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# Archaeological Landscape Survey at Khirbat al-Mafjar — 2009 and 2010

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The excavated and well-published ruins of 'Hisham's Palace' are a spectacular example of the splendour of Umayyad architecture and decorative arts. Yet very little of the surrounding remains associated with it has been recorded or explored. These are now under serious threat as a result of the rapid urban development of Jericho and expansion of agricultural activity in the area. The Khirbat al-Mafjar Archaeological Project was initiated to explore and record in an area of about 10 sq km, with the aim to provide better understanding of the palace within the context of its cultural and historical environment. A pilot walking reconnaissance survey was conducted in January 2009, followed by an archaeological landscape survey in January 2010. There are plans for a third season in 2011.

**Keywords:** survey, Umayyad, palace, water management, aqueduct

## Introduction

Khirbat al-Mafjar is the current name of excavated ruins of a palace, commonly known as 'Hisham's Palace', in the Jordan Valley, about 2 km north of Jericho. The palace remains unidentified in the historical sources, although it has been attributed by the excavators to the Umayyad period, dating to the first half of the 8th century. It is typical of the so-called 'desert castles' or 'palaces' in the Levant, which have been the subject of numerous scholarly publications. There has been no consensus among scholars on their patrons among the Umayyad dynasty, nor on their role and function. Hypotheses regarding the purposes of these structures range from use as residential compounds, to agricultural estates, palaces, castles or stations on trade and pilgrimage routes.

Full-scale excavations were carried out at the site for 12 seasons from 1934 until 1948 by Baramki and Hamilton, on behalf of the British Mandate Department of Antiquities of Palestine. The results of the excavations were published in a series of articles in the *Quarterly of the Department of Antiquities of Palestine*, and in R.W. Hamilton's monograph *Khirbat al-Mafjar: An Arabian Mansion in the Jordan Valley* (Oxford: Clarendon, 1959). These investigations mainly dealt with the architectural analysis of the ruins and the various media of its decorative arts, such as the plaster, stone carvings, mosaics and wall paintings. However, these results did not provide clear answers to numerous issues: such as, who built the palace among the Umayyad dynasty and when, the function of the palace, clear stratigraphy or occupational sequences of the site, the complete outline of the palace, the scope of the complex water supply system associated with the palace, the extent and nature of the so-called 'game park' found within the enclosure wall ('*hayr*') surrounding the palace from the east and north, and the cultural and environmental context within which the palace had functioned.

The *Khirbat al-Mafjar Archaeological Project* was conceived in January 2010 as a five-year joint collaborative project between Birzeit University and

University College London. This is a new research programme based on a holistic approach of archaeological landscape survey, combined with targeted and limited excavations and sound management of cultural heritage. It aims to provide clear answers to the above-mentioned questions, which will ultimately contribute to the protection, re-interpretation and presentation of the site. Nevertheless, its immediate objective is to record all surviving remains that once were part of the historic environment that sustained the palace at Khirbat al-Mafjar before they disappear as a result of the ever-increasing agricultural and urban development of modern Jericho's suburbs. This research project has undoubtedly an immense importance for the field archaeology of both Palestine and the Levant where work is also needed on similar Umayyad structures.

## Aims and Objectives

The strategic aims of this project are:

- To enhance our understanding of the archaeological landscape associated with the site of Khirbat al-Mafjar and the contemporary settlement at Jericho
- To refine our understanding of the chronology of the site (foundation, alteration and change, abandonment and destruction) with a view to better understanding its historical context
- To explore the political, economic and social relationship between the new seat of Umayyad power established at Khirbat al-Mafjar and the early Islamic urban settlement at Jericho
- To explore the hydrological regime and management of water supply effected by the construction and subsequent abandonment of the Umayyad palace
- To extend the range of collaborative research through the participation of local and international institutions and individuals, including regional and municipal authorities, local schools, and other teaching institutes within Palestine, as well as other overseas universities and agencies



