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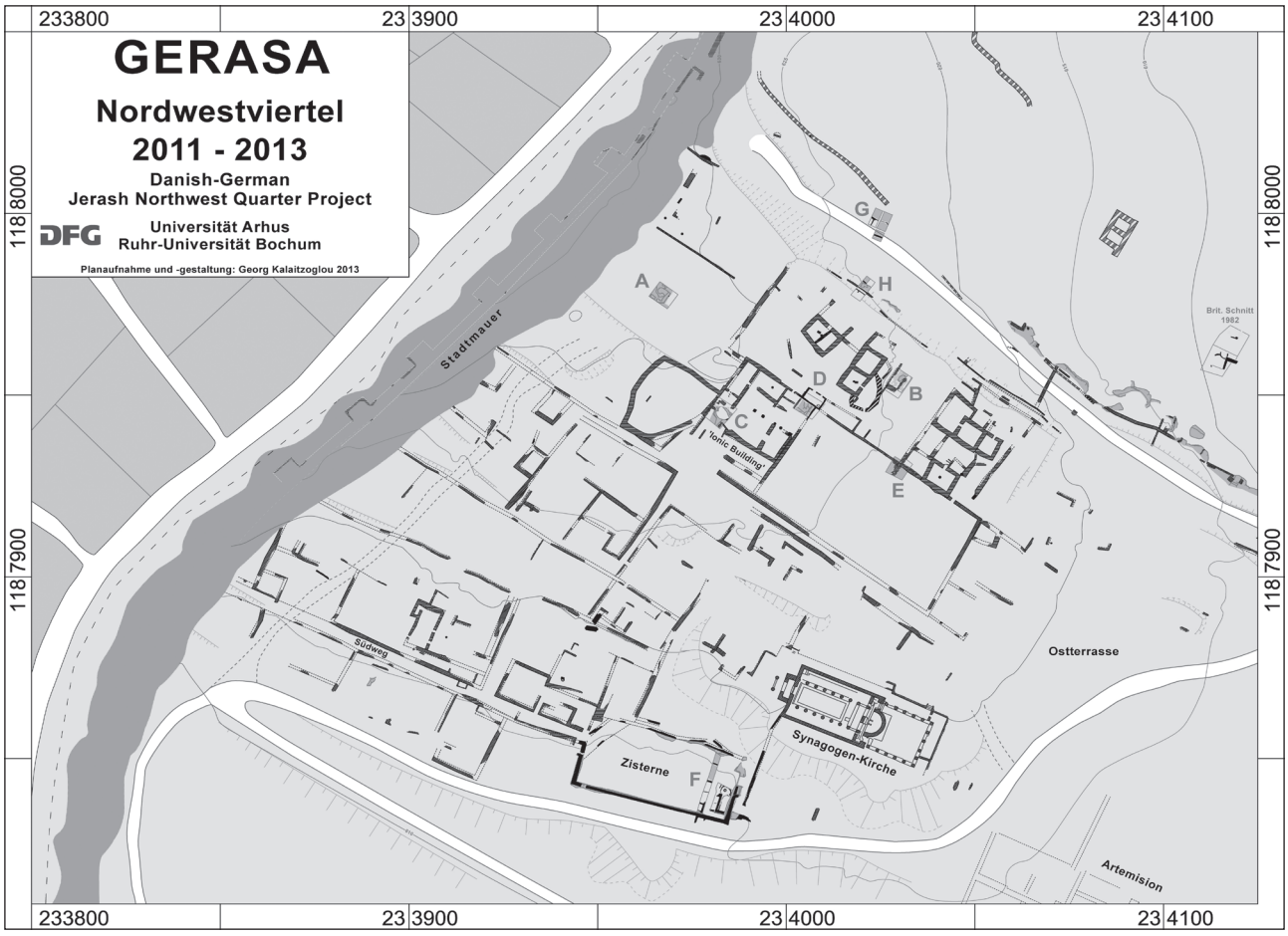
The Danish-German North-West Quarter Project at Jarash: Results from the 2011-2013 Seasons

Introduction

The north-west quarter at Jarash, which lies west of the monumental sanctuary of Artemis dating to the second century AD and is the highest area within the walled city, is the focus of a Danish - German research and excavation project that was initiated in 2011. This area has hitherto not been explored; only the so-called synagogue church on the south-east periphery of the north-west quarter has been excavated, in 1929 (Crowfoot 1938: 234-241). The new project is headed by Achim Lichtenberger (Ruhr-Universität Bochum, Germany) and Rubina Raja (Aarhus University, Denmark). The fieldwork is coordinated by Georg Kalaitzoglou (Ruhr-Universität Bochum) and finds processing by Annette Højen Sørensen (Aarhus University). The team consists of students from Aarhus and Bochum universities, as well as a number of experts in various fields. The project is funded by the German Research Council (Deutsche Forschungsgemeinschaft [DFG]) and H. P. Hjerl Hansens Mindefondet for Dansk Palæstinaforskning.

