside against the north wall (ev. 5). This measure stabilized the north wall and, at the same time, closed the window (ev. 91). It is possible that, in the course of these building activities, the west door (ev. 89) was blocked by a wall (ev. 90). It is obvious that, in this phase, access to the north-west room was constricted via the south door (ev. 14) to a passage through the south room. If this observation is correct, the western compartment of the north-west room was used for different purposes - such as cooking. The hearth (ev. 84), made of three stones placed in U-shape against the banister wall (ev. 77/83), would then belong to this phase too (see **Fig. 10**). Further installations on the floor, of so far unknown function, are certainly younger than the wall (ev. 7), since they were set against this wall. Into the newly created north-east corner of the room, a stone structure (ev. 78) was placed, and about 1m further west, a parallel structure of three stones (ev. 70) was set against the wall (ev. 7) and attached to the floor with mortar (ev. 69). Both structures could have belonged together and supported a table. In the mortar (ev. 69), traces of ash and molten lead were discovered.

In the east room, the floor level was raised once again, and above a fill layer (ev. 51) of 0.2-0.3m thickness, a new walk-on level of compressed soil with embedded stone slabs was constructed. Since this layer covered the entire interior of the east room as well as the old threshold (ev. 55) and the stone step (ev. 65), the south door (ev. 47) was no longer in use. The lack of stone debris covering the uppermost walk-on level (ev. 51) argues for a lane or yard that was installed on top of the former east room.

Since most of the contexts yielded no finds, dating the last building phase has to rely on the walk-on level in the former east room. Only very few pottery sherds were embedded into the foundation fill (ev. 51), of which the youngest

were of Umayyad date. However, an Umayyad post-reform Fals, found in the same context, proves that the fourth building phase has to be dated to the first half of the 8th century AD [J16-Ud-51-1x. It is an Umayyad post-reform al-Walid I (705-717AD) Fals of 20 *Qīrāt*, minted in Tabariyya].

Earthquake Destruction (Umayyad, 749AD)

It is obvious from the many destroyed objects found on the floor that the destruction of the building complex happened suddenly (see **Fig. 10**). First, the coating of the walls (ev. 60 and 80) and the roof collapsed. The thick layer of yellowish soil (ev. 23) as well as the embedded stone drum or roller (ev. 39) attest that the house had a flat roof. Since the roller (ev. 39) was found sticking vertically out of the yellowish soil of the collapsed roof, it is obvious that, like in modern times, the stone roller stayed on the flat roof and was used to compact it. In the lowermost collapse layer (ev. 60), fragments of an almost complete chimney were found (**Pl. 19.107**). The same layer covered the crushed fragments of a cooking pot and an amphora (ev. 71) of Umayyad date (**Pls. 2.10 and 11.65**) lying in front of the wall (ev. 7). In front of the opposite south wall (ev. 8), a large broken Grey Ware basin (ev. 74 (**Pl. 7.44**)) was found and, next to it, an assemblage (ev. 73) consisting of a short stone drum (J16-Uc-60-4x) and a broken marble slab with round moulding, both lying on a suspensura brick. Close to the centre of the room, a thin marble slab (ev. 75), broken into two, was found, as well as a worked piece of limestone with round carving (ev. 72), which had fallen from the roof, as evidenced by it being stuck in the roof collapse (ev. 23).

A date for the destruction of the core of the building is given by various evidences. In addition to pottery (**Pls. 3.22, 4.32, 8.51 and 11.60**), tiles (**Pl. 19.107**), stone objects (**Pl. 21.117; Pl. 22.123 and 125**) and metal finds (**Pl. 23.141**) that were covered and sealed by the first layer of destruction debris (ev. 60 and ev. 80), coins and radiocarbon samples are available. In the collapsed layer (ev. 60), both an Umayyad pre-reform Fals as well as an Umayyad post-reform Fals were found [J16-Uc-60-13x is an Umayyad pre-reform fals of phase 2, minted in Skythopolis. J16-Uc-60-6x is an Umayyad post-reform

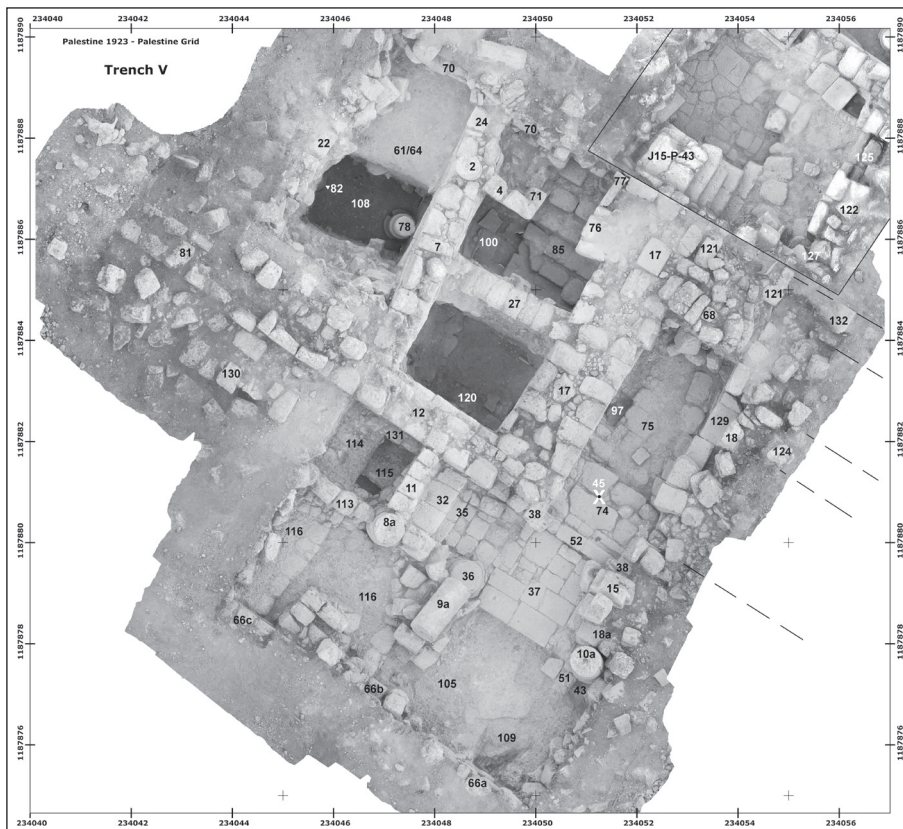
fals, of which only the Shahada is readable]. Well-preserved vessels found *in situ* (Pls. 4.33, 5.34 and 12.67) also date to the Umayyad period. Two charcoal samples taken from the soil of the collapsed platform roof date to the later 6th and mid 7th century AD respectively [Sample no. 25898 (J16-Uc-23-22), Department of Physics and Astronomy, Aarhus University (Denmark), C14 age 1485±49BP, d13C (AMS) -30.00±1.00, calibration curve IntCal13, 1σ 542-637AD, 2σ 429-652AD (429-494AD, 15.8%; 509-518AD, 1.4%; 528-652AD, 78.2%). Sample no. 25897 (J16-Uc-23-28), Department of Physics and Astronomy, Aarhus University (Denmark), C14 age 1382±34BP, d13C (AMS) -21.00±1.00, calibration curve IntCal13, 1σ 625-669AD, 2σ 599-689AD]. It is therefore possible that the collapsed roof of the core building (or at least its wooden beams) stem from the original building process.

Both the north-west room and the south room of the core building, as well as the north room, were covered by a thick layer of collapsed stones (ev. 10 and 30). In contrast, the east room was covered by fewer stones (ev. 2), and in the inside the east room, above the last walk-on level (ev. 51), two thin, succeeding

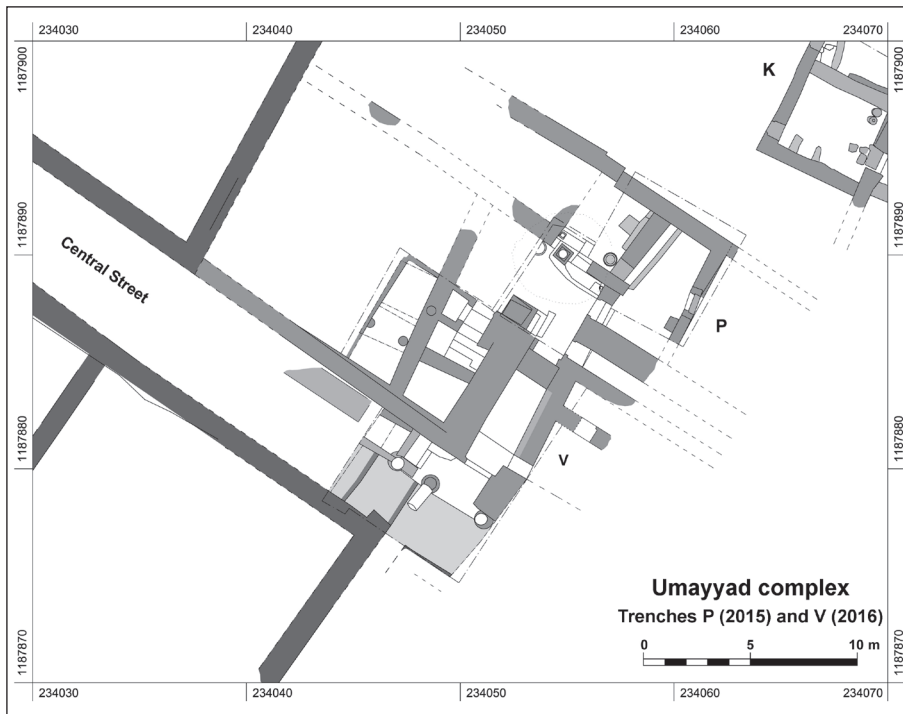
soil layers were unearthed (ev. 11 covered by ev. 12). The youngest coin found in ev. 11 is an Umayyad post-reform Fals [J16-Ud-11-12]. Combining the available evidence, a date in the 8th century AD is most probable for the destruction of the building complex. Since there is no evidence predating the mid 8th century AD, it is likely that the destruction of the building was related with the earthquake of 749AD. There is no evidence for later occupation of this area.

Trench V

With Trench V the exploration of the Umayyad complexes on the so-called East Terrace of the hill was continued (see Figs. 1 and 12) (*cf.* Kalaitzoglou, Lichtenberger and Raja in press; Kalaitzoglou *et al.* in press) [Trench supervisor was Line Egelund Nielsen]. In the 2015 season, the north-east wing of a building and the greater part of its central courtyard were excavated. In the 2016 campaign, the southern and central parts of the complex were explored, adding up to a total of 159.20m² of excavated area (107.66m² in 2016). However, this area covers only parts of the entire building since neither the western nor eastern limits were reached (*cf.* Fig. 13).



12. Trench V, excavated structures.



13. Trenches P (2015) and V (2016), reconstruction of the Umayyad residence.

The north–south extent of the building measures about 17.60m, including a narrow entrance hall (portico) 1.90m in depth on the south side. In an east–west direction the building was traced for about 16.30m, but on the east side at least one row of rooms remains unexcavated. It is most likely that the building extended in a westerly direction as far as a south–west–north–east running terrace–wall. Thus, the maximum east–west extent of the building can be assumed to be 26.00–26.50m, meaning that the excavated part is less than half of the original building.

The interior of the building does not display a symmetrical structure arranged around a central courtyard as earlier assumed (**Fig. 13**) (Kalaitzoglou, Lichtenberger and Raja in press; Kalaitzoglou *et al.* in press). On the southern side, parallel rooms open on to the courtyard. The main entrance was situated on the southern side, and it is the only entrance found until now. Three doors (ev. 125, 127 and 128) as well as three walls (ev. 123, 132 and 124) excavated along the eastern side of the building showed that small rooms and hallways were situated at ground level on this side (see **Fig. 12**). These opened on to the courtyard and led to the adjacent rooms. From these rooms a possible further row of rooms was accessible. The rooms along the northern side of the building turned out to have been smaller than those

on the southern side, but they also opened directly on to the courtyard. It is therefore clear that the courtyard had a rectangular and not a square shape and that the courtyard, although it was not situated in the centre of the building, served as the central point of interchange. The rooms on the upper floors were accessible via a staircase (ev. J15-P-43) situated on the south side of the courtyard, (see **Fig. 12**).

The excavation of the entrance area on the south side showed that the building was oriented with its long side towards the south. Along the south side of the building ran, not only the eastern extension (ev. 12/81) of the Central Street, but south of the street also older building complexes were situated (ev. 66a, 66b and 66c). It is thus apparent that the building was not isolated but integrated into the surrounding building structures. With its western side the building was most probably leaning against the eastern boundary wall of the large rectangular building complex, which occupied most of the hilltop (see **Fig. 1**). The Central Street is traceable over a distance of at least 87m, running towards the complex on top of the hill. Along the southern side of the street, spacious building complexes, which fill the space between the street and the terrace of the so-called Synagogue Church, are situated (Kraeling 1938; Haensch, Lichtenberger and Raja 2016). The area north of the

building was occupied by Umayyad structures; the southern part of one of these buildings was excavated in 2014 (Trench K) (*cf.* Kalaitzoglou, Lichtenberger and Raja 2015, 2021; Lichtenberger *et al.* 2017). Since this quarter was delimited to the west by the high terrace wall of the older rectangular complex, and since the large Umayyad edifice closed the access to the street, it is now apparent that the main way into the Umayyad housing area north of the edifice has to be located either east or north of the edifice. Alternatively, it was accessible by stairs from the west (see **Fig. 1**).

The Umayyad building has three main building phases with sub-phases. Before the edifice was constructed, the Central Street ran where the entrance portico later stood, and south of the street building complexes were situated. Most of the extant structures were erected in the first phase and underwent only minor changes in the later phases. In the second phase, the portico was extended to the west, and in the last building phase only a few floor levels within the building were renewed.

Building Phase 1 (Byzantine)

The oldest structures detected were the walls (ev. 66a and 66c) south of the Umayyad building (see **Fig. 12**). They are most probably contemporary with the eastern section of the Central Street. The wall ev. 66c was built on bedrock (ev. 109). The base of the wall was protected, and the rock in front of the wall levelled, by fill layer ev. 106, which also served as a foundation for the street surface (ev. 105). The street surface (ev. 105) was then set against the northern face of the wall ev. 66c. Since the street surface as well as two steps belonging to the street were also placed against the wall ev. 66a, it is clear that both walls are younger than the street but belong to the same construction phase. Since the street surface (ev. 105) runs under the portico pavement (ev. 37) as well as under the thin foundation layer (ev. 79), it is clear that the entrance of the Umayyad edifice is younger and covered the northern part of the street. An answer to the question of whether the portico was a later addition and whether the street was previously set against the south wall of the Umayyad building was achieved by a deep sounding undertaken west of the portico

(**Fig. 12**). The sounding confirmed that, although the edifice south wall (ev. 12/81) is in line with the north wall of the Central Street, neither the street surface (ev. 105) nor the steps (ev. 116) were set against this wall or its foundation wall (ev. 131). The original width of the Central Street measured 4.60m between its northern and southern boundary walls. With the construction of the Umayyad house it was reduced to a width of 2.70m [Occupation of public space by private houses is typical for the Byzantine to Early Islamic periods and in Jarash was observed also at *e.g.* the South Decumanus, *cf.* Gawlikowski 1986]. Since the terrain slopes in an eastern direction, low steps (ev. 116) 0.30m in height and about 2.30m long were integrated into the street. In the south baulk of the trench only short stretches of three north walls (ev. 66a, 66b and 66c) were excavated, which belong to the building complexes south of the street (see **Figs. 12-13**). The older walls (ev. 66a and 66c) are in line and were built parallel to the street. A 1.20m-wide gap separates both structures and hints at a narrow lane or path leading between them to the south. The north wall (ev. 66c) of the western complex is in line with the street's south wall and can be traced over a distance of at least 55m. This wall was most probably linked to a north-south running wall extending some 4.20m south of the trench and visible on surface level (see **Fig. 1**). A bearing shows that this wall is also in line with the eastern step (ev. 116) of the street. The corner created by these two walls on the Central Street was modified in a later period since the wall (ev. 66b), which rests on both the street surface (ev. 105) and the eastern step (ev. 116), was built around it (**Fig. 14**). The eastern complex extends further to the east but must have formed another corner east of the lane, but this corner seems to have collapsed completely. The size and function of these complexes are still unknown, but the orientation of the walls indicates that the complexes were part of the Byzantine quarter stretching south along the Central Street (*cf.* **Fig. 1**).

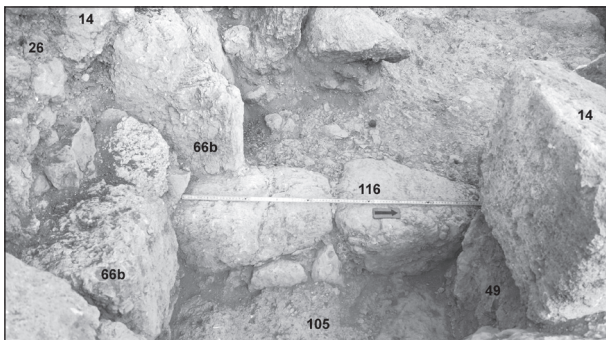
The evidence for dating this phase is sparse and relies on the finds from the foundation layer (ev. 106) of the street. In the excavated area only a few undiagnostic bodysherds were found, but a charcoal sample taken from the

fill below the wall ev. 66a gives a date of between 388-539AD [Sample no. 25882 (J16-Vc-200-1), Department for Physics and Astronomy, Aarhus University (Denmark), C14 age 1612 ± 31 BP, d13C (AMS) -19.00 ± 2.00 , calibration curve IntCal13, 1σ 399-532AD (399-433AD, 32.4%; 489-532AD, 35.8%), 2σ 388-539AD (388-539AD, 95.4%)]. If we take a sample (J16-Vi-87-1, see below) from the foundation of the Umayyad street surface as an upper limit (598-690AD), a construction date in the 5th/6th century AD is likely.

Building Phase 2a (Umayyad)

Major construction took place in this area in Umayyad times. It includes the founding of the large rectangular edifice north of the Central Street. The results of the previous excavation season showed that the edifice was founded in Umayyad times, and since all newly excavated walls bind into this complex, it is clear that they also belong to the same construction project.

The main entrance of the building in Trench V was situated on the south side of the building. To enter the building, one had to pass through the main door (ev. 38) with threshold (ev. 52) reaching a wide step (ev. 74) in the 6.00m-long entrance corridor between the walls ev. 17 and 18 (see Fig. 12). The corridor led under an arch (ev. 68) to a door (ev. 121), which gave access to the south-east corner of the courtyard. The stone pavement (ev. 75) inside the corridor is a renewal belonging to the next phase, caused by a repair of the wall ev. 18 (see below). The pavement was made of stones of irregular size and shape, and in its northern part did not reach the western boundary wall (ev. 17). Directly behind the main door (ev. 52), a small



14. Trench V, sector h, stratigraphic relation between stepped street (ev. 116) and house walls (ev. 66a and 66b), view from the east.

doorway (ev. 128) led to a room or hallway east of the wall ev. 18. Since the greater part of this room is located outside the trench, only the entrance and part of the wall ev. 18 were excavated. However, it is probable that the room was north-south oriented and extended from the south wall of the building to the wall ev. 124, located only 3.00m to the north. The door ev. 126 connected the small room with a hallway 1.30m in width situated between the walls ev. 124 and 132. Cleaning of the surface in this area revealed another east-west-oriented hallway east of the courtyard. This hallway was connected with the courtyard by the door ev. 127 (= J15-P-80) and led between walls ev. 132 and 123 in an easterly direction. Further east it is likely that more rooms were located. North of this hallway a corridor, which was excavated in 2015, is situated (Kalaitzoglou *et al.* in press). It is now clear that this corridor ended at the wall (ev. 123), and that it was connected with the courtyard by the door ev. 125 (= J15-P-66). Cleaning of the surface during the excavation thus offered new information about the ground plan east of the courtyard. It is now clear that two doors (ev. 125 and 127) linked the north-eastern as well as the eastern part of the building with the main entrance and courtyard.

West of the entrance corridor two parallel basement rooms were excavated: the so-called Arched Room of about 6.20m² between the walls ev. 17 and ev. 7/24, spanned by a well-preserved arch (ev. 27), and the so-called Western Basement Room taking up 10.60m² between the walls ev. 7 and ev. 22. The Arched Room was accessible only from the courtyard. From the door ev. 77, a staircase (ev. 85) led down to a paved floor. The pavement west of the staircase (ev. 110) was made of thinner stone slabs, while the pavement (ev. 120) south of the staircase consisted of flattened stones set into a soil bedding. Behind the entrance, a small side chamber was situated west of the staircase. This chamber measured 0.9 by 1.2m and was enclosed by the walls ev. 4, 24, 70 and 71. It is obvious that a narrow entrance was located in the east wall (ev. 71), but the opening was almost completely destroyed by the 749AD earthquake. As indicated by the top of the stone and soil packing (ev. 72), found inside the chamber, the original chamber floor was on

the same level as the second step of the staircase (ev. 85). Opposite the chamber a buttress (ev. 76) was built on top of the staircase. This buttress has the same length as the side chamber, but it narrows the upper part of the staircase to the width of the door ev. 77. Since a reduction of the staircase does not seem to have been required for the construction of the room, the buttress must have served another purpose. It is evident that not only the side chamber but also the buttress (ev. 76) belong to the first layout, since the buttress is interlocked with the wall ev. 17 and the door ev. 77. It is therefore most likely that both structures, the chamber and the buttress, were retaining a heavy structure on the upper storey.

There is sufficient evidence for at least one upper storey, not only above the Arched Room but also above the entrance corridor. The staircase (ev. J15-P-43), which is situated in the courtyard at the end of the massive retaining wall ev. 17, led only to the top of the retaining wall between the Arched Room and the entrance corridor (*cf.* **Fig. 12**). Since this is at almost the same level as the arch (ev. 27) and buttress (ev. 76), and also as an abutment (ev. 16) which served for flooring along the south wall (ev. 12), it is likely that a mezzanine floor was located above the Arched Room. From this level another staircase must have led to an upper storey above the entrance corridor. Large amounts of tesserae as well as mosaic fragments found in the debris of both rooms show that the upper floors were laid with mosaics. Similar multi-storeyed houses are typical for the Early Islamic period in the region (*cf. e.g.* Walmsley 2007).

The Western Basement Room did not have access to the courtyard, and it was probably not covered by the intermediate floor like the Eastern Basement Room. The room is delimited to the south by the wall ev. 12/81, to the east by the diagonal wall ev. 7, to the west by the wall ev. 22 and to the north by the wall ev. 70. Like the Arched Room, it was of trapezoid shape and measured about 5.40m in length; its maximum width was more than 2.10m. The width is only approximate since the west wall (ev. 22) was not excavated. This wall was badly damaged by the earthquake in 749AD. It leaned so far to the east that further excavation would have destabilized it, and it was therefore left unexcavated. The

floor in this first building phase was a layer of mortar (ev. 104) placed directly on the bedrock (ev. 108). Small gaps in the bedrock surface were filled with soil. Inside this basement room no traces of a staircase or an arch were found. However, two columns (ev. 78 and 82) placed opposite each other in the middle of the room in front of the walls ev. 7 and 22 were situated there. Each column consisted of three drums (a-c), of which the lowest had a Corinthian base, but the drums of the eastern column (ev. 78) are of different length and diameter. Both columns would not have been strong enough to support the compact floor of an upper storey. This is underlined by thin layers of small stones (ev. 103 and 107) placed under each pillar. It is therefore probable that they held the beams of a wooden ceiling. Although it is possible that a door was situated at a deeper level in the wall ev. 70, it is nevertheless evident that this room was not connected with the courtyard. The cleaning of the surface showed that the wall ev. 7 continued to the north and thus constituted the western limit of the courtyard, which lies at a higher level (see **Figs. 12-13**). It is possible that the Western Basement Room was accessible from the west. Between this room and the east wall of the large rectangular building to the west is sufficient space (7.50m) for at least two more rooms (see **Fig. 13**). The lack of further installations in the basement rooms suggests that they probably served as store-rooms, even though fragments of large storage bins were not found.

In front of the main entrance a portico or entrance-hall was built as a separate constructional element. It consisted of a 1.97m-wide stone pavement (ev. 37) flanked by two columns with Corinthian bases placed at a distance of 2.13m from each other. Each of the columns consisted of base (ev. 36 and 43) and of two upper drums. While the lower drums were left *in situ* (ev. 9a and 10a) on top of the bases, the uppermost drums, which had tumbled (ev. 9b and 10b), had to be removed during excavation for safety reasons. The diameter of the eastern column (ev. 43, 10a and 10b) measures 0.60m while the diameter of the western column (ev. 36, 9a and 9b) is only 0.55m. The minimum length including the base can be estimated to have been 2.20m. The portico was closed only on the east side by a wall (ev. 18a), which was built

between the edifice and the base (ev. 43) and drums (ev. 10a and 10b) of the eastern column. The western side seems to have been open until it was closed in a later phase. It is obvious from the constructional relationship between the pavement (ev. 37), the wall (ev. 18a) and the column base (ev. 43) that they all belong to the same building operation: the wall (ev. 18a) was built against both the base (ev. 43) and the column drum (ev. 10a). The stone pavement (ev. 37) was not only set against the wall (ev. 18a), but the column base also rests partly on the pavement (ev. 37). The wall (ev. 18a) thus most probably stands on the old street surface (ev. 105), and the pavement (ev. 37) with soil (ev. 48) in the gaps rests on a thin fill layer (ev. 79) above the old street surface (ev. 105). The foundations of the column bases differ slightly. The base (ev. 43) of the eastern column rests partly on the pavement (ev. 37) and partly on a foundation (ev. 51) made of a stone block surrounded by small stones and soil, covering the older street surface (ev. 105). The base (ev. 36) of the western column rests only on the pavement (ev. 37). The foundation layer (ev. 79) below the pavement (ev. 37) as well as the stone foundation (ev. 51) of the eastern column were covered by a soil fill layer (ev. 101) placed on top of the old street surface (ev. 105). This fill was covered by a compact layer of compressed yellowish soil (ev. 65), which served as the new surface of the street in front of the building. West of the portico a mortar surface (ev. 115) was found, thinner and different from the street surface (ev. 116). The mortar surface (ev. 115) survived the later extension of the entrance-hall, because the new structures were constructed on top of it. The thin mortar layer (ev. 115) covered an underlay of soil and stones, and both were set against a foundation wall (ev. 131) of the edifice south wall (ev. 12) and thus protected the foundations of the building and served at the same time as new street surface west of the entrance.

Although the base of the entrance-hall was built unconnected with the south side of the building, it is most likely that it belongs to the initial layout of the building as well. Large amounts of finds as well as fragments of a mosaic flooring, fallen from an upper level, attest that also the portico was equipped with an

upper storey [For the finds from this destruction context, see below]. This storey must have been connected with the rooms above the entrance corridor. The upper storey thus extended beyond the southern limit of the house and covered the portico, suggesting that both features must have been linked together on this level.

All excavated walls were built directly on top of the worked bedrock, which sloped down in steps from south to north. In front of the building, below the Central Street, the top of the bedrock reaches an absolute elevation of 619.52m asl. The bedrock inside the Arched Room as well as inside the Western Basement Room lies at a 1.70m-deeper level, at about 617.80m asl. Both the south wall (ev. 12) and the wall ev. 17 rest on top of the vertically cut bedrock. It is apparent that the rock was levelled for the floors of the basement rooms and at least partly cut for the bases, but it was impossible to find evidence proving whether the rock cutting stemmed from older quarry works or from the time of the construction of the new building. However, it is evident that the slightly diagonal orientation of the wall ev. 7 between the basement rooms is not a constructional requirement. The same holds for the north-south-oriented walls of the building, which were not built parallel or with right angles. Most of them share a similar diagonal orientation, like the walls ev. 7 and 18, the eastern wall (ev. J15-P-6/17) in Trench P and the entire building in Trench K, but some of them show also slightly varying orientations. Contrary to these, the east-west-oriented walls display a strict parallel orientation. The reuse of older quarry walls, hidden under the building, would be an explanation for the irregularity of the ground plan.

The dating evidence for the construction of the edifice is sparse since almost no datable objects were found in the foundation fills. Neither the foundation layer (ev. 110) underneath the pavement (ev. 100) in the Arched Room, nor the fill (ev. 72) in the side chamber contained datable finds. In the core of the buttress (ev. 76) only a Late Roman copper coin was found [J16-Vf-96-1 is a worn example of an AE 3]. A similar situation was encountered in the Western Basement Room. Neither the mortar floor (ev. 104) nor the thin foundation layers (ev. 103 and 107) beneath the column bases contained datable artefacts. However, from the mortar floor (ev. 104)

a radiocarbon date is available. A small piece of charcoal embedded into the upper part of the mortar dates to between 535-655AD with 92.3% probability [Sample no. 25879 (J16-Vc-203-1), Department for Physics and Astronomy, Aarhus University (Denmark), C₁₄ age 1470±40BP, δ¹³C (AMS) -25.00±2.00, calibration curve IntCal13, 1σ 565-635AD (565-635AD, 68.2%), 2σ 435-655AD (435-448AD, 1.3%; 472-487AD, 1.8%; 535-655AD, 92.3%)]. From the lowest portions of the floor foundations (ev. 80, 97 and 99) inside the entrance corridor only very small and undiagnostic pottery sherds were found, and in the street area no pottery or coins were found in the foundations (ev. 51, 79, 101, 65 and 105). This lack of embedded objects hinders more precise dating. However, in the terracing fill (ev. 101) for the new street surface (ev. 65) a piece of charcoal was embedded, which most probably dates to the Late Byzantine/Umayyad period (598-690AD with 94.3% probability) [Sample no. 25878 (J16-Vi-87-1), Department for Physics and Astronomy, Aarhus University (Denmark), C₁₄ age 1377±35BP, δ¹³C (AMS) -21.00±2.00, calibration curve IntCal13, 1σ 633-673AD (633-673AD, 68.2%), 2σ 598-760AD (598-690AD, 94.3%; 751-760AD, 1.1%)]. This date matches well with the results gained from the excavation of the north-east wing of the same building in Trench P. According to these results, the courtyard house was most likely constructed in the Umayyad period (*cf.* Kalaitzoglou *et al.* in press). One stone block with a Greek inscription was found built into the face of the south wall (ev. 12/81), on the left-hand side next to the main entrance (ev. 38). It is a spolia that was cut to fit into the wall and was placed upside down. Mortar traces sticking on its front side prove that the wall was lined with plaster, and the inscription was thus covered.

Building Phase 2b (Umayyad)

At some point a repair of the western face of the wall (ev. 18) inside the entrance corridor was undertaken (see **Fig. 12**). This repair involved the renewal of most of the stone pavement (ev. 75). First, all parts of the old wall face as well as the northern part of the older pavement together with the upper parts of the foundation fill (ev. 80, 97 and 99) were removed. It seems as if only the area next to the arch (ev. 68) remained

untouched. The new wall face (ev. 129), consisting only of one row of irregular stones, was set against the wall (ev. 18) in such a way that the gap between both wall faces was still visible (see **Fig. 12**). The new wall rested on a layer of small stones. On top of the fills (ev. 80 and 99) a new pavement (ev. 75) was laid against the base of the wall (ev. 129). The stones of the new pavement were of irregular size and shape, and were connected by soil and some mortar. Next to the wall (ev. 129) the stone slabs were laid in diagonal order and the new pavement did not reach the western boundary wall (ev. 17). In this strip along the wall (ev. 17), the top of the old fill (ev. 97) served as a walk-on level at a slightly lower level. A dating of this subphase is difficult since it is an isolated alteration, not physically linked with other datable contexts, and the foundation fills contained only few undiagnostic pottery sherds. A position in the stratigraphic sequence is indicated by the fact that the pavement (ev. 75) was the last floor laid in the corridor prior to the destruction caused by the 749AD earthquake. It is further evident that the step (ev. 74) as well as the southern part of the older pavement were reused. Since the next building activities followed different intentions, and because of the bad condition in which the pavement is preserved, an early date in the overall building history of the complex seems plausible for the repair. This suggestion is confirmed by the fact that the new pavement inside the corridor corresponds in elevation and technique with the younger floor in the courtyard, although the join between both floor levels was not excavated (see **Fig. 12**). In the courtyard, the stone pavement (ev. J15-P-82) of the first building phase was covered by a layer of reddish-brownish soil, onto which a new floor (ev. J15-P-79) of stones in soil and mortar was laid. The wall repair in the entrance corridor explains why the floor level in the courtyard had to be raised to a level corresponding to the entrance corridor.