Fig. 1: Site location plan

- To strengthen the professional capacity building in areas of archaeological survey, excavation and conservation through the training and support of local archaeologists and students. These areas include: non-intrusive forms of assessment and evaluation, topographic and geophysical survey, cartographic analysis, GIS and CAD based techniques, recording and analysis of material culture
  - To contribute to conservation, management and interpretation strategies for the archaeological remains associated with the site
  - To engage with local communities and other stakeholders in the study, protection, interpretation and enjoyment of the historic landscape
- Consulting historical maps, old photographs and satellite images in order to locate and identify archaeological features in the surrounding area of the site
  - Compiling lists of the archival material, finds and bibliographies
  - Digitizing available old maps, photographs, archival material, published images, etc.

## 2. Landscape archaeological survey:

- A multi-disciplinary archaeological landscape survey and research was undertaken involving various teams, including reconnaissance walking survey, topographical survey, architectural survey, geophysical survey and aerial investigation
- An initial pilot field walking survey of an area of 5 sq km, based on the existing boundary division of modern farm plots (rather than a grid marked by ranging poles) as seen on a satellite image
- Collection of surface portable artefacts, including ceramics, other small finds and inscriptions. All finds are cleaned, marked and bagged in accordance with the accepted standards, for later analysis
- The entire hinterland area of Khirbat al-Mafjar (c. 10 sq km) was subject to standard mapping using GIS (Geographical Information System) and GPS (Global Positioning System) methodology
- A geophysical survey employing magnetometry was used to trace the presence of archaeological anomalies, including walls and other architectural features. This is a vital non-intrusive method to minimise the extent and impact of excavations
- A large-scale topographical survey using GPS was employed to record and plot the various surviving archaeological and architectural features
- Recording of structures and small artefacts by means of digital photographs, sketches, drawings and written descriptions

The objectives of the survey are as follows:

- To explain the chronological, spatial or functional relationships between the site and features identified and the historic and archaeological data synthesized in the previous studies of Khirbat al-Mafjar
- To effectively assess the extent and potential importance of the surviving archaeological features and deposits within the survey area
- An assessment of the impact of erosion and damage caused by modern agriculture, urban development and land use change on archaeological features in the survey area
- Analysis and transcription of old maps, aerial photographs and satellite images from the study area
- Examination and interpretation of other archival material for the site
- Re-interpretation of archaeological material recovered in previous excavations
- Identifying areas where river deposits and other organic sediments will be extracted for specialist analysis in the next phase of the project
- The results of the survey will lead to further research activities, including full-scale geoarchaeological survey and targeted excavations

## Methodology

### 1. Evaluation and assessment of previous work:

- Consulting the archives of the previous excavations at: the former British Mandate Department of Antiquities of Palestine at the Palestine Archaeology (Rockefeller) Museum, Jerusalem; Hamilton's Archive, University of Oxford; the Palestine Exploration Fund, London; the Department of Antiquities of Jordan, Amman
- Assessing and examining the records of previous excavations for further research and fieldwork potential at Khirbat al-Mafjar. This will be critical in defining the objectives of the future fieldwork and the likely nature and extent of the areas and archaeological deposits under consideration

## Results

An initial field-walking survey season, involving artefacts surface collection, was carried out in January 2009 by a team from Birzeit University. The area surveyed (c. 5 sq km) lay within the precinct wall which enclosed a large swath of land extending over 1.5 km east of Hisham's Palace, bounded on the south by Wadi al-Nuweim'eh and Wadi al-Mafjar on the north, and extending about 700 m west of the palace (Fig. 1). Much of the area is classified as agricultural cultivated land for growing vegetables and orchards, while part of the area is made out of semi-urban and open uncultivated land. Two survey zones were covered: Zone A extending east of the palace, consisting of 14 transects; Zone B to the west of the palace, containing 8 transects.