During the first three seasons of the project, we have carried out a complete surface survey of the four-hectare study area and a geophysical survey using geomagnetics and georadar, as well as excavating eight trenches selected on the basis of the results of the geophysical and surface surveys (FIG. 1, showing trenches A - H). The work undertaken during these three seasons has given us new insights into the settlement history of the north-west quarter at Jarash, ancient Gerasa / Antiochia ad Chrysorhoam, which until now has not been explored archaeologically in any detail. Some of these results will be presented here.

The main aim of the project is to carry out an archaeological settlement history study of the north-west quarter in order to (1) shed light on the development of this area in particular and (2) contribute to our understanding of the general urban development of Jarash from a more detailed diachronic perspective. The project is thus a focused case study of an important Greco-Roman, Byzantine and early Islamic urban centre in Jordan, whilst at the same time contributing to our understanding of urban development in the Greco-Roman eastern Mediterranean in general (*cf.* Raja 2012: 137-190, 191-218; Andrade 2013: 160-169). Furthermore, our project has shown that we will have to re-evaluate the importance of Jarash in the Ayyubid - Mamluk period, as extensive remains from this period have now been discovered (Lichtenberger and Raja forthcoming). The primary aims of the



1. Plan of the north-west quarter, showing 2012 and 2013 trenches.

project during its three first years have been to examine (1) the settlement history of the north-west quarter, (2) evidence for Hellenistic- and Roman-period development, (3) the relationship between the city wall, collapsed north-west gate and supposed North Decumanus and (4) the water supply and its development in the north-west quarter.

Jarash has existed since at least the Hellenistic period (for the history of Jarash *cf.* Kraeling 1938: 27-69; Lichtenberger 2003: 191-195; Kennedy 2007: 84-85; Raja 2012: 144-149). Its Hellenised Semitic name was Gerasa (Starcky 1965: 95-96). In later periods it took the Greek name Antiochia ad Chrysorhoam. It is likely that the city was a Hellenistic foundation of Antiochus IV and that the development of the Zeus Olympios sanctuary in the southern part of the city followed this Hellenistic (re-) foundation (Lichtenberger 2008). From the late Hellenistic period onwards, the sanctuary of Zeus was expanded and continuously developed until well into the imperial period (Raja 2013). The city expanded throughout Roman times, but the main periods for urban density, prosperity and settlement seem to have been the Late Antique, Byzantine and early Islamic periods, during which the 'classical' urban spaces were profoundly transformed (Wharton 1995: 64-104; March 2009; Blanke *et al*. 2007). Furthermore, recent research other than that conducted by the Danish - German North-West Quarter Project has shown that settlement patterns of the later Islamic period (Ayyubid - Mamluk) were more extensive than previously thought (Lichtenberger and Raja forthcoming; for the Ayyubid - Mamluk periods *cf.* also surveys by Pierobon [1983] and Tholbecq [1997/98]). The city's strategic location in terms of infrastructure must have

2. Plan of the geomagnetic survey.

been one of the main reasons for its continuous growth and importance.