Building Phase 3 (Umayyad)

The main feature of the third building phase was the extension of the portico in a westerly direction to create a space including a bench-like construction (ev. 32). West of the portico the northern part of the stepped street (ev. 116) had already been removed and was substituted

by a new surface (ev. 115). For the new column (ev. 8a) with its Corinthian base (ev. 34) a strong foundation (stylobate) had to be built. For the stylobate a hole was dug through the two street surfaces (ev. 115 and 116), and a simple stone drum (ev. 59) was sunk into the hole. The stone drum was surrounded and stabilized by a fill of soil (ev. 117) and stones (ev. 58), and on top of it the Corinthian base (ev. 34) and the column (ev. 8a) were placed. The western side of the portico pavement (ev. 37) was extended to the west with a row of smaller stones and a step of stones (ev. 35) next to it (cf. **Fig. 12**). Between the newly erected column and the edifice's south wall, a foundation of stones and soil (ev. 118) was placed on top of the mortar surface (ev. 115). On this foundation a low wall (ev. 11) was built, and the western part of a step-like bench (ev. 32), which also rests on the western end of a step (ev. 35), was placed here. Then another low wall (ev. 33) was set between the new column (ev. 8a) and the old column (ev. 9a). This low wall (ev. 33) rested on the foundation fill (ev. 58) and retained the wall foundation (ev. 118). While the wall ev. 11 limited the bench to the west, the low wall ev. 33 limited it to the south. With a column, the bench and two framing walls, the west extension of the portico was almost finished. Only the still-exposed western part of the wall foundation (ev. 118) and the base of the wall (ev. 11) had to be protected from erosion and were thus covered. For this purpose, a wall (ev. 113) was built. This wall consisted of medium-sized stones above a coarse foundation of smaller stones and was set against both the base (ev. 34) and the column drum (ev. 8a). Since the wall (ev. 113) was built on top of the old street surface (ev. 116) as well as on top of the mortar surface (ev. 115), it must be contemporary with the portico extension. With the wall (ev. 113) a compartment 1.80m in width and at least 1.75m long was created west of the portico extension and along the south side of the edifice. The interior was backfilled (ev. 112) up to a level corresponding to the top of the foundation wall ev. 131, and was covered with a thin mortar surface (ev. 114). While the fill (ev. 112) had to retain and cover the foundation of the new portico's west wall (ev. 11), the mortar surface (ev. 114) served as a walk-on level inside

the small compartment (see **Fig. 12**). Since also the stylobate foundation (ev. 58) and the base of the wall ev. 33 as well as the base of the wall ev. 113 had to be protected, a layer of compressed soil (ev. 102) was placed on top of the steps of the street (ev. 116), which served as a new street surface west of the old portico.

Since the main deposits of this phase did not generate finds for dating we have to rely on the scanty finds from the fill (ev. 112) and the new street surface (ev. 102). In addition to some tesserae and a tile fragment from ev. 102, small and worn sherds of Umayyad pottery were found in both deposits.

Building Phase 4 (Umayyad)

The last phase was characterized by the installation of simple soil floors as walk-on levels in several parts of the building. This is apparently typical for the last Umayyad building phases, and was also encountered in Trenches K and P (Kalaitzoglou, Lichtenberger and Raja in press); Kalaitzoglou *et al.* in press; Lichtenberger *et al.* 2017). This feature allows us to unite separate building activities in one phase. During this phase also the backfilling of the entire Western Basement Room and the creation of a raised floor level happened.

In the northern part of the Arched Room a higher floor level (top of ev. 86) was installed west of the staircase above the pavement ev. 100, while the pavement ev. 120 in the southern part remained untouched. The surface of the new floor was completely destroyed by the debris of the earthquake of 749AD, but embedded into the underlay (ev. 86) a concentration of mortar and loose tesserae (ev. 95) was found.

The most extensive alteration took place in the Western Basement Room. This room was backfilled with three layers of coherent material, with a total thickness of almost 2m, with the aim of installing a new clay floor (ev. 61 and top of ev. 64) also in this room. The lowest layer (ev. 84) consisted mainly of brownish soil (ev. 84), with thick layers of charcoal and ash embedded, while the second layer was a mixture of stones (ev. 83) with the same soil (ev. 84). The uppermost layer (ev. 61 and ev. 64) was free of stones and consisted of a similar soil in the lower portions and a gradually more yellowish soil in the upper parts, which

was covered by a sterile and compact yellowish layer. In all three layers, except the yellowish top part which marked the walk-on level, considerable amounts of kitchen ware and bones together with charcoal and ashes were found. It seems as if kitchen waste was collected to be deposited in the former basement room. It is obvious that the closing of the entire storey must have caused the blocking of the former entrance, and that afterwards only a door at the level of the former upper storey was available. The door was not found during the excavation, and it might have been situated in the north wall (ev. 70) or the west wall (ev. 22).

Traces of a raised walk-on level were discovered also outside the edifice, in the compartment next to the extended portico. In the compartment above the mortar surface (ev. 114), a compact deliberate fill (ev. 111) was unearthed, consisting of several thin soil layers in the lower parts and small stones in the upper parts. The new surface on top of the fill (ev. 111) was not preserved due to the earthquake destruction and modern disturbance and erosion. Since the fill was restricted to the inside of the compartment and since it covered the mortar surface (ev. 114), it is evident that the new surface is younger than the portico's extension. To the west the new surface was probably limited by a thick, east-west-oriented wall (ev. 130).

The archaeological evidence for the installation of the last floor levels before the destruction of the building suggests a date in the later Umayyad period. The floor foundation (ev. 86) in the Arched Room contained, aside from the tesserae and mortar concentration (ev. 95), only Late Umayyad pottery. Also the C₁₄ date of a charcoal sample does not contradict such a dating [Sample no. 25883 (J16-Vdf-86-1), Department for Physics and Astronomy, Aarhus University (Denmark), C₁₄ age 1218±62BP, δ¹³C (AMS) -25.00±2.00, calibration curve IntCal13, 1σ 711-886AD (711-745AD, 13.8%; 764-886AD, 54.4%), 2σ 670-962AD (670-902AD, 88.4%; 920-962AD, 7.0%)]. It is therefore possible that the new floor was installed shortly before the earthquake of 749AD destroyed the edifice.

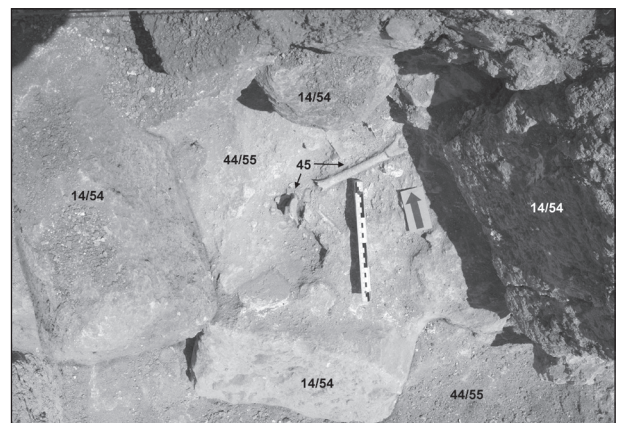
The dating evidence for the closure of the Western Basement Room cannot be supported by radiocarbon dates or coins. In layer ev. 84

large amounts of Umayyad pottery were found and the same holds for the covering layer ev. 64. Only the northern equivalent (ev. 61), which was not excavated further down, seems to have been slightly contaminated by material fallen from the upper storey. In ev. 61 some Roman sherds were found and more than 30 tile fragments as well as considerable amounts of tesserae, but Umayyad pottery (Pls. 2.11-12, 3.18, 5.37, 6.42, 7.43, 10.57-58 and 16.90) clearly dominates the contexts. Noteworthy is the high amount of bag-shaped amphorae of local and regional production (Pls. 11.64, 12.66 and 13.68), but a few imports, some of Egyptian production (Pl. 13.69-70), were also found.

The finds from the fill (ev. 111) in the compartment outside the building are not distinctive. Although the full spectrum of functional groups is present, as well as Jarash Lamps and also some tesserae and tile fragments, only a general dating to the Late Byzantine to Umayyad periods is possible.

The Earthquake Destruction of the Umayyad Building

It is clear that the building was destroyed in a catastrophic event. All evidence suggests that this was the earthquake of 749AD. A human skeleton was recovered in the destruction layers of the entrance corridor. The remains of a young person (ev. 45) were found 0.40-0.30m above the step ev. 74 (see Fig. 12). First appeared some skull fragments followed by an upper arm and a jaw jutting out from the compressed soil of the collapsed roofing and upper storey (ev. 44/60) between large blocks of collapsed stones (ev. 14) (Fig. 15). It is obvious



15 Trench V, sector i, human remains (ev. 45) in corridor debris, view from the south.

that the body was completely fractured by the heavy stones, which tumbled during the earthquake. The position and dry condition of the human remains required a cautious excavation before the bones could be documented *in situ*. However, during the night an illicit excavation took place, and the bones together with the find context (ev. 55) were vandalized. Afterwards only a few bone fragments were recovered from the dump (ev. 56) scattered around the find spot [The disturbed find context was called ev. 55 and the moved soil ev. 56]. At the spot where the human remains were initially encountered, an iron adze (J16-Vi-60-3x) (**Pl. 22.132**) was found at a deeper level above the threshold, which might have been amongst the personal belongings of the victim.

Most of the excavated rooms and areas were filled with at least two distinguishable portions of collapse and debris, a common feature for a building with more than one storey. The first collapse consisted of the wall linings, the underlays as well as the upper flooring mixed with wall-stones. The lower part of the Arched Room was filled with soil (ev. 73) and stones (ev. 29), while above the new floor level in the Western Basement Room more wall-stones (ev. 21 and 28) were found among the soil (ev. 20, 23 and 53). In the entrance corridor a layer of brownish soil (ev. 67) mixed with wall plaster was found covering the pavement, which obviously stems from the wall coating. Above this the hallway was completely filled with tumbled wall-stones (ev. 14) and collapsed soil and other building material (ev. 44, 60 and 69). The area in front of the building was then completely covered by the collapsed walls, columns and roofing (ev. 14 and 26).

The composition of the collapse deposits shows that the edifice had more than one storey and, furthermore, that the upper storeys were paved with mosaics and the walls coated with coloured plaster. Although a lot of roof-tile fragments were found in the debris they were too few and scattered all around to attest to a tiled roof. It is thus most likely that the edifice had a platform roof and that the tiles served as building material or as framing slabs or were used for other purposes such as for fire places. Concerning the find groups, some observations which give an insight into the assemblage

available in the upper storey are to be mentioned. In the entrance-hall and on the street the pottery was much better preserved than in the basement rooms. This, on the one hand, attests that pottery was stored above the portico but on the other hand hints that preservation depends on the amount of debris that fell with the pottery. In the hallway pottery was not frequent but other find groups, such as tesserae or metal objects, were well attested and preserved. This makes it probable that the rooms above the hallway were more representative and did not serve as simple storerooms or kitchens.

Regarding the dating of the earthquake destruction, the excavation brings only limited new data. The identified coins are almost all from the Late Roman period. The only exception was an Umayyad pre-reform coin of phase 1 (J16-Vh-26-64; c. 638-680AD) [For the phases of Umayyad pre-reform coinage, see Schulze and Oddy 2012] found in the collapse (ev. 26) above the street. Umayyad pottery dominates in all collapse deposits. The collapse (ev. 49) on the street as well as an embedded concentration of sherds (ev. 50) contained large amounts of Umayyad pottery, which had fallen from the upper storey. In ev. 26 large amounts of Umayyad pottery were found: a Jarash Lamp (**Pl. 17.91**) and also metal finds, such as two fittings with hinge (**Pl. 23.135-136**), large amounts of tesserae, tesserae chips as well as mosaic fragments, pieces of mortar, 32 tile fragments, an antefix and an imbrex, and even a water pipe fragment and a suspensurium. Embedded into this collapse were concentrations of sherds (ev. 39-42), which all contained fragments of Umayyad vessels. Inside the hallway, the amount of Umayyad pottery decreased from the collapse (ev. 44) near the door in direction of the arch (ev. 68), while the amounts of tesserae and plaster remained the same and the number of small finds decreased. One arrowhead was among the finds (**Pl. 23.146**). From ev. 60 stem only a few sherds, however, of note is an adze or hoe made of iron (**Pl. 22.132**). In ev. 69, apart from an iron knife and various other well-preserved finds, cymbals and parts of a musical instrument (**Pl. 23.142-144**) were found. The layer (ev. 67), which covered the floor, contained a lot of tesserae and plaster but very few Umayyad sherds. A mix of Umayyad

pottery and building material, especially tesserae, mosaic fragments and mortar, was also unearthed in the Arched Room's destruction deposits (ev. 73, 25, 63 and 23). In ev. 23 and 25, some Byzantine to Late Byzantine sherds and two fragments of choir screens (Pl. 21.119) (a piece of a pilaster capital (Pl. 21.118) stems from ev. 73), a stone bead (Pl. 22.126) and a large knife (Pl. 22.131) were also found. The finds from the Western Basement Room show a similar composition, but storage jars of different sizes (Pl. 8.46-48, 9.54 and 10.55) and fragments of basalt vessels were also present.

Three radiocarbon dates are available for the dating of the destruction. Two stem from the collapse deposit (ev. 73) in the Arched Room. One gives the date 686-894AD with 94.9% probability [Sample no. 25884 (J16-Vdf-73-24), Department for Physics and Astronomy, Aarhus University (Denmark), C14 age 1215±39BP, δ13C (AMS) -20.00±2.00, calibration curve IntCal13, 1σ 728-878AD (728-737AD, 5.0%; 769-878AD, 63.2%), 2σ 686-937AD (686-894AD, 94.9%; 933-937AD, 0.5%)], and the other dates with 89.4% probability to 596-779AD. Both dates are in accordance with the assumed destruction of the earthquake of 749AD. The third date stems from the lowermost collapse layer (ev. 67) in the entrance corridor. The rather early date 579-668AD can be regarded as a terminus post quem and the sample was probably taken from material considerably predating the destruction.

Trench W

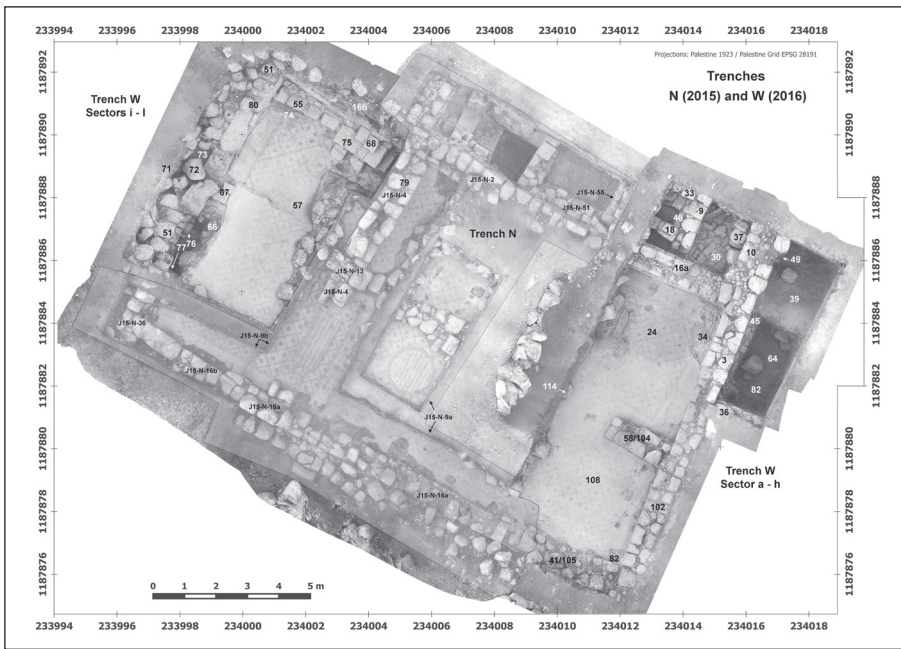
With Trench W, the exploration of the so-called Mosaic Hall, which was discovered in 2015, was continued. This hall was a side building to the Byzantine so-called Synagogue Church (*cf.* Fig. 1). It has mosaic floors with inscriptions, which date the laying of the mosaics and provide us with information about the military donors of the building (Haensch, Lichtenberger and Raja 2016). Among the main aims of Trench W was to determine the eastern extent of the building, to investigate further parts of the mosaics and to clarify the layout of the western part. The western part was in the Umayyad period separated from the rest of the hall by a wall. Another aim was to find out more about the use of the area in the period before

the construction of the hall, which would have been connected with the use of the Late Roman cave complex just north of the Mosaic Hall. Therefore, excavation was undertaken in two separate areas east and west of 2015's Trench N (Fig. 16) [Trench supervisor was Kristine Thomsen]. An area of 66.30m² (sectors a to h) was excavated around the supposed eastern end in order to detect the extent of the building. West of the wall (ev. 79) (= J15-N-4), an area of 46m² was opened to clarify the western extension of the complex (sectors i to l).

Aside from the Late Roman cave system, three major phases can be distinguished for the Mosaic Hall [For the results of the previous season, see Kalaitzoglou *et al.* in press]. In the first phase, the complex was constructed in front of the older caves, and the first mosaic floor, dated by an inscription to March 576AD, was laid. In the second phase, the hall was enlarged to the west, and this part was covered with a new mosaic which according to the inscription dates to July 591AD (Haensch, Lichtenberger and Raja 2016). Soundings in disturbed parts of both mosaics have shown that they are the only floors in the complex without earlier phases. A transformation of the long hall into smaller room units took place in the third phase, which can be dated to the Umayyad period. It was already clarified in 2015 that the hall was destroyed by the earthquake of 749AD (Kalaitzoglou *et al.* in press).

The Phase before the Construction of the Mosaic Hall

Only limited evidence was found belonging to the phase before the construction of the Mosaic Hall. In the deep sounding east of the east wall (ev. 3) of the Mosaic Hall, bedrock (ev. 82) was reached about 2.6m below the surface (Figs. 16-17). The top of the uneven bedrock surface was covered by a mortar layer (ev. 64), similar in thickness and consistency to the mortar floor (J15-N-82) discovered in 2015 inside the vestibule in front of the Late Roman south cave. In 2016 we discovered that south of the deep sounding, in the south-east corner of the Mosaic Hall, the bedrock (ev. 82) rises 1.40m and thus forms a depression in front of the bedrock cliff above the caves. Since the depression runs counter to the natural topography and does not follow the



16. Trenches N (2015) and W (2016), excavated structures of the Mosaic Hall.

direction of the slope, it is possible that the low bedrock is man-made, either related to older quarrying activity or to the construction of the caves. That the bedrock surface slopes down to the north and rises to the south, might explain why a staircase (ev. J15-N-87), which leads up in southerly direction, was set from the west against the south-west corner of the Roman cave vestibule. A rock depression under the northern part of the later Mosaic Hall is also an explanation for the soil fill under this part of the building.

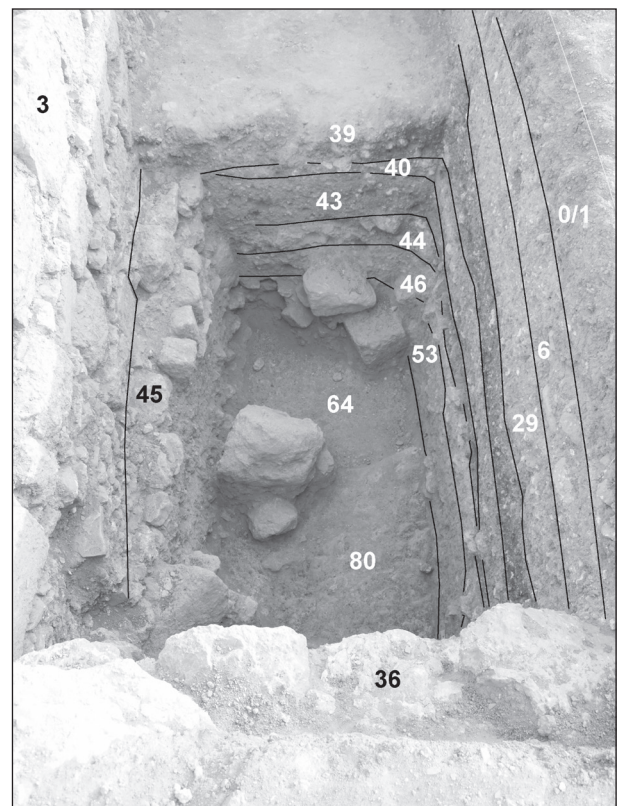
Since no finds were associated with the mortar layer (ev. 64), a precise dating of this phase is not possible. However, stratigraphically the mortar surface (ev. 64) belongs to the Late Roman cave system. The overlying fill layer (ev. 53), although it contained fragments of mostly Roman pottery but also some Byzantine tiles (Pl. 18.103), belongs to the foundation of the Mosaic Hall since it required that the caves were closed.

The Mosaic Hall

The Mosaic Hall in its last stage was roughly rectangular with a length of 18.49m on the south side and 17.15m on the north side. The width of the building was between 10.47m on the eastern side and 10.64m on the western side. This irregular shape is only partly due to the earthquake since, although the north wall was deformed and displays a curve, the south wall takes a more or less straight course (cf. Fig. 16).

Building Phase 1 (Byzantine, before 576AD)

In its original layout, the Mosaic Hall was already roughly rectangular but shorter. It ended west of the entrance in the south wall with a later-removed west wall behind a prominent joint, which is visible between the older and younger parts of the south wall (ev. 41/105 =



17. Trench W, eastern sectors, deep sounding, view from the south.

ev. J15-N-16a) (**Fig. 16**). This join corresponds with the western side of a buttress (ev. J15-N-13) situated halfway between the north and south walls (ev. 16a and 41). It is now clear that the wall (ev. J15-N-32) also belonged to the original layout of the hall. This wall, oriented to the north, is not only in line with the supposed western boundary of the hall but also the thickness of 0.92m is the same as that of the northward extension (ev. 10) of the east wall. The older mosaic (ev. 24/108) was detected only west of this line. The original length of the hall thus measured 13.45m on the longer south side and 12.48m on the north side. The interior covered a total area of approximately 97.25m².

As a result of the excavations in 2015 it is certain that the north wall (ev. 16a = J15-N-2) was built on top of a foundation fill (J15-N-80) and over the Roman wall remains. A similar fill (ev. 53) was discovered under the foundation wall (ev. 45) upon which the east wall (ev. 3/102) was built. The same can be assumed for the foundation wall (ev. 49) below the northward extension (ev. 10) of the east wall, even if the excavation did not reach the same depth in this spot. It is thus clear, not only that the Mosaic Hall was built on top of a fill in front of the rock cliff, but also that in the first layout the gap between the building and the rock cliff was already closed at a higher level by two walls. The wall ev. 10 binds into the north-east corner of the hall and closed the gap on the eastern side, while the wall ev. J15-N-32 closed it on the western side. The space between the rock cliff and the Mosaic Hall was completely backfilled with a layer of almost 2m thickness (ev. J15-N-57), which dates to the Byzantine period, most probably prior to 576AD, since it predates the construction of the hall [For the dating, see the results of the 2015 season: Kalaitzoglou *et al.* in press]. Since the western wall (ev. J15-N-32) rests on top of this backfill, a retaining feature west of it was needed to protect this fill from erosion. This could be either a wall or more probably the protruding bedrock, since the bedrock west of this point had to be worked to extend the hall in the next building phase. A retaining wall for the foundation fill towards the south was not necessary because the bedrock rises for about 1.40m under the south wall (ev. 41/105). However, east of the Mosaic Hall not only this first fill (ev. 53)

but also the covering fill layers [These fill layers are in stratigraphic order: ev. 46, 44, 43, 42, 40 and 39], which had to protect and stabilize the wall bases, had to be retained. Although such a terrace wall is not visible at ground level (see **Fig. 1**), it can be deduced by the wall (ev. 36) running in an easterly direction that was found in the southern baulk of sector d (**Fig. 16**). This wall (ev. 36) was built against the east wall (ev. 3/102), on top of the fill layer (ev. 43). Although the wall (ev. 36) was not built on top of the lowermost fill (ev. 53), on which the foundation wall (ev. 45) below the east wall (ev. 3/102) rests, but at a 0.3m-higher level, it is evident that it belongs to the same building and filling process, because the top of the foundation wall (ev. 49) under the bottom of the wall ev. 10 rises above this level. It is therefore probable that the terrace east of the Mosaic Hall had to retain a fill up to 2m high. Due to the disturbance of the upper fill layers by later ploughing activity, an associated surface or floor was not detected.

In the eastern part of the newly built hall only one buttress (ev. 58/104) which was connected with the east wall (ev. 3/102) was found. It served as an arch support for the roofing. Against the buttress and the walls a mosaic was laid (ev. 24/108), covering a foundation fill (ev. 34) of smaller stones, soil and mortar. This mosaic of 576AD is the earliest and only flooring of the building. In the hall of the first building phase only one rectangular mosaic field near the entrance was tessellated with an inscription field. The outer frame of the entire mosaic respects and surrounds the architectural features like for example the buttresses and even the protruding bedrock (ev. 82) in the south-east corner.

Since the foundation layer below the mosaic contained no datable finds, we have to rely mainly on the finds from the terrace-fill layers east of the hall (*cf.* **Fig. 17**) to confirm the date of the inscription, which gives both a year and month. The coins found in the terrace fill all date to the Late Roman period, and the pottery suggests a Byzantine date for the construction of the hall. In the lowermost fill (ev. 53) only pottery of Roman date was found. In the next layer (ev. 44) only Late Roman pottery was present, including a Roman cooking pot (**Pl. 1.2**), Roman tableware (**Pl. 3.17** and **3.19**), one African

Red Slip Ware import (**Pl. 4.29**) and a Dressel 2–4 Amphora (**Pl. 13.71**). Both succeeding layers (ev. 43 and 42) contained no pottery. In the following layer (ev. 40) not only larger amounts of wall plaster, tesserae and Roman sherds (**Pl. 2.14**) were found but also some Byzantine body sherds. In the covering fill layer (ev. 39), table-, common and cooking ware of the Byzantine to Late Byzantine periods (**Pl. 3.23**) in good condition dominate. However, the following layer (ev. 29) marks a break since this fill contained mostly Late Byzantine to Early Umayyad pottery, although Late Roman sherds were also present. This tendency is continued in the fill layer (ev. 6) close to the surface, which contained vast amounts of mixed pottery ranging from the Roman to the Umayyad periods. It is obvious that the last two layers (ev. 29 and 6) do not belong to the original terrace fill or that they were disturbed.

Building Phase 2 (Byzantine, before 591AD)

In this phase the Mosaic Hall was extended for 5.00m in a westerly direction and was thus enlarged by some 26m². Since the old west wall must have been removed and an extension of the northern (ev. 16b) and southern walls (ev. J15-N-16b) was necessary, the roofing must also have been renewed. For the construction of the new west wall (ev. 51) the bedrock (ev. 80), which was sloping southward in this area, was cut, thus forming the north-west corner of the building and part of the west wall. Inside the new bordering walls two low east–west-running retaining walls were built into the foundations (**Fig. 16**). One of the walls was built on the axis of the room between the older buttress (ev. J15-N-13) and the west wall (ev. 51), and partly also against the bedrock (ev. 80). This foundation wall was only discovered due to the earthquake damage and modern disturbance of the west wall (ev. 51). On top of this foundation wall a new buttress (ev. 67) was built to support the new roof. Further to the south, an additional wall (ev. 77) was erected parallel to the wall under the buttress. Since the wall ev. 77 binds into the west wall (ev. 51) and the other wall further north was set against the worked bedrock (ev. 80), it is impossible that they belonged to older buildings. It is more likely that these walls formed chambers to hold the foundation

fill (ev. 66) of stones and soil mixed with mortar below the new mosaic (ev. 57). Before the new mosaic (ev. 57) was laid, the walls were lined with wall plaster. Traces of wall plaster (ev. 65) were discovered on the southern face of the north wall (ev. 16b), protected by the later bench (ev. 55), as well as on the southern side of the buttress (ev. 67). In the last case it was obvious that the mosaic was laid against the wall plaster (ev. 81). The only installation found in the newly created room is a small rectangular podium of 1.6m by 0.9m with a stone step on its eastern side, which was built against the southern face of the north wall (ev. 16b). The mosaic was tessellated against the podium and the step, and both were surrounded by the outer border framing of the mosaic pattern. The podium probably had a function relating to the use of the room by a military unit. It is possible that it served as a base for some objects, but since the room was reused in the Early Islamic period, alterations probably took place which make it difficult to establish exactly how the original installation would have functioned.

A dating of the extension of the hall is provided only by the new mosaic inscription, which gives the year 591AD. Additional evidence is not available at the moment since the foundation fill (ev. 66) yielded no datable objects.

Building Phase 3 (Umayyad)

The Mosaic Hall was in use until the 749AD earthquake. At the time of the Islamic conquest in 636AD at the latest, we have to assume that the Byzantine military unit left Jarash and the building was reused for other purposes. In the Islamic period it was divided into smaller units. To achieve this, a new wall (ev. 79/J15-N-4) was added, which was carefully built directly on top of the younger mosaic. Since the wall had no door, it separated a new western room from the rest of the hall. The remains of a door, found in 2015 next to the new wall, indicate that in the northern central part of the hall another room was installed next to the western room. Since traces of additional walls were not found in the eastern part of the hall, this part underwent no alteration. According to the debris found inside the destroyed building, we can deduce that the roofing was now changed, and a platform roof was installed (see below). Since

only few objects from the last phase of use were found on top of the mosaic, it is difficult to determine the function of the hall. In the eastern part of the building only a fragment of a roof tile (ev. 25), part of a basalt crusher (ev. 26), a short upright standing stone drum (ev. 114), fragments of an iron object and two stone slabs (ev. 107-2x to 107-3x), one with figurative incision (**Pl. 21.120**), were uncovered. Neither these objects nor a rectangular niche (ev. 113) in the east wall (ev. 3/102), which was framed with roof tile fragments and filled with a brownish soil, shed light on the function of the Mosaic Hall during the Umayyad period.

More instructive is perhaps the newly installed west room. This room measuring 4.5m by 9.0m was completely separated from the rest of the building by the wall ev. 79. Since no door was found in the preserved south wall, the well-preserved east wall or the still upstanding north wall, it is probable that the room was accessed through a door in the west wall (ev. 51). Since the part north of the buttress (ev. 67) was cut from bedrock, a door must have been situated south of it. However, because this part of the wall was so deeply disturbed in modern times by a pit (ev. 71), it is impossible to trace a door or to determine its location.

Inside the west room, between its north-west corner and the older podium, a bench (ev. 55) was built in Umayyad times. This installation does not belong to the original design of the Byzantine period, as attested by the fact that it was built against the wall plaster (ev. 65) and on top of the mosaic. The tessellated lines are good indicators for a distribution between original structures and structures added later since the outer framing of both mosaics respects and surrounds the original constructional features, like the roof supports (ev. 67, J15-N-13 and 58) and the podium (ev. 75). This bench is probably the only Umayyad installation found in this room. A large patch of ash and charcoal (ev. 74) on the mosaic in front of the bench as well as traces of heating on the bench stones indicate that the room was used for domestic purposes before it was destroyed by the earthquake. A terracotta figurine was also found in this context (**Pl. 20.110**).

The 2016 excavations provide little further dating evidence for the Umayyad phase. As

in the last season, no coins were found on top of the floors and most of the other objects are older or not precisely datable. The youngest pottery embedded into the yellowish roof collapse (ev. 23/107 and 54) is of Early Umayyad to Umayyad date (**Pls. 2.15** and **3.23**), suggesting that the hall got a new flat roof in Umayyad times [A charcoal sample taken from the yellowish layer (ev. 54) is therefore too old since it gives the date 133-435AD. Sample no. 25869 (J16-Wik-54-10), Department of Physics and Astronomy, Aarhus University (Denmark), C₁₄ age 1707±72BP, δ¹³C (AMS) -15.00±3.00, calibration curve IntCal13, 1σ 245-406AD (245-406AD, 68.2%), 2σ 133-534AD (133-435AD, 88.7%; 451-471AD, 1.6%; 487-534AD, 5.1%)]. More conclusive and directly connected with the last use of the west room is a charcoal sample taken from the ash layer (ev. 74) covering the mosaic (ev. 57) in front of the bench. The radiocarbon date for this sample is with 86.9% probability 661-779AD, making it likely that the earthquake responsible for the destruction is the one of 749AD [Sample no. 25868 (J16-Wk-200-1), Department of Physics and Astronomy, Aarhus University (Denmark), C₁₄ age 1272±36BP, δ¹³C (AMS) -19.00±1.00, calibration curve IntCal13, 1σ 682-769AD (682-730AD, 40.4%; 736-769AD, 27.8%), 2σ 661-864AD (661-779AD, 86.9%; 791-828AD, 5.0%; 838-864AD, 3.5%)].