In January 2010 a larger team from Birzeit University and University College London (UCL), working for three weeks carried out a topographical and architectural survey in the same area (Figs. 2, 3). This season's

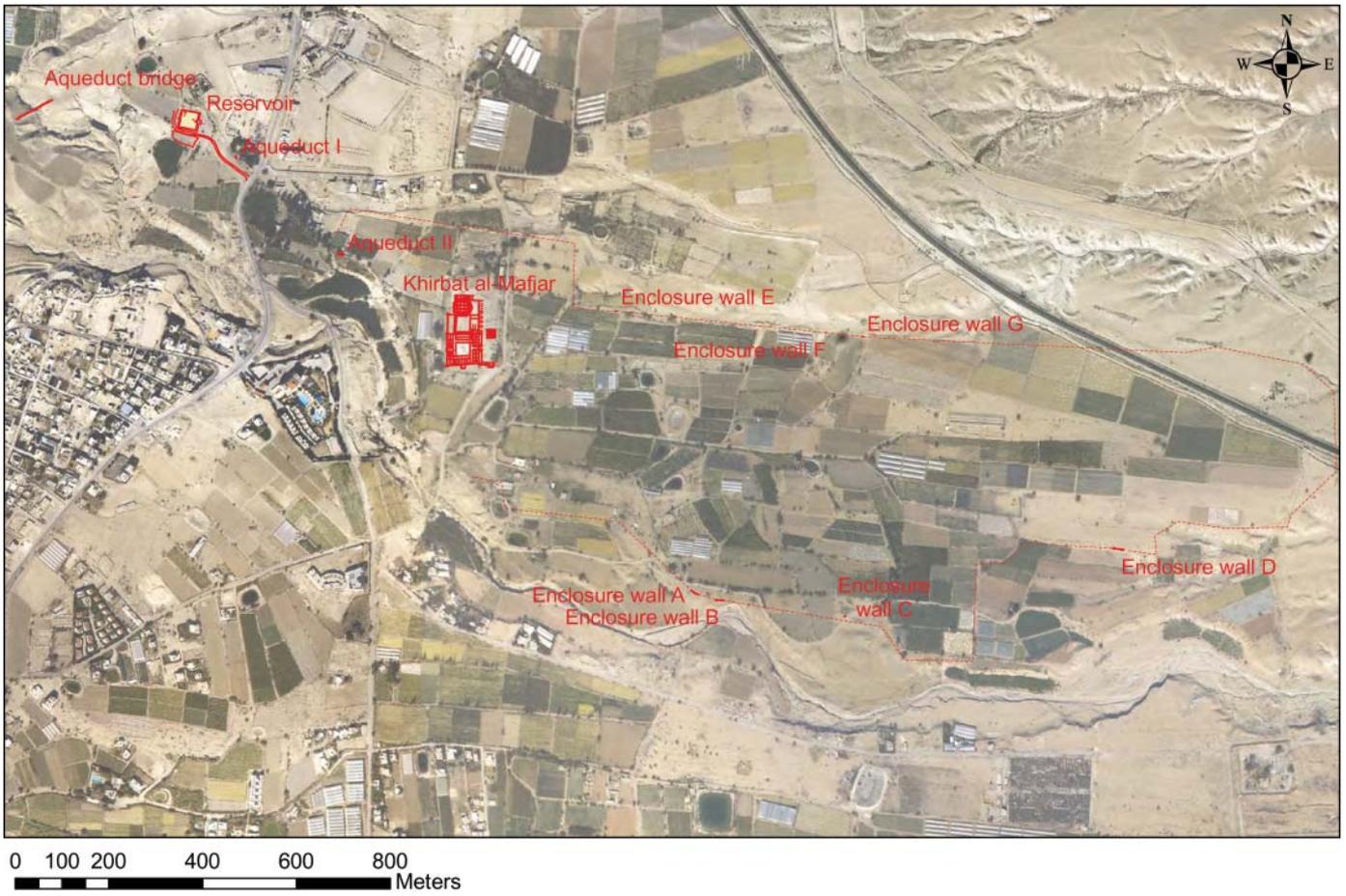


Fig. 2: Plan showing the results of the survey in relation to the Palace



Fig. 3: Survey team from Birzeit University and University College London at Hisham's Palace

aim was two-fold: to record all architectural remains in the survey area associated with the palace; and to provide training in the areas of architectural recording, geophysical and topographic survey for Birzeit staff and students, as well as students from al-Quds University and staff from the Palestinian Department of Antiquities.