2011 Season

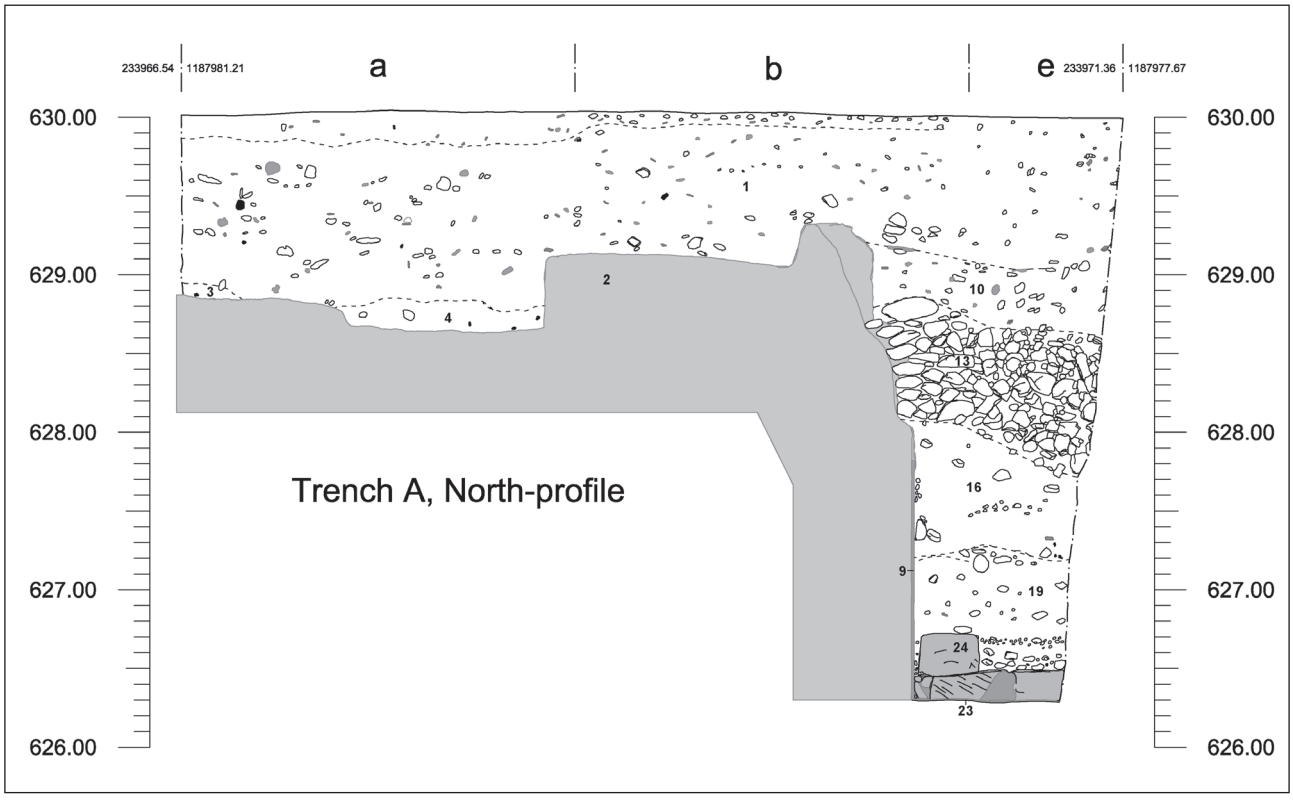
The 2011 season focused on a surface survey that documented all visible structures using a total station (Lichtenberger and Raja 2013; Kalaitzoglou *et al*. 2013). More than 2,500 points were recorded within the study area. Furthermore, all structures were measured and documented by photographs and descriptions. Finally, a detailed plan of the visible structures in the north-west quarter was created (FIG. 1). Several separate but related building structures, terraces, roads and paths were also identified. The surface survey was complemented by a geophysical survey that included geomagnetic and ground penetrating radar (GPR) examinations (Kalaitzoglou *et al*. 2012). These examinations were carried out by Eastern Atlas (Berlin) and were the first of their kind undertaken at Jarash. The geomagnetic survey, which was done with a MAG-DRIVE and an array of six fluxgate gradiometer probes, resulted in a detailed plan of anomalies (FIG. 2). This revealed features that were not visible on the surface, such as a row of rooms running along the southernmost terrace wall on the top of the hill associated with the so-called 'Ionic Building'. The georadar examinations, done with a SIR-3000 GPR system with 270 MHz antenna, did not give clear results. Owing to soil conditions, the electromagnetic waves did not penetrate deeply into the ground and held only minor reflections.

By the end of the 2011 seasons, after the surface survey and geophysical investigations, it was clear that most of the surface structures were of Late Roman, Byzantine and Islamic date.

2012 Season

During the 2012 season, three trenches (A - C) were laid out and excavated on the basis of the results of the surface survey and geophysical examinations (Kalaitzoglou, Lichtenberger and Raja 2013; Lichtenberger, Raja and Sørensen 2013). All trenches were back-filled at the end of the season, during which more than 120,000 sherds were recorded.