The Rooms North of the Mosaic Hall (Byzantine to Umayyad)

The 2015 excavations showed that on top of the fill between the bedrock cliff and the Mosaic Hall, small chamber-like structures were built. In 2016 similar structures were unearthed, and we are now able to reconstruct the building history. First, a small chamber was built against the north wall (ev. 16a) with a small gap in between. Although only the north-east corner (ev. 9) of the chamber was excavated in sector a, it is apparent that this chamber was also set against the eastern wall (ev. J15-N-55) of a room excavated in 2015 at a distance of only 1m to the west. The interior of the small chamber measured therefore only a maximum of 2.0m in length and 1.5m in width. Inside the chamber, a floor (ev. 60) made of large stone blocks and mortar, which was set against both

the chamber walls (ev. 9) and the north wall of the hall (ev. 16a), was discovered. East of the chamber and at almost the same level, an additional floor (ev. 30) was unearthed. This floor consisted of a thick mortar layer with embedded stones with flattened surfaces above a fill of soil and stones, and it was set against the chamber's wall (ev. 9) as well as the hall's north wall (ev. 16a) and the wall ev. 10. No entrance either to the small chamber or to the room east of it was found, but it is probable that at least the eastern compartment was accessible from the north, from the top of the bedrock.

Since no finds were associated with the construction of the chamber or with the floor, only relative dating is possible. It is clear that the floors and the chamber postdate the construction of the Mosaic Hall as well as the neighbouring room, which also dates to the Byzantine period.

In a later stage, the layout of the chamber and the anteroom were changed. A short and low wall (ev. 37) was set on top of the floor (ev. 30) along the wall ev. 10. This wall was made of medium-sized stones in poor masonry, and it did not reach the north wall of the hall. The interior of the small chamber was divided into narrow compartments by an east–west-running wall (ev. 18). This wall was set on top of the floor (ev. 60) between the eastern wall (J15-N-55) of the neighbouring room and the chamber's east wall (ev. 9). As a result, the larger northern compartment had a width of only 0.5m. The southern compartment and the gap between the chamber's east wall and the Mosaic Hall were closed by a fill of stones and loose soil (ev. 31). Between the new southern wall (ev. 18) and the chamber's north wall (ev. 9), a small step-like structure (ev. 48) was set on top of the floor (ev. 60) and against the chamber's east wall. Since the northern jamb and a keyhole of a door were preserved in the upper part of the chamber's east wall (ev. 9), it is conceivable that the structure (ev. 48) served as a step to enter the narrow compartment in the eastern anteroom from a higher level. The elevation of this lost floor level is indicated by the level of the door in the wall (ev. 9) and it roughly corresponds with the top of the wall ev. 37 in the anteroom. The latter was filled up to this level with a thick layer of loose soil (ev. 27) and stones (ev. 28) that

furthermore was in contact with the fill ev. 31, which is therefore the same fill.

Since the raised floor of the anteroom was destroyed, we have to rely on the finds embedded in the fills (ev. 27 and 31) to date this construction. While the fill ev. 27 contained large amounts of finds, which range from the Late Roman to the Late Byzantine or Early Umayyad periods, the fill ev. 31 contained, apart from numerous tile fragments, mostly only small fragments of Late Byzantine wares, among them one cooking pot (**Pl. 1.6**) and a large basin (**Pl. 6.40**). With regard to the following building phase, a date in the early 7th century AD is therefore probable, making it impossible to decide if this modification took place already in the second or in the third building phase of the Mosaic Hall.

In a later phase the walls of the chamber were dismantled and cut down. On top of the ruins of the chamber's north wall (ev. 9) a new wall (ev. 33), of which only a short section was found in the north baulk of sector a, was built. The northern compartment of the chamber was filled with a layer of compact brownish soil (ev. 32), which also covered the base of the wall (ev. 33). Above this fill another fill layer (ev. 2) of compact yellowish soil was identified, corresponding in its upper elevation with a fill layer of compact yellowish soil (ev. 5) in the anteroom. Both layers seem to be part of a floor made of compressed soil and related to a new building structure established above the former chamber. Since only a small part of this structure was unearthed, the form and function of this building remain unclear. Dating derives only from the contents of the compact yellowish layers (ev. 2 and 5) since the fill (ev. 32) was almost empty of finds. In both layers the pottery was very fragmented but the youngest sherds tend to be of Late Byzantine to Umayyad date. Since the finds give only a terminus post quem and are almost contemporary with the finds associated with the preceding phase, it is likely that the new building was established during the Umayyad period.

Phase 4 (Umayyad 749AD, Earthquake Destruction)

After uncovering more mosaic areas in 2016, it became more and more apparent that

during the earthquake destruction large parts of the mosaic sank down. This is evident especially in the western part of the hall (**Fig. 18**). There waves in the mosaic layer were caused by a compression of the soil under the mosaic. Therefore, the mosaic sunk where no substructures ran under it. Due to this fact we were able to identify a wall in the foundation covered by the mosaic and running from west to east in the line of the roof supports (ev. 67 and J15-N-13).

We are able to trace three succeeding phases in which the earthquake debris of the building was deposited. In the eastern sectors a-h the mosaic was covered by a layer of compact yellowish soil (ev. 23/107) that was also found in the western sectors i-l (ev. 54) [It is the same yellowish layer excavated already in 2015 and labelled with ev. J15-N-22, J15-N-28, J15-N-40 and J15-N-70]. In the west the yellowish soil layer partly surrounded the stone debris (ev. 56) of the Umayyad wall (ev. 79/J15-N-4) and covered also the bench (ev. 55) as well as the podium (ev. 75) with the stones (ev. 68) on top of it. This thick yellowish layer stems from the collapsed roof of compressed soil that was used during the Umayyad period, and which collapsed first. In the eastern part of the hall closer to the walls the collapsed brownish underlay of the wall linings (ev. 8) was found as well as the displaced core (ev. 110) of the collapsed eastern buttress (ev. 58/104). These first collapse deposits were covered by a layer of wall-stone debris (ev. 14/112, 21 and 56), which was surrounded by the soil of the wall cores (ev. 15 and 22). This debris stems from the upper-wall portions. In the next phase the remaining parts of the walls collapsed to a level to which they were stabilized by the debris. To this uppermost debris belong a stone collapse (ev. 11/111 and 50/52) and the surrounding soil (ev. 19 and 47) (*cf.* **Fig. 18**).

Agricultural Use and Destruction in Modern Times

After the earthquake, the Mosaic Hall was subject to further disturbances, which damaged the walls as well as the western entrance.

The damage to and poor preservation of the south wall (ev. 41, J15-N-16a and 16b), being only a few courses high, is probably an effect of agricultural cultivation and erosion. Marks of

modern iron ploughs on the crown of the east wall attest that the area was cultivated at some later point, and the same marks demonstrate that since then soil has eroded away. Later finds in the upper earthquake debris in the north-east corner of the hall also point towards further disturbance of the remains in more recent times. In ev. 19 a modern tin can and deeper in ev. 7 fragments of modern pottery were found. The most severe loss of architecture is the destruction of the southern part of the hall's west wall (ev. 51). The devastation was so extensive that it reached the foundations below the hall (**Fig. 18**). The large pit (ev. 71) was filled with dark humus soil in the upper parts, and in deeper levels (ev. 72 and 73) Umayyad pottery was found below the level of the mosaic foundation. Owing to the extent of destruction, it has probably been caused by heavy machinery in recent times.

Trench X

Trench X was laid out on the south slope of the Northwest Quarter, north of the large rock-cut cistern, above a Byzantine building (see **Fig. 1**). The westernmost part of this Byzantine-period so-called East House was excavated already in 2015 in Trench O (for the results, see Kalaitzoglou *et al.* in press). Two of the main aims of Trench X were to trace the eastern extension of the building and further to trace the concrete floor, already excavated in this building (Kalaitzoglou *et al.* in press). Since this concrete surface (ev. J15-O-69) was older than the Byzantine East House, a Roman date was supposed, as was a functional connection with the large Roman cistern. Already in 2015 we had assumed that this floor was related to a sediment basin



18. Trench W, western sectors, younger mosaic (ev. 57) and destruction of the west wall (ev. 51/80), view from the north.

of the large cistern, and this was corroborated by the 2016 work. According to the preliminary results in the westernmost part, the East House was constructed over the concrete floor, and three building phases are traceable before the building was dismantled and covered by a deliberate fill in Umayyad times.

With nine sectors, labelled from a to i and covering a total of 72.5m², it was possible to uncover the entire ground level of the East House and also adjacent areas (**Fig. 19**) [Trench supervisor was Malene Byø]. The East House had an elongated rectangular plan with an overall length of 12.61m and a width of 4.85m. Since the entrance corridor at the eastern end was a later addition, the original length of the building was only 10.10m. The interior of this core building was divided into three compartments of different sizes: a larger central room 4.70m in length was flanked by two small compartments, 1.40m long for the western part and 1.20m for the eastern part. The house was integrated with an extensive building complex. On its western side, it was built against one of the terrace-walls, ascending uphill to the north (see **Fig. 1**). Regarding the reuse of the Roman cistern in the Byzantine period and the establishment of the residential quarter next to it, the excavation of a wider area yielded a better understanding of the constructional history (Kalaitzoglou *et al.* in press). The right-angled

link between the East House's west wall (J15-O-15B) and south wall (ev. 3a = J15-O-9B), which takes a straight course along the cistern's north edge, makes it likely that the East House belonged to the earliest Byzantine buildings, founded already before the western and northern parts of the cistern were backfilled. East of this house the dense habitation seems to diminish, if not stop, since in sectors f and g no traces of built structures, but only an area filled with debris, was encountered.

Building Phase 1 (Roman)

Roman-Period Quarry Work

North of the East House, in sector e, traces of a stone quarry were discovered in the bedrock (ev. 12) (**Fig. 19**). Only the bottoms of cut channels, arranged in a rectangular shape to form quarry blocks, were preserved. Later, the rock surface was levelled, recognizable by pick marks and rounded edges. A rectangular depression (ev. 29), which is too deep for quarrying a stone block, was worked in later, too. Most of the rock surface was later covered with a thin layer of mortar, of which only scattered remains were found. It is obvious that the traces of quarrying are older than the levelling of the rock in this area. Since the levelling of the rock and the coating with mortar are related to the installation of a street or lane in the Byzantine period, a Roman date is to be supposed for the



19. Trench X, excavated structures.

quarry. Traces of quarrying were also found inside the cistern, and it is therefore evident that the quarry work predates the construction of the cistern.

Roman-Period Cistern

In the Roman period a sediment basin was built as part of the large rock-cut cistern to the south. It was uphill on the bedrock north of the water reservoir [For the dating of the large rock-cut cistern according to the mortar dating, see Lichtenberger *et al.* 2015: 119–127]. The dimensions of the basin are given by the limits of the concrete floor (ev. 40 = ev. J15-O-69), which constituted its bottom. In an east–west direction the floor measures about 8.50m in length and reaches from the top of a rock step at the western end of the East House to the bottom of a rock step (ev. 47) at the western end of the house. The western end of the floor was hidden under the west wall (ev. J15-O-15) of the house. In a north–south direction the floor measured about 4.40m and reached from a rock step, hidden under the north wall (ev. 8) of the house, to the bedding (ev. 24) on top of the northern cistern edge. Although the northern limit is hidden under the north wall, the upper edge of a rock cutting is still visible, and in 2015 the step (ev. J15-O-75) was also detected in the north-west corner of the house (Kalaitzoglou *et al.* in press). Although the dimensions of the basin are similar to the building constructed later above it, the orientation of the mortar floor is slightly different to the house walls built on top of the rock steps. This is obvious especially at the southern buttresses. Since the concrete floor (ev. 40) runs against the bases of the buttresses, at least the buttresses belong to the Roman layout. The south-eastern buttress extends to the north above the line of the south wall (ev. 3a = J15-O-9B), while the south-western buttress (ev. 20) was fully integrated into the Byzantine wall (ev. 3a). The northern sides of both buttresses are in line and parallel to the rock step (ev. J15-O-75) in the north-west corner of the East House. Of the northern buttresses only the north-western (ev. J15-O-76) was fully excavated. Since it rests on a rectangular, rock-cut base in front of the rock step, it is evident that it also belongs to the Roman sediment basin. It is therefore most likely that the base of the

north-western buttress (ev. 19) also stems from the Roman period.

It is thus apparent that the rock was not only cut and worked for the quarry, but also later for the sediment basin. This basin seems to have followed the sloping rock surface and thus had to be built with walls. Since the rock slopes down vertically at the western end of the basin, a wall of waterproof masonry must formerly have been attached to this rock edge. No traces of such a wall were found, and it is likely that the wall was removed when the Byzantine building was constructed. The same can be assumed for the southern boundary of the sediment basin. The southern wall was removed when the Byzantine south wall (ev. 3a) was built along the northern edge of the cistern. The bedrock (ev. 14) still displays artificially flattened areas especially south of the eastern end of the sediment basin. This levelled area is outside the later East House but lies directly on the course of the Roman south wall, which had a slightly different orientation. Under the eastern part of the Byzantine south wall (ev. 3a) and the younger wall (ev. 3b), traces of ashlar (ev. 24) are visible. Since the Byzantine wall (ev. 3a) was built of coarsely shaped stones and rests on a foundation (ev. 22) of soil and smaller stones, it is likely that the stone bedding was initially prepared for the well-dressed blocks of the Roman sediment basin.

The northern wall of the basin was also dismantled. The excavation of the western part in 2015's Trench O showed that the former wall stood on the northern edge of a low rock-cut wall (Kalaitzoglou *et al.* in press). The north wall (ev. 8 = J15-O-42) of the East House, which substituted the Roman wall, was built in dry masonry of soil and stones and was not waterproof. The eastern end of the basin was bordered by a low, vertical rock wall (ev. 47). The higher rock surface (ev. 44) east of the basin is nicely levelled and a rock-cut staircase (ev. 41) leads down to the bottom of the basin. It is thus evident that, although also the eastern wall was removed, the sediment basin was accessible from the east side through a door. To sum up, the remains of the original Roman sediment basin are the northern and eastern rock walls, the bases of the four buttresses and the concrete floor, as well as the staircase and the levelled

area east of it. The buttresses suggest that the sediment basin was once covered by a roof.

Immediately south of the staircase a small square basin (ev. 36), which was cut into the bedrock and was used to collect the sediment during the cleaning of the sediment basin, is situated. In a low circular depression in the north-east corner of the square basin, the leftover sediment was collected and cleaned out. The upper half of the square cleaning basin was lined with strong hydraulic mortar (ev. 38), and the seam where this mortar meets the concrete floor (ev. 40) was covered by an additional mortar layer (ev. 48). Further evidence for the practical operating of the sediment basin are vertical canals at the southern edge of the bedrock (ev. 14). Since these canals were washed out by running water, it is likely that the overflow of the sediment basin was situated next to them, in the vicinity of the south-eastern buttress (ev. 20). However, because of the Byzantine remodelling, it still remains an open question how and from where the sediment basin was filled with water.

Dating evidence for the sediment basin is available only from charcoal samples. One sample taken from the underlay of the concrete floor (ev. 40) gives a radiocarbon date in the 3rd or early 4th century AD, which matches phase 2a of the large Roman cistern, during which it was still in use and underwent repairs [Sample no. 25865 (J16-Xd-100-1), Department of Physics and Astronomy, Aarhus University (Denmark), C₁₄ age 1766±36BP, δ¹³C (AMS) -24.00±1.00, calibration curve IntCal13, 1σ 231-333AD (231-333AD, 68.2%), 2σ 138-380AD (138-200AD, 11.1%; 206-357AD, 81.9%; 366-380AD, 2.4%). For the phases of the cistern, cf. Lichtenberger *et al.* 2015: 125]. Another charcoal sample was taken from the hydraulic plaster (ev. 48), which coated the edges of the cleaning basin (ev. 36). The embedded charcoal is much older and dates to the 1st or early 2nd century AD, matching with phase 1 of the cistern [Sample no. 25864 (J16-Xd-101-1), Department for Physics and Astronomy, Aarhus University (Denmark), C₁₄ age 1948±33BP, δ¹³C (AMS) -13.00±2.00, calibration curve IntCal13, 1σ 6-84AD (6-84, 68.2%), 2σ 34BC-127AD (34-31BC, 0.8%; 21-11BC, 2.8%; 2BC-127AD, 91.9%).]. The dating of the earliest phase of the sediment basin in

the 1st/2nd century AD supports the idea that the cistern was built in connection with the expansion of Gerasa that took place under the emperors Trajan and Hadrian.

Building Phase 2 (Byzantine)

In this phase, when the cistern and sediment basin had fallen out of use, but the cistern had not yet been backfilled, the East House was constructed on top of the sediment basin. For the construction of a main room flanked by small compartments, the older walls were removed and only the bases of the buttresses were reused to support two arches. The arches spanned the house from north to south and supported the ceiling of the building. Some of the wedge-shaped stones of the arches are still *in situ*. Of the walls, first the south wall (ev. 3a) was built along the northern edge of the Roman cistern (see **Fig. 19**). Since this wall had to carry much load, it was built of two faces with a core fill (ev. 23) and it rested partly on bedrock (ev. 14) and partly on a foundation fill (ev. 22). This wall with a thickness of 0.85m continued further east beyond the eastern end of the building. In the next stage, the north wall (ev. 8) together with the east wall (ev. 31) were built on top of the bedrock edges; the north wall (ev. 8) was also set against the cut edge of the bedrock (ev. 12). In the east wall (ev. 31) a door (ev. 42) with threshold (ev. 30) was installed directly in front of the rock-cut staircase (ev. 41). The entrance of the East House was thus situated in the east on the central axis of the building. The concrete floor (ev. 40) was still intact and also served as a floor for the new building. The rectangular cleaning basin (ev. 36), situated next to the staircase, remained open with unknown function. Below the arches, walls with door openings were built (ev. 9) against the buttresses. While the door under the eastern arch was situated in the centre, the door under the western arch was not on the same axis. The area to the east, in front of the entrance, was not modified in this phase.

Since most of the structures were built on top of the bedrock or on older structures, the dating of this building phase is hindered by a lack of datable finds in the foundation fill (ev. 22). The finds from the core (ev. 23) of the south wall (ev. 3a), especially those from the eastern end, are mixed and seem to stem mostly from later

periods. Since the cistern fell out of use as a water reservoir in the 5th/6th century AD (Lichtenberger *et al.* 2015: 125), the Byzantine house was built immediately or soon after.

Building Phase 3a (Byzantine)

In this phase an entrance corridor was added to the east side of the house (see **Fig. 19**). Hence, the main entrance to the building was shifted from the east to the north. First a door, of which only the threshold (ev. 49) is preserved, was built from the east against the north-east corner of the house. Then a thin, low wall (ev. 13) made of a row of single stones and mortar as binder was built between the threshold and the south wall (ev. 3a). Since the wall (ev. 13) was covered with plaster on all sides and on top, it is evident that the wall (ev. 26) was built against it later, but the function of such a low and thin wall remains unknown. The wall (ev. 26) was constructed against the eastern side of the threshold (ev. 49) and against the south wall (ev. 3a) from the north, and thus it closed the entrance corridor to the east. The gap between the walls (ev. 13 and 26) was filled with soil and small stones. It is possible that the low wall (ev. 13) served as a bench in front of the new east wall (ev. 26). A row of stone steps (ev. 44) was laid on the inside against the threshold (ev. 49) and between the walls ev. 13 and 33, probably to facilitate easier access. Inside the entrance corridor, a mortar floor (ev. 43) was laid on top of the bedrock (ev. 45) and against all adjacent structures.

The area north of the East House and the new entrance were also altered in this phase. Between the bedrock (ev. 12) and the entrance (ev. 49), a short and low wall-like structure (ev. 25) was built against the north wall (ev. 8). Its western side is not straight but seems to follow the shape of the levelled bedrock. The space between this structure and a bedrock outcrop (ev. 28) was backfilled with soil (ev. 18) and a dense packing of stones (ev. 15). This foundation fill was covered by a layer of mortar (ev. 51) and served as the surface of a lane. This lane or path obviously led around the retaining structure (ev. 25) as well as the bedrock (ev. 12) and continued in a westerly direction. Traces of a mortar surface (ev. 50) uncovered on the north side of the bedrock surface (ev. 12) as well as the spots of mortar on top of the levelled

bedrock belong to this evidence, which has to be interpreted as a lane.

An exact dating of this building phase is impossible since no datable objects were associated with the structures or their foundations.

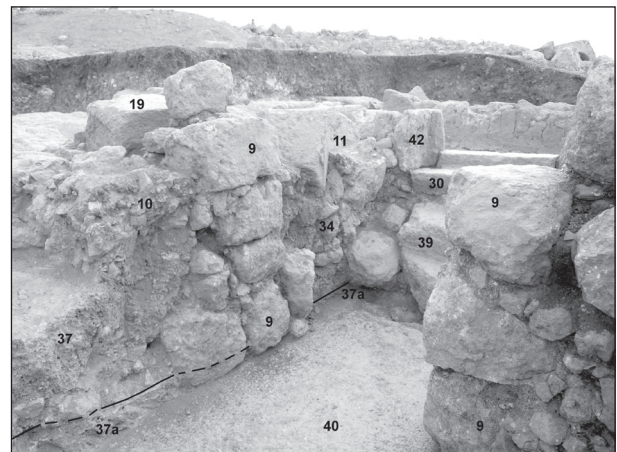
Building Phase 3b (Late Byzantine/Early Umayyad)

In this subphase only minor alterations took place, and the floor levels were raised in both parts of the East House (see **Fig. 19**). Floors of compressed soil were laid in the entrance corridor (ev. 33) as well as in the main room (ev. 37a). Although not physically connected, it is most likely that both floors were contemporary, because both floors were the last walk-on levels. In this subphase the cleaning basin fell out of use and was backfilled with reddish soil (ev. 35) and covered by the new floor ev. 37a (**Fig. 20**).

Since the top of the main-room floor (ev. 37a) was destroyed and backfilled in the following period, it is hardly possible to trace its surface. This implies that finds from the floor surface are lacking. Since mostly only compressed soil was used for the floors, the floor ev. 33 did not contain any pottery or other finds. There are some finds, however, from the basin fill (ev. 35). The youngest finds were produced in the Late Byzantine/Early Umayyad period such as a cooking pot (**Pl. 1.7**). This seems to be the period of this subphase.

Building Phase 4 (Umayyad)

In the last phase the East House, like the buildings west of it, was dismantled and the walls cut down. Most of the debris was dumped



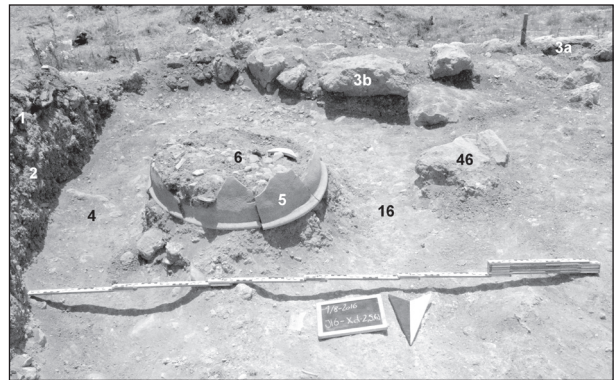
20. Trench X, debris and floor levels (ev. 37a and 40) inside the building, view from the west.

into the house or deposited in the open space east of the entrance corridor (see **Figs. 19-20**). A first layer of debris (ev. 34 and 37) filled the interior of the East House up to the threshold (ev. 30), while in the entrance corridor a thick layer (ev. 32) of ashy soil mixed with pottery and bone was filled in. On top of this layer a shed was installed, which consisted of a short rubble wall (ev. 3b) built above the ruins of the south wall (ev. 3a), the two stones (ev. 46) placed in front of this wall and a large stone (ev. 17) north-east of the stones. The large stone (ev. 17) served as the base of a bread oven (ev. 5). The oven was made of a large Grey Ware basin placed upside down above a fill of small limestones, which were rounded and fractured due to heating (**Fig. 21**). Heated stones were probably used to bake bread on the flat bottom of the vessel [For the features of heated stones used for boiling or baking, see *e.g.* Petraglia *et al.* 2005]. This installation above the former entrance corridor served as the ephemeral place of workmen employed on the destruction and backfilling of the area. In a next stage, the interior of the house was backfilled with additional layers of debris (ev. 10 and 11) and also the ephemeral place was filled in (ev. 16). The remaining walls of the entrance corridor were dismantled and the stones (ev. 27) deposited east of the corridor together with soil (ev. 7), which partly covered the remains of the walls ev. 13 and ev. 26 (see **Fig. 19**). The entire area was then covered by two thick fill layers (ev. 2 and 1).

The dating of the destruction and backfilling relies on the dating of the oven (ev. 5 and 6) used during part of the process. The type as well as the decoration of the Grey Ware basin (ev. 5) are typical of the Umayyad period (**Pl. 7.45**). This also applies to some cooking-pot and coarse-ware sherds (**Pl. 11.61**) found among the heating stones (ev. 6) below the vessel. Two samples taken from the ashes between the stones of ev. 6 do not match with this dating since they are both too old and give a Roman date [Sample no. 25942 (J16-Xd-6-7), Department for Physics and Astronomy, Aarhus University (Denmark), C₁₄ age 1820±31BP, d13C (AMS) -24.00±1.00, calibration curve IntCal13, 1σ 139-235AD (139-199AD, 45.1%; 205-235AD, 23.1%), 2σ 90-321AD (90-101AD,

1.2%; 123-258AD, 90.1%; 296-321AD, 4.0%). Sample no. 25943 (J16-Xd-6) is from an olive, Department for Physics and Astronomy, Aarhus University (Denmark), C₁₄ age 1824±46BP, d13C (AMS) -22.00±1.00, calibration curve IntCal13, 1σ 130-242AD (130-242AD, 68.2%), 2σ 80-327AD (80-261AD, 85.2%; 278-327AD, 10.2%)]. Maybe older building material was burnt in the fire.

The coin finds underline that, although older coins dominate the filling of the house, the levelling of the terrain happened in Umayyad times. In the lowermost debris and fill layers (ev. 32, 34 and 37) eleven coins were found, all of which date to the Late Roman period. The 29 coins found in the covering fills ev. 10, 11 and 16 are also from the Late Roman period. Of 22 coins found in the smaller fill deposits ev. 4 and 7, only a few were of Early Byzantine date. From the covering fill layer (ev. 2) more than 90 coins were collected, which almost all stem from the Late Roman period. Younger coins were only present in the thick layer of topsoil (ev. 1). Although the top of this layer is contaminated by modern material, the lower part belongs to the original deliberate fill. Also in this uppermost fill layer, Late Roman coins predominate, while Byzantine coins are rare, and only two Umayyad post-reform coins from the first half of the 8th century AD attest that the filling activity took place in Early Islamic times [The two post-reform fals are J16-Xd-1-5 and J16-Xf-1-70]. Since the dismantling and levelling is manmade and not the result of an earthquake, it is obvious that it happened some time before the earthquake of 749AD. The situation in this area is remarkable because of the high amount of coins that was found here. This evidence needs further explanation, but it is clear that during the



21. Trench X, Umayyad tabun in fill layers, view from the north.

Umayyad period a substantial amount of older coins were still in circulation in Jarash.

The pottery in ev. 32, 34 and 37 dates from the Byzantine to the Late Byzantine or Early Umayyad period (**Pl. 2.16**). The finds from the covering layers ev. 10, 11 and 16 are chronologically mixed, but in ev. 10 and 11 Umayyad finds are attested (**Pls. 3.25-26** and **4.31**). One Late Byzantine to Early Umayyad lamp mould (**Pl. 17.93**) was identified. In the fills ev. 4 and 7, a diversity of shapes and functional groups is

present among the pottery of which the youngest dates to the Umayyad period. In the covering layer ev. 2 large amounts of pottery were found (**Pl. 3.24**), ranging chronologically from Late Roman to Middle Islamic times, as well as a Byzantine stamp (**Pl. 20.116**), several worked bones (**Pls. 22.127** and **22.129-130**) and a bracelet (**Pl. 23.147**). The Middle Islamic finds are intrusive since the southern parts of ev. 2 and also ev. 1 are eroded and partly washed into the cistern.

CATALOGUE

Chronology

Hellenistic	: 332-63BC
Roman	: 63 BC - 250AD
Late Roman	: 250-400AD
Early Byzantine	: 400-450AD
Byzantine	: 450-550AD
Late Byzantine	: 550-640AD
Late Byzantine	
/Early Umayyad	: 600-700AD
Umayyad	: 640-749AD
Abbasid	: 700-1000AD
Fatimid	: 11 th to 12 th century AD
Ayyubid	: 12 th to mid 13 th century AD
Mamluk	: mid 13 th to 16 th century AD
Ottoman	: 16 th century to WWI

Arrangement of the Catalogue

Catalogue number and plate

Inventory number

Short description

Measurements (in cm)

Fabric [The fabric of the wheel-thrown pottery is described by fabric code. As a point of departure mould-made and handmade pottery, as well as other find group entries (e.g. tiles), are described using the Munsell Colour Charts as colour codex]

Further description, if necessary

References

Date [The date is given by references and context. Finds without references are dated by context].

Catalogue Abbreviations

AE	: copper-alloy ('bronze')
D.	: depth
Deco.	: decoration
Diam.	: diameter [The max. diam. is given]
ext.	: exterior
FE	: iron
H.	: height
int.	: interior
L.	: length
PB	: lead

T. : thickness

W. : width

Wt. : weight (in g)

Catalogue Authors

Inked drawings by Heike Möller, Line Egelund Nielsen, Mette Pedersen, Alex Peterson and Nicole Pieper (**pls. 20.115** and **21.121**).

Plate layout: Heike Möller.

Photos of catalogue finds: Philip Ebeling and Steff Elgaard Wiklund.

PE : Philip Ebeling (tiles)

CE : Christoph Eger (metal)

SK : Signe Krag (jewellery)

AL : Achim Lichtenberger (terracotta, marble, limestone)

HM : Heike Möller (pottery)

AP : Alex Peterson (Mamluk and later finds)

RR : Rubina Raja (terracotta, marble, limestone)

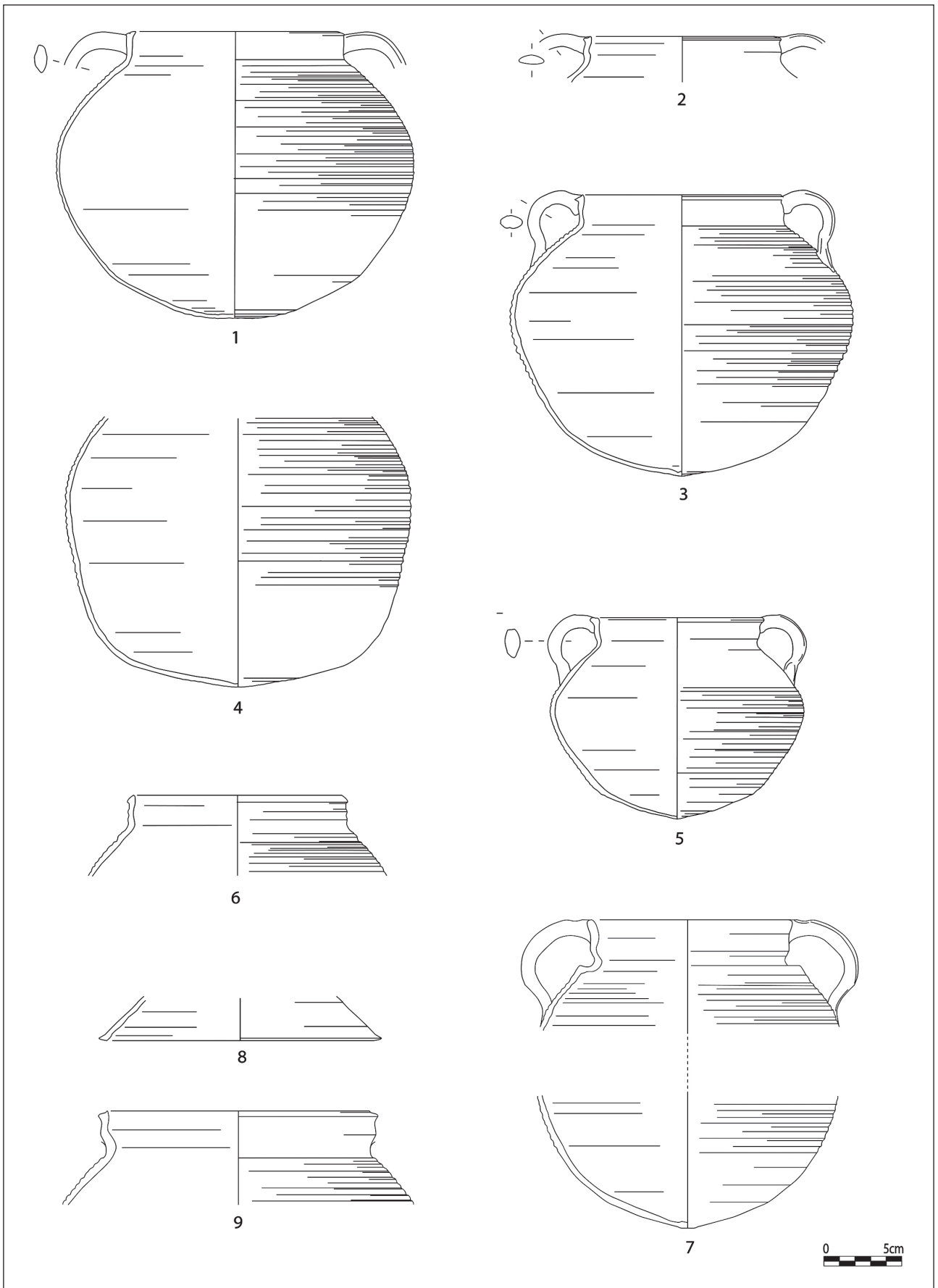
SR : Sara Ringsborg (stone objects)

Introduction

The catalogue aims to present a representative spectrum of the finds from the Northwest Quarter in Jarash stemming from the 2016 campaign [Preliminary registration reports for earlier campaigns include: Lichtenberger, Raja and Sørensen 2013; 2017; 2018; Kalaitzoglou *et al.* 2021]. Since Jarash was a large production centre from at least the Late Hellenistic and Early Roman periods to Early Islamic times, most of the material, with special regards to the pottery, is of local origin [On Jarash as production centre, *cf.* Uscarescu 1996; numerous articles in Zayadine (ed.) 1986 (Jarash Archaeological Project 1981-1983); articles concerning the kiln sites of Byzantine and Umayyad date, Pierobon 1984 and more recently Kehrberg 2009: 493-512; 2011; Brizzi, Sepio and Baldoni 2011: 345-69].

