

Kourion Urban Space Project: Preliminary Report of the 2016 Season

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Abstract: The 2016 season of the Kourion Urban Space Project (KUSP) focused on the excavation of a structure situated to the southwest of the Earthquake House on the city's acropolis. Excavation revealed a large building, designated Building 4, that had been damaged suddenly and further decayed over time. Though it is uncertain if Building 4 was a domestic structure, administrative facility or both, it is evident from the construction materials, particularly marble and painted plaster wall facing, and imported finds that it served elite members of the Kourion community. This paper provides a preliminary description and analysis of the archaeology of Building 4. It was lodged with the Department of Antiquities, Cyprus, in January 2018 and is published here with the authors' affiliations as they were then.

The Kourion Urban Space Project (KUSP) has been excavating a section of the city of Kourion on the southern coast of Cyprus since 2012. Our project space is situated on an acropolis overlooking Episkopi Bay, along the east side of a depression that separates the Kourion Basilica and Forum from the southern portion of the site, just to the southwest of the Earthquake House (Figure 1). Beginning in 2013, our work centred on and about a mound in this area that initially produced, through excavation, the remains of a mosaic floor framed by large cut stones with riveted marble veneer. These initial investigations have been documented and are available in the *Report of the Department of Antiquities, Cyprus* (Grimsley et al. 2016).

The primary aim of the 2016 excavation season was to continue uncovering the remains of Building 4, the large and rich structure that created the mound in this area as it disintegrated (Figure 2). Using the data obtained from this building, along with that from our excavations in this sector of the city, and the Kourion Mapping Project, our overall goal is to examine the diachronic, economic and social changes that took place within this city during the 4th and 5th centuries AD.

Because the excavation of Building 4 is still in a nascent phase, we have only a limited understanding of this structure and its connection to, and function within the city of Kourion. It is evident, however, that Building 4 was



Figure 1: An Aerial photograph of the southern part of the Kourion acropolis. The location of the KUSP excavation is indicated with a yellow box. Image: Courtesy of the Cyprus University of Technology.



Figure 2: A plan of Building 4. Excavation Unit names begin with the letter A, and Space names are indicated with triangles. Wall names are enclosed in rectangles and begin with the letter W.

large and at least two stories tall. The walls of Building 4 were constructed with cut limestone blocks resting on floors and topped by a superstructure of stacked and mortared angular cobbles faced with imported marble, painted plaster or both. The structure was roofed with tiles, common for this period, and probably included decorative and structural elements such as archways and columns. These construction materials along with the presence of mosaic floors strongly suggest that, at least at its inception, this structure was either an elite residence or an administrative facility.

Methodologically, the excavation of Building 4 presents multiple challenges. The unknown extent of the building and the height of the decomposed remains, over 2 meters, and moreover the growing instability of the mound as it was bisected, dictated our excavation method. Three units along the northeastern edge of the mound were initially excavated to floor level in 2013 and 2014. These probes gave us an understanding of some of the activities that took place in this area and hinted that Building 4 may have changed function over time and was structurally damaged, perhaps in an earthquake. With this information, the decision was made that during the 2016 season it was most pertinent to focus on (1) finding the extent of the building, (2) understanding the internal layout of rooms

and number of stories, and (3) tracing the evolution of the building's decomposition including understanding the processes of collapse and decay over time and the formation of the mound.

The 2016 excavations of Building 4 continued the work begun in previous years in Units 3 and 9 along the southern edge of the mound, and A7 in the northwest. New excavation units were established along the southwest edge of the mound, Units 13 and 14, and the south, Unit 12. This configuration of excavation units helped trace Building 4's interior architecture and overall extent. The growing instability of the mound, due to the large amount of tumbled wall stones necessitated two excavations units in the centre, Units 10 and 11, and the removal of some baulks. The excavation of Unit 11, only removed the topsoil and a few centimeters of the stratum below in order to stabilize the mound, ensure minimal collapse in winter rain, and provide a safer environment for members of our team while they worked.