The geophysical survey, using magnetometry equipment, was carried out in four areas: Areas 1 and 2 along the south side of the enclosure wall; Area 3 immediately east and south of the palace, primarily of interest for the approaches to the site; and Area 4, the reservoir and the aqueduct west of the palace, including the site of a mill, identified on old maps as *Tahunat al-Mafjar* (Fig. 4). The results of the geophysical survey were rather disappointing as they did not show any significant new findings. There are a few enigmatic readings that might just be worth exploring further, but we have no clear additions to the known architecture of the site. It was, however, an extremely useful exercise from a training and capacity-building point of view (Fig. 5). The topographic survey, using advanced GPS equipment, was more rewarding. We were able to prepare a detailed record of the main surviving elements of both the precinct wall and water supply system (Fig. 6). In our final report on the season we intend to focus on the implications of this for site management and conservation issues beyond the area of the protected monument. A full interim report for publication is in progress.

### Artefact Scatters

The surface area collection, carried out in the 2009 season, included pottery, glass, flints and other small finds. Most scatters were low density, although open uncultivated areas contained a higher concentration of ceramics. Some rich assemblages of pottery were associated with some monumental structures in the area. Much of the ceramic material collected clearly indicate that the area had dense human activity from the 6th century (Late Byzantine) to the 15th century (Mamluk period), but with sporadic activity in earlier and later periods.

### Evidence of Water Management

The occupants of the palace of Khirbat al-Mafjar depended on water supplied by neighbouring springs. The water supply system included installations for collection, channelling and storage of water. Various structural remains of this system have been identified and recorded in the survey area. These include four sections of an open aqueduct, which brought water from the springs of 'Ain al-Nuwei'meh and 'Ain Duyuk in the foothills to the north-west (c. 5 km long). The aqueduct consists of a U-shaped channel constructed with stone blocks and plaster (Fig. 7). At a distance of c. 1 km west of the palace, a ruined narrow bridge for carrying the aqueduct (c. 90 m long), with broken ends on both banks of Wadi al-Nuwei'meh,

was also recorded (Figs. 8, 9). A large reservoir, located c. 700 m west of the palace, was partially exposed and then recorded (Fig. 10). It is a rectangular structure (50 × 44 m, and c. 4 m deep) built with large blocks of stones, and provided with vaulted outlet building on its east side. The reservoir was intended to provide a stable water supply for the palace and its bath, as well as for operating two flour mills. No traces of the two ruined mills, identified on old maps, were found.

### Architectural Remains

The remains of an extensive precinct wall around the palace were found, an estimated outline of which was originally identified by Baramki and Hamilton. The wall extends eastward from the palace, along the north bank of Wadi al-Nuwei'meh for over 1.5 km, then turning north for Wadi al-Mafjar, and finally returning westwards to a point north-west of the palace. It probably served as a boundary wall enclosing large agricultural estate, and game-park (c. 250 acres). It is constructed with irregular blocks on both sides with rubble in between and is re-enforced by semi-circular towers or buttresses. Seven portions of the wall, four on the south side and three on the other north side, were recorded (Figs. 11, 12).

### Inscriptions

A Roman milestone with a complete Latin inscription was found about 300 m north-west of the palace (Fig. 13). It probably belongs to a near-by Roman road which once led from Jericho north-west to the hill region and to Caesarea on the Mediterranean coast. Remains of this road were recorded by the Palestine Exploration Fund team of the Survey of Western Palestine in 1873.