Typology by Functional Groups (HM)

The catalogue follows the pottery typology arranged according to functional groups and is structured according to five categories [as described in the last report, Kalaitzoglou *et al.* in press]:



- **Cooking ware:** all vessels used on fire to prepare food.
- **Tableware:** vessels used on table.
- **Common ware:** all vessels not used on table or for cooking – in Jarash mainly food preparation and storage jars.
- **Transport vessels:** all vessels used for transporting goods – in Jarash exclusively amphorae.
- **Domestic furnishing and other specialized vessels:** e.g. lamps and lanterns.

Throughout the catalogue, locally or regionally produced vessels are mentioned first followed by imported finds. The vessels of Roman up to Early Islamic production, presented in the catalogue, are wheel thrown (Pls. 1-13). Only a few pieces are mould-made such as the Ottoman pipe and all lamps (Pls. 16-17). Handmade pottery only occurs in the Middle Islamic period (Pls. 14-15).

Fabric Types² (HM)

To better understand the local production and its distribution, it is necessary to identify the geochemical fingerprints of the local wares. To characterize the geochemical fingerprint of the local production, the 2015 campaign focused on intensive studies of the local/regional fabric in order to go beyond a simple description of visual fabric and preliminary grouping [Preliminary fabric description and congruence to fabric codes of other excavated areas, cf. Lichtenberger, Raja and Sørensen 2013: 14-15; 2017. Earlier fabric studies concerning early pottery production in Jarash have been made by Braemer 1989. For later productions see Watson 1989, concerning ‘Jarash Bowls’, and Uscatescu 1996. Most recently, Tarboush 2015]. The samples were chosen based on their functional groups and their chronology, making it possible to trace small changes in fabric due to chronological aspects, e.g. changes in production techniques, and those changes caused by functional aspects, e.g. the use of the vessel as a cooking pot. Representative samples of each local/regional fabric group went through elemental mass spectrometry and petrographical analyses. The results proved that the pottery was made using the same type of clay over centuries (cf. Merkel and Prange in press). Only different firing conditions made the pottery appear in different colours: **Orange Ware (OW)** and **Grey Ware (GW)** [The codes used in the catalogue: GW: Grey Ware; OW: Orange Ware; RW: Red Ware. For descriptions of fabric, see Merkel and Prange in press. These categories are preliminary and further studies have to be undertaken to define subgroups, however, the vessels in the catalogue are generally made of the same main fabric. Since the imported finds have not yet been analysed, a full description of the fabric is given in the catalogue, unless a standardized code can be used, as is the case for African Red Slip Ware, for example]. In Umayyad times a **Red Ware (RW)** occurs.

Apart from the abovementioned main fabrics, some other fabric types do exist that differ in colour, but more importantly have different inclusions. These fabric types still require further analyses to clarify, whether they have been imported regionally or are of local origin but from a different clay deposit (Merkel and Prange 2021: Samples 16-18).

Cooking Ware (HM)

Cooking Pots and Lids

Many cooking pots are globular in shape with a ribbed

surface, oval-shaped vertical handles and a round, sometimes slightly knobbed, base (Pl. 1.1-5). These Roman cooking pots can carry an incised groove on top of the rim or have a wedge-shaped rim while they are extremely variable in size. Some of the cooking pots were found in intentional deposits, as is the case with some of the objects found in Trench S (cf. Figs. 3-4) (ev. 32) [Concerning intentional cooking-pot deposits at Late Roman Jarash, see Lichtenberger and Raja 2015b].

Almost similar in shape, and also with a wedge-shaped rim, are cooking pots of the Late Byzantine to Early Umayyad production (Pl. 1.6). At the same time examples with an S-curved neck occur (Pl. 1.7 and 1.9). Lids with slightly cut rim can be associated with cooking pots (Pl. 1.8).

A cooking pot from the latest production sequences, during Early Islamic times, was found in a closed context in Trench U (Pl. 2.10). It was associated with a bag-shaped amphora (Pl. 11.65) and is part of the original content of the room before its collapse. In contrast to the earlier vessels, the pot is not heavily ribbed, and the handles are not as looped as their predecessors.

In general, many of the vessels categorized as cooking ware do not show any traces of burning and could also have been used as storage jars.

Cooking Pots

With Incised Groove on Top of the Rim

1.

Pl. 1.1

J16-Sbc-48-9

Intact profile

Diam.: 18.8

Fabric: OW

Two oval handles attached vertically at rim. Round base.

References: Uscatescu 1996: 136 (Type XXXIV-5) and pl. 38.31-32, with further references. Date: Late Roman; slightly earlier in date, cf. Brizzi, Sepio and Baldoni 2011: 360-362, fig. 10.7 from a context dating to the beginning of the 3rd century AD.

Date: Roman to Late Roman.

2.

Pl. 1.2

J16-Wd-44-16

Rim

Diam.: 12.8

Fabric: OW

Two oval handles attached vertically at rim.

References: Uscatescu 1996: 136 (Type XXXIV-5) and pl. 38.31-32, with further references. Date: Late Roman; slightly earlier in date, cf. Brizzi, Sepio and Baldoni 2011: 360-362, fig. 10.7 from a context dating to the beginning of the 3rd century AD.

Date: Roman to Late Roman.

With Wedge-Shaped Rim and Pointed Lip

3.

Pl. 1.3

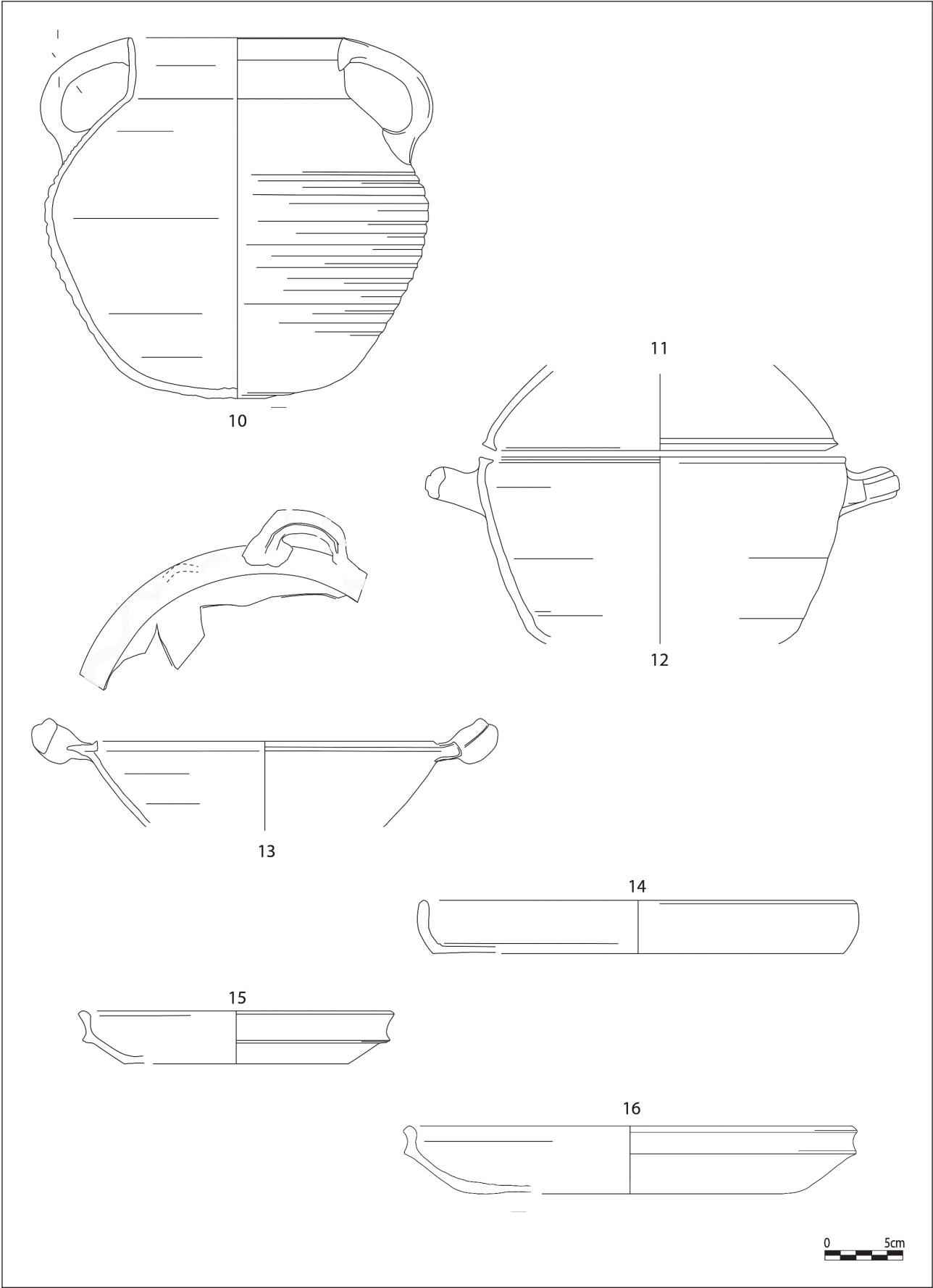
J16-Sj-106-3

Intact profile

Diam.: 13.1

up to 20× magnification. A catalogue of all collected fabrics with fabric codes is used as a reference during the campaign.

2. Microscopic analyses of all fragments have been made on site on the fresh break, using magnifying glasses with 10× and



Fabric: OW

Two oval handles attached vertically at rim and shoulder.
Round, slightly knobbed base.

References: Clark and Falkner 1986: 248, fig. 20.5-6.
Date: 4th to 5th century AD; Lichtenberger, Raja and Sørensen 2013: 36-37, figs. 96-97, with further references.

Date: Late Roman to Early Byzantine.

4.

Pl. 1.4

J16-Sh-67-1

Base

Diam.: 21.8 (broadest part)

Fabric: OW

Round, slightly knobbed base

References: similar to Uscatescu 1996: 136 (Type XXXIV-5) and pl. 38.31-32, with further references. Date: Late Roman; slightly earlier in date, *cf.* Brizzi, Sepio and Baldoni 2011: 360-362, fig. 10.7 from a context dating to the beginning of the 3rd century AD; Clark and Falkner 1986: 248, fig. 20.5-6. Date: 4th to 5th century AD; Lichtenberger, Raja and Sørensen 2013: 36-37, figs. 96-97, with further references.

Date: Late Roman to Early Byzantine?

5.

Pl. 1.5

J16-Sc-53-1

Intact profile

Diam.: 10.9

Fabric: OW

Two oval handles attached vertically at rim and shoulder.
Round, slightly knobbed base.

References: similar to Uscatescu 1996: 136 (Type XXXIV-5) and pl. 38.31-32, with further references. Date: Late Roman; slightly earlier in date, *cf.* Brizzi, Sepio and Baldoni 2011: 360-362, fig. 10.7 from a context dating to the beginning of the 3rd century AD; Clark and Falkner 1986: 248, fig. 20.5-6. Date: 4th to 5th century AD; Lichtenberger, Raja and Sørensen 2013: 36-37, figs. 96-97, with further references.

Date: Roman to Early Byzantine?

6.

Pl. 1.6

J16-Wc-31-8

Rim

Diam.: 14.0

Fabric: GW

References: Uscatescu 1996: 118 (Type XXXIV-4) and pl. 78.439-439, with further references; Brizzi, Sepio and Baldoni 2011: 362-365, fig. 11.7 from a context dating to the mid 6th to the beginning of 7th century AD.

Date: Late Byzantine to Early Umayyad (6th to 7th century AD).

With S-Curved Neck

7.

Pl. 1.7

J16-Xc-35-8

Rim and base, reconstructed

Diam.: 13.1

Fabric: GW

References: Lichtenberger, Raja and Sørensen 2017: figs. 86-87 and fig. 95; Kalaitzoglou et al. 2021: fig. 9; Uscatescu

1996: 135-136 (Type XXXIV-3, subtype 3D-G) and pls. 83.509-516 and 84.517, 520, with further references.

Date: Late Byzantine to Early Umayyad (6th to 7th century AD).

8.

Pl. 1.8

J16-Tb-66-2

Rim

Diam.: 17.9

Fabric: OW

Lid with slightly cut rim

References: -

Date: Early Umayyad to Umayyad?

9.

Pl. 1.9

J16-Ta-46-2

Rim

Diam.: 17.8

Fabric: GW

Handle attachment visible at the rim

References: Lichtenberger, Raja and Sørensen 2017: figs. 86-87 and 95; Kalaitzoglou et al. 2021: fig. 9; Uscatescu 1996: 135-136 (Type XXXIV-3, subtype 3D-G) and pls. 83.509-516 and 84.517, 520, with further references.

Date: Late Byzantine to Early Umayyad (6th to 7th century AD).

With Straight Neck

10.

Pl. 2.10

J16-Uc-71-2

Intact profile

Diam.: 13.7

Fabric: OW

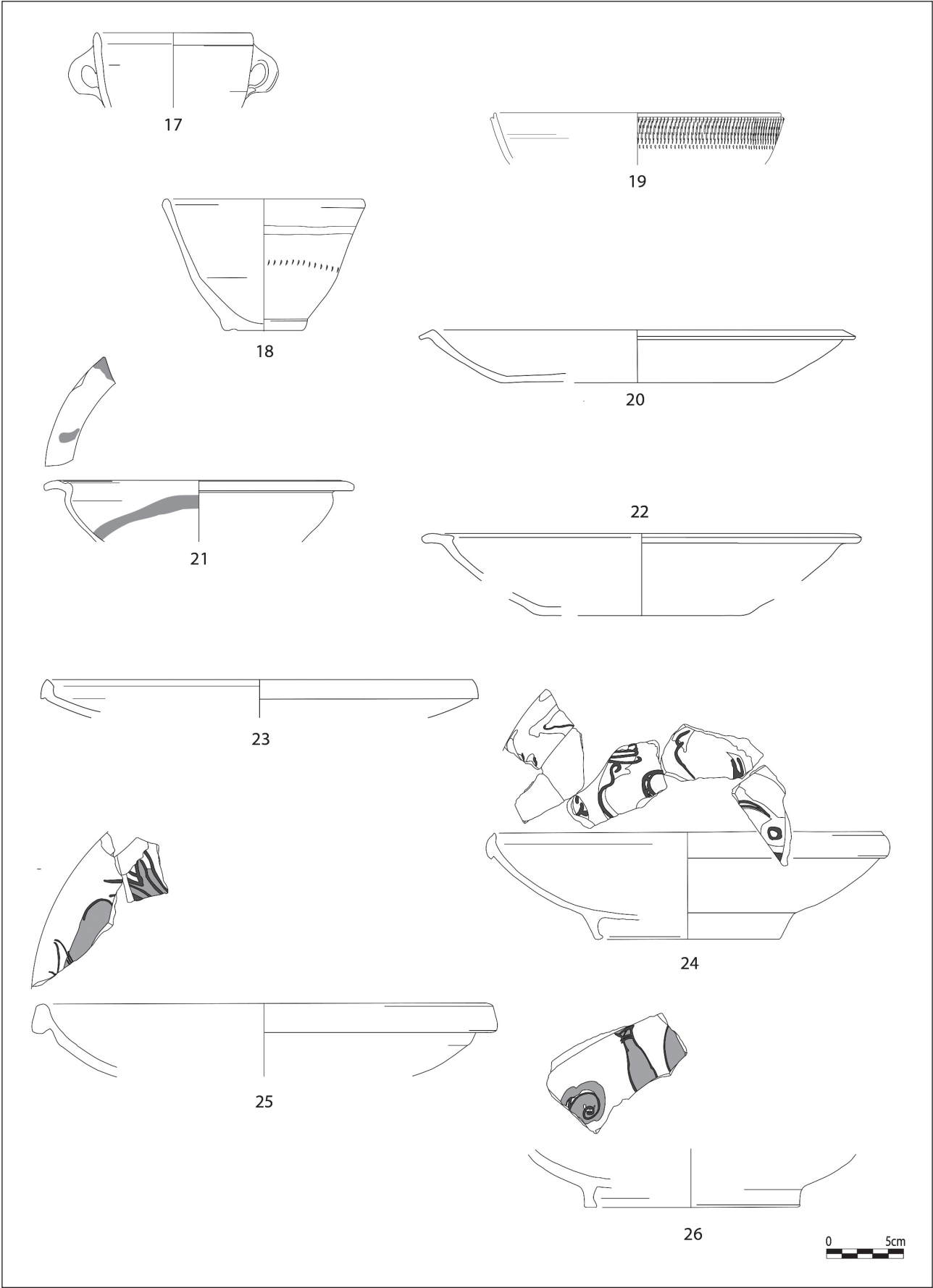
References: Lichtenberger, Raja and Sørensen 2018: fig. 63, from an Umayyad destruction layer (earthquake 749AD); Uscatescu 1996: 137 (Type XXXIV-6C) and pl. 104.718, with further references.

Date: Umayyad.

Casserole/Pan

The open forms attributed to cooking wares are in general represented by casseroles with a cut rim and horizontal, wide 'double-folded' handles attached slightly below the rim. A few kiln sites in Jarash are known to have produced this type of vessel (*cf.* Schaefer and Falkner 1986: 431-35; Montlivault 1986: 71; Uscatescu 2003: 551-53). The earliest production occurs in Late Roman/Early Byzantine times and continues with slight changes in execution up to Umayyad times (Uscatescu 2003: 551-53, fig. 4.42-45). A lid with a cut rim belongs to this type of vessel [Concerning the production process, *cf.* Uscatescu 1996: 300, fig. 1-13]. The casserole with lid presented in the catalogue stems from an earthquake-destruction layer in Trench V. The production date of this vessel points to a period prior to 749AD (**Pl. 2.11-12**).

Other casseroles with an outward-directed rim and an internal ledge of different widths are also numerous in Jarash, being mostly of local production. Our example has small, horizontal looped handles and irregularly set painted decoration on the rim and handle (**Pl. 2.13**). Other variations occur with elongated handles attached directly to the rim (Kalaitzoglou et al. 2021: fig. 16).



The shape of a pan of Late Roman local production, possibly made in one of the kiln sites in the Hippodrome, is reminiscent of African Cooking Ware, African Red Slip (ARS) [Possibly related to Hayes 1972, ARS Form 181]. The inside of the vessel is covered with a thick slip, a non-stick coating (Pl. 2.14). Two other carinated vessels, possibly pans too, differing in diameter, with horizontal rim, and of later date (Byzantine or Early Umayyad) show the same treatment (Pl. 2.15-16). Both types also occur as tableware with white circles on the inner base (cf. Uscatescu 1996: 337). The slip of later types is much thinner than the one of the pans presented here.

Casserole, Lid
With Cut Rim

11.
Pl. 2.11
J16-Vac-61-20
Rim
Diam.: 22.5
Fabric: OW

References: Uscatescu 1996: 106-107 (Type XVI-1A), pl. 73.381-385, with further references. Montlivault 1986: 71, pl. 19.2, referring to a Byzantine workshop in Jarash producing this type of pottery; Schaefer and Falkner 1986: 431-435, fig. 13.1, referring to an Umayyad workshop in the North Theater in Jarash producing this type of pottery. Date: Umayyad.

Casserole
With Cut Rim

12.
Pl. 2.12
J16-Vac-61-19
Rim
Diam.: 23.1
Fabric: OW

References: Uscatescu 1996: 106-107 (Type XVI-1A), pl. 73.381-385, with further references; Montlivault 1986: 71, pl. 19.2, referring to a Byzantine workshop in Jarash producing this type of pottery; Schaefer and Falkner 1986: 431-435, fig. 13.1, referring to an Umayyad workshop in the North Theater in Jarash producing this type of pottery. Date: Umayyad.

Casserole/Pan
With Outward-Turned Rim and Internal Ledge

13.
Pl. 2.13
J16-Tb-66-4
Rim
Diam.: 25.0
Fabric: OW

The looped and double-folded handle is directly attached to the rim. White irregular stripes painted on the handle top and internal side of rim and body.
References: Uscatescu 1996: 109-110 (Type XVI-7), pl. 74.395, with further references; Montlivault 1986: 71, pl. 19.5, referring to a Byzantine workshop in Jarash producing this type of pottery.
Date: Late Byzantine to Early Umayyad (6th to 7th century AD).

Pan
With Rounded Rim

14.
Pl. 2.14
J16-Wd-40-9
Rim
Diam.: 27.8
Fabric: OW

A thick slip is covering the inside of the vessel.
References: Lichtenberger, Raja and Sørensen 2018: figs. 5-6, with further references. Date: Late Roman to Early Byzantine; Montlivault 1986: pl. 17.1. Date: End of the 3rd century AD. Kehrberg 2007: fig. 5.2-7, referring to a Late Roman workshop (E2) in the Hippodrome producing this type of pottery.
Date: Late Roman.

Pan/Plate
Carinated, with Vertical Rim

15.
Pl. 2.15
J16-Wfgh-107-9
Rim
Diam.: 20.0
Fabric: OW

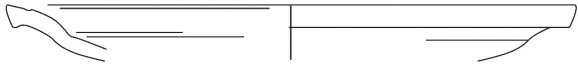
A thick slip is covering the inside of the vessel.
References: Lichtenberger, Raja and Sørensen 2013: 30-31, figs. 65-66. Date: Late Byzantine. Uscatescu 1996: 92-93 (Type XI-2A and 2B), pl. 67.314-322 and pl. 68.323 with further references. Date: Late Byzantine to Early Umayyad (6th to 7th century AD); cf. Montlivault 1986: 71, pl. 19.4, referring to a Byzantine workshop in Jarash producing this type of pottery.
Date: Late Byzantine to Early Umayyad (6th to 7th century AD).

16.
Pl. 2.16
J16-Xh-37-13
Rim
Diam.: 28.4
Fabric: OW

A thick slip is covering the surface of the vessel.
References: Lichtenberger, Raja and Sørensen 2013: 30-31, figs. 65-66. Date: Late Byzantine; Uscatescu 1996: 92-93 (Type XI-2A and 2B), pl. 67.314-322 and pl. 68.323, with further references. Date: Late Byzantine to Early Umayyad (6th to 7th century AD); cf. Montlivault 1986: 71, pl. 19.4, referring to a Byzantine workshop in Jarash producing this type of pottery.
Date: Late Byzantine to Early Umayyad (6th to 7th century AD).

Tableware (HM)
Cups, Bowls, Plates and 'Jarash Bowls'

Two cups are presented in the catalogue (Pl. 3.17-18). One is of Late Roman date and of local production, probably produced in one of the Late Roman kilns in the Hippodrome (Kehrberg 2007: fig. 3.24). The other, with irregular rouletting on the outside, is an Umayyad production and stems from the earthquake destruction layer in Trench V. The shape in general is not very common in the Northwest Quarter, neither for the earlier nor for the later contexts.



27



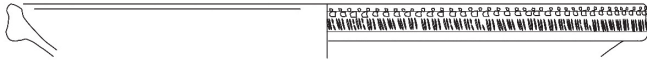
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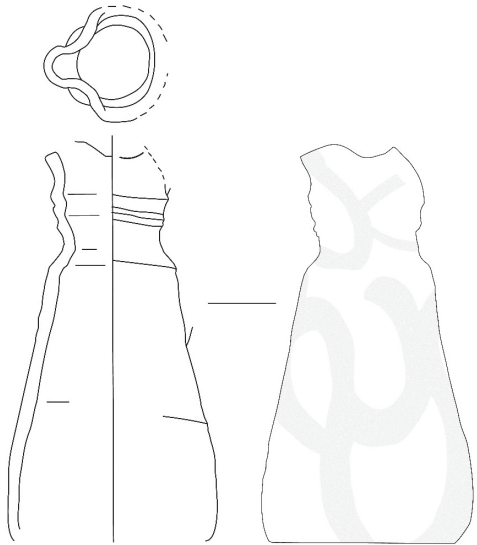
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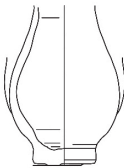
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31



32



33



In contrast to cups, bowls are very common in Roman and Late Roman contexts, and most of them are of local production (Braemer 1989: 153-167; Kehrberg 2007: fig. 3). The example chosen here is very rare and has a fine rouletting on the exterior, just below the rim and a bifid lip (**Pl. 3.19**).

The largest group of tableware at Jarash comprises the so-called 'Jarash Bowls', a set of locally produced tableware, with typological similarities to African Red Slip Ware (ARS), Late Roman C Ware (LRC) and other widely dispersed tableware produced in the Western and Eastern Mediterranean (Uscatescu 2001; Watson 1989). The name 'Jarash Bowl' is of limited suitability: not all locally produced tableware is included and sometimes it is hard to decide whether one type only relates or actually belongs to that series of production. It is also problematic to decide whether a production is an imitation of imported tableware or whether it is a locally developed shape.

One plate with medium-broad, flat rim could be an imitation of ARS, Hayes form 32/68 (**Pl. 3.20**). It was probably produced at one of the kiln sites in the Hippodrome (Kehrberg 2007: fig. 10). Another plate with a flaring rim and flat base is very common over a wide time span from Roman to Early Umayyad times at Jarash (**Pl. 3.21**). A smaller version with reduced neck and white painting on the inside also exists and is of Late Byzantine to Umayyad date (**Pl. 3.22**).

Clearly defined as 'Jarash Bowls' are three objects with bichrome-painted decoration (**Pl. 3.24-26**) [One misfired bowl was analysed using elemental mass-spectrometry and petrography. It has the same 'fingerprint' as the other locally produced vessels, cf. Merkel and Prange 2021]. All stem from Late Byzantine/Early Umayyad contexts. They display a selection of floral/ornamental and anthropomorphic motifs. One undecorated vessel with a slightly overhanging rim is typologically related to the painted ones (**Pl. 3.23**).

Cups

Conical, with Outflaring Rim

17.

Pl. 3.17

J16-Wd-44-5

Rim

Diam.: 19.0

Fabric: OW

The vertical, small handle is attached just below the rim. *References:* similar, but without vertical handles, cf. Kehrberg 2007: fig. 3.24, referring to a Late Roman workshop (E2) in the Hippodrome producing this type of pottery. Date: Roman to Late Roman.

18.

Pl. 3.18

J16-Vac-61-91

Intact profile

Diam.: 10.6

Fabric: RW

Very irregular rouletting in one row set on the outside body.

References: Uscatescu 1996: 97 (Type XIII-12B), pl. 68.337, with further references.

Date: Umayyad.

Bowl

With Bifid Rim

19.

Pl. 3.19

J16-Wd-44-3

Rim

Diam.: 12.8

Fabric: OW

Rouletting in seven rows on the exterior just below the rim.

References: similar, but different decoration, cf. Kehrberg 2007: fig. 3.26-28, referring to a Late Roman workshop (E2) in the Hippodrome producing this type of pottery.

Date: Roman to Late Roman.

Plate

With Medium-Broad Flat Rim

20.

Pl. 3.20

J16-Ta-45-15

Intact profile

Diam.: 27.8

Fabric: OW

References: type related to Hayes 1972, ARS form 32/58. Date: Late 3rd/Early 4th century AD. Kehrberg 2007: fig. 10.60-61, referring to a Late Roman workshop (E2) in the Hippodrome producing this type of pottery.

Date: Late Roman.

With Flaring Rim

21.

Pl. 3.21

J16-Sc-13-21

Rim and base, reconstructed

Diam.: 28.1

Fabric: OW

References: Uscatescu 2001: 610 (Form 4A). Date: 4th to 5th century AD, with further references; Kehrberg 2007: fig. 10.56, referring to a Late Roman workshop (E2) in the Hippodrome producing this type of pottery.

Date: Late Roman.

With Flaring Rim, Slightly Convex

22.

Pl. 3.22

J16-Uc-60-5

Intact profile

Diam.: 20.0

White irregular stripes painted on top of the rim and inside the body.

References: Schaefer and Falkner 1986: 431-435, fig. 11.12. Date: Late Byzantine to Umayyad; Uscatescu 1996: 110 (Type XVII-3E) and pl. 75.402, with further references.

Date: Umayyad.

With Slightly Overhanging Rim

23.

Pl. 3.23

J16-Wd-39-15

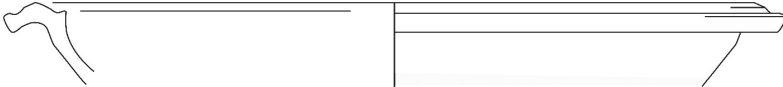
Rim



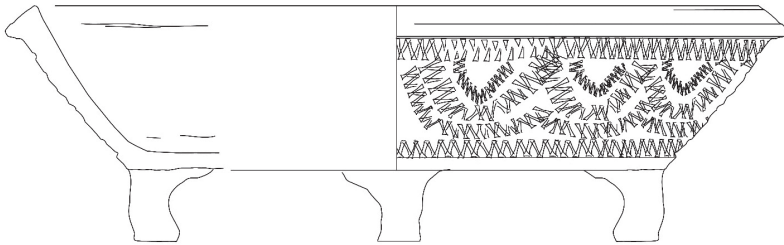
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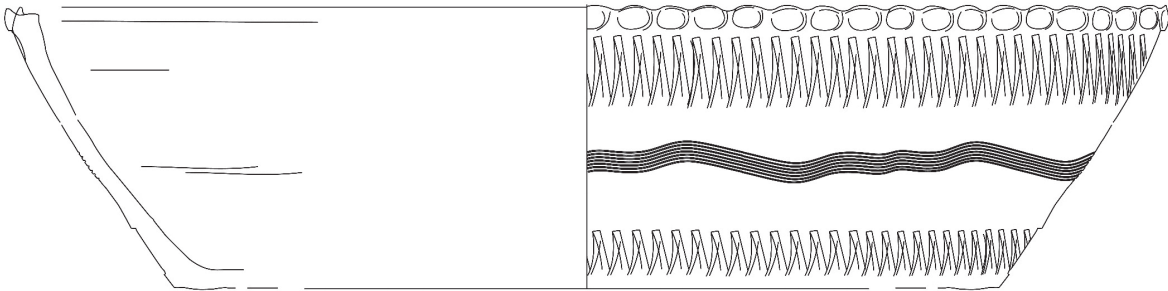
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36



37



38



Diam.: 27.8

Fabric: OW

References: Lichtenberger, Raja and Sørensen 2013: 22-23, fig. 30, with further references; Watson 1989: fig 1.7g.
Date: Late Byzantine to Early Umayyad.