Trench A was laid out on the very top of the hill in order to clarify a geomagnetic anomaly that suggested a structure may have been located there. The anomaly turned out to be a patch of hardened earth lying between the bedrock and a structure close to the bedrock. Several intentional fill layers were documented in trench A (FIG. 3). They seem to have been deposited in order to level the ground surface with the bedrock at some point after the structure had fallen out of use. The part of the structure excavated in trench A used part of the bedrock as a wall, which was plastered in order to obtain a smooth surface. The rock-cut room extended to the east but was not excavated to its full extent. On the south side, a niche was located in which a fragmented cooking pot had intentionally been situated. Most strikingly, in this trench three intentionally placed cooking pots were found (FIG. 4). The cooking pots were filled with fine ash mixed with objects that included animal bones, some pottery and a glass sherd. They were surrounded by a stone-setting, underlining the intentional nature of this placement. Ash samples were subjected to chemical analysis by Helge Hansen (Teknologisk Institut, Aarhus, Denmark); the results will be published in due course to shed light on these pots in their in situ contexts. The intentional deposition and varying composition of the fills, as well as the very fine ash, hint at a ritual deposit of some kind, perhaps related to ancient magic. The latest phase of the room, which coincides with the placement of the pots, dates to the Byzantine period. The earliest phases in trench A were linked to quarrying activity. Such activity was also encountered in most other trenches where bedrock was reached, emphasising that the north-west quarter served

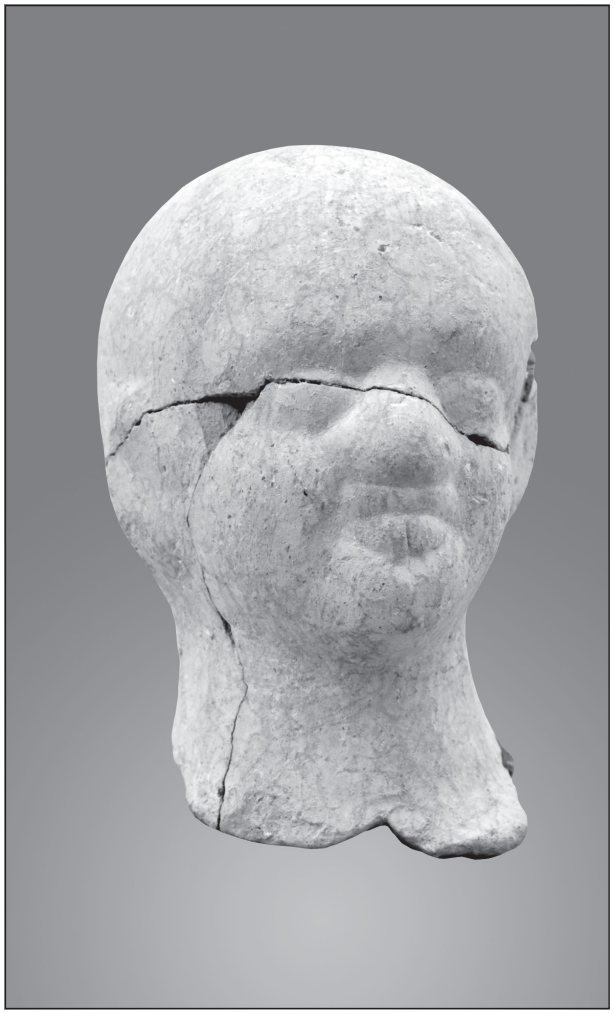


3. Section drawing of trench A showing intentional fill layers.

4. *In situ* cooking pots in trench A.

as an extensive quarry at some points in time. A number of interesting but unstratified finds came to light in trench A, including a coin of the Nabataean king Rabbel II (70 - 106 CE) and a locally produced head of a Roman-period Jarash terracotta figurine (FIG. 5).

Trench B was laid out in association with a well-constructed terrace wall in the northern part of the study area. A complete in situ oil press was found in this trench, attesting to use of the area in the Late Roman and Byzantine periods (FIG. 6). This type of oil press is known from Jarash, where one example was excavated close to the church of St Theodore (Fisher 1930: 9, fig. 6; *cf.* also Seigne 1986: 47, fig. 6, pl. VI 1-2, pl. VII). The type is also known from elsewhere in the wider region (Waliszewski 2009). A monumental limestone architectural block with altar iconography was found in the press, clearly reflecting its secondary use as a pressing stone. This block most likely comes from a Roman-period sanctuary, the location of which remains unknown. The block, of which the broken-off top was also found in the trench, has a height of almost three metres (FIGS 7 and 8). It probably flanked a monumental entrance, as it has an anathyrosis on one side proving that