The stratigraphy of the Building 4 mound is important for understanding the use-life and decay of this structure and section of the city. Our excavations have revealed three main strata in this area. Stratum 1 is composed of topsoil, dark in color as a result of the decomposition of organic matter on the mound's surface. This stratum is narrow,

between 2 and 5 cm thick in most areas. Immediately below, Stratum 2 is much thicker, up to 2 meters in some areas and composed of yellowish sand. Within this stratum is a ribbon of finds mixed with a substantial deposit of tumbled wall stones, comprising roughly 95% of the layer, and in some units, large deposits of roof tiles. It is likely that the collapse and decay of Building 4's walls and the subsequent infilling of Aeolian sand from the beach below produced this stratum. Most of the artifacts found in Building 4 originate in this stratum; they include a dense concentration of pottery sherds many with adhered wall mortar, and fragments of painted plaster. In rooms where floors have been reached (Spaces 28, 35, 36 and 41) the artifact scatter is minimal compared to what is found above in Stratum 2. The deposit of pottery sherds among construction materials within this stratum, strongly suggests that they were used as wall chinking between irregularly shaped stones. The presence of adhered mortar on many of these sherds along with the observation of this construction method in some of the still-standing walls of Building 4 and elsewhere at Kourion furthers this argument. Because it appears that Building 4 is multi-storied, it is also very probable that some of this pottery as well as Stratum 2's other finds were originally situated in upper floors and fell as the building collapsed and decayed. Stratum 3 lies below the tumbled wall stones of Stratum 2. It is also composed of yellow sand and includes standing or collapsed architectural elements such as the large-cut limestone foundation blocks of walls and carved architectural pieces, and mosaic, ash or compacted earth floors. This stratum contains very few artifacts, particularly in comparison with the stratum above.

Collapse, decay or both

In 2014, the remains of four individuals were found in one of the initial excavation units along the northeast edge of the mound, later to be referred to as Space 35. Their presence, below tumbled wall stones, suggests that Building 4 was damaged and at least partially collapsed suddenly. Though we have not conclusively dated the construction or use of Building 4, it can be argued that this structure was affected by an earthquake. A series of earthquake or "earthquake storms" in the mid-4th Century have been documented for the Eastern Mediterranean, the largest of which halted activity within this city and left many buildings and public works irreparably damaged (Costello 2014). Further evidence of Building 4's earthquake damage can be seen in the coursed tumble found in Units A13-14, an offset wall (WE), which appears to have slumped over after it was pushed and finally a large cut stone block dislodged and tumbled from its original placement atop other large wall stones in Space 28. Wall WT also appears to have been pushed and slumped (Figure 3). However, some of Building 4's walls appear to have undergone a slower decay process, dropping stones over time. Stone structures can completely collapse in earthquakes or can partially collapse, be abandoned, and decay further over time. Though we cannot yet say conclusively which process ended the use-life of Building 4, we are currently working with the hypothesis that all three occurred; parts of the structure were destroyed or damaged during an earthquake and the entire building further decayed over time.



Figure 3: A geo-referenced overhead photograph of the Space 41 corridor. The black lines indicate the walls that border the corridor and may have once contained a stairway.

The Excavation of Building 4

The 2016 excavation of Building 4 continued and expanded on work from previous seasons in this area of Kourion. Four units were reopened or extended (A3, A7, A9, A10) and three new units were established (A12, A13, A14). Each unit measures 5 m x 5 m with 1 m baulks between. Excavation of units was conducted in quadrants to better trace the sequencing of both the building's collapse and the distribution of material fragments found throughout the stratum.

Unit A7

Unit A7 was partially excavated in the 2014 season, concluding when the tops of the preserved walls were reached. In 2016, excavation continued in this unit to further expose the architecture and reach the floor. This unit represents the northernmost section of Building 4 that we have exposed; it is unlikely, however, that this is the extent of the structure in this area.