'Jarash Bowls' with Painted Decoration
With Slightly Overhanging Rim and Hour-Glass-Shaped Ring Base

24.

Pl. 3.24

J16-Xh-2-279

Intact profile

Diam.: 25.9 (rim); 11.9 (base)

Fabric: OW

Bichrome painting on interior; reddish, stylized floral motif and buff, wavy line running across floral pattern.

References: Local production, 'Jarash Bowl': cf. Uscatescu 1996: 73, pl. 51.175-176 (Type X-15A and 16A), with further references.

Date: Late Byzantine to Early Umayyad.

25.

Pl. 3.25

J16-Xc-11-38

Rim

Diam.: 29.7

Fabric: OW

Bichrome painting on interior; reddish, stylized floral motif and buff, wavy line running across floral pattern.

References: Local production, 'Jarash Bowl': cf. Uscatescu 1996: 72, pl. 50.165 (Type X-10A), with further references; Lichtenberger, Raja and Sørensen 2013: 18-19, fig. 14; Watson 1989: 229, fig. 1.12c and 1.12e.

Date: Late Byzantine to Early Umayyad.

With Hour-Glass-Shaped Ring Base

26.

Pl. 3.26

J16-Xc-11-36

Base

Diam.: 14.0

Fabric: OW

Bichrome painting on interior; reddish, stylized floral motif next to two legs of a human figure.

References: Local production, 'Jarash Bowl': cf. Uscatescu 1996: 68-78 (Type X).

Date: Late Byzantine to Early Umayyad.

Tableware Imports (HM)

Western Mediterranean

African Red Slip (ARS) Ware is in general represented by bowls with a plain rim of ARS fabric group C, probably of central Tunisian origin (cf. e.g. Bonifay 2004: 50-51; Kalaitzoglou et al. in press: fig. 39). Rather rare are the types presented here: one large bowl with a two-part flaring rim, similar to Hayes form 67 (Pl. 4.27) and one with a vertical, slightly incurved rim, like Hayes form 61A/B (Pl. 4.28). Both are of North Tunisian production, probably made in one of the Late Roman/Byzantine kilns in El Mahrine (cf. Hayes 1972).

Outstanding is the find of a cooking-ware lid, made in the same manner as the ARS ware, which is related to Hayes form 195 (Pl. 4.29) and was imported from the region of today's Tunisia.

It is the first African cooking ware recorded in Jarash. The low amount of imported cooking ware on a regional and supra-regional level is, in general, most likely due to the high quality of the locally produced cooking ware.

African Red Slip Ware (ARS)

Bowl

With Two-Part Flaring Rim

27.

Pl. 4.27

J16-Sg-21-49

Rim

Diam.: 26.3

Fabric: ARS D1

References: Hayes 1972: 112-116, ARS form 67; Bonifay 2004: 171-173, ARS Type 41B, fig. 92. Date: End of 4th to mid 5th century AD.

Date: Late Roman to Byzantine.

With Vertical, Slightly Incurved Rim

28.

Pl. 4.28

J16-Ta-45-18

Rim

Diam.: 20.0

Fabric: ARS D1

References: Hayes 1972: 100-107, ARS form 61A/B; Bonifay 2004: 167-170, ARS Type 38.B2/B3. Date: 5th century AD.

Date: Byzantine.

29.

Pl. 4.29

J16-Wd-44-2

Rim

Diam.: 24.4

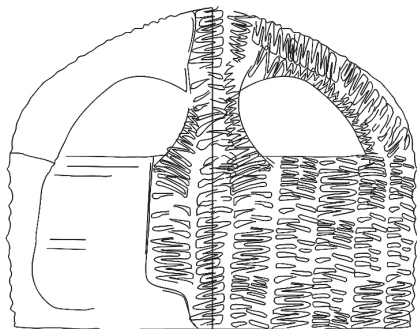
Fabric: similar to Bonifay 2004: 525, culinaire 2?

References: Hayes 1972: 1208, form 195; Bonifay 2004: 227, Type 11 'variante tardive'. Date: Roman/Late Roman.

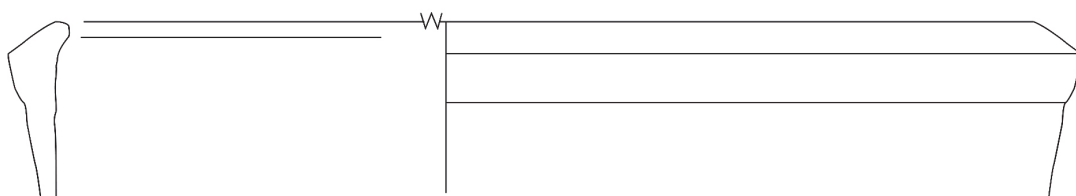
Date: Late Roman.

Eastern Mediterranean

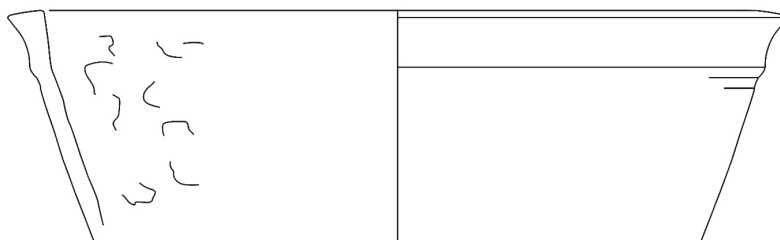
Late Roman C Ware, also known as Phocaean Red Slip Ware is the eastern counterpart of the western Mediterranean African Red Slip Ware in Jarash. The quantity of imports is slightly lower, but it is one of the types of tableware most imported in Byzantine times. Especially the type with overhanging rims finds similarities in the contemporary local 'Jarash-Bowl' production. The fabric, in general, is light red to reddish brown in colour and well levigated. Small yellowish-white inclusions are frequent. They are covered by a very thin colourless slip, and sometimes, dark discoloration occurs along the vessels' rim due to the firing process [Concerning the fabric of LRC Ware, cf. e.g. Ladstätter and Sauer 2005: 146]. Until now, the finds in Jarash cannot be attributed to one production centre. Further analyses are necessary.



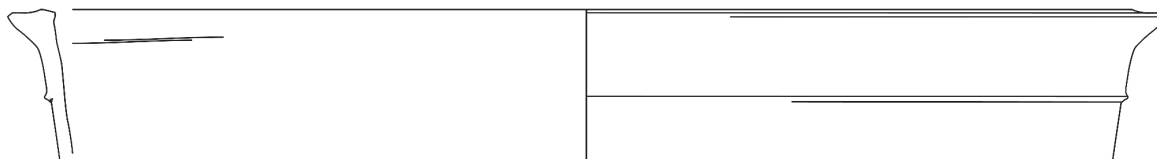
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40



41



42



Late Roman C Ware (LRC)

Bowl

With Overhanging Rim and Flat Underside, Grooved

30.

Pl. 4.30

J16-Tb-75-7

Rim

Diam.: 25.9

Fabric: Light red-reddish brown in colour and well levigated. Small yellowish-white inclusions are frequent. Thin colourless slip on the inside and outside of the vessel.

References: Hayes 1972: LRC form 3; Ladstätter and Sauer 2005: 171, fig. 3.36-38. Date: 5th century AD.

Date: Byzantine.

31.

Pl. 4.31

J16-Xd-16-15

Rim

Diam.: 29.7

Fabric: Light red-reddish brown in colour and well levigated. Small yellowish-white inclusions are frequent. Thin colourless slip on the inside and outside of the vessel.

Rouletting in three rows of different height on the exterior rim.

References: Hayes 1972: LRC form 3; Ladstätter and Sauer 2005: 171, fig. 3.36-38. Date: 5th century AD.

Date: Byzantine.

Tableware (HM)

Trifoiled Jugs, Juglets

Closed-shaped vessels used as tableware are very rare compared to open forms such as plates and bowls, especially in Byzantine and Early Islamic times. Two examples are presented here: one of Umayyad production with a trifoiled rim and white paint (Pl. 4.32), the other a small juglet of Byzantine to Umayyad date (Pl. 4.33). The latter could have been used as a perfume vessel. It seems that in Late Byzantine/Early Umayyad times the production of smaller jugs diminished, while in Late Roman times especially medium-sized jugs were very common (cf. see Kalaitzoglou et al. in press: figs. 49-53).

Jug

With Trifoiled Rim

32.

Pl. 4.32

J16-Uc-60-7

Almost intact profile, base is missing

Diam.: 15.2

Fabric: RW

Handle attachments are visible on rim and body, just underneath the shoulder. White, irregular-set, wavy painted patterns cover the whole vessel.

References: related to Uscatescu 1996: 128, pl. 80.482 (Type XXIX-4), with further references;

Date: Late Byzantine/Early Umayyad to Umayyad.

Juglet

33.

Pl. 4.33

J16-Uc-23-25

Almost intact profile, rim is missing

Diam.: 3.1

Fabric: OW

Handle attachments are visible on the lower part of the body.

References: related to Lichtenberger, Raja and Sørensen 2018: fig. 54. Date: Roman to Byzantine; Uscatescu 1996: 128, pl. 40.60-61 (Type XXIV-1 and XXIV-2) and pl. 78. (Type XXIV), with further references.

Date: Late Byzantine to Early Umayyad.

Common Ware/Food Preparation (HM)

Basins, Large Bowls/Pans, Basket

From the Roman period onwards, basins with flaring, slightly profiled rims and a reduced neck are very common (Pl. 5.35). Later variants have a steeper rim with an internal flange and some occur as Grey Ware with white stripes on the outside (Pl. 5.36). Rather seldom and exclusively of Late Umayyad production are basins with a horizontal, slightly inturned rim, deep red in colour (Pl. 5.34).

In Umayyad times a series of new types occur that have no predecessors in earlier Byzantine/Early Umayyad production. One of those types consists of stoves of two different sizes with small legs, a flanged rim and a flat base (Pl. 5.37). The vessels' bottoms are covered with small 'grids' and they were used over fire. Further analyses have to show whether the 'grids' functioned as heat conductors or were added for other purposes. All stoves were found in one of the destruction layers of Trench V.

One big bowl or pan has a similar rim profile as the stove, however it is much bigger in size (Pl. 5.38). Similar types have been found in the North Theater, where they were produced in one of the kilns (Schaefer and Falkner 1986: fig. 10.7-8). The decoration pattern of these vessels, worked with a triangular tool, occurs already in Late Byzantine/Early Umayyad times, but becomes more common on vessels of later Umayyad date.

Similar decoration patterns cover a basket (Pl. 6.39) found in the same Umayyad destruction layer in Trench V. The form of the vessel is unique up to now and confirms a new type-series of local production for some vessel types in Umayyad times.

In Byzantine times, large wheel-made basins, carrying traces of irregularly set fingerprints on the interior wall and floor of the vessel, are very common (Pls. 6.40-42 and 7.43-45) (cf. Kalaitzoglou et al. in press, with further discussion). This characteristic treatment occurs on numerous types, all of which are large basins or large storage jars (see below) from the Byzantine period onwards into Umayyad times. Vessels are made mainly of Grey-Ware fabric.

While the large basin with a horizontal rim overlapping the outer rim can be found in contexts of Byzantine and Umayyad times (Pl. 6.40-42), the ones with a thickened rim and wavy comb decoration were developed later and were not produced before Umayyad times (Pl. 7.43-45). The finds assemblages of the destruction layers in Trench V show both types of large vessel, underlining the continuity of production and furthermore the invention of a new type.

In Trench X one of the large basins was reused as a *tabun* (cf. (see Fig. 21) ev. 5). It was placed upside down in the ground and filled with small rounded stones that stored the heat (Pl. 7.45).

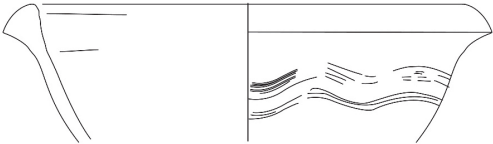
Basins

With Horizontal Rim, Slightly Inturned

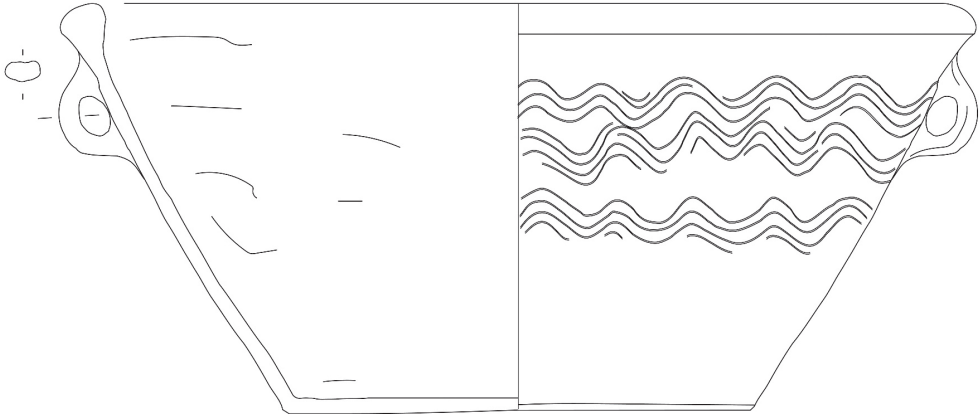
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Pl. 5.34

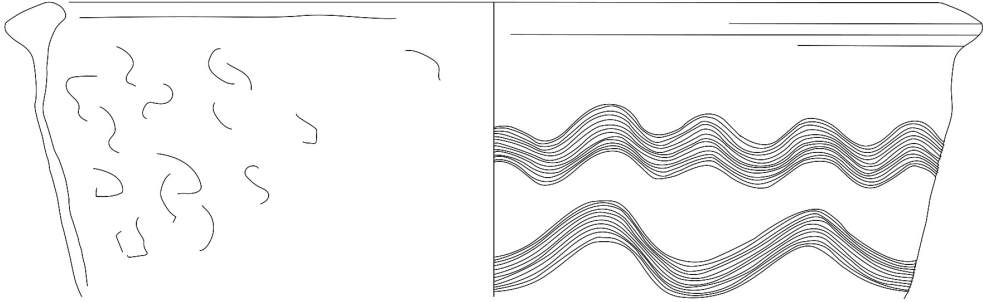
J16-Uc-23-2



43



44



45



0 5cm

Rim
Diam.: 27.5
Fabric: RW
References: similar to Walmsley 1986: 351-353, fig. 1.3.
Date: Umayyad.

With Flaring, Slightly Profiled Rim and Reduced Neck

35.

Pl. 5.35

J16-Tb-30-2

Rim

Diam.: 33.7

Fabric: OW

References: Clark and Falkner 1986: 248-249, fig. 20.17, from a context dating to the 3rd century AD; Kalaitzoglou et al. in press: figs. 58-59, from a context dating to the 3rd century AD; Uscatescu 1996: 104 (Type XV-5B) and pl. 72.375, with further references. Date: Late Byzantine (6th century AD).
Date: Byzantine.

With Flaring Rim and Internal Ledge

36.

Pl. 5.36

J16-Tb-75-10

Rim.

Diam.: 35.6

Fabric: GW

White stripes on the exterior body.

References: Kalaitzoglou et al. in press: fig. 60; Uscatescu 1996: 105 (Type XV-8) and pl. 72.376-378, with further references; similar to Schaefer and Falkner 1986: fig. 11.3, referring to an Umayyad workshop in the North Theater in Jarash producing this type of pottery; related to Pierobon 1984: 14Je6713.

Date: Late Byzantine to Early Umayyad.

Stove

With Flanged Rim and Flat Base

37.

Pl. 5.37

J16-Vac-61-p1

Intact profile

Diam.: 33.4

Fabric: GW

With zigzag incisions on the exterior underneath the rim and along the base and regular-set, wavy patterns around the body.

References: related to Uscatescu 1996: 154 (Type XXXVI-33) and pl. 112.802, with further references. Date: Umayyad; Clark and Falkner 1986: 250-251, fig. 21.4.
Date: Umayyad.

Large Bowl/Pan

With Flanged Rim and Flat Base

38.

Pl. 5.38

J16-Vac-61-p2

Intact profile

Diam.: 53.1

Fabric: GW

With piecrust finger impression, zigzag incisions on the

exterior underneath the rim and along the base, and wavy band combing.

References: Uscatescu 1996: 154 (Type XXXVI-31B) and pl. 112.799, with further references. Date: Umayyad; Clark and Falkner 1986: 250-251, fig. 21.5; Schaefer and Falkner 1986: fig. 10.7-8, referring to an Umayyad workshop in the North Theater in Jarash producing this type of pottery; Pierobon 1984: 5-Je5416; Lichtenberger, Raja and Sørensen 2018: fig. 78 from an Umayyad earthquake-destruction layer.
Date: Umayyad.

Basket

39.

Pl. 6.39

J16-Vac-61-bkt

Intact profile

Diam.: 18.1

Fabric: GW

Zigzag incisions on the exterior in parallel lines.

References: -

Date: Umayyad.

Large Basins

With Incurved Rim and Interior and Exterior Lip

40.

Pl. 6.40

J16-Wc-31-9

Rim

Diam.: 54.4

Fabric: OW/GW

References: Uscatescu 1996: 169 (Type XLII, subtype 6C), pl. 99.668, with further references. Date: 6th century AD; related to Kalaitzoglou et al. in press: figs. 66-68, with further references.

Date: Late Byzantine/Early Umayyad.

With Horizontal Rim, Overlapping the Outer Rim

41.

Pl. 6.41

J16-Tb-75-9

Rim

Diam.: 35.6

Fabric: GW

References: Lichtenberger, Raja and Sørensen 2013: 39-40, fig. 105; Uscatescu 1996: 147 (Type XXXVI-4C and 4D), pl. 88.565, with further references; Schaefer and Falkner 1986: fig. 9, referring to an Umayyad workshop in the North Theater in Jarash producing this type of pottery; Brizzi, Sepio and Baldoni 2011: 363-365, fig. 11.14 from a context dating to the mid 6th to the beginning of the 7th century AD; Kehrberg 1989: 91, fig. 1.6.
Date: Late Byzantine to Early Umayyad.

42.

Pl. 6.42

J16-Vac-61-b1

Rim

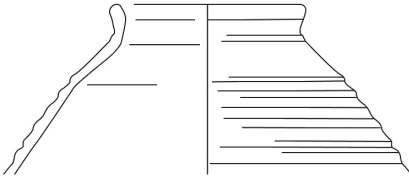
Diam.: 52.8

Fabric: GW

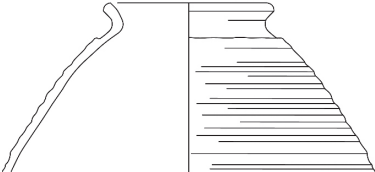
References: Lichtenberger, Raja and Sørensen 2013: 39-40, fig. 105; Uscatescu 1996: 147 (Type XXXVI-4B), pl. 88.557 and (Type XXXVI-10), pl. 88.573, with further



46



47



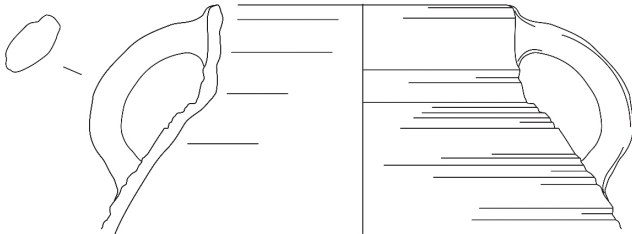
48



49



50



51



references. Brizzi, Sepio and Baldoni 2011: 363-365, fig. 11.14 from a context dating to the mid 6th to the beginning of the 7th century AD; Kehrberg 1989: 91, fig. 1.6; Schaefer and Falkner 1986: fig. 9, referring to an Umayyad workshop in the North Theater in Jarash producing this type of pottery.

Date: Umayyad.

With Thickened Rim

43.

Pl. 7.43

J16-Vac-61-b10

Rim

Diam.: 26.6

Fabric: GW

Double line of combed decoration on exterior body.

References: Lichtenberger, Raja and Sørensen 2018: fig 82; Kalaitzoglou *et al.* in press: figs. 72-73; Uscatescu 1996: 151 (Type XXXVI-18), pl. 111.783-784, with further references.

Date: Umayyad.

44.

Pl. 7.44

J16-Uc-74-1

Rim

Diam.: 55.8

Fabric: GW

Triple line of combed decoration on exterior body.

References: Lichtenberger, Raja and Sørensen 2018: fig 82; Kalaitzoglou *et al.* in press: figs. 72-73; Uscatescu 1996: 151 (Type XXXVI-16A), pl. 111.779-781, with further references; Brizzi, Sepio and Baldoni 2011: 365-367, fig. 12.4 from a context dating to the first half of the 8th century AD.

Date: Umayyad.

With Thickened Rim, Overlapping Outside and Inside

45.

Pl. 7.45

J16-Xc-5-1

Rim

Diam.: 54.5

Fabric: GW

Double line of combed decoration on exterior body.

References: similar to Lichtenberger, Raja and Sørensen 2018: fig 82; Kalaitzoglou *et al.* in press: figs. 72-73, similar also figs. 67-68; Uscatescu 1996: 151 (Type XXXVI-16A), pl. 111.779-781 and p. 105 (Type XV-8), pl. 72.380, with further references.

Date: Umayyad.

Common Ware (HM)

Storage Jars

Some small jars without any decoration are very red in color (**Pl. 8.46-49**). The same type also occurs as cooking ware [*cf.* Reynolds 2005: pl. 19.150, where the same type, of slightly earlier date than our type shown in **pl. 8.49**, is part of a cooking-ware production series]. All vessels belong to the inventory of the house in Trench V, just before its destruction in 749AD. It is most likely that in Umayyad times the firing conditions in the production of some of the vessel types changed. This is especially the case for some closed-shape table ware, common ware and cooking ware.

Further analyses are necessary to understand, whether, similar to the Grey and Orange Ware, the differences in color lead back to changing firing conditions, or whether other parameters, such as for example different clay sources, caused the different colouring.

One storage jar with a vertical handle (**Pl. 8.51**) from an Umayyad context is similar to a cooking pot (**Pl. 2.10**) of the same production period. Another jar (**Pl. 8.50**) with an inclined rim is from the Late Roman period and does not occur very often. However, it is of local production and was probably made in one of the kilns in the Hipodrome.

In Byzantine and Umayyad contexts, numerous large storage jars of different types occur (**Pls. 9.52-54** and **10.55-56**), often associated with large basins (see above) and made in the same manner. Fingerprints are visible on the interior side of the vessel, the result of a second layer of clay pressed against the interior wall covering the complete inner surface [This became apparent when looking at the thin section of a basin (sample 2), *cf.* Merkel and Prange 2021]. One vessel (**Pl. 9.54**) with two vertical, oval-shaped handles was reconstructed due to optimal find conditions. The vessel stems from one of the contexts caused by the earthquake in 749AD in Trench V. The body shows combed decoration in two zones made of wavy patterns and circles. Another very common motif of later Umayyad times is combed decorated nets (**Pl. 10.55**). It seems that this type of decoration is typical for the Umayyad production, while earlier productions of Byzantine or Early Umayyad times, have only very reduced combed decoration on the exterior.

A variety of painted storage jars (**Pl. 10.57-59**) are associated with the smaller unpainted ones (*cf.* **Pl. 8.46-49**). Two of them (**Pl. 10.57-58**) belong to the same inventory of the house in Trench V. A third one with a reconstructed base belongs to a sherd concentration of Umayyad date in Trench T (**Pl. 10.59**), and one smaller jar is from an Umayyad context in Trench U (**Pl. 11.60**). All vessels are produced in the same manner and occur in a deep red colour with white-painted, geometrical decoration.

Grey-Ware jars with a cylindrical neck, thickened rim and surrounded by a ledge (**Pl. 11.61**) are very common in Late Byzantine/Early Umayyad to Umayyad times and we find similar types in the cooking ware production of the same period.

Worthy of mention is an almost complete jug that was found in Trench T outside the house on a Middle Islamic walk-on level (**Pl. 11.62**).

Storage Jars

With Flaring, Inclined Rim

46.

Pl. 8.46

J16-Vac-21-C5

Rim

Diam.: 10.3

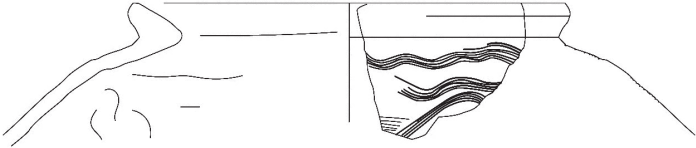
Fabric: RW

References: similar to Schaefer and Falkner 1986: 431-435, figs. 11.14 and 12.14; Lichtenberger, Raja and Sørensen 2018: fig. 71 from an Umayyad earthquake-destruction layer; Uscatescu 1996: 134 (Type XXXIV-1F and XXXIV-2A) pl. 82.497 and 82.499 and p. 136 (Type XXXIV-3H) pl. 85.525-526. Date: Late Byzantine to Early Umayyad.

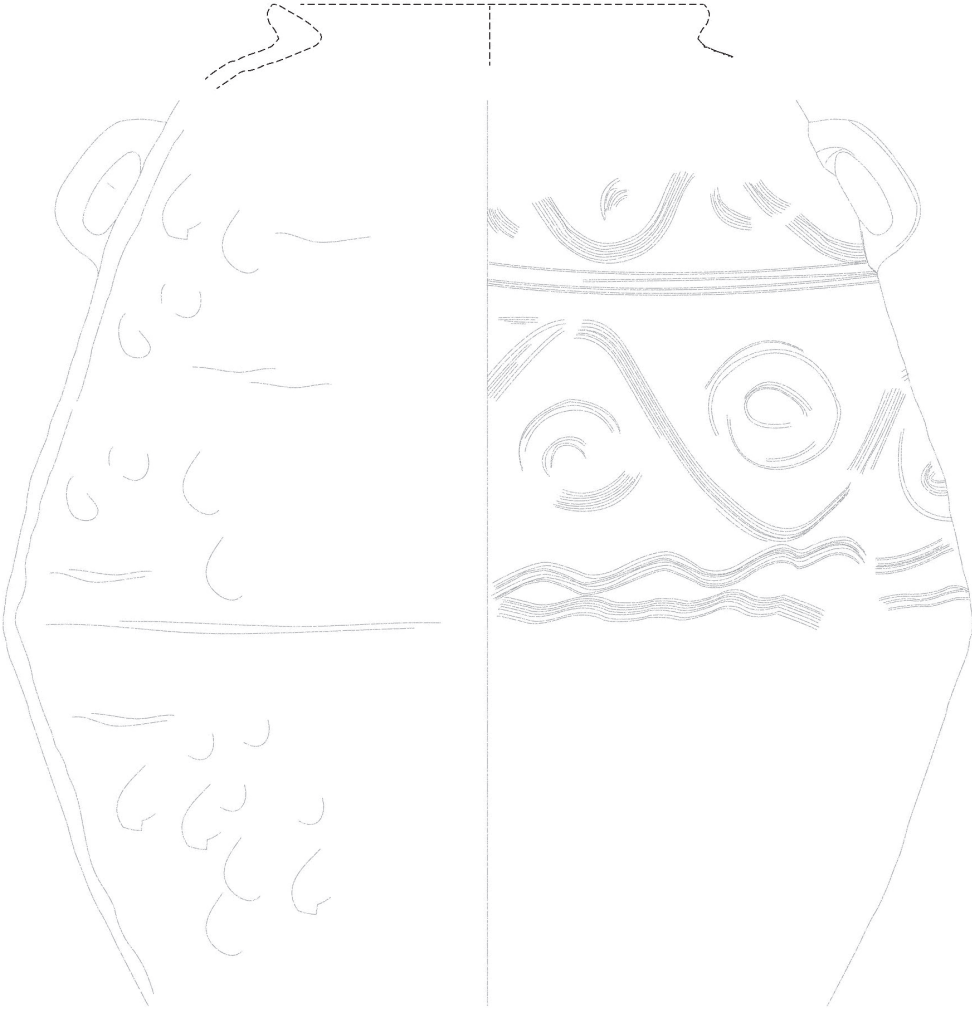
Date: Umayyad.



52



53



54



47.

Pl. 8.47

J16-Vac-21-C8

Rim

Diam.: 12.2

Fabric: RW

References: similar to Schaefer and Falkner 1986: 431-435, figs. 11.14 and 12.14; Lichtenberger, Raja and Sørensen 2018: fig. 71 from an Umayyad earthquake-destruction layer; Uscatescu 1996: 134 (Type XXXIV-1F and XXXIV-2A) pl. 82.497 and 82.499 and p. 136 (Type XXXIV-3H) pl. 85.525-526. Date: Late Byzantine to Early Umayyad.

Date: Umayyad.

48.

Pl. 8.48

J16-Vac-21-C10

Rim

Diam.: 7.8

Fabric: RW

References: similar to Schaefer and Falkner 1986: 431-435, figs. 11.14 and 12.14; Lichtenberger, Raja and Sørensen 2015 in press: fig. 71 from an Umayyad earthquake-destruction layer; Uscatescu 1996: 134 (Type XXXIV-1F and XXXIV-2A) pl. 82.497 and 82.499 and p. 136 (Type XXXIV-3H) pl. 85.525-526. Date: Late Byzantine to Early Umayyad.

Date: Umayyad.

With Inclined, Horizontal Rim

49.

Pl. 8.49

J16-Vh-1-27

Rim

Diam.: 16.2

Fabric: RW

References: Uscatescu 1996: 132 (Type XXXII-3) and pl. 103.714, with further references.

Date: Late Byzantine/Early Umayyad to Umayyad.

With Inclined, Thickened and Rounded Rim

50.

Pl. 8.50

J16-Ta-45-13

Rim

Diam.: 18.4

Fabric: OW

References: Kehrberg 2007: fig. 5.176, referring to a Late Roman workshop (E2) in the Hippodrome producing this type of pottery.

Date: Late Roman?

With Straight Neck

51.

Pl. 8.51

J16-Uc-60-4

Rim

Diam.: 14.1

Fabric: GW

References: Lichtenberger, Raja and Sørensen 2018: fig. 63 from an Umayyad destruction layer (earthquake

749AD); Uscatescu 1996: 137 (Type XXXIV-6C) and pl. 104.718, with further references; Clark and Falkner 1986: fig. 21.13-14; Walmsley 1986: fig. 2.3 from an Umayyad context.

Date: Umayyad.

Large Storage Jars

With Flaring, Inclined Rim, Slightly Profiled

52.

Pl. 9.52

J16-Tb-30-3

Rim

Diam.: 20.0

Fabric: GW

References: Uscatescu 1996: 165 (Type XLI-3), pl. 97.642, with further references. Date: Late Byzantine to Early Umayyad (6th to 7th century AD); similar to Kalaitzoglou et al. in press: fig. 77.

Date: Late Byzantine to Early Umayyad.

With Flaring, Inclined Rim

53.

Pl. 9.53

J16-Wc-23-6

Rim

Diam.: 26.7

Fabric: GW

Wavy lines of combed decoration on exterior body.

References: Uscatescu 1996: 166 (Type XLI-9), pl. 97.651, with further references. Date: Late Byzantine to Early Umayyad (6th to 7th century AD); similar to Kalaitzoglou et al. in press: fig. 76.

Date: Late Byzantine to Early Umayyad.

54.

Pl. 9.54

J16-Vac-21-Pi1

Body. Profile partly reconstructed.

Diam.: 59.1

Fabric: GW

At least two zones of wavy lines and circles of combed decoration on exterior body.

References: similar decoration, cf. Uscatescu 1996: 165 (Type XLI-2), pl. 97.641, with further references.

Date: Umayyad.

55.

Pl. 10.55

J16-Vac-21-Pi2

Body

Diam.: -

Fabric: GW

Net of combed decoration on exterior body.

References: -

Date: Umayyad.

56.

