

MADABA PLAINS PROJECT: EXCAVATIONS AT TALL AL-‘UMAYRĪ, 2014

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Introduction

A sixteenth season of excavation by the Madaba Plains Project at Tall al-‘Umayrī occurred between 25 June and 30 July 2014. It was sponsored by La Sierra University in consortium with Andrews University School of Architecture (Michigan, USA), Burman University (Alberta, Canada), Pacific Union College (California, USA), Mount Royal University (Alberta, Canada) and Walla Walla University (Washington State, USA). Full reports have already been published for the first six seasons (first season [1984]: Geraty *et al.* (eds.) 1989; second season [1987]: Herr *et al.* (eds.) 1991; third season [1989]: Herr *et al.* (eds.) 1997; fourth season [1992]: Herr *et al.* (eds.) 2000; fifth season [1994]: Herr *et al.* (eds.) 2002; and sixth and seventh [combined 1996 and 1998]: Herr *et al.* (eds.) 2014). The eighth [2000] is ready for submission for publication. Preliminary reports have also been published (first season [1984]: Geraty 1985; Geraty *et al.* 1986, 1987; second season [1987]: Geraty *et al.* 1988, 1989, 1990; third season [1989]: Younker *et al.* 1990; Herr *et al.* 1991; LaBianca *et al.* 1995; fourth season [1992]: Younker *et al.* 1993; Herr *et al.* 1994; fifth season [1994]: Younker *et al.* 1996; Herr *et al.* 1996; sixth season [1996]: Younker *et al.* 1997; Herr *et al.* 1997; seventh season [1998]: Herr *et al.* 1999, 2000; eighth season [2000]: Herr *et al.* 2001, 2002; ninth season [2002]: Herr and Clark 2003, 2004; tenth season [2004]: Herr and Clark 2005a, 2005b; eleventh season [2006]: Herr and Clark 2008a, 2008b; twelfth season [2008]: Herr and Clark 2010, 2013; thirteenth season [2010]: Clark and Bramlett 2011, 2012a, 2012b; and fourteenth [2011] and fifteenth [2012] seasons: combined

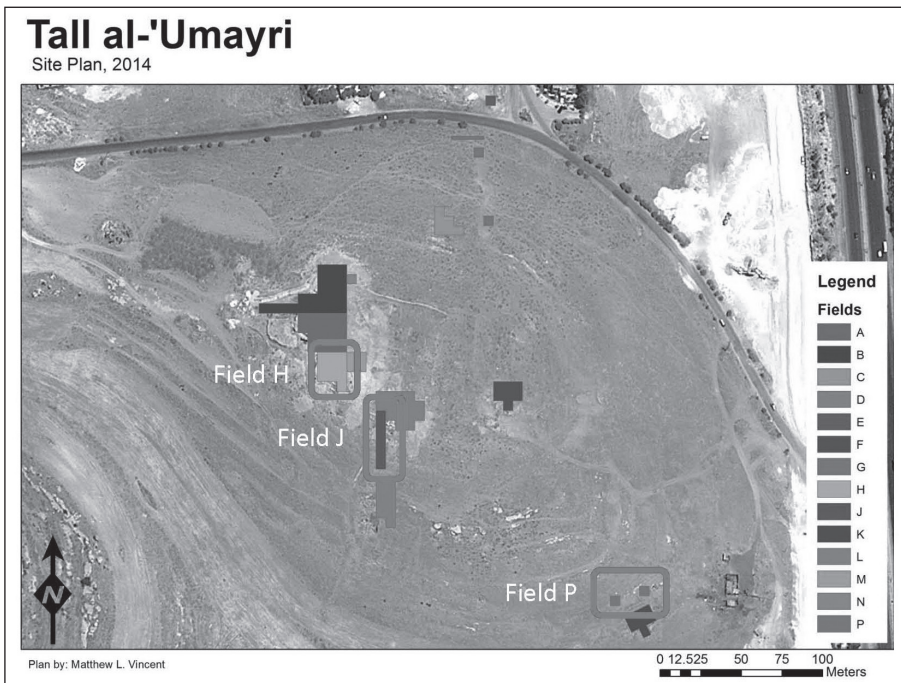
reports are in press). For a summary report of the first 12 seasons (1984-2008), see Herr and Clark 2009; Clark 2011; Herr 2011 in Clark *et al.* 2011.