### Discussion and Future Research

The palace complex at Khirbat al-Mafjar is situated within a fertile agricultural area north of the Jericho oasis which has been cultivated for many centuries. Many traces of water management dating to the Hellenistic, Roman and Byzantine periods, can be found in this area testifying to a rich and long tradition of irrigation and agricultural activities. Accordingly, the builders of the palace complex have utilized water supplied by near-by springs. These springs include: 'Ain al-Sultan, 2 km to the south-west, and the double springs of 'Ain al-Nuwei'meh and 'Ain Duyuk c. 4 km to the north-west. For this purpose they constructed and managed an efficient and extensive water supply system. Surviving traces of this system were first recorded and mapped by a team of the Palestine Exploration Fund in the *Survey of Western Palestine*, published in 1873. An aqueduct carried on two bridges, one near the spring of 'Ain Duyuk, which was demolished by a massive flood in 1987, and the other in a ruinous state 1 km west of



0 125 250 500 750 1,000 Meters  
Fig. 4: Plan showing the grid used for the magnetometry survey



Fig. 5: Training a student in the geophysical technique of magnetometry

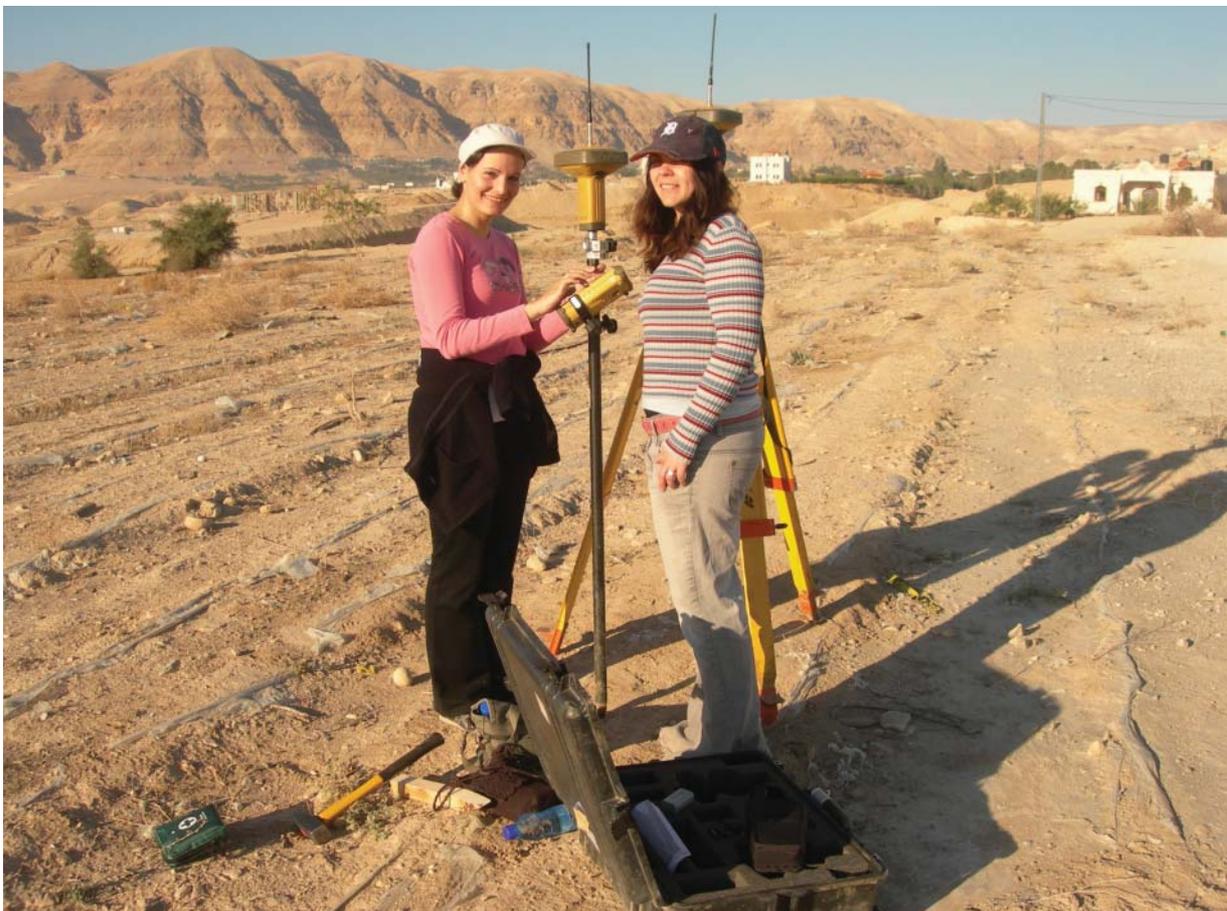


Fig. 6: Training a student in topographical GPS survey methodology



Fig. 7: Exposing the aqueduct over the bridge



Fig. 8: Recording the bridge

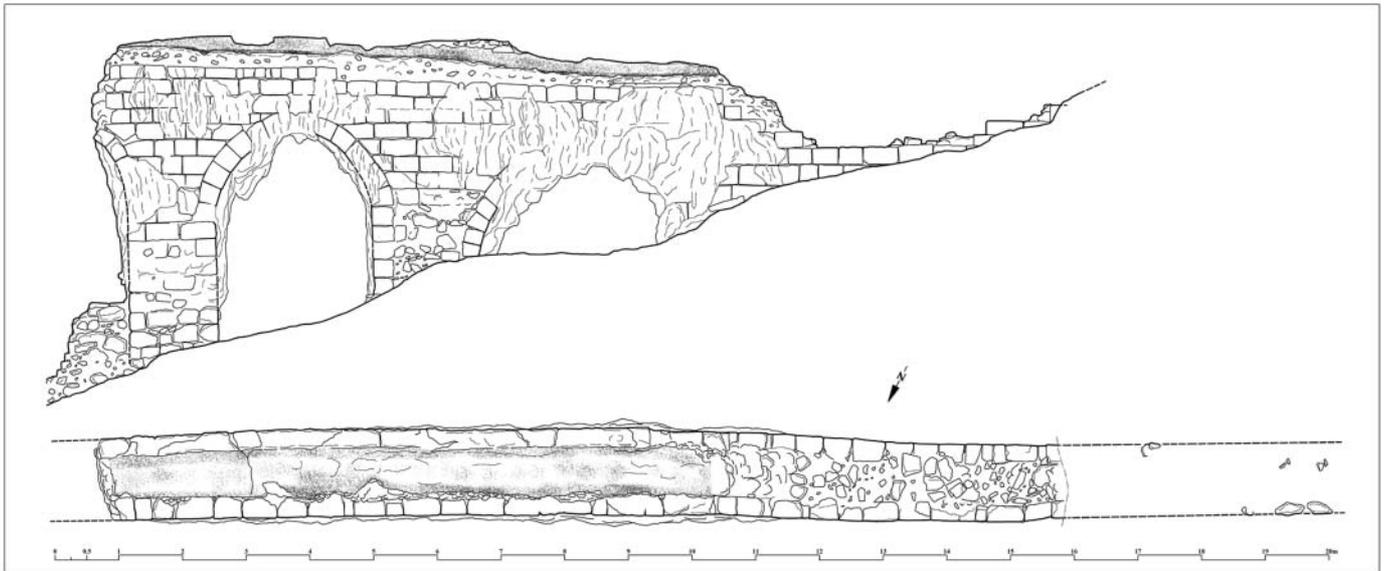


Fig. 9: Elevation and plan of the bridge