Excavation of A7 revealed a complex series of walls (WE, WS, WT, WU, and WV) that enclose at least two known rooms (Space 36, 41). Wall WE, exposed previously in the adjacent excavation unit (A4), extends into A7, nearly bisecting the entire unit. A large wall, WE measures 4.6 m x 0.54 m x 0.49 m and was constructed of irregular cobbles chinked with pottery sherds. At its north-western

extent, it abuts the north-southwest running wall WT that extends 4 m and is preserved up to a height of 0.91 m. Wall WT leans to the northwest and is partially collapsed to the southeast. Two additional walls, WV and WU, extend from the northern terminus of WT to the northwest and southeast respectively.

Bordered by WE, WT and WU, Space 36 extends across units A4 and A7 measuring 4 m x 2 m. Within this Space, resting against the northeast face of WE, a limestone column measuring less than 1 m in height topped with a carved limestone basin, 47 cm in diameter, was found. The function of this pedestalled basin is uncertain; it is probable that the column was an architectural piece that was repurposed.

Space 41, formed by the abutment of WE and WT and further defined to the south by WS, is a narrow corridor. Within Space 41, three upright piers were found, suggesting that this area may have once contained a stairway (Figure 3). The height of the mound formed by Building 4, the large amount of tumbled wall stones and the presence of material culture not used as wall chinking within Stratum 1 strongly support the notion that this structure had multiple stories that required a stairway to access.

Many of the finds from A7 came from on or near the floor in Space 36. Directly resting on a beaten earth floor were



Figure 4: An Egyptian amphora, Egloff form 172 in the Kellia typology, in situ in Space 36, Building 4.

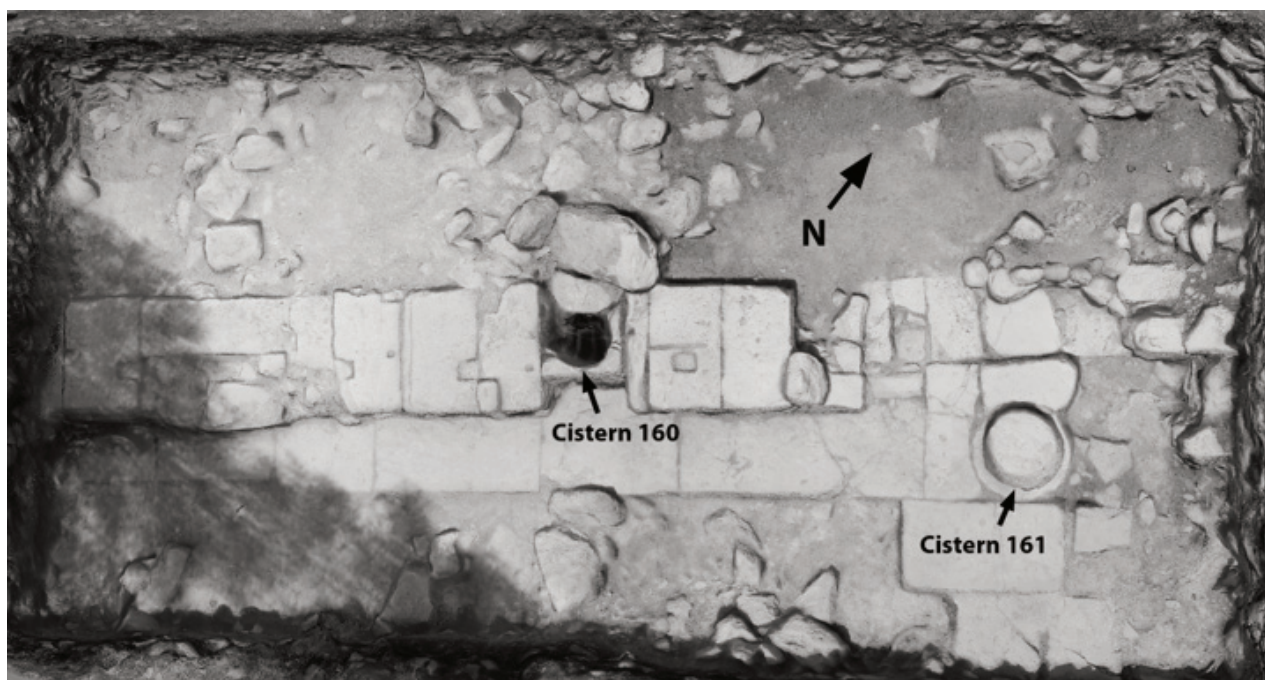


Figure 5: An overhead photograph of Units A9 and A12. There are two co-joined cisterns 160 and 161; Cistern 161 opens into a pavement and is still capped by a cylindrical stone; Cistern 160 is situated within Wall WK and had a rectangular cover that had been dislodged leaving the cistern open allowing it to be partially filled.