Pl. 10.56

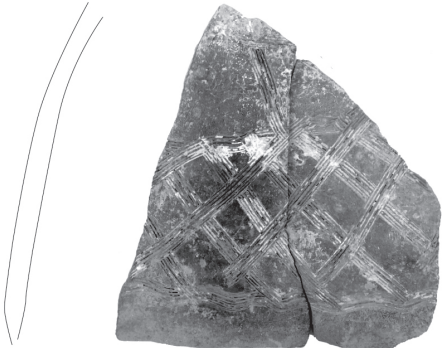
J16-Tb-66-3

Rim

Diam.: 31.7

Fabric: GW

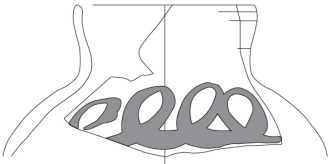
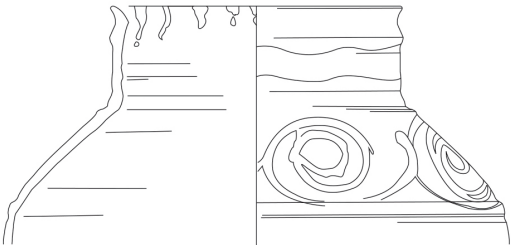
References: Uscatescu 1996: 166 (Type XLI-9), pl. 97.651, with further references. Date: Late Byzantine to Early Umayyad (6th to 7th century AD); similar to Kalaitzoglou



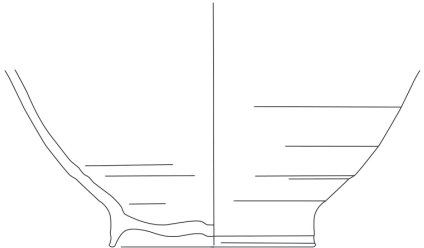
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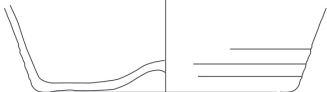
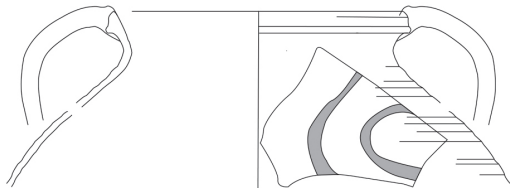
56



57



58



59



et al. in press: fig. 76.
Date: Late Byzantine/Early Umayyad to Umayyad?

Storage Jars
With Short Cylindrical Neck

57.

Pl. 10.57

J16-Vac-61-17

Rim and base, reconstructed

Diam.: 8.4

Fabric: RW

Looped lines on the exterior neck, just below the rim.

References: Uscatescu 1996: (Type XXVIII-6) pl. 80.477, decoration cf. p. 515-b; Ball et al. 1986: fig. 2.1.; Kalaitzoglou et al. in press: fig. 78.

Date: Umayyad.

With Thickened Rim, Flattened on Top and Profiled Neck

58.

Pl. 10.58

J16-Vac-61-2

Rim and base, reconstructed

Diam.: 13.4

Fabric: RW

Surrounding ledge just underneath the rim. Irregularly-set horizontal circles on neck just below the rim, whitish in colour. Traces of paint also on the interior of the rim.

References: Uscatescu 1996: 141-142 (Type XXXV-3, 5 and 10), pls. 105.725, 109.772 and 110.773; Ball et al. 1986: fig. 2.2; Kalaitzoglou et al. in press: fig. 79.

Date: Umayyad.

With Flaring, Inclined Rim, Slightly Profiled

59.

Pl. 10.59

J16-Tb-66-1

Rim and base, reconstructed

Diam.: 13.4

Fabric: RW

Traces of circles on neck just below the rim, whitish in colour.

References: similar to Uscatescu 1996: 138 (Type XXX-IV-6E), pl. 104.720.

Date: Umayyad.

With Cylindrical Neck and Thickened Rim

60.

Pl. 11.60

J16-Uc-60-6

Rim

Diam.: 8.4

Fabric: RW

Traces of wavy lines on neck just below the rim, whitish in colour. Traces of paint also on the interior of the rim.

References: Uscatescu 1996: 143 (Type XXXV-10) and pl. 105.725, with further references; similar to Clark and Falkner 1986: fig. 21.17; Walmsley 1986: fig. 2.1 from an Umayyad context.

Date: Umayyad.

61.

Pl. 11.61

J16-Xd-6-3

Rim

Diam.: 10.6

Fabric: GW

Surrounding ledge just underneath the rim.

References: Uscatescu 1996: 141 (Type XXXV-1) and pl. 105.539-540, with further references.

Date: Umayyad.

Storage Jars/Jugs

With Hollow, Concave Base

62.

Pl. 11.62

J16-Ta-46-1

Base

Diam.: 7.5

Fabric: OW

References: -

Date: Umayyad or Middle Islamic.

Transport Vessels (HM)

Amphorae

The finds presented in the catalogue refer to the locally or regionally produced bag-shaped amphorae, which have a long tradition in the Levant, especially on both sides of the Jordan. All refer to a prototype with a short cylindrical neck and small looped handles, however it seems that the production is more dependent on several civic production centres than on a standardized regional production, since a lot of variation occurs during the same period of time (see also Reynolds 2005: 573; Uscatescu 2003: 547-549, fig. 1). The production centre of some of the amphorae presented here is not known until now. Further research on the fabrics will show whether they are of local or regional production. One base of a bag-shaped amphora can be attributed to an earlier local production of Late Roman or Early Byzantine date and was found in Trench S (**Pl. 11.63** and **Fig. 3**).

The other two very well-preserved, smaller examples stem from sealed Umayyad contexts. One (**Pl. 11.65**) was found together with a cooking pot (**Pl. 2.10**) and is part of the original inventory of the room in Trench U. The second (**Pl. 11.64**) is part of the inventory found in one of the destruction layers in Trench V, together with a large quantity of other bag-shaped amphorae from different local/regional and supra-regional production sites (see below). One of the two bag-shaped amphorae of bigger dimensions (**Pl. 12.66-67**) belongs to the same inventory.

Storage Jars/Amphorae

With Hollow, Concave Base

63.

Pl. 11.63

J16-Si-104-1

Base

Diam.: 7.0

Fabric: OW

References: -

Date: Late Roman?

LRA 5

With Short, Slightly Out-Turned Rim

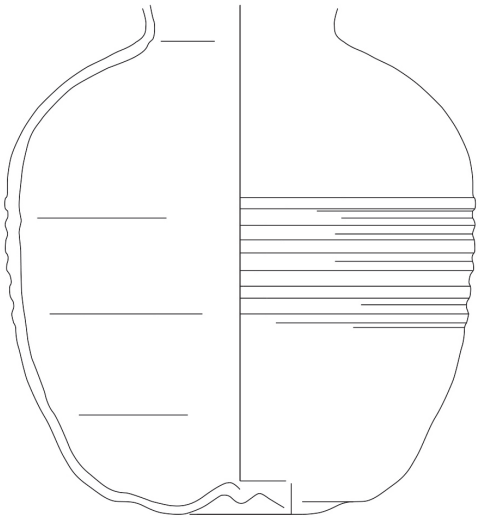
64.

Pl. 11.64

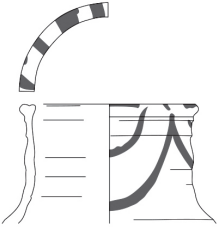
J16-Vac-61-Bs1

Rim. Almost intact profile

Diam.: 8.8



61



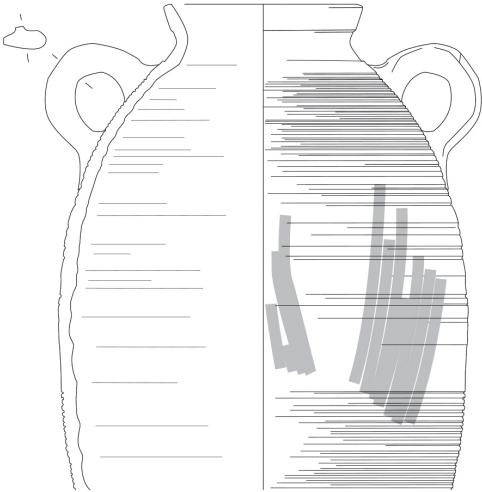
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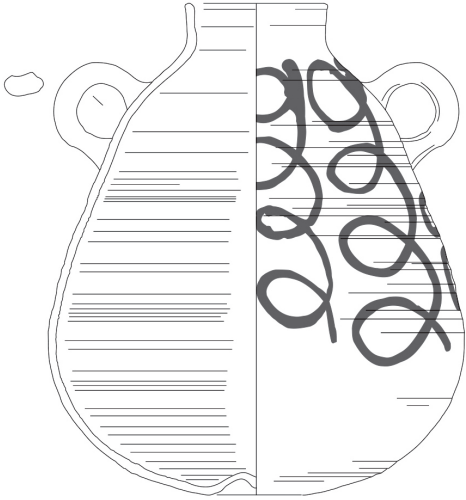
62



63



65



64



Fabric: GW?

White, vertical, irregular-set stripes on the exterior body.

References: similar to Uscatescu 1996: 164 (Type XXX-VIII-3) and pl. 113.811, with further references. Date: 7th to 8th century AD.

Date: Umayyad.

With Short, Cylindrical Neck

65.

Pl. 11.65

J16-Uc-71-1

Intact profile

Diam.: 12.5

Fabric: OW?

White, vertical, parallel-set loops on the exterior body.

References: similar to Uscatescu 1996: 159 (Type XXX-VII-1E) and pl. 92.599, with further references. Date: 6th to 7th century AD; *cf.* Uscatescu 2003: fig. 2.9 (Mt. Nebo).

Date: Early Umayyad?

66.

Pl. 12.66

J16-Vac-61-Bs2

Rim and base, reconstructed

Diam.: 10.0

Fabric: GW?

References: Uscatescu 1996: 159 (Type XXXVIII-1) and pl. 112.808, with further references. Date: 8th century AD; *cf.* Uscatescu 2003: fig. 2.11 (El Kursi); Brizzi, Sepio and Baldoni 2011: 365-367, fig. 12.2 from a context dating to the first half of the 8th century AD.

Date: Umayyad.

67.

Pl. 12.67

J16-Uc-23-17

Rim

Diam.: 10.0

Fabric: OW/GW?

White, irregular-set stripes on the exterior body.

References: similar to Uscatescu 1996: 146 (Type XXX-VII-2C) and pl. 93.601, with further references. Date: 6th to 7th century AD; *cf.* Uscatescu 2003: fig. 2.10 (Tell Keisan); Schaefer and Falkner 1986: 431-435, fig. 13.1; Lichtenberger, Raja and Sørensen 2018: fig. 72.

Date: Early Umayyad.

Amphorae Imports from the Eastern Mediterranean

The earliest find of an imported amphora is the rim of a Dressel 2-4, probably of Coan production (**Pl. 13.71**).

In Byzantine times, imports of Late Roman Amphorae 1 (LRA; congruent with Ballana 6, Benghazi Late Roman Amphora 1, British B2, Carthage Late Roman Amphora 1, Keay 53, Kuzmanov 13, Peacock and Williams 44, Scorpan 8B) can be identified in a few contexts excavated during this campaign in Jarash. These amphorae (**Pl. 13.72**), in different variations, are in general common and distributed all over the Western and Eastern Mediterranean and are the most frequent imports in Byzantine and Umayyad times at Jarash. The production centres were located in Cyprus and/or Cilicia [Regarding the kiln sites, see Bezeczky 2013: 158-160]. In 2015 content analyses on some sherds found in the Northwest Quarter confirmed that mostly wine was transported in such containers [The content of a similar vessel type was analysed, *cf.* Springer

and Polla in press].

Imported bag-shaped amphorae occur in large quantities in Trench V and are all of Egyptian production. Several amphorae found in the destruction layers caused by the earthquake in 749AD in Trench V are made of the typical Egyptian alluvial clay (**Pl. 13.69-70**) and were probably produced at one of the kiln sites along the Nile Valley (Dixneuf 2011: 149). One amphora of buff fabric is of unknown origin (**Pl. 13.68**).

LRA 5

With Short, Cylindrical Neck

68.

Pl. 13.68

J16-Vac-61-BsB

Intact profile

Diam.: 10.0

Fabric: Buff

White, vertical, parallel-set loops on the exterior body.

References: similar to Uscatescu 1996: 159 (Type XXX-VII-1E) and pl. 92.599, with further references. Date: 6th to 7th century AD.

Date: Early Umayyad? to Umayyad.

AE 5/6-2.1B

69.

Pl. 13.69

J16-Vac-61-BsE3

Rim. Almost intact profile

Diam.: 10.4

Fabric: A12 (Dixneuf 2011: 34)

References: Dixneuf 2011: 149, fig. 136, type AE5/6-2.1, variante B. Date: First half of the 7th to the first half of the 8th century AD.

Date: Umayyad.

70.

Pl. 13.70

J16-Vac-61-BsE6

Rim and base, reconstructed

Diam.: 9.1

Fabric: A12 (Dixneuf 2011: 34)

References: Dixneuf 2011: 149, fig. 136, type AE5/6-2.1, variante B. Date: First half of the 7th to the first half of the 8th century AD.

Date: Umayyad.

Dressel 2-4, Coan

71.

Pl. 13.71

J16-Wd-44-1

Rim

Diam.: 15.8

Fabric: similar to fabric 76 (*cf.* Bezeczky 2013: pl. 62.76)

References: Bezeczky 2013: 56-61, type b.

Date: Roman.

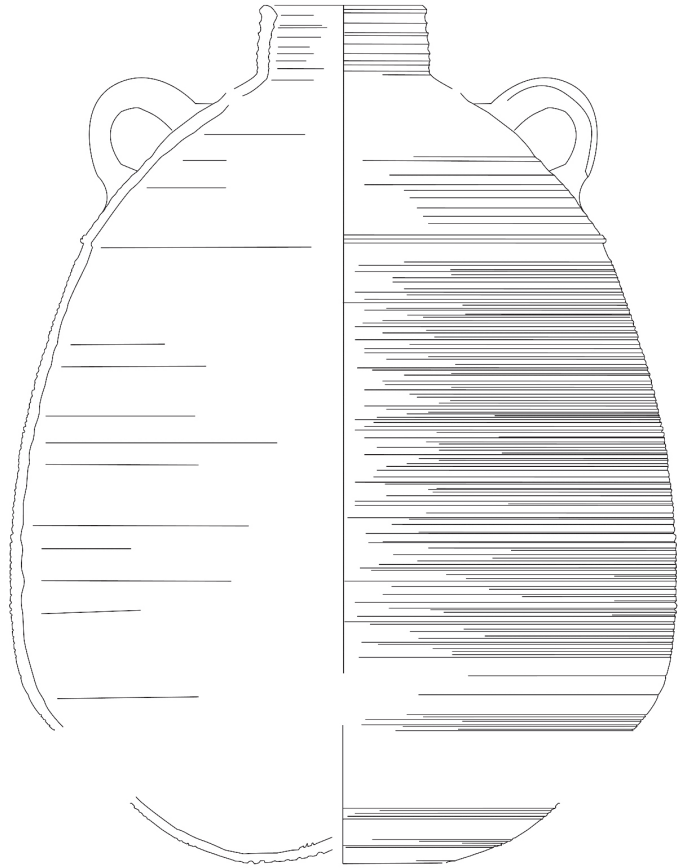
Late Roman Amphora 1

72.

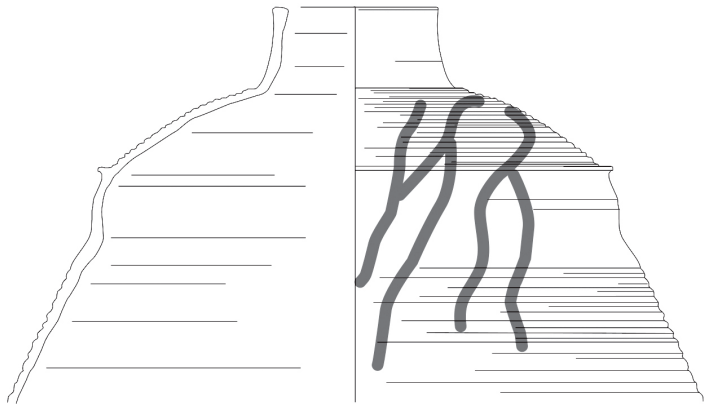
Pl. 13.72

J16-Weh-O-23

Rim



66



67



Diam.: 9.5

Fabric: Hard and compact with quartz and other larger opaque inclusions of different color and size, visible by naked eye

References: Lichtenberger, Raja and Sørensen 2018: fig. 69; Uscatescu 1996: 177 (Type XL-5B, LRA 1), pl. 96.637; Pieri 1998: 98-99 (Type LRA 1B1); Reynolds 2005: 591, fig. 31; Kalaitzoglou et al. in press: fig. 93.

Date: Late Byzantine to Early Umayyad.

Middle Islamic Vessels (AP)

Middle Islamic Green Glazed Ware

Wheel-made, green-glazed bowls are an important part of the Mamluk ceramic repertoire and are the most common form of glazed ware found at rural Middle Islamic sites. Appearing in Jordan by the 14th century and in some areas of the Levant as early as the late 13th century, they are widely distributed across the medieval Islamic world. Their variety in terms of slip, glaze and fabric seems to indicate a localized production or regional production networks for this ware, or perhaps both. While scholars typically agree that green-glazed pottery was produced until the 16th century, other sites within Bilad al-Sham have documented these types of ware anywhere between the 14th and 19th centuries. For this reason, reliable stratigraphy is needed for precise dating of green-glaze wares (Milwright 2008: 187-195; Pringle 1986: 147-149; Stern 2014: 84-86; Walker 2009: 41-42). Despite the difficulties involved in dating green-glazed pottery, some characteristics have been identified by researchers which differentiate Ottoman types of ware from Mamluk green-glazed pottery. For example, inverted and more carinated rim forms seem to characterize a Mamluk assemblage, whereas the Ottoman forms tend to have simple upright, everted or T-shaped rims. Furthermore, variations in the shape of the base and in the quality of the glaze have been identified [For more on the characteristics differentiating Ottoman and Mamluk green-glazed ware, see Walker 2009: 42-43]. Further research is needed in order to better understand the diversity of green-glazed pottery types in Jordan and to determine whether they were primarily produced in localized centres or imported from wider regional centres of production.

Plate

With Rounded Rim, Open

73.

Pl. 14.73

J16-Tc-1-5

Rim

Diam.: 23; H.: 2.1; L.: 4.5; W.: 0.9; T.: 1.2

Munsell: core: 2.5YR 6/8; glaze: 10Y 5/4; ext.: 2.5YR 6/8; int.: 2.5YR 6/8

Green-glazed rounded rim, lustrous and transparent with brownish/white slip under glaze. Hard-fired and fine levigation.

References: Avissar and Stern 2005: 13, fig. 4.3; Pringle 1986: fig. 49.50; Stern 2014: 85, fig. 7.2, 7-8; Walker 2005: 82, fig. 9.1.

Date: Middle to Late Islamic (14th century and later).

With Thick Rounded Rim, Carinated Body

74.

Pl. 14.74

J16-Td-13-23

Rim

Diam.: 24; H.: 5.1; L.: 8.4; W.: 7.65

Munsell: core: 2.5YR 6/8 to 5/8; glaze: 5GY 6/4 to 5/4 and 10YR 3/2

Thick rounded rim of a wheel-made, green-glazed Middle Islamic bowl. Glaze also has brown spots along rim and in areas near to it. Glaze is very worn and flaking. Almost half the vessel is preserved. Hard-fired and rather finely levigated with only some lime inclusions.

References: Avissar 1996: fig. 13.37; Avissar and Stern 2005: 12-13, fig. 4; Walker 2005: 82, fig. 9.4.

Date: Middle Islamic (14th to 16th century).

Handmade Geometric-Painted Ware (HMGPW)

HMGPW is difficult to date but is commonly viewed as originating from the late 11th century and remaining in use until at least the 15th century [For more on HMGPW chronology, see Stern 2014; Milwright 2010: 155-156; Johns 1998: 65-93], and possibly as late as the first half of the 20th century (see Walker 2011: 214-215; 2014: 194). HMGPW finds in Jarash are characterized as a hard- to medium-fired coarse ware of rather sandy clay with many lime inclusions and tiny pebbles as well as quartz and reddish brown inclusions. Decorated with paint that is thick, matt and flaking, the paint on HMGPW vessels is often monochrome (sometimes bichrome), depicting intricate geometric designs in red, brown or black paint (Walker 2014: 200; Johns 1998: 66). Painted designs are applied to the exterior surface, and open forms may be painted on both surfaces. The shapes comprise many open bowls and closed jugs and jars. One notable characteristic found on sherds in 2016 and in previous years is traces of textile impressions visible on the interior, revealing that many of the vessels were formed on sacks filled with wet sand or a bowl covered in fabric, a phenomenon observed also by scholars researching HMGPW in the past (*cf.* Franken and Karlsbeek 1975: 167; Walker 2014: 197-198).

Small Bowl

With Squared Rim

75.

Pl. 14.75

J16-Td-52-8

Rim

Diam.: 18; H.: 2.6; L.: 6.8; T.: 1.1

Munsell: core: 10YR 5/1; ext.: 2.5Y 8/2; int.: 10YR 7/4; deco.: 10R 4/4

Squared rim from an HMGP, linear-painted, shallow bowl. Traces of fire on interior and exterior surface, painted decoration is worn and flaking. Fabric crumbles easily and is coarsely levigated.

References: Sauer and Herr 2012: 560, fig. 4.17:9; Tholbecq 1998: 166, fig. 28.

Date: Middle Islamic.

With Rounded Rim

76.

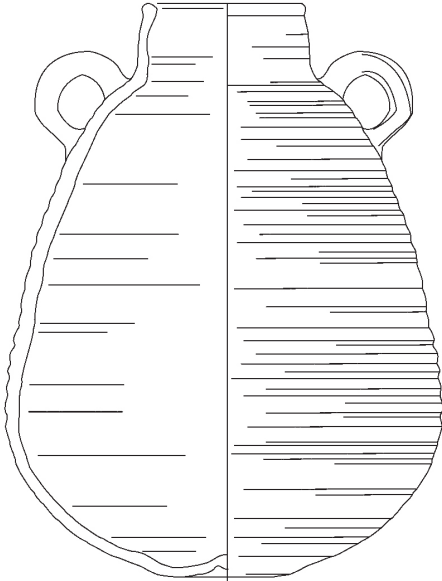
Pl. 14.76

16-Tc-41-3

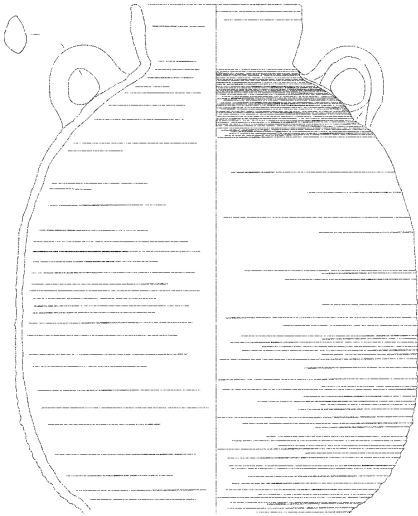
Rim

Diam.: 22; H.: 3.2; T.: 0.8

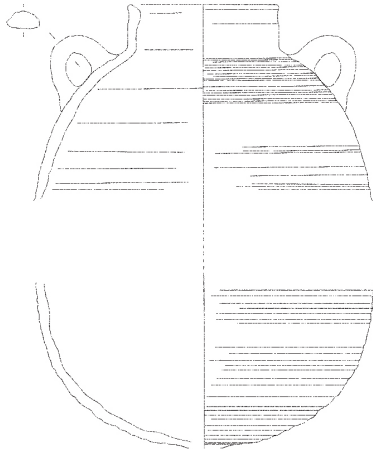
Munsell: core: 7.5YR 7/6; slip: 7.5YR 8/3; int.: 7.5YR 8/6 and 7/6; deco.: 10R 4/4 and 4/2



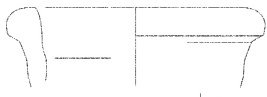
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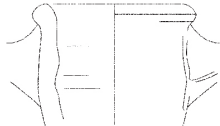
69



70



71



72



Rounded rim from an open HMGP bowl. Rim is slightly out-turned and resembles almost an exact copy of an older Byzantine type. Painted decoration that is visible is linear and not as dense in geometric designs. Buff slip on both surfaces, medium-fired and medium levigation.

References: decoration: Franken and Karlsbeek 1975: 195; fig. 71.11.

Date: Middle Islamic.

Large Bowls

With Thick, Rounded Rim

77.

Pl. 14.77

J16-Tc-53-1

Rim

Diam.: 36; H.: 8.2; L.: 14.7; W.: 14.0; T.: 1.2

Munsell: core: 2.5YR 5/6; slip: 10YR 8/2; deco.: 10YR 3/3

Thickened and rounded rim from an HMGP shallow bowl. Buff slip on interior and exterior surface and painted with spiral, diamond, triangles, linear and repeating motif of geometric designs. Hard-fired and a rather coarse levigation.

References: Franken and Karlsbeek 1975: 182, fig. 58.12; rim form in following reference is externally bevelled instead, but vessel shape is similar: Sauer and Herr 2012: 581, fig. 4.23:3.

Date: 1300–1400AD.

78.

Pl. 14.78

J16-Tc-60-18 and Tc-67-2-1

Rim

Diam.: 40; H.: 12.2; L.: 55; T.: 1.4

Munsell: core: 7.5YR 6/4 to 6/6; slip: 10YR 8/3 and 10R 6/8; int.: 10R 6/8; deco.: 10R 4/6

Rounded thick rim and almost a whole profile of an HMGP large bowl with four rounded handles around the diameter of the rim. Fragments from two evidences join to make bowl, found within remains of second floor level of Trench T. Reddish interior wash/slip and buff slip on exterior. Geometric, painted decoration includes linear, rectangular, spiral and thick curved lines. Medium-fired and coarse levigation.

References: Franken and Karlsbeek 1975: 180, fig. 56.7, 193, fig. 69.12; Tholbecq 1998: 166, fig. 37.

Date: Middle Islamic.

Jars/Jugs

With Thick, Rounded Rim

79.

Pl. 15.79

J16-Uc-1-14

Rim

Max Diam.: 21; H.: 7.1; T.: 1.2

Munsell: core: 7.5YR 7/6; slip: 7.5YR 8/3; deco.: 10R 4/2

Rounded thick rim from a closed HMGP jug. Geometric, painted design consisting of checker pattern, triangles and linear decoration. Buff slip on exterior and interior surface, medium-fired and coarse levigation.

References: Franken 1975: 191, fig. 67.4-5, 196, fig. 72.21; Harts and Falkner 1985: 266, fig. 5.19, 5.23-25; Tholbecq 1998: 162, fig. 10.

Date: Middle Islamic.

80.

Pl. 15.80

J16-Td-52-13

Base, disc., jug

Base diam.: 7.5; max diam.: 16; H.: 8; L.: 14.7; W.: 10.7; T.: 1

Munsell: core: 7.5YR 6/6; slip: 10YR 8/3; int.: 7.5YR 8/2 to 8/4 and 2.5/1; deco.: 10R 3/2 to 3/3

Almost a whole profile of a small HMGP bowl with a disc base. Buff slip on exterior surface, and interior surface has burning traces. Spirals, triangles, and linear-painted, geometric designs on exterior surface, medium-fired and rather coarse levigation.

References: Avissar 1996: 170, fig. XIII.154:1; Franken and Karlsbeek 1975: 179, fig. 55.41, 194, fig. 70.29; Sauer and Herr 2012: 584, fig. 4.24:15; Tholbecq 1998: 162, fig. 1.

Date: Middle Islamic.

81.

Pl. 15.81

J16-Tb-35-5

Body, Jug

Diam.: H: 10.2; L: 10.3; W: 10.2; T: 0.9

Munsell: core: F2D, strong brown (inner), pale yellow/green (outer); int, and ext. surface: buff slip; deco.: dusky red

HMGP bodysherd with geometric, painted decoration over a buff slip on the exterior surface. Hint of green on slip and in core. Lines visible on vessel, indicating it was produced on a slow wheel perhaps. Medium-fired and medium levigation.

Date: 13th century

Large Storage Jars

82.

Pl. 15.82

J16-Uc-1-13

Two handles with attached 'mini-bowl'

'Mini-bowl' rim diam.: 8.3; H.: 15.5; T.: 2

Munsell: core: 5YR 7/8; slip: 7.5YR 8/2; deco.: 10R 3/2.

Rounded handle and bodysherd from a jug. Two handle fragments from the same vessel, each sherd with the handle from each side of the jug has a miniature bowl set into the upper part of the handle. Painted decoration consists of swirly lines and circles. Medium-fired and coarse levigation. 'Mini-bowls' appear handmade, and body part of the sherds seem to be made on a slow wheel perhaps.

References: handle shape, Franken and Karlsbeek 1975: 192, fig. 68.26-28; Tholbecq 1998: 164, fig. 12; shape of jug similar to Walker 2009: 151, fig. 5.20:1.

Date: Ottoman?

83.

Pl. 15.83

J16-Td-50-11

Base, disc

Max diam.: 16; H.: 3.3; L.: 12.6; T.: 2.3

Munsell: core: 10YR 7/4; int.: 10YR 8/2; ext.: 10YR 7/3; deco.: 2.5YR 4/3

Base is slightly concave and has painted decoration on both surfaces over a buff slip.

References: shape, Franken and Karlsbeek 1975: 181, fig. 57.28 and 57.30.

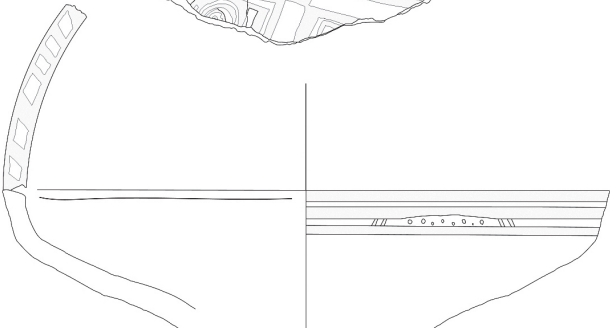
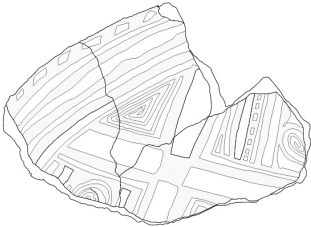
Date: Middle Islamic.



73



74



77

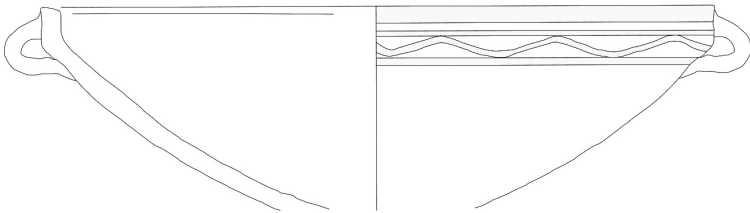


75



76

78



Plain Handmade Ware

Plain handmade vessels, without geometric painting, resemble similar production traditions as the HMGP pottery above. Appearing in the Levant during the 11th century, but mainly popular in the 12th to 14th centuries, handmade ware of the medieval period is often found across rural sites and less frequently in urban areas. In comparison to the HMGP pottery, plain handmade ware is simpler and more crudely made (Stern 2014: 73). Handmade vessels appear in both open and closed shapes, but at Jarash the majority of plain handmade ware consists of closed vessels or storage vessels.

84.

Pl. 15.84

J16-Td-13-13

Base, disc

Base diam.: 11; H: 3.9; T: 2.4

Munsell: core: (inner): 7.5YR 3/1; (outer): 7.5YR 6/6; slip: 7.5YR 8/3; int.: 7.5YR 6/6

Plain handmade disc base with a joining body fragment. Burning traces on interior surface and plaster rubbed on exterior between base and body join, perhaps part of a repair. Coarse levigation and medium-fired.

References: Avissar and Stern 2005: 84-85, fig. 36.5; similar plaster-like slips on handmade vessels have been found, dating to the Ottoman period, Walker 2003: 94-95, fig. 17.6. Date: Middle Islamic to Ottoman.

Tabun

85.

Pl. 15.85, Figs. 7 and 9

J16-Tb-27-1

Rim

Diam.: 44; H.: 7.35; L.: 14.5; W.: 13.2; T.: 2.4

Munsell: core: (inner): 2.5YR 6/4 (outer): 7.5YR 5/1; ext.: 7.5YR 8/3 + 5/1; int.: 2.5YR 6/4

The rim was taken from the older *tabun* (for making bread) situated on the walk-on level outside the Middle Islamic building in Trench T. Medium-fired and coarse levigation. Three joining sherds.

References: -

Date: Middle to Late Islamic.

Domestic Furnishings and Other Specialized Vessels (HM)

'Jarash Lamps'

The Roman lamps presented here all stem from the Late Roman cistern fill in Trench S and are of local production. One lamp, a so-called 'Roman Gerasa Lamp' (**Pl. 16.88**) is of slightly earlier production date than the two others, which can be attributed to type JUTZ (**Pl. 16.86-87**) (Kehrberg 2011).