Fig. 10: Exposing the south wall of the reservoir



Fig. 11: Exposing Enclosure Wall D

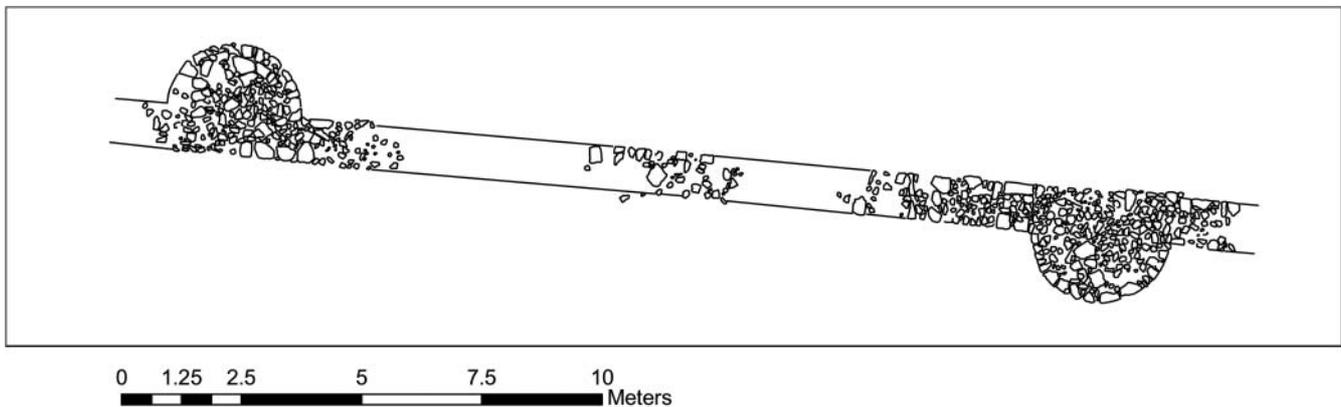


Fig. 12: Plan of Enclosure Wall D

the palace. A large stone-built reservoir was constructed to guarantee a flow of water for the needs of the palace and its baths, as well as to irrigate the agricultural lands surrounding the palace. At least two water-mills were built along the lower part of the aqueduct and fed from the reservoir.

The precinct wall, which is similar in character to a larger wall found at the two palaces of Qasr al-Hayr in Syria, enclosed agricultural irrigated lands, pleasure gardens, or even grazing land for domestic animals or game.

Although numerous surviving archaeological remains were located, perhaps these are only a fraction of what has existed previously. Agricultural activities and urban development in the area during the last half century have obscured the traditional landscape, and pose an ever-increasing threat to the integrity of the cultural and historical environment. Unfortunately, these archaeological resources are being progressively destroyed as a result of these activities which urge us to re-double our efforts to record as many remains as possible before they are lost forever.



Fig. 13: Roman milestone

Further seasons of survey are required in the area (c. 5 sq km) extending westwards following the aqueduct along the Wadi al-Nuwei'meh until the springs Duyuk and al-Nuwei'meh. Field-walking reconnaissance will be carried out in the survey area to collect and record surface artefact scatters. Topographical and architectural survey will be applied to record surviving architectural remains. Geophysical magnetometry survey could also be used to locate structures not visible from the surface. It is evident that the archaeological resources in the survey area are being progressively destroyed as a result of urban development activities. Especially vulnerable are the aqueduct and the already ruined bridge, both of which need urgent protection (Fig. 14).

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Fig. 14: Collapsed bridge near 'Ain Duyuk

Kenyon Institute in Jerusalem, for their logistical support to facilitate the transfer of UCL equipment across from Jordan to Jericho.

#### Notes on Contributor

Mahmoud Hawari is currently Visiting Professor and Project Director at Birzeit University, and Research Associate at the Khalili Research Centre, University of Oxford. His research

interests are concerned with the study of Near Eastern and Mediterranean Islamic archaeology, art and architecture. He has worked on numerous international archaeological and architectural projects. His relevant publications include a series of articles in *Levant* resulting from the Ottoman and Medieval Survey at the former British School of Archaeology in Jerusalem; a book *Ayyubid Jerusalem (1187–1250): an Architectural and Archaeological Study* (Archaeopress, 2007); and a monograph *The Citadel of Jerusalem* (in preparation for the Levant Supplementary Series, CBRL and Oxbow Books).