faunal remains, a near complete Egyptian amphora Egloff form 172 in the Kellia typology (Egloff 1977; Figure 4), fragmentary cooking vessels, lamp fragments, a nearly complete glass unguentarium, and three small copper-alloy coins: two illegible, and one with the Emperor Valens depicted on the obverse.

Unit A10

In 2014, the top of Wall WO was reached in Unit A10, but time did not permit further excavation. This unit was reopened in 2016 with a focus on exposing more of WO, tracing its extent and further defining the internal arrangement of walls in Building 4.

The exposed section of WO is composed of a large, shaped, rectangular stone topped by smaller mortared cobbles. On the east face of WO within Unit A10, a marble slab almost 2 m long was found upright but at a slight angle from the face of the wall. The gap between the wall and the slab contained pot sherds along with mortar indicating that broken pottery was used to help adhere the slab to the face of the wall, filling in any irregularities or gaps. It is also apparent from divots cut along the top of the marble slab at regular intervals, some with copper staining, and the remains of brackets imbedded in the north section of the wall's rectangular block that the marble was once held by copper alloy wall brackets.

Also on the east side of WO in this Unit, numerous painted plaster fragments were found among smaller tumbled wall stones. These fragments are decorated with parallel and bisecting lines of red, black, and greenish-blue. The plaster fragments indicate that the upper portion of WO

was decorated above the marble wall facing. Additionally, small rectangular fragments of marble with one squared long edge and one rounded long edge were recovered in the stone tumble along with the painted plaster fragments. These pieces may have lined the top of the marble facing separating it from the painted plaster, producing a wainscoting effect as seen in wall decoration today. WO is the best-preserved wall in Building 4 and is a good indication of how many of the walls were constructed in this building, as similar construction materials (large-shaped stones, cobble tumble, ceramic fragments with mortar, and plaster fragments) have been found in other units.

Most of the ceramics from this unit were mixed with wall tumble in Stratum 2 and still held wall mortar, having been used as wall chinking. Additional fragments of an imported Egyptian glass plate with millefiori design, initially found in 2014 (Grimsley et al. 2016; Swantek and Grimsley 2016), were located on the west side of WO, at least 3 m from the other pieces found in A7 previously. All other cultural material was primarily found in a thin ribbon from the bottom of Stratum 1 down through the tumble of Stratum 2. The density of cultural material significantly decreased below this tumble.

Units A3, A9, A12

Previous excavation revealed the continuation of Wall WE in Unit A3, and its connection to a long northeast-southwest wall, WK, running through the adjacent excavation Unit A9, along the southeast base of the Building 4 mound. This substantial wall, which may be a perimeter wall for Building 4, was further excavated