In the 2014 season, a team of 13 Jordanians and 35 foreigners participated in the fieldwork and camp activities of the interdisciplinary project at al-‘Umayrī, located 12km south of Amman’s Seventh Circle on the Queen Alia Airport Highway, at the turnoff for Amman National Park (**Fig. 1**).

In the first season (1984) four fields of excavation were opened (Fields A, B, C and D) (**Fig. 2**). During the second season (1987) three of the four were expanded (Fields A, B and D), one was completed to bedrock (Field C), and two new fields were opened (Fields E and F). In the third season (1989) one field expanded (Field A), three fields reopened old squares and expanded slightly (Fields B, D and F), another reduced excavation from two squares to one (Field E), and a new field was opened on the northern slope as a series of three soundings (Field G). In the fourth season (1992) three fields deepened previously opened squares (Fields A, D and F), one deepened existing squares while expanding by one square (Field B), and two fields were discontinued (Fields E and G). During the fifth season (1994) one field deepened (Field A), another expanded and deepened (Field B), and one was added (Field H). In the sixth season (1996) three fields expanded (Fields A, B and H). The tomb excavations on the southeastern slopes of the *tall*, already begun under the hinterland survey in 1994, became part of the al-‘Umayrī *tall* excavations as Field K. During the seventh season (1998) two fields deepened their squares (Fields



1. Aerial view of al-'Umayrī (courtesy APAAME, David Kennedy).



2. Tall with fields indicated.

A and B), two expanded (Fields H and K), and a new field was opened on the southern lip of the site (Field L). In the eighth season (2000) we deepened three fields (Fields A, B and H) and expanded and deepened in two fields (Fields K and L). During the ninth season (2002) Field A was not worked, while Field B expanded to the north and continued in two other squares; Field H limited itself to the large plastered and cobbled courtyard near the northern extent of the field (next to Field A); in Field L we exposed more of the Hellenistic structure by opening two new squares and reopening one other. During the tenth season (2004) Field A deepened

squares begun during the 1980s; Field B deepened three earlier squares and expanded to the north to intersect the northern edge of the site; Field H deepened earlier squares in its northern part; and Field L deepened three previous squares and opened one new square. During the eleventh season (2006) Field A concentrated on removing balks and small areas between walls to deepen the western part of the field to late Iron I levels; one square was opened at the southwest corner of the field to examine the possible existence of a gateway. In Field B excavation concentrated on uncovering the floors of the northern extent of the remarkably well-

preserved Late Bronze (LB) building. Excavation in Field H concentrated on bringing the southern part of the open-air sanctuary down to late Iron I levels. Field L, on the southern lip of the site, expanded to the east and north with three new squares.

The 2008 season saw Field A expose the third LB/Iron I building in the southern part of the field by going deeper in most squares. Field B completed the excavation of the LB building and added a square to the east with a new field designation, Field N. Field H went deeper in four squares, exposing the top of the LB/Iron I levels and locating the bottom of the southern portion of the perimeter wall. Field L went lower in three squares and added two more squares to the west. Additionally, a new field was opened, Field M, east of Field H in our overall goal of connecting Fields H and L. This season also marked the initiation of the use of high-resolution GPS for the location of fields, squares and architecture. It forced a slight change of orientation to align all our squares with true north and we chose to locate squares on primary grid lines, causing some squares to be smaller in their east-west measurements.