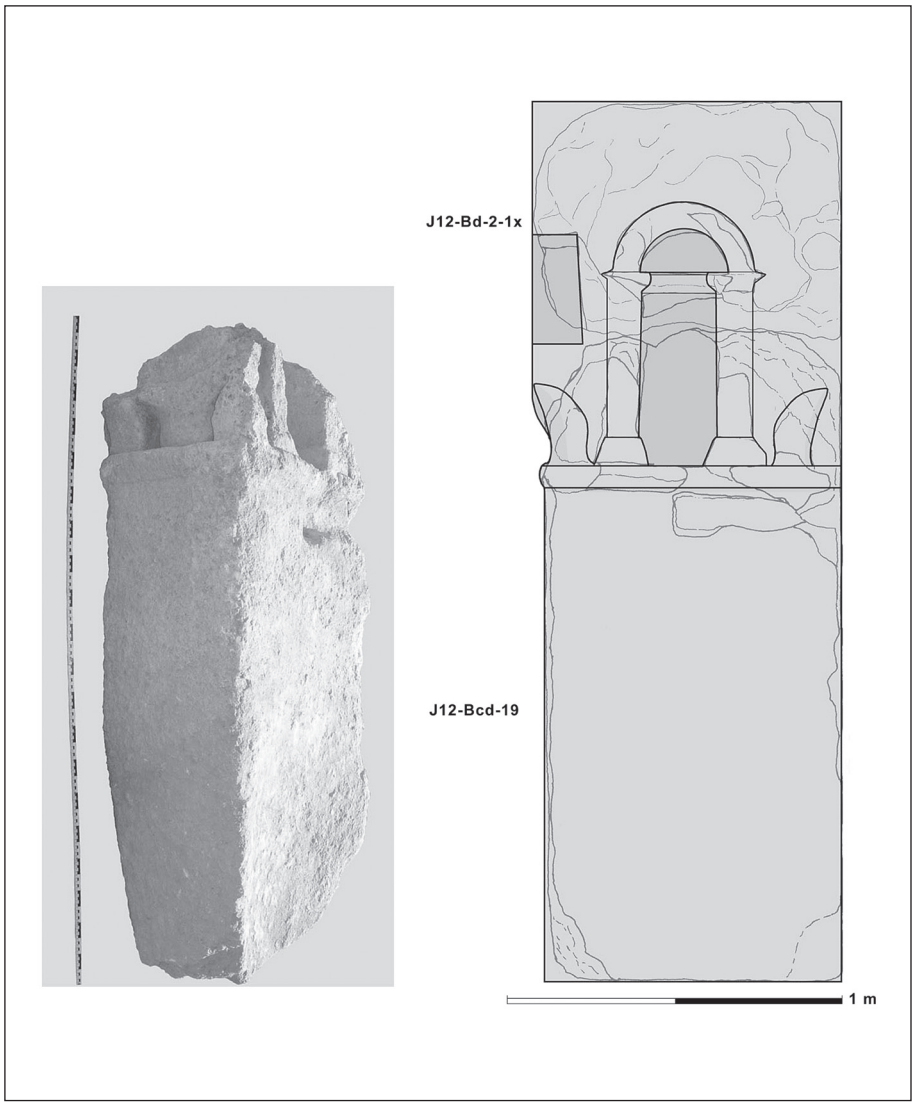
5. Head of locally produced Roman-period Jarash figurine.

6. Oil press in trench B.

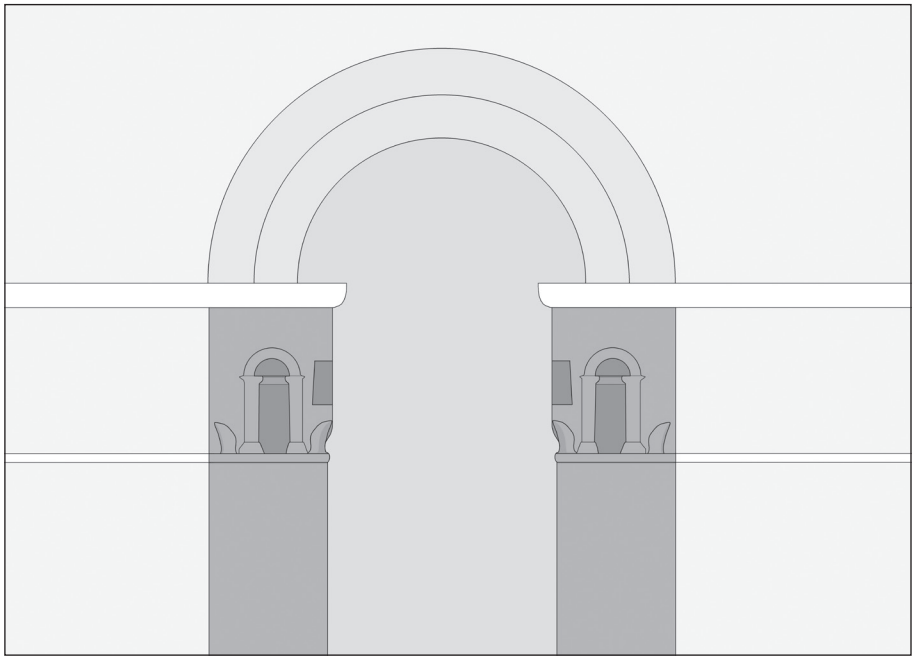
7. Architectural block.