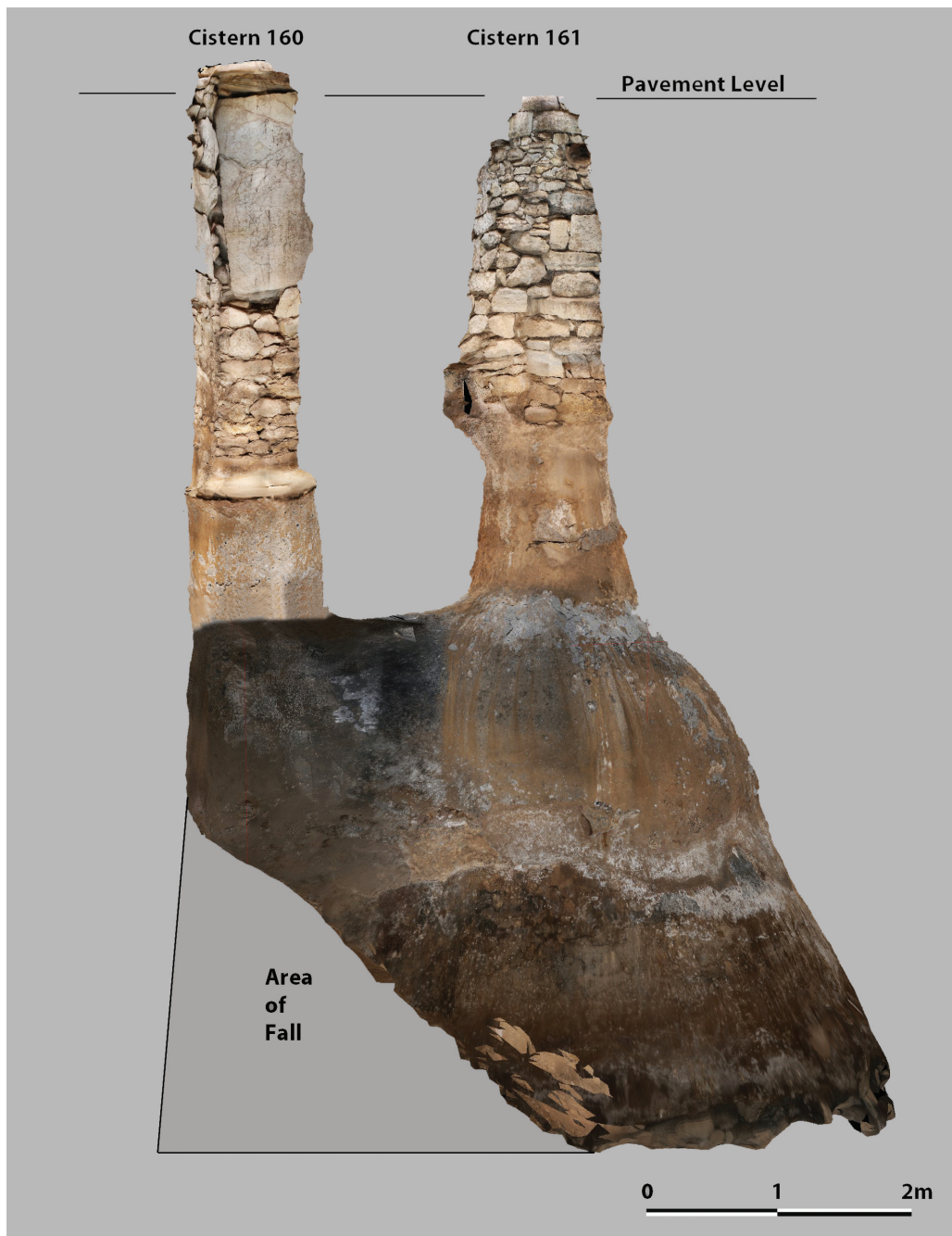


Figure 6: An orthophotograph of a section looking north of the conjoined Cisterns 160 and 161 in Units A9 And A12. These cisterns have separate openings and shafts which lead to a single reservoir.
Image generated by Agisoft Photoscan.

in 2016 with the continued excavation of Unit A3, a 1m southern extension of A9, and the opening of A12 (Figure 5).

The full length of WK is still unknown, but the northern terminus was found in the southwestern section of A3. The exposed section of WK measures 7 m x 0.5 m and is constructed using square cut limestone blocks that overlay flat cut-rectangular slabs that may have functioned as paving stones. Set within WK is the collar of Cistern 160 in A12 and in the adjacent limestone pavement is the collar of Cistern 161 in A9. These underground

openings have been imaged using a remotely operated camera to produce a 3D image, one projection of which is in Figure 6.