The later Byzantine and Umayyad pottery presented here can be attributed to the category of 'Jarash Lamps'. Most of them were probably produced at one of the kiln sites in the Hippodrome (Kehrberg 2011: 135-136). Instead of the zoomorphic handle, one example shows just a simple grip (**Pl. 16.89**), but the decoration pattern and size are similar to ones with zoomorphic handles (**Pl. 17.91**). Another example shows in general the same characteristics as the 'Jarash Lamps' but has small triangular edges on both sides of the body that are reminiscent of fins (**Pl. 17.92**).

The single find of a mould for a 'Jarash Lamp' (**Pl. 17.93**) was discovered in Trench X. It was secondarily

deposited and found in the lower part of an intentional fill (ev. J16-X-11). It is therefore out of its original context, but relates to a production site in the vicinity. The mould is similar to the moulds found at the production sites in the Hippodrome.

JUTZ

86.

Pl. 16.86

J16-Sc-13-125

Almost intact. Discus and shoulder, fragmented

Diam.: L.: 7.9

Fabric: Local production

Mould-made. Decoration consists of small projecting dots around the wick hole and a triangular pattern on the upper shoulder.

References: Local production – 'Roman Jarash Lamp, Type JUTZ'. Lichtenberger, Raja and Sørensen 2018: fig. 32; Kalaitzoglou et al. in press: fig. 100; Kehrberg 2011: 131-133 (Type JUTZ), fig. 2, with a typology of the locally produced Late Roman lamps in Jarash. This type was probably produced near the 'Jarash Upper Temple of Zeus'-Complex, Kehrberg 2011: 132.

Date: Roman (late 2nd to 3rd century AD).

87.

Pl. 16.87

J16-Sc-13-127

Intact. Surface destroyed

Diam.: L.: 8.7

Fabric: Local production

Mould-made. Original surface lost. Decoration pattern visible in some places.

References: Local production – 'Roman Jarash Lamp, Type JUTZ'. Lichtenberger, Raja and Sørensen 2018: fig. 32. Kalaitzoglou et al. in press: fig. 100; Kehrberg 2011: 131-133 (Type JUTZ), fig. 2, with a typology of the locally produced Late Roman lamps in Jarash. This type was probably produced near the 'Jarash Upper Temple of Zeus'-Complex, Kehrberg 2011: 132.

Date: Roman (late 2nd to 3rd century AD).

Roman Gerasa Lamp

88.

Pl. 16.88

J16-Sc-13-126

Intact

Diam.: L.: 7.5

Fabric: Local production

Mould-made. Decoration consists of small projecting dots placed in four rows around the filling-hole. The wick hole is separated by a fan-shaped decoration made of four lines on both sides of the wick hole. The handle is just a small knob.

References: Local production – Roman Gerasa Lamp. cf. Kehrberg 2011: 131-133 (Type Roman Gerasa Lamp), fig. 1.10.

Date: Roman (late 2nd century AD).

'Jarash Lamps'

89.

Pl. 16.89

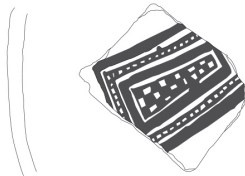
J16-Tb-75-4x



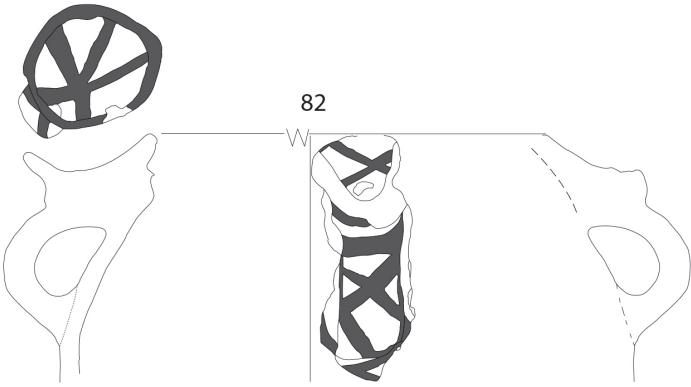
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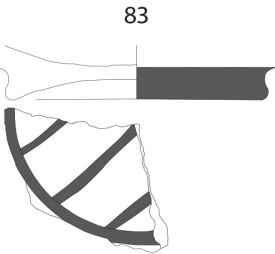
80



81



82



83



84



85



Intact

Diam.: L.: 8.3

Fabric: Local production

Intact mould-made lamp. Projecting decoration; vertical lines along the sides of the body and towards the wick hole. Two framed circles are separating wick hole and filling-hole.

References: Local production – ‘Jarash Lamp’: Lichtenberger, Raja, and Sørensen 2013: 27, fig. 53; 2017: fig. 48; 2018: fig. 38; Kalaitzoglou *et al.* 2021: 103; Kehrberg 2009: fig. 7 no. JH7; see also Kehrberg 2011: 135-136, fig. 4.65. Similar lamps, but with a zoomorphic handle are produced in Jarash, Hippodrome workshops.

Date: Late Byzantine to Early Umayyad.

90.

Pl. 16.90

J16-Vac-61-113

Almost intact, handle lost

Diam.: L.: 9.5

Fabric: Local production

Intact mould-made lamp. Projecting decoration; vertical lines and small circles along the sides of the body and towards the wick hole.

References: Local production – ‘Jarash Lamp’: Lichtenberger, Raja and Sørensen 2018: fig. 35; Kehrberg 2011: fig. 64.

Date: Umayyad.

91.

Pl. 17.91

J16-Vi-26-5x

Intact

Diam.: L.: 10.2

Fabric: Local production

Intact mould-made lamp. Projecting decoration; vertical lines, wavy lines and small circles along the sides of the body and towards the wick hole.

References: Local production – ‘Jarash Lamp’: Lichtenberger, Raja and Sørensen 2018: fig. 35; Kehrberg 2011: fig. 64.

Date: Umayyad.

92.

Pl. 17.92

J16-Tb-75-3x

Intact

Diam.: L.: 10.0

Fabric: Local production

Intact mould-made lamp. Projecting decoration; vertical lines along the sides of the body and towards the wick hole. Handle pinched with five holes.

References: -

Date: Late Byzantine to Early Umayyad.

Mould

93.

Pl. 17.93

J16-Xc-11-33

Handle and wick hole, fragmented

Fabric: Local production

References: Similar to Kehrberg 2009: 502-504, fig. 7 (Mould B), used in one of the workshops in the Hippodrome.

Date: Late Byzantine to Early Umayyad.

Lantern

94.

Pl. 17.94

J16-Tc-26-1

Base

Max diam.: 3.1 (max.)

Fabric: Local production

Intact mould-made lamp. Incised decoration; vertical lines and small circles along the sides of the body and towards the wick hole.

References: similar to Lichtenberger, Raja and Sørensen 2013: 29-31, figs. 57-63, with further references; Uscarescu 1996: 117-118 (Type XXIII), pl. 101.702.

Date: Late Byzantine to Early Umayyad.

Ottoman Pipe

95.

Pl. 17.95

J16-Sc-1-6

Ottoman pipe, fragmented

Ottoman mould-made pipe. Incised decoration on exterior. Decoration: incised circular and vertical lines.

References: Walker 2009: 49-50 and 139, fig. 5.10:2 (17th/18th century).

Date: Ottoman.

Architectural Elements (PE)

Tiles, Imbreces, Tubuli and Pilae

The 2016 campaign yielded more ceramic building materials than were found in earlier campaigns. Listed is a selection of objects from well-stratified contexts.

The cistern fill in Trench S brought to light plenty of *tegulae* as well as some *tubuli* types that are, so far, unknown. Most of the pieces are small, and they do not show any remains of plaster.

The building material from the cistern in Trench S does not show many similarities to the material found in Byzantine or Umayyad contexts and provides us, therefore, with new types and fabrics of Roman to Late Roman date.

The Umayyad earthquake context in Trench V is similar to that in Trench S. In addition to known *tegulae* types, many new types are present, all of which are, however, just single small fragments – sometimes very worn. As seen in Trenches P and K, excavated in 2015 (Kalaitzoglou *et al.* 2021) and 2014 (Kalaitzoglou *et al.* 2018 respectively, the amount of *tegulae* is not sufficient to reconstruct a tiled roof. It is more likely that all *tegulae* were used within the house as lids and stoppers or as wall fill. The same is the case in Trench V.

The new types and fabrics in Trench V will be further investigated. The other trenches – T, U, W and X – did not contain as much ceramic building material as Trenches S and V. However, a selection of types, not attested until now, is given in this catalogue.

Tiles

Tegulae

96.

Pl. 18.96

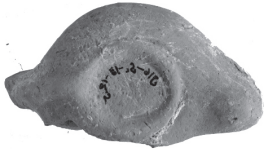
J16-Sc-13-27

Rim

Munsell: 2.5YB 6/6

H.: 4.2; L.: 6.2; T.: 1.9 (body), 3.3 (flange)

Tegula flange; medium- to hard-fired and medium- to



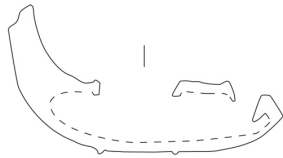
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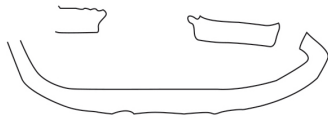
87



88



89



90



fine-levigated, including many tiny air pockets and some lime. The flange is folded over, prior to being shaped by a tool. Slightly weathered on the bottom. Remains of production marks visible on flange top.

References: for an example of Roman roof tiles from the Southern Levant, see Kanellopoulos 1994: figs. 28-29.

Date: Roman.

97.

Pl. 18.97

J16-Sc-13-31

Rim.

Munsell: core (int.): 7.5YR-6/4, (ext.): 2.5YR-5/6; surface: 10R-5/6

H.: 5.5; L.: 15.5; T. (body): 2.4-2.7

Tegula, flange; hard-fired and richly levigated with finely grinded materials, such as black inclusions, quartz, lime and rarely chamotte; the body is slightly bent upwards; channel running alongside flange.

References: for an example of Roman roof tiles from the Southern Levant, see Kanellopoulos 1994: figs. 28-29.

Date: Roman.

98.

Pl. 18.98

J16-Sd-13-34

Rim

Munsell: 2.5YR-6/8

H.: 12.2; L.: 14.6; T.: 2.2

Tegula, flange broken off; hard-fired and richly levigated with finely grinded materials, such as black inclusions, quartz, lime and rarely chamotte; rip running on top of body against former flange; tool marks running alongside both rip and flange, last tool treatment direction was alongside rip; white-yellowish, chalkish cover (Antique limewash?); bottom is too weathered to trace marks.

Reference: for an example of Roman roof tiles from the Southern Levant, see Kanellopoulos 1994: figs. 28-29 (these examples are without white-yellowish, chalkish cover and rip); for examples with a rip and close resemblance in form and colour, see Adan-Bayewitz 1982: 25, fig. 4, no. 2.

Date: Roman.

99.

Pl. 18.99

J16-Scd-13-68+69

Rim

Munsell: core (int.): 2.5YR5/11, (ext.): 6YR6/3; surface (int.): 4.5YR7/2, (ext.): 10YR7/3

H.: 3.3; L.: 8.4; T.: 1.3

Two pieces. Tegula, flange; soft firing and rather coarse levigation, including lime and some chaff impressions (but no ashy chaff left overs), as well as quartz and small pebbles; deep channel running alongside the flange; folded flange itself is flattened on top; breaks are very regular and were intentionally smoothed. Production and mould marks visible on top and bottom side.

Reference: for an example of Roman roof tiles from the Southern Levant, see Kanellopoulos 1994: figs. 28-29.

Date: Roman.

100.

Pl. 18.100

J16-Tc-41-8

Rim

Munsell: core: 10YR5/1; surface (int.): 10YR5/1, (ext.):

10YR7/3

H.: 2.9; L.: 13.7; T. (body): 1.7, (flange): 2.8

Tegula flange; hard-fired and rather finely levigated, with some lime and quartz inclusions; flange is almost larger in width than in length and flattened; three finger-drawn grooves on bottom: two paired running alongside the break, one single line running parallel to the flange; production marks visible.

Reference: Briend and Humbert 1980: fig. 28, no. 4.

Date: Roman.

101.

Pl. 18.101

J16-Uc-45-9

Rim

Munsell: core (int.): 2.5YR5/4, (ext.): 2.5YR5/8; surface (int.): 2.5YR6/8, (ext.): 2.5YR5/8

H.: 4.9; L.: 10.3; T.: 2.2

Tegula flange; hard-fired and finely levigated, including finely grinded quartz and some black material; the flange was hand modelled upwards but reshaped by tool later; the body is slightly bent upwards. Mould marks on bottom and some tool marks on top still visible.

Reference: Hirschfeld 2002: fig. 39, no. 15; Kaptijn 2009: fig. 4.154, bottom right; Schneider 1950: fig. 15, no. 4.

Date: Byzantine.

102.

Pl. 18.102

J16-Ud-56-15

Rim

Munsell: core: 5YR2/4; surface: 5YR8/4

H.: 3.3; L.: 9.2; T.: 2

Tegula flange; medium- to hard-fired and richly levigated with much finely grinded quartz and black material; broken and intentionally smoothed breaks; the irregularly shaped flange, which was smeared up in the mould, and not folded, is pushed more towards the top of the body, forming a very narrow and sharp angle at one end but regularly standing up in a right angle (exterior); very visible mould marks on bottom side.

Reference: Konrad 2001: 119, no. 4, pl. 80.6; Schneider 1950: fig. 15, no. 7.

Date: Byzantine.

103.

Pl. 18.103

J16-Wd-53-13

Rim

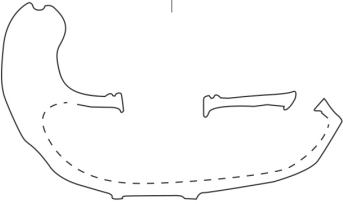
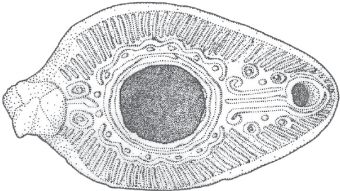
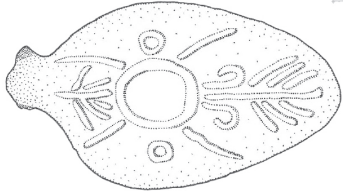
Munsell: core: 7.5YR6/3; surface (int.): 7.5YR6/4, (ext.): 10YR7/3

H.: 3.2; L.: 9.1

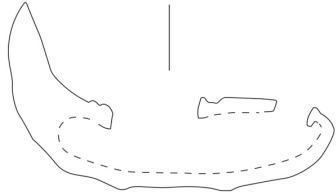
Tegula flange; hard-fired and rather finely levigated, including partly non-fine-grinded lime, some quartz as well as tiny crumbles of chamotte; rectangular-shaped flange is attached to a very thin body; almost rectangular flange is flattened on top, curving slightly in- and outwards on the exterior, while being straightened on the inside; body is slightly bent upwards - most likely from being laid down on the ground in a dry and hot climate (ground marks on the bottom - perhaps impressions of pebbles and sticks of various sizes); the tegula is covered in a thick white, chalkish/limeish coating, which is likely to be an antique lime wash (*cf.* cat. 98).

Reference: Hirschfeld 2002: fig. 39, no. 14.

Date: Byzantine.



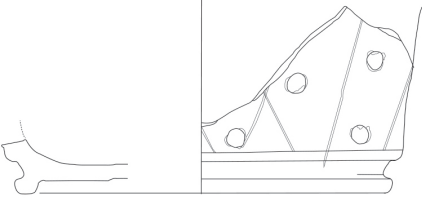
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92



93



94



95



Imbrices

104.

Pl. 19.104

J16-Uc-45-10

Rim

Munsell: core (int.): 5YR4/4, (ext.): 5YR4/6; surface (int.): 7.5YR8/4, (ext.): 7.5YR8/4

H.: 3.8; L.: 10.7; W.: 8.7; T.: 0.9-2.3

Imbrix rim, hard-fired and rather finely levigated, including finely grinded black material and some lime as well as older pottery; the rim is remodelled by hand, while the rest was left untreated after the production with a tool (production marks on the exterior body); the interior part of the body is convexly rounded, whereas the exterior is pitched-roof-shaped; plaster remains on the top and probably stem from a phase of reuse.

Reference: for pitched-roof-shaped imbrices, see Kanellopoulos 1994: fig. 30 (date: Roman); Vriezen and Mulder 1997: fig. 10, no. 9 (date: Byzantine).

Date: Roman to Byzantine.

Tubuli

105.

Pl. 19.105

J16-Sc-13-29

Rim

Munsell: GLEY1 4/N

H.: 5.4; L.: 10.3; T.: 1.2-3.3

Tubulus rim; medium- to hard-fired and coarsely levigated, including much lime and crumbles of chamotte; chaff impressions all over its surface; hand remodelling of the inner edge; rim is rounded.

Reference: Vriezen and Mulder 1997: fig. 12.

Date: Roman.

106.

Pl. 19.106

J16-Sc-13-59

Rim

Munsell: core (int.): 2.5YR4/1, (ext.): 2.5YR5/8; surface (int.): 10R4/6, (ext.): 7.5YR7/3

H.: 4.7; L.: 11; T.: 1.1-1.4.

Tubulus rim; hard-fired and richly levigated with mainly lime quartz and chamotte; the rim is flattened on top and regularly sloping down, with a clear angle at which the rim meets the tubulus wall, while the outside box-flue tile wall is straight; the edge of the tubulus is sharp on the exterior and concavely curved on the interior; no tool or production marks visible.

Reference: Kolb and Keller 2000: fig. 8; Reeves and Harvey 2016: fig. 10 (bottom right).

Date: Roman.

107.

Pl. 19.107

J16-Uc-60-1

Tubulus/ air exhaust, complete

Munsell: core (int.): 7.5YR5/4; surface (int.): 2.5YR6/6, (ext.): 7.5YR7/4

H.: 27.9; W.: 14.6

Tubulus-like object, broken but complete; soft-fired and coarsely levigated, including much lime, pebbles and chaff; the rims are slightly thickened towards the inside and rounded on top, but – due to the coarse levigation –

very uneven and irregular; the inner edges are smeared together by hand, as is the usual production habit seen on many tubuli found in Jarash (see, in this catalogue, nos. 105-106); the openings on both short sides are different: one is more square and slightly wider, while the other is roundish and more narrow; there are finger impressions on both sides, and the exterior is full of plaster remains; the lack of air outlets in the walls, its rather elongated shape and its singular presence within the wider context point to a use of an air exhaust to the roof, which has maybe been connected to the industrial activity in this building, despite the lack of (visible) smoke or ash traces on the interior sides.

Reference: for shaping technique, see Vriezen and Mulder 1997: fig. 12.

Date: Umayyad.

Pilae

108.

Pl. 19.108

J16-Sc-13-25

Rim

Diam.: 19.8; H.: 6.6; L.: 19.8

Almost half a pila; medium- to hard-fired and coarsely levigated, including mainly lime, pebbles and chaff; two parallel-running lines drawn by finger on top of the pila; ground and chaff impressions all over the surface.

Reference: Barnes *et al.* 2006; Reeves and Harvey 2016: fig. 10 (top right).

Date: Roman.

109.

Pl. 19.109

J16-Tc-10-8

Rim

Diam. 20; H.: 3.9

Munsell: core: 7.5YR7/3; surface: 7.5YR8/3

Almost half a pila; hard-fired and coarsely levigated with medium-sized grinded chamotte and black inclusions (this fabric is known so far from non-local pottery only); one side is slightly more weathered; ground and covered with fine chaff impressions all over the surface.

Reference: -

Date: ?

Terracotta (AL and RR)

110.

Pl. 20.110

J16-Wij-68

Figurine of naked female

Terracotta, handmade

Max. H.: 6.9, max W.: 4.6, max. D.: 2.5

Legs, arms, head and neck are missing, surface partly worn, traces of paint on the front.

The torso of the naked female is presented frontally. Her right arm was lifted, pointing slightly downwards. The position of the left arm and of the head cannot be made out. The right leg either would have allowed a reconstruction of a seated figure or a figure with raised right leg. The position of the left leg cannot be determined, and therefore, the statuary motif remains unknown. The backside is well modelled. The breast and the navel are rendered as schematic circles. On her left breast, there is a circle of six incised dots. Red paint is preserved in several places:



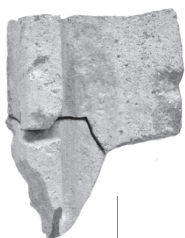
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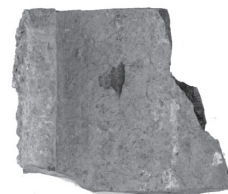
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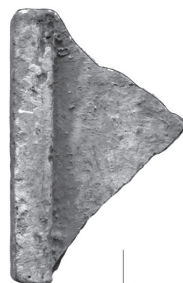
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102



103



around the breasts, a patch on the stomach, a line running from under the right arm over her left shoulder and by a loop at her right side. Although an attempt has been made to portray the figurine as moving in a complex way, the figurine technically and stylistically displays little Graeco-Roman influence and, therefore, belongs to a Late Antique production in the region.

References: Lichtenberger 2016: 188-189 (on the stylistic features).

Date: late 3rd-4th century AD, Byzantine or Umayyad.

Sculpture (AL and RR)

111.

Pl. 20.111

J16-Sc-13-130

Paw

White, fine-grained marble with yellow patina

(without orientation) L.: 10.1; W.: 1.9; Diam.: 1.9

The fragment is broken into two pieces. The paw was attached to another part of the sculpture, as can be seen from the straight cut, the well-worked surface and the iron joint. The surface of the marble is highly polished and slightly sintered. The fragment shows the lower part of a raised feline paw. Together with cat. nos. 112-114, it probably belongs to a griffin. It is worked fine and gracile with a vivid surface, and it is well finished with no visible traces of drilling. If the interpretation as a griffin is correct, it might be considered as belonging to a statue of Nemesis.

References: for the iconography of griffins, see Flagge 1975. On Nemesis in Gerasa, see Lichtenberger 2003: 220-221.

Date: Roman.

112.

Pl. 20.112

J16-Sk-105-23

Leg of an animal

White fine-grained marble

H.: 9.0; W.: 3.5; Diam.: 2.9

Middle part of a leg, lower and upper parts broken. Highly polished marble on the front, unpolished at the back, traces of sinter.

The middle part of a gracile leg has marked edges and a central ridge. At the lower end, the surface is rendered bushy in a triangular (fragmented) area. The leg possibly belongs to a griffin and needs to be related to cat. nos. 111 and 113-114.

References: see cat. no. 111.

Date: Roman.

113.

Pl. 20.113

J16-Sk-105-24

Part of an animal

White fine-grained marble

(without orientation) H.: 3.6; W.: 2.0; Diam.: 2.3

The fragment is broken at two sides where it was attached to other parts of the original sculpture. The marble is highly polished. The small fragment is shaped as a protruding knob, and it was attached at the top and the side to other parts of the sculpture. It might belong to the neck of an animal, maybe to a griffin, and needs to be related to cat. nos. 111-112 and 114.

References: see cat. no. 111.

Date: Roman.

114.

Pl. 20.114

J16-Sc-13-129

Marble support

White fine-grained marble

(without orientation) H.: 6.9; W.: 4.7; Diam.: 1.9

The fragment is broken in two places. The fragment is part of a marble support of a sculpture. It is H-shaped, and at one side, the stems were worked for attachment; at the other side, the stems are broken. It is probably part of cat. nos. 111-113.

References: see cat. no. 111.

Date: Roman.

115.

Pl. 20.115

J16-Vi-1-41

Fragment of female head in profile to the right

Limestone

W.: 14; L.: 11; Diam.: 6.5

Only the hair knot and the shape of the back head are preserved; the surface of head is broken away. Also the back side is fragmented. The under life-size head is turned to the right side. Only the rough shape of the head is recognizable. The hair knot on the upper back head is rendered in several strains, which fall down along the head. Under the knot, there is a smaller knot or pendant. The fragment probably belonged to a limestone relief, but its function and the complete motive cannot be determined.

Date: Roman.

116.

Pl. 20.116

J16-Xe-2-228

Square gaming piece

White limestone

L.: 4.7-5.3; W. (differing from side to side): 3.1-3.5

The piece is intact, with only a few modern fragmentations. The top of the piece is rounded with worked, rounded top that is smaller than the piece itself. The bottom of the piece is flat, so that the piece could have been standing. There are elaborate incisions on all four sides. One side carries letters in Greek, dispersed over two lines – vertically incised. Another side carries a pattern of square incisions aligned with the orientation of the piece. Yet another side carries a rhomb with a pattern of square incisions. The last side carries a set of four squares, all of which were incised with diagonally running lines in the squares. The piece is carefully decorated.

References: Gilbert 1965: 72-78 (for tower-shaped gaming pieces); Hübner 1992: 67-85 for board games in general.

Date: Byzantine (?).

117.

Pl. 21.117

J16-Uc-60-42

Sigma table

White marble

Max. L.: 31.4; Max. W.: 20.4; T.: 1.5

The fragment belongs to a small marble sigma table with semicircular cavities and a rectangular niche at the lower side. The backside is well smoothed and has a profile suggesting that this table was portable. The type is of Chalkias type B (Chalkia 1991: 34-42). Similar fragments were found at Mt. Nebo and in Jarash. The closest comparison for the arrangement of the cavities is a limestone sigma

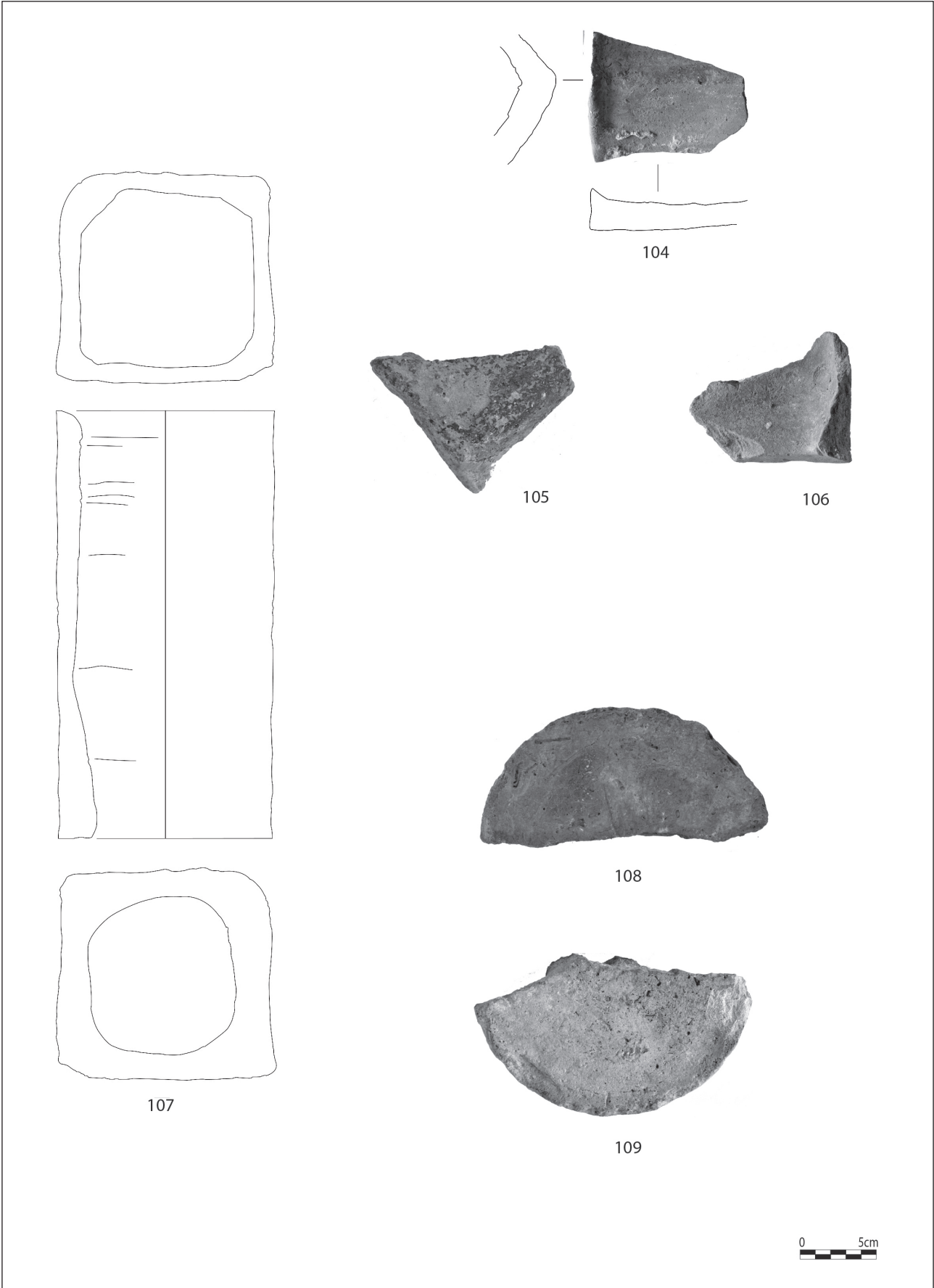


table from Herodius (Piccirillo and Israeli 2000: 74).
References: Saller 1941: plate 126; Chalkia 1991; Piccirillo and Israeli 2000: 74.
 Date: Byzantine.

118.

Pl. 21.118

J16-Vdf-73-14

Pilaster capital?

White-greyish marble with veins

Max. L.: 21.1; Max. W.: 16.1; T.: 3.1-4.4

Fragmentary slab decorated with two acanthus leaves. The back is smooth and picked for attachment. This fragment belonged to an architectural revetment plaque, possibly a pilaster capital.

References: House and Megaw 2007.

Date: 5th/6th century AD.

119.

Pl. 21.119

J16-Vf-25-46

Chancel screen

Limestone

Max. L.: 17.5; Max. W.: 17.4; H.: 6.6; T.: 1.9+2.8+1.7

Fragmentary external part of a former closed, rectangular chancel screen with décor of concentric frames. At the side, it has a tongue for inserting it into the furrow of a chancel post. The backside is roughly worked and also decorated with concentric frames.

Date: Byzantine.

120.

Pl. 21.120

J16-Wg-107-3x

Decorated marble relief in champlévé technique

White-greyish marble

Max. H.: 15.2; Max. W.: 14.3; T.: 1.2

Fragment of a marble slab in champlévé technique, showing parts of two acanthus leaves, the left one possibly only a half leaf. The backside is smooth. The fragment of a revetment probably belongs to a small pilaster capital. Two plaques in champlévé technique were found previously in Jarash, none of which have been published yet (Boyd 2007: 300). This kind of architectural decoration is typical (but not exclusive) to churches, and it was also used in the Umayyad period (Ritter 2017: 145-163).

References: Boyd 2007: esp. 250.

Date: 5th/6th century AD.

121.

Pl. 21.121

J16-Tc-26-9

Fragment of shallow basin with lion's head spout

Reddish limestone

Max. L.: 21; W.: 16.8; Diam. (thickness): 7.6

The fragment is triangularly shaped, possibly on purpose. On the inside of the shallow basin (the basin is 2cm lower than the rim), the surface is smooth, and no tool marks are visible. On the outside (bottom of the basin), numerous tool marks are visible. The head of the lion is placed on the outer right side of the fragment, seen from above. A drilled hole runs from the inside of the basin, through the lion's head and through its mouth. The lion's head functioned as a spout.

Date: Roman to Late Byzantine.

Stone Objects (SR)

Loom Weight

122.

Pl. 22.122

J16-Ta-45-2

Max. diam.: 3.0; Max. diam. (hole): 0.4; H.: 0.9.

Black, spherical loom weight in stone with a suspension hole down the middle.

References: Crewe 2002: 220-233, fig. 1-5; Ploug 1985: 211-212.

Date: ?

Bowl

123.

Pl. 22.123

J16-Uc-60-39

H.: 4.3; L.: 7.6; W.: 1.5

Fragment of a white/greyish imported marble bowl with a lug handle.

References: Johnson 2006: 656, no. 2, and 657, fig. 22.2:2.

Date: Byzantine/Umayyad?

Jewellery (SK)

124.

Pl. 22.124

J16-Tc-67-4x

Stone bead, intact

H.: 0.9; W.: 0.45

Oval stone bead; orange; carnelian; smoothed surface; pierced through lengthwise; carnelian.

References: Riis 1948: 159-169, fig. 203; McNicoll, Smith and Hennessy 1982: 148-149, pl. 134, nos. 10-11 and 14-15; Platt 2009: 227-242, fig. 13.2.

Date: ?

125.