it was bonded with building blocks. Therefore, a counterpart must have existed (FIG. 9). Comparanda for the iconographic elements on the block, which include typical Levantine horns and an offering bowl, are found on numerous Roman-period altars from Jarash and the surrounding region (*e.g.* Kraeling 1938: pl. XCVIIIc, CXIId, CXVd, CXXa). Furthermore, in an architectural context the horns also have parallels in Roman-period buildings from the region, such as architectural elements found at Amman Citadel (Northedge 1992: fig. 30) (FIG. 10).

Trench C was laid out over the corner of a monumental building centrally situated on the hill, *viz.* the so-called 'Ionic Building'. This structure was recognised by early travelers such as Schumacher, who published his observations on Jarash in 1902 (Schumacher 1902: 121). The name of the building derives from the fact that it incorporates several Roman-period spolia, including an Ionic capital used as a pillar-base that supported a roof construction or colonnade (FIG. 11). Trench C offered the possibility of making some important observations related to the history and chronology of the 'Ionic Building'. The last phase of this structure is Mamluk, but it also incorporates earlier phases dating to the Byzantine and early Islamic periods. Amongst other features, an earlier pear-shaped cistern was excavated in this trench (FIGS 12 and 13). On the basis of the mixed nature of



8. Architectural block (reconstruction).



9. Hypothetical reconstruction of the entrance to the building.

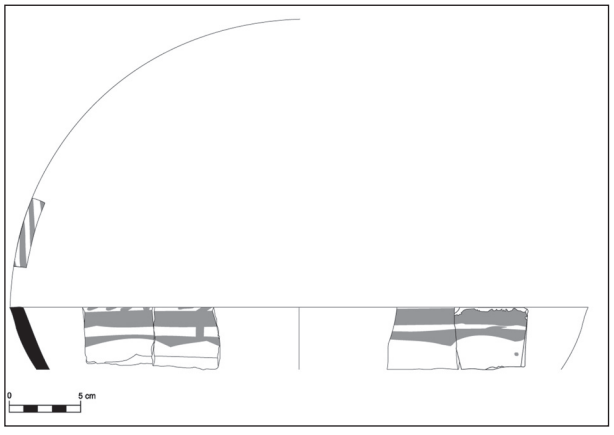
10. Niche-element from Amman Citadel.

11. Ionic capital reused as a base in the so-called 'Ionic Building'.

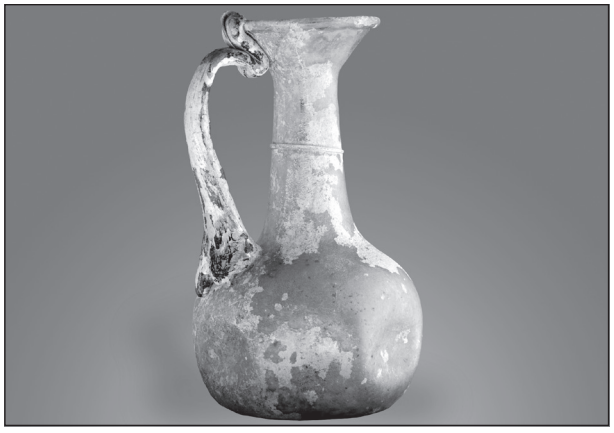
the cistern-fill, which included a significant quantity of Ayyubid - Mamluk Hand-Made Geometrically Painted Ware (HMGPW; for the dating of this pottery *cf.* Johns 1998), it is clear that the cistern was filled in no later than the start of the building's Ayyubid - Mamluk phase (FIG. 14). Other finds included an intact Byzantine glass flask of high quality (FIG. 15). On the basis of the results of the 2012 season, it seems likely that dramatic changes in the use of existing complexes took place in the Ayyubid - Mamluk period. These also involved invasive changes to the earlier layouts of complexes. Older structures of the early Islamic period had probably mostly fallen out of use or gone into decline as a result of the 749 AD earthquake that devastated Jarash. All three trenches excavated during the 2012 season told us about continuity, reuse and remodelling of complexes over long periods of time.