The shaft-collar of Cistern 160 is 0.48 m square and Cistern 161 is 0.42 m diameter. Cistern 161 has a circular cover stone in situ while Cistern 160's rectangular cover was dislodged leaving the cistern open. Cistern 160 has niches in the stones adjacent to the collar that may have secured the axel of a windlass. The two shafts lead to the same underground reservoir in which there is a heap of rubble and soil the top of which is under the shaft of



Figure 7: Tumbled wall stones found across Units A13 and A14. The majority of the wall stones found in these units were large, shaped limestone blocks. A high concentration of broken roof tiles was also found in these units.

Cistern 160. It is probable that the cistern was operating when Building 4 was abandoned and that the debris entered the cistern subsequently through Cistern 160, which had been left open. The shaft of each cistern has a similar design and construction. Below the collars are dry-stone lined 0.8 m square shafts down to the bedrock, which is 2-3 m below the surface. The shafts continue through the bedrock at about 1 m diameter into to the reservoir, the top of which is about 4 m below the surface. The reservoir of Cistern 161 is a rock-cut bell-shaped void with a base measuring 5-6 m diameter about the shaft centreline 8 m below the collar. This reservoir was extended westward to meet Cistern 160. Cistern 161 has a 0.2 m diameter pipe entering it about 1 m from the surface. The fall of the pipe is yet to be measured but it is most likely toward the cistern as there is no other means to fill it. Cisterns 160 and 161 were structurally integral to Building 4 and, together with the network of pipes and drains that filled these cisterns, were constructed contemporaneously with the surface structures.

Units A13 and A14

Two new excavation units were established in 2016 along the southwest side of the mound, Units A13 and 14. Both units contained a large concentration of tumbled wall stones and broken roof tiles, and appear to represent the same space within Building 4, as no bisecting wall was found (Figure 7).

Excavation revealed the presence of two partially preserved walls in A13. Wall WW runs roughly southeast-northwest along the northern edge of A13, and partially extends into the southeast corner of A14 before disappearing into the baulk. On the southwest face of WW a small piece of wall plaster with red paint was found still adhered to the wall with thick mortar. Wall WO extends into A13 from A4 and A10, intersecting WW.

In both A13 and 14, Stratum 3 contained large cut blocks that were displaced or possibly tumbled from walls, along with other architectural stones such as column fragments. It is not clear from the pattern of tumbled stones from

which direction they fell, however, a partial collapse in a southward direction seems evident in A14.

Similar to all other excavation units, the majority of ceramics found in A13 and 14 came from the upper portion of Stratum 2, mixed with tumbled wall cobbles. The cobble tumble was especially deep in A14, approximately 2 m, as it was close to the highest point of the mound. Many of the ceramic sherds were smeared with mortar, and this combined with their presence in the tumble suggests they were used in wall construction. Also present within the cobble tumble were large fragments of mortar, possibly used to as flooring for an upper story, ranging in size between 5 cm to 20 cm and a thickness of 2 cm to 7 cm. The highest concentration of this floor mortar was found A14. Near the bottom of Stratum 2 there was an increase in marble fragments and painted plaster and a decrease in ceramic sherds. Nearly 1,250 marble fragments were uncovered along with over 850 painted plaster fragments, similar in design to those found in A10. In A14, a plaster fragment molded to fit around a wall corner was found with a similar design on both sides executed in different colors. The design is reminiscent of the natural veining in marble. The largest concentrations of roof tiles were found in A13 in the south and west portions of the unit and in A14. In all, hundreds of roof tile fragments were found in these units, while only small fragments of roof tiles were found randomly dispersed throughout the other units in Building 4.

Future Work

The continued excavation of Building 4 will reveal the overall dimensions, layout and function of the structure but will also provide insight into the socio-economic processes that shaped and reshaped the city of Kourion over time. This work will also give us a better understanding of how sudden natural disasters and decay over time change the use of buildings and create archaeological sites in urban environments.

Work on Building 4 will continue to trace architecture, particularly to find the elusive perimeter walls, but will also include excavation of floor deposits, with special care given to mosaics working in collaboration with the Department of Antiquities. Future work will also continue to involve the use of calibrated photogrammetry inside and around all cisterns and the use of GPR to trace pipes and drains to better understand the unique water system that existed on the Kourion acropolis.

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