Pl. 22.125

J16-Uc-60-20

Stone bead, fragmented

L.: 0.6; W.: 0.75

Circular stone bead; grey; smoothed surface; pierced through lengthwise; carnelian.

References: Riis 1948: 159-169, fig. 203; McNicoll, Smith and Hennessy 1982: 148-149, pl. 134, nos. 10-11 and 14-15; Ploug 1985: 245, fig. 61.n; Platt 2009: 227-242, fig. 13.2; Lichtenberger, Raja and Sørensen 2018: cat. no. 167.

Date: Byzantine/Umayyad?

126.

Pl. 22.126

J16-Vd-25-21

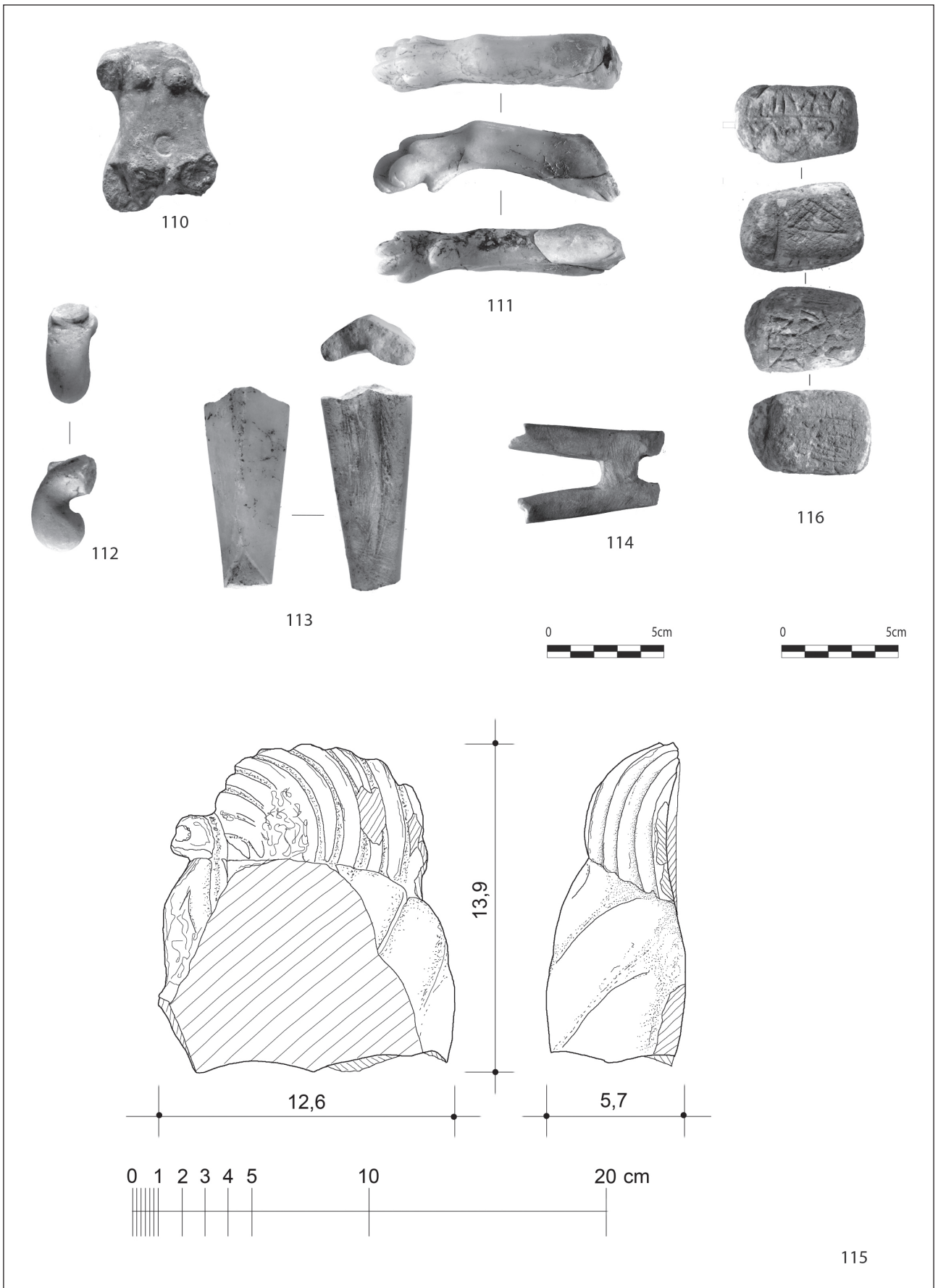
Stone bead, intact

L.: 1.4; W.: 1.9; H.: 0.7-1.1

Ellipse-shaped stone bead; reddish orange; smoothed surface; centrally pierced; carnelian.

References: Riis 1948: 159-169, fig. 203; McNicoll, Smith and Hennessy 1982: 148-149, pl. 134, nos. 10-11 and 14-15; Platt 2009: 227-242, fig. 13.2.

Date: Umayyad.



Worked Bone (SK)

127.

Pl. 22.127

J16-Xc-2-13

Worked bone inlay, intact

H.: 5.7; L.: 1.3-1.8; H.: 0.3-0.45

Rectangular bone plaque; smoothed surfaces; two holes are pierced in the body of the plaque; on the upper side are two incised circles with a central punch-hole; the edges of the plaque each has two notches.

References: Macalister 1912a: 248, fig. 398; 1912b: pl. CXCXV, nos. 15-66; Smith 1973: 172, 210, pl. 17C; Riis and Buhl 1990: 240-242, fig. 114, nos. 958 and 962; Mc-Nicoll *et al.* 1992: 81, pl. 61.8; Ayalon 2006: 670-671, photo. 23.6; Lichtenberger, Raja and Sørensen 2018: cat. no. 150.

Date: ?

128.

Pl. 22.128

J16-Sb-1-58

Worked bone spindle-whorl, intact

Diam.: 2.9-3; H.: 0.9-1

Circular, worked bone disc; cone-shaped; centrally pierced; smoothed surfaces; incised decoration on upper surface, divided into four panels by an incised cross; each panel carries six incised circles with a central punch-hole.

References: Macalister 1912a: 303, fig. 443; Macalister 1912b: pl. CXXXII, nos. 45, 49 and 54; Ploug *et al.* 1969: 118-128, fig. 45-46; Ayalon 2005: figs. 28 and 29; Kotter and Ray 2009: fig. 9.27, no. 11; fig. 9.28, nos. 1 and 5; Lichtenberger, Raja and Sørensen 2018: cat. nos. 147-149. Function: Ploug 1985: 221, fig. 51g-l; Riis and Buhl 1990: 208-210, fig. 97, nos. 746-747, 750-752, 754-755 and 758.

Date: ?

129.

Pl. 22.129

J16-Xh-2-252

Worked bone spindle whorl, intact

Diam.: 3.6; H.: 0.8

Circular, worked bone disc; cone-shaped; centrally pierced; smoothed surfaces; incised decoration on upper surface; four circles with a central punch-hole are divided on four corners, and between these are four-times-four incised circles with a central punch-hole

References: Macalister 1912a: 303, fig. 443; Macalister 1912b: pl. CXXXII, nos. 45, 49 and 54; Ploug *et al.* 1969: 118-128, fig. 45-46; Ayalon 2005: figs. 28 and 29; Kotter and Ray 2009: fig. 9.27, no. 11; fig. 9.28, nos. 1 and 5; Lichtenberger, Raja and Sørensen 2018: cat. nos. 147-149. Function: Ploug 1985: 221, fig. 51g-l; Riis and Buhl 1990: 208-210, fig. 97, nos. 746-747, 750-752, 754-755 and 758.

Date: ?

130.

Pl. 22.130

J16-Xh-2-253

Worked bone spindle, fragmented

L.: 3.8; H.: 0.5-0.7

Worked bone pen; oblong and circular; one end has a smoothed surface, and the other end has incised lines running around the stem; this might have been the shaft of a spindle belonging together with items such as catalogue nos. 3-4

References: Macalister 1912a: 89, fig. 278, nos. 10-12; Riis 1948: 173, fig. 217; Ploug 1985: 269, fig. 61e; Riis and Buhl 1990: 207-208, fig. 96, nos. 736-738, fig. 97,

nos. 740, 744, and 215-217, fig. 99, no. 810; Lichtenberger, Raja and Sørensen 2017: figs. 129-130; Kalaitzoglou *et al.* 2017: cat. no. 144.

Date: ?

Selected Metal Objects from the 2016 Campaign

Christoph Eger

In 2016, the excavations produced approximately 190 metal objects. Around two-thirds of the metal objects were made of iron, while only a quarter were made of copper alloy. Additionally, a few lead objects were identified. The metal composition of a dozen objects has not yet been determined with certainty (Fig. 22)

As usual in the Northwest Quarter of Jarash (see the 2014 and 2015 reports), the iron objects are badly corroded. Therefore, it is often difficult to determine the exact shape and, thus, the original function of a number of items.

In 2016, the following types of metal object are represented:

- Constructional fittings
- Household appliances
- Tools
- Weapons
- Cosmetic implement
- Jewellery
- Musical instruments (?)
- Metalworking

To illustrate this spectrum of objects, eighteen items are presented in this preliminary report.

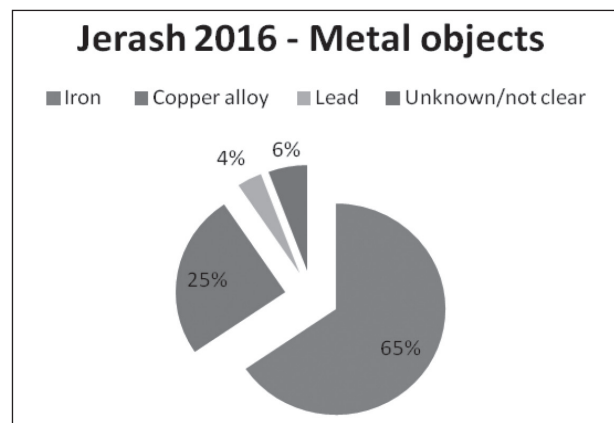
Constructional Fittings

As in previous campaigns, iron nails comprise the majority of findings from 2016. The overall percentage of iron nails is somewhat smaller than in the 2015 campaign. The different sizes and shapes indicate usage in construction – especially for wooden roofs – but also for mounting movable goods.

Household Appliances

A hook with the remains of a chain (Pl. 23.140) belongs to the large group of long suspension hooks, which were an essential element of lamp-holders. Usually, three hooks with chains were pulled together at the top and held by a loop, which was attached to another suspension hook. This kind of lamp-holder was common in Byzantine times and was used for both polycandela and simple glass lamps.

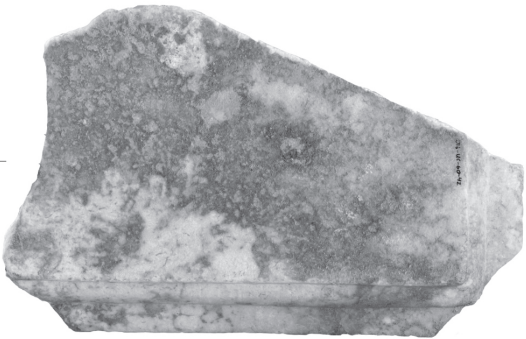
The two round plaques with a hinge (Pls. 23.135 and 23.136) fit together. They were the metal fittings of a wooden casket. The square hole of J16-Vh-26-1x (Pl. 23.135) might be the keyhole of a lost lock, which would



22. Metal objects.



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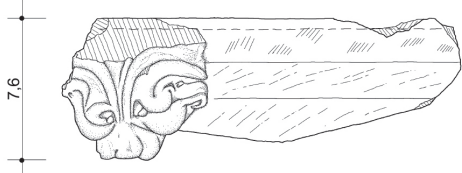
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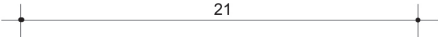
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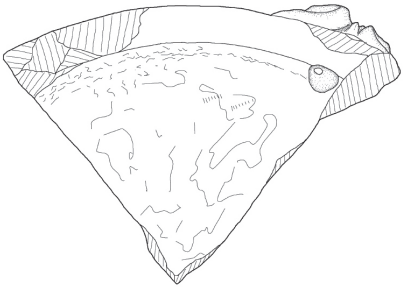
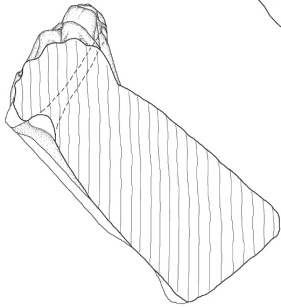


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121



have been attached to the inside of the casket.

A small key with a movable iron ring (PI. 22.134) is another example of a household appliance, and it matches a casket's lock. This kind of key is typical of the Byzantine period, but normally both parts – the key and the ring – would have been made of copper alloy. The ring ends are shaped as dolphin or duck heads. A complete item was among the Byzantine material of the Eupalinos tunnel on the island of Samos [Jantzen 2004].

The iron object (PI. 23.141) was certainly the handle of a large wooden appliance, perhaps a chest. Imprints of mineralized wood are visible on the clamps.

Tools

A large knife (PI. 22.131) was excavated in Trench V. It differs from the small ordinary knives with a straight back and curved edge, which were common in every household, since it has a symmetrical, oblong, triangular blade of at least 15cm in length. This has the typical shape of a dagger, but the blunt point and single-edged blade clearly contradict such an interpretation. It is unknown whether this type of large knife served a special function within the household, or if it was used for some special handicraft or both.

The shape of the other tool (PI. 22.132), which was found in 2016, can be identified by ethnographic parallels as an adze or a hoe. Adzes were a typical carpenter's tool for smoothing or carving wood. Characteristic is the angled, horizontal blade, the vertical shaft hole and a short opposite end. It is not unusual that this part is formed (and used) like a hammer. A hammer-adze was found in a Byzantine context in one of the shops in Sardis, Turkey [Crawford 1990]. Of an almost identical shape are some types of hoes, which were used as an agricultural hand tool to clear soils (e.g. removing of weeds and stones) before ploughing. We might suggest different uses for the Jarash tool, e.g. that the tool was an adze that was used during construction work on the house undergoing restoration, in which it was found, or that it was a hoe that could perhaps indicate intra-urban (agricultural) gardening. It is also possible that the tool was used for cutting tesserae, since evidence for tesserae production was found in the house.

Weapons

The small number of weapons found in the Northwest Quarter of Jarash has increased by two arrowheads found during the 2016 campaign (PI. 22.133 and 23.146). Both are of a similar type, characterized by a pyramidal point and a tang with a round section. They only differ in the length of the point and the thickness and length of the tang. However, all variants are arrowheads that would have been shot with a bow. The slim shape of the point is believed to have penetrated armour. Contra Gaitzsch (Gaitzsch 2005), the dating of the Pergamene findings cannot be limited to the Hellenistic and Early to Middle Roman period, as a few pieces were found in Byzantine layers. This indicates a wider chronological span for this type of projectile. In the Near East, arrowheads with an oblong, pyramidal point are still known from Crusader times and Mamluk contexts (12th and 13th centuries).

More recent is the modern bullet found in Trench V (PI. 23.137) and the probably corresponding cartridge case found in Trench T (PI. 23.138). Military forces do not use the rimless cartridges of this size, i.e. 7.62 by 65mm, but there are a few sporting guns with this caliber.

Cosmetic Implement

A spatula fragment (PI. 23.148) is the only cosmetic implement from the 2016 campaign. Only the end-piece

of the oblong bowl is preserved. Spatulae could have been used both as cosmetic and medical implements. In the context of a regular household, however, cosmetic use seems to be more probable. One would have been able to extract cosmetic substances from a vessel with a narrow opening, such as a balsamarium. The opposite, thickened end of the spatula would then have been used to pound this substance or to mix it with other substances.

Jewellery

As in 2015, very few pieces of jewellery were found in 2016. Remarkable is the fragment of a bracelet made of twisted wires (PI. 23.147). Several variants of this kind are known, differing in the number of twisted wires and the way in which it would have been fastened, but all were very common in Late Roman times, dating mostly to the 3rd and 4th centuries AD. Evidence for twisted bracelets comes mainly from burials in the north-western provinces of the Roman Empire. In the Near East, one cannot exclude that the rings were used alternatively as anklets.

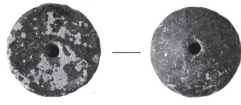
Another piece of jewellery is a well-preserved hair- or dress-pin (PI. 23.139). Unfortunately, the piece was found in topsoil. Although no direct parallels come to mind, an Islamic date for this pin is suggested; a common element of decoration is the rectangular section with rounded openings, which appears similarly on kohl sticks and pins of medieval Islamic times.

Musical Instruments (?)

Three round plaques with a convex central section, made of iron (PI. 23.142-144), deserve special attention. Similar objects are sometimes supposed to be iron lids (Raubitschek 1998: 113, no. 366). However, the three Jarash plaques, found in an Umayyad context, have a little hole in the centre. Their typical shape and the hole underline a possible function as musical instruments. Although they are made of iron, they are probably the remains of cymbals. This would be the first evidence of musical instruments from the Northwest Quarter of Jarash and would constitute rare archaeological evidence for such instruments in Late Antique and Early Islamic Jordan. Cymbals are already mentioned in the Bible and are connected with religious ceremonies. East of the Jordan River, the excavations at Tall al-'Umayri yielded a pair of cymbals found in an Iron-Age context. In Roman times, cymbals were distributed throughout the Roman Empire. Examples of Late Roman and Byzantine date are known, e.g. in Nijmegen, The Netherlands and in Corinth, Greece. The Dutch find is of special importance for reconstruction of the complete instrument. The sarcophagus with a 4th-century AD burial of a woman contained fragments of probably four tambourine sticks made of wood. Each stick had two rectangular apertures, in which two pairs of cymbals were fixed on an iron rod. Alternatively, pairs of cymbals could be fastened together just with a chain, as known from an example stored in the Musée National de Carthage in Tunisia. Archaeological evidence for cymbals of Early-Islamic date is missing up to now. However, we know from written sources that they were used even for military purposes. In his *Tactica*, the Byzantine emperor Leo VI mentions that the Muslims used drums and cymbals in battle to confuse the enemy (Kaegi 1992: 125, 130).

Metalworking

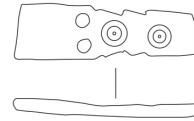
The excavation of Trench U yielded a drop fragment of cast lead (cat. no. 145). Despite its small size, the piece unmistakably indicates some kind of metalworking (lead smelting and casting) in this area. Pollution from lead



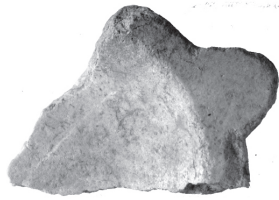
122



124



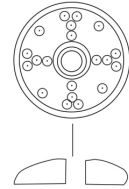
127



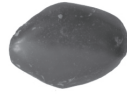
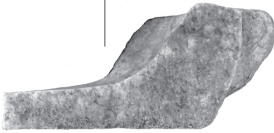
125



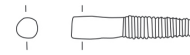
128



129



126

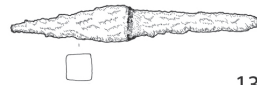


130

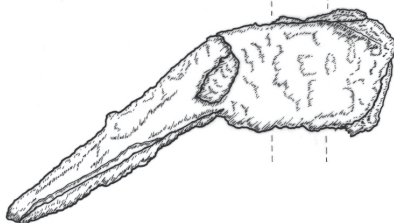
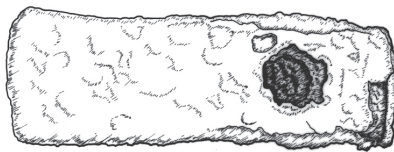
123



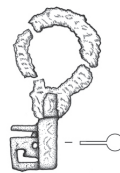
131



133



132



134



production could be proven. Ian Simpson (University of Stirling), who is responsible for soil chemistry within the project, reported in January 2017:

“Inductively Coupled Plasma (ICP-AES) analyses of Red Mediterranean Soils from within the Northwest Quarter demonstrated enhanced lead (Pb) levels relative to background, ranging from 9-27ppm. Enhanced lead levels (XRF analyses) of up to 50 ppm have also been identified in limestone mortars from the Northwest Quarter. Together, this evidence suggests background pollution within the city associated with smelting activities” (personal communication).

Owing to the stratigraphic layers and archaeological contexts, the majority of the presented objects belong to the Early Islamic (Umayyad) period. The spectrum of the metal objects from the 2016 campaign reflects a pattern that is similar to that of previous years. Most items belong to constructional elements, household appliances and tools. They were made of iron and copper alloy. Precious metals are lacking. However, the arrowheads and possible cymbals highlight functional groups of metal objects which have been almost absent up to now, namely weaponry and musical instruments. Therefore, they deserve special attention. Nevertheless, the number of weapons is quite small, and their presence might be accidental. Nothing seems to indicate war-like operations in the Northwest Quarter, nor do the few weapons substantiate a strong presence of troops.

Catalogue of Selected Metal Objects from the 2016 Campaign

131.

Pl. 22.131

J16-Vdf-25-45

Knife

Iron

L.: 19.6; W.: 3.1

Two fragments of a large knife with single-edged blade; the end of the centred haft is broken off.

References: Davidson 1952: 203, pl. 93.1573; Jantzen 2004: 111, pl. 16.671-673.

Date: ?

132.

Pl. 22.132

J16-Vi-60-3x

Adze

Iron

L.: 12.2; W.: 4.3

Almost rectangular blade with a horizontal cutting edge, which is slightly curved; the blade is set at a 45-degree angle to the tool's rectangular shaft and its cylindrical hole; the blunt end of the shaft makes it look like a hammer. Complete, but badly corroded.

References: Gaitzsch 2005: 78-81, 107-109, pl. 18.HA11, 19.HA2, 61.X7; Baitinger and Völling 2007: pl. 5.31-32; Waldbaum 1983: 48-49, pl. 11.136.

Date: Roman and later.

133.

Pl. 22.133

J16-Td-1-22

Arrow head

Iron

L.: 7.9; W.: 1.2

Oblong pyramidal point, solid tang of round section.

References: Davidson 1952: 202; pl. 92.1557 ('spear-head'); Gaitzsch 2005: 143, pl. 39.P36-37.59-60, 40.P75; Raphael and Tepper 2005: 91, fig.1; Kazanski 2003: 80, pl. 6.16.19.21-24. and 100, pl. 26.16-26.

Date: Hellenistic and later.

134.

Pl. 22.134

J16-Uc-29-3

Key ring

Copper alloy and iron

L.: c. 4.5.; Diam. ring: 2.5

Three fragments of a movable ring handle made of iron and a key made of copper alloy. The key has a short shaft with a round section and a rectangular, perforated ward.

References: Davidson 1952: 137-140, pl. 70.984-997 (most made of copper, few of iron; however, no. 986 is a 'mixed' key with copper-alloy handle and iron shaft); Waldbaum 1983: 75, pl. 25.399 (iron); Jantzen 2004: 177, pl. 33.1189.

Date: Byzantine and Islamic.

135.

Pl. 23.135

J16-Vh-26-1x

Fitting with hinge

Copper alloy

L.: 5.7; Diam. fitting: 4.2-4.6

Roundish plaque with a small rectangular extension. Originally, two loops were attached to the extension, one is now broken off. On the plaque's front, concentric circles are engraved. The metal sheet is perforated by three circular holes and one square hole.

References: Patrich 2008: 440, no. 92, and 456; Jantzen 2004: 174, pl. 31.1167 (iron).

Date: Roman and later.

136.

Pl. 23.136

J16-Vh-26-54

Fitting with hinge

Copper alloy

L.: 6.3; Diam. fitting: 4.6

Two fragments of a roundish plaque with a small rectangular extension. One centred and slightly deformed loop is attached to the extension. On the front, concentric circles are engraved. A small square hole was cut between the inner and outer circles. The fitting is the exact complement to the above-mentioned item, cat. 135 (J16-Vh-26-1x).

References: Patrich 2008: 440, no. 92, 456; Jantzen 2004: 174, pl. 31.1167 (iron).

Date: Roman and later.

137.

Pl. 23.137

J16-Va-1-38

Bullet

Copper alloy

L.: 3.6; W.: 0.7

Solid bullet with blunt end, calibre 7.62mm.

References: https://en.wikipedia.org/wiki/7.62_mm_caliber.

Date: Modern (second half of the 20th century).

138.

Pl. 23.138

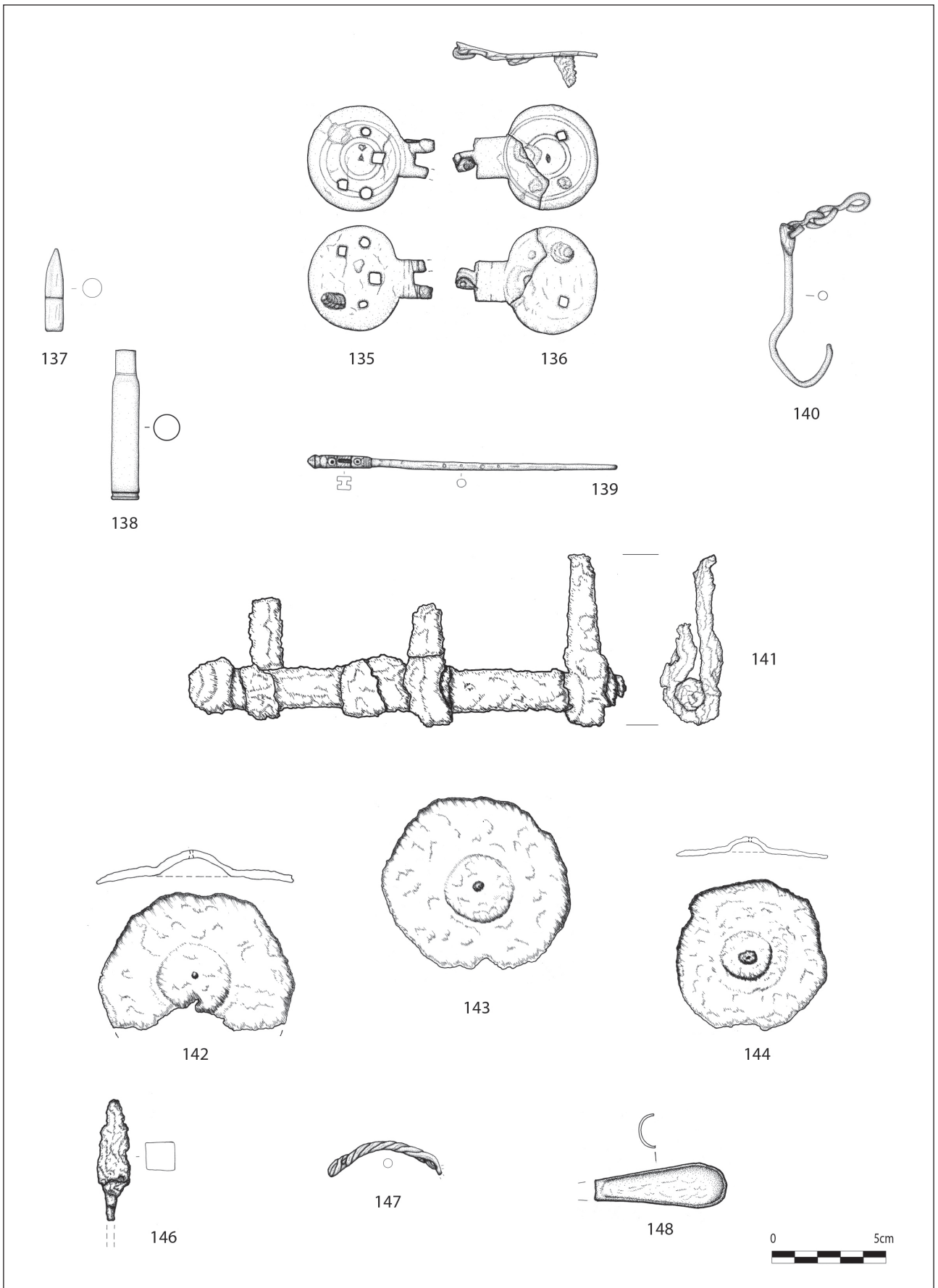
J16-Td-1-63

Cartridge case

Copper alloy

L.: 6.5; W.: 1.3

Rimless cartridge case, probably belonging to the bullet, cat. 136 (J16-Va-1-38).



References: https://en.wikipedia.org/wiki/7.62_mm_caliber.
Date: Modern (second half of the 20th century).

139.

Pl. 23.139

J16-Vfg-1-72

Needle / hairpin

Copper alloy

L.: 13.7; W.: 0.6

Long, slightly narrowed shaft with blunt lower end. A rectangular, perforated element and a small biconical head shape the upper end of the needle.

References: Shalem 2002: 174, fig. 20.2; kohl stick with similar decoration: fig. 20.4.

Date: ?

140.

Pl. 23.140

J16-Td-52-2x

Hook with the remains of a chain

Copper alloy

L. as preserved: 8.5; W. hook: 2.6

Straight shaft with a loop at its end, the hook with a blunt end; a part of a chain with eight-shaped links attached to the loop.

References: Davidson 1952: 194, pl. 88.1450; Gaitzsch 2005: pl. 19.HAK1; Waldbaum 1983: pls. 38.591-592.600 and 39.601; Jantzen 2004: pl. 1.1; parallel from Jarash: Clark 1986: 299; pl. 29.2I-J.

Date: Byzantine and later.

141.

Pl. 23.141

J16-Uc-60-2x

Handle

Iron

L.: 18.8; W.: 7.5

Solid, movable axis with thickened ends, one broken off. Three clamps with loop are attached in regular intervals to the axis. Wooden remains preserved on the clamps. Badly corroded, small parts are broken off.

References: --

Date: ?

142.

Pl. 23.142

J16-Vg-69-1xa

Cymbal

Iron

Diam.: 8.3

Fragment (two thirds) of a cymbal. Almost circular plaque with a convex central portion. Badly corroded, one third broke off.

References: Davidson 1952: 152; pl. 90.1504; Steures 2011: 358-360; Patrich 2008: 449, nos. 240 and 467.

Date: Hellenistic/Roman and later.

143.

Pl. 23.143

J16-Vg-69-1xb

Cymbal

Iron

Diam.: 7.9

Almost complete cymbal, made of a round plaque (some parts of the rim broken off) with a convex central section and a very little hole in the middle. Badly corroded and partially cleaned.

References: Davidson 1952: 152; pl. 90.1504; Steures 2011: 358-360; Patrich 2008: 449, nos. 240 and 467.

Date: Hellenistic/Roman and later.

144.

Pl. 23.144

J16-Vg-69-1xc

Cymbal

Iron

Diam.: 6.9

Almost complete cymbal, made of a round plaque (some parts of the rim broken off) with a convex central section and a very little hole in the middle. Badly corroded and partially cleaned.

References: Davidson 1952: 152; pl. 90.1504; Steures 2011: 358-360; Patrich 2008: 449, nos. 240 and 467.

Date: Hellenistic/Roman and later.

145.

J16-Ud-39-4x

Drop of cast lead

Lead

L.: 4.9; W.: 3.7

Unformed, flat drop of cast lead.

References: Context Umayyad, prior to the 749AD earthquake destruction.

Date: ?

146.

Pl. 23.146

J16-Vi-44-7

Arrowhead

Iron

L.: 5.4; W.: 1.5

Pyramidal point, thin tang, the end broken off.

References: Davidson 1952: 201, pl. 93.1532; Gaitzsch 2005: 143, pl. 39.P38-40; Raphael and Tepper 2005: 91, fig.1; Kazanski 2003: 80, pls. 6.16 and 19.21-24, and 100, pl. 26.16-26.

Date: Hellenistic and later.

147.

Pl. 23.147

J16-Xb-2-42

Bracelet

Copper alloy.

L. still: 4.9; W.: 0.55

Fragment of a bracelet made of three twisted wires. Badly corroded.

References: Davidson 1952: 263, pl. 112.2136-2137; Riha 1990: 59-62, pls. 20.561-568 and 21.569-586; Platt 2009, 253-255; fig. 13.10-11.

Date: Late Roman.

148.

Pl. 23.148

J16-Vd-1-21

Spatula

Copper alloy

L. still: 2.9; W.: 1

Fragment of a spatula. Just a part of the oblong, shallow bowl is preserved, while the handle is lost. Rounded end.

References: Riha 1986: 64-65, pl. 48.520-522; Patrich 2008: 466, nos. 194-195; Platt 2009: 201-203; fig. 12.2.1-2 (variant with flat bowl with pointed end); parallel from Jarash: Clark 1986: 296, pl. 26.2 left.

Date: Roman/Byzantine.

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