12. Pear-shaped cistern in trench C.

13. Plan of trench C.



14. Mamluk pottery from trench C cistern fill.



15. Byzantine glass flask from trench C cistern fill.

2013 Season

During the 2013 season, five trenches were excavated (FIG. 1, D - H) (Kalaitzoglou, Lichtenberger and Raja forthcoming; Lichtenberger, Raja and Sørensen forthcoming). Trench D was similar to trench C of 2012 in that it was laid out over the north-east corner of the so-called 'Ionic Building'. In this trench, just as in trench C, Ayyubid - Mamluk phases of use could be detected over earlier (early Islamic) phases of construction. Furthermore, extensive use of spolia, including a marble torso of an Artemis Rospigliosi, was detected (FIG. 16). The Rospigliosi-type is well-known in the region; one example is known from Jarash, with several others from nearby sites such as Caesarea Philippi (Friedland 2012: 110-113, no. 15, figs 50-51), Gerasa (Kraeling 1938: pl. LIVc; Weber 2002: 486, C3, taf. 121:E) and Pella (Weber 2002: 483, B1, taf. 118:A-C). As in the other trenches, the earliest signs of activity in this area were quarry marks. The north-eastern structures excavated in trench D belong to the early Islamic period, including part of an in situ kitchen in-

16. Torso of a locally produced marble Artemis of Rospigliosi-type.

stallation with an oven (tabun) and basin with inlets (FIG. 17). A large chopper was also found in this room. The last phase of the building in this north-east corner dates to the Ayyubid - Mamluk period. However, the early Islamic structure, which lay outside the north wall of the 'Ionic Building', was not disturbed after its abandonment. This is significant, as it now appears that the interiors of buildings that were reused in the Ayyubid - Mamluk period seem to have been thoroughly cleaned out, whereas areas outside, even right outside, walls which were reused seem to have been left as they were found.

Trench E was laid out in order to (1) examine parts of the large terrace extending in front of the 'Ionic Building' and (2) clarify the relationship between the structure, the terrace and the 'Ionic Building' with which the structure in trench E seemed to share a wall that was visible on the surface. Extensive signs of quarrying were also noted. Furthermore, an in situ length of water pipe was located in the south-western part of the trench (FIG. 18). This was the first of its kind to be documented in the north-west quarter, proving that this area was at some (still to be determined) point linked up to the water supply of the city (for a preliminary study on the water

17. Kitchen installation in trench D, outside the north wall of the 'Ionic Building'.

supply *cf.* Seigne 2004). This also underlines the fact that water must have come into the city at some location on the hill, perhaps through the city walls (see below).

Trench F was laid out across a large cistern on the southern slope of the north-west quarter. This is the largest cistern known at Jarash, measuring approximately 18 x 40 metres with the long sides oriented approximately east - west. The trench was 17 metres long by 1.5 metres wide (FIG. 19). Trench F demonstrated that the large cistern fell out of use no later than the Byzantine period (with hints of an even earlier date). Buildings were subsequently constructed within it (domestic; commercial / industrial). At the same time, a natural cave beneath the cistern was used as a smaller cistern after the large cistern had part-collapsed into the natural cave. The natural cave cistern was plastered, with the ancient plaster being partly preserved, which

18. *In situ* water pipe in trench E.

19. View of the cistern in the southern part of the north-west quarter, before trench F was laid out.

is also the case in the large cistern. Geologist Alf Lindroos (Åbo University, Finland) and Jan Heinemeier (head of the AMS laboratory at Aarhus University, Denmark) have carried out preliminary AMS-tests on some mortar samples from the large cistern, which clearly indicate a Roman date. One of the aims for forthcoming seasons will be to continue examination of the cistern, as it might give us an important insight into changes in water supply over time, e.g. the centralisation or decentralisation of the water supply for Jarash.

Trench G in the northernmost part of the north-west quarter was laid out in order to clarify the way in which the quarter was bound into the overall urban plan of Jarash during the Roman period (*cf.* Zaid 1997). This had also been the aim of excavations north-east of the north-west quarter directed by V. A. Clark and J. Bowsher in the 1980s (Clark and Bowsher 1986). However, their results remained inconclusive about the existence of a street in this area. It should be noted that the South Decumanus has not been traced all the way to the south-west gate either, and that this might be an indication about whether the North Decumanus extended to the gate or not (Gawlikowski 1986: 109; Zayadine 1986: 8). Trench G was aligned with the Tetrapylon and the collapsed north-west gate, with the aim of clarifying whether or not a North Decumanus had run from the Tetrapylon all the way to the north-west gate. In the trench no evidence for a street, whether of Roman or later date, was found. Mainly smaller terrace walls were encountered, as well as a fair amount of organic material, including olive pits and the pods of some kind of vegetable or fruit (FIG. 20). These suggest that this area was used for agricultural purposes and was not bound into the urban layout. It can be concluded from this remarkable discovery that the North Decumanus did not, for some reason, extent very far west and that the north-west gate was theoretically but not in reality bound into the original plan of the ancient city. Somewhat surprisingly, this area seems to have been left 'empty' in Antiquity as well as in later periods.

Trench H was laid out over the northernmost terrace wall on the north side of the hill in order to collect information about the northern extent of the north-west quarter, following the results from trench G. In trench H, two more east - west water pipes were found lying next to each other which, together with the results from trench E, suggests that the north-west quarter was fully linked to the Gerasa water-supply system. Additionally, a massive wall was found at a depth of around five metres; this

20. Organic material from trench G: pods.

wall was still in use in the Byzantine period and was the ground surface in this area during Antiquity (FIG. 21). This discovery clearly shows how the modern topography in this area gives a misleading impression of the situation in Antiquity, when there was a small wadi here bordered to the south by a steep hill, *i.e.* the start of the hill upon which the north-west quarter was located. In the deep sondage in trench H, Hellenistic black-glazed ceramics were found in an inverted erosional stratigraphic context, underlining the fact that the area upslope had seen some activity in earlier periods (FIG. 22).

21. Wall in trench H.

22. Hellenistic black-glazed pottery from trench H

Significance of the Results and Further Research

As a result of the three seasons undertaken so far, we can conclude that during an earlier period, which cannot yet be absolutely dated, the north-west quarter at Jarash served as a stone quarry. The results presented here also demonstrate that the area saw a peak in activity during the Late Antique, Byzantine and early Islamic periods, during which it was densely settled. A further important result concerns the Ayyubid - Mamluk monumental structures, the so-called 'Ionic Building' and associated complexes, which all seem to reuse - at least partly - earlier structures. It is clear from the results available to date that this area saw sparse activity during the Hellenistic and Roman periods, evidenced only by pottery, glass and smaller finds. These results go hand-in-hand with (1) stone quarrying in the earlier period, (2) agricultural use of parts of the area and (3) the seemingly planned, but never realised, extension of the North Decumanus. Over the course of the first three seasons, numerous installations associated with the water supply system(s) have been identified in the north-west quarter. The use and abandonment of these features typically seems to be associated with major phases of reuse or remodelling that were directly linked to the structure and organisation of the settlement. In particular, the results from the large cistern give an insight into how a structure built for one purpose could be reused for something completely different - in this case the erection of structures attesting to domestic and industrial use. The identification of numerous water installations in the north-west quarter will be examined further in the years to come. However, it is already clear that the area had a greater importance in the central water supply to the city - at least at one point in time - than has hitherto been assumed, as

evidenced by the large cistern and water pipes. Perhaps water was channeled in from higher lying sources at Dayr al-Liyyat outside the city.

Gaining a further understanding of the extensive and continuous settlement history of the north-west quarter will be the focus of forthcoming seasons. All periods will receive attention. The trenches investigated so far, in which only sparse signs of Hellenistic and Roman settlement activity were visible, have given us deep insight into the general development of Jarash. It seems that in Roman times the city was somewhat smaller than the area enclosed by the city walls and that extensive urban expansion only occurred from the Late Antique period onwards. In future seasons we will, amongst other issues, examine how the layout of the monumental Roman-period Artemision influenced the development of the north-west quarter and whether there are signs of necropoleis in these areas, as has been suggested (Seigne 1992: 332-333; for the issue in general *cf.* Pierobon 1983-1984: 32-34). Furthermore, the transition from the Byzantine to the early Islamic period will be examined in closer detail. On top of this the Ayyubid - Mamluk structures need further attention, as this agglomeration of structures seems to have been of some significance. Last, but not least, the admittedly sparse remains of the Hellenistic and Roman periods demonstrate that activity took place in this area. By gaining a better understanding of this area and the use and reuse of the complexes there, including the incorporation of parts of older complexes within new ones, we hope to come to a better understanding of complex urban development patterns over a longer period of time.

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