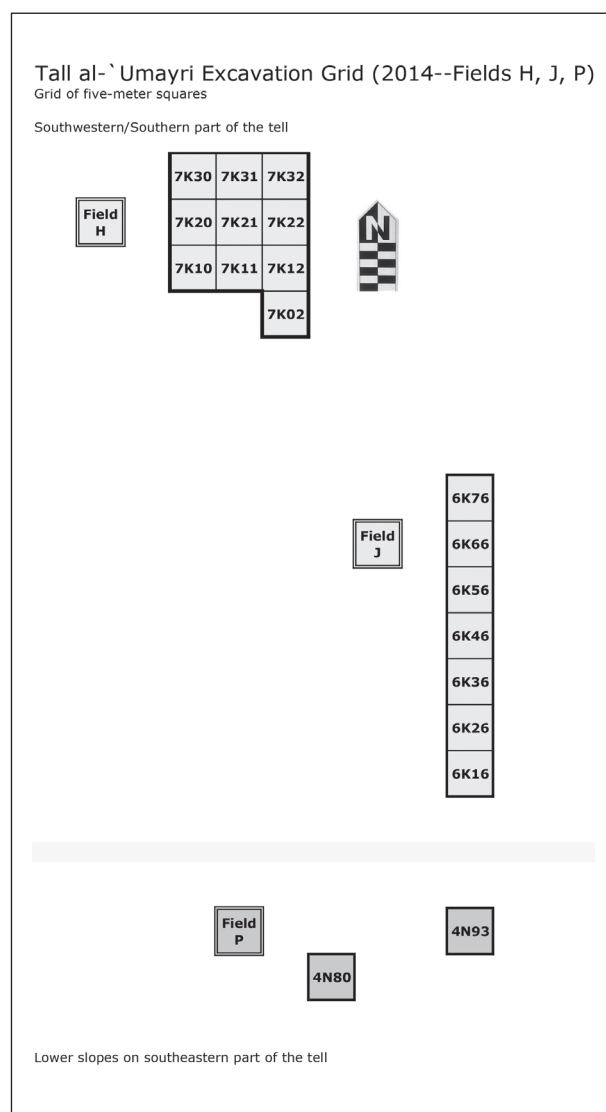
The thirteenth field season (2010) continued work in four fields (Fields A, H, L and M) (**Fig. 3**). Field A extended the exposure of LB/Iron I domestic structures, clearing the third building and uncovering the major portion of a fourth. Clearance of the Late Iron I sacred precinct in Field H brought the team to domestic structures post-dating the Early Iron I buildings in Field A, but preceding the precinct. Field L cleared Hellenistic remains in several balks, clarifying in the process the function of an Iron II oil press and exposing the tops of several Iron II walls. Field M cleared late Iron II paved-plaza levels surrounding what appear to be domestic buildings.

In 2011, the small team focused on Field H (continued clearance of post-Early Iron I debris in order to expose the remaining components of Early Iron Age Building M, and Field L (removal of all Hellenistic architecture in order to expose Iron Age remains). The 2012 season saw the return of a full team, but progress was limited due to land-owner disputes. Fields excavated included A (exposing the fourth of five Early Iron I joined houses), H (completion

of the clearance of Building M, a ‘four-room’ building), L (Late Iron II and Persian domestic remains), al-‘Umayrī Survey Site 84 (excavation of a cistern), and cleaning in Field K (for the purpose of more complete photographic recording).

In 2013 a very small team recorded ground-penetrating radar (GPR) and electromagnetic imaging data in Field K, in search of other dolmen burials.

Following 16 seasons, the team felt a good deal of confidence in talking about final stratum numbers for the site. We think, reasonably, that no new significant settlements will be discovered beyond those we have already found, even if - as happened in 2012 - we have isolated an important sub-phase in the Early Iron I period. We thus include a stratigraphic chart (**Fig. 4**).



3. ‘Umayrī Grid.

Stratum Chart				
Tall al-'Umayri--April 2016				
Larry G. Herr				
Stratum	Period	Date	Fields	Finds from Specific Fields of Excavation
	Neolithic		E&W slopes	Flint scatters
	Chalcolithic?		East valley	Sherds on surface
Hiatus	EB IA			No remains so far
21	EB IB	c 3000-2700 BC	K	K: Dolmen and associated surfaces
20	EB II	c 2700-2500 BC	(C?)D	D: Wall fragments above bedrock; C: bedrock carvings?
19	EB III	c 2500-2200 BC	CDG	CDG: Houses & streets on terraces on S & N slopes
18	EB IV	c 2200-2150 BC	D	D: Ephemeral one-room houses widely separated
17	EB IV	c 2150-2100 BC	D	D: Small walls of cobbles, perhaps animal pens
Hiatus	EB IV-MB IIA-B			No remains so far; cemetery east of the airport highway
16	MB IIC	c 1700-1650 BC	BC	B: Sherds in rampart; C: wall frags & floors
15	MB IIC	c 1650-1550 BC	BCFGK	B: Moat, rampart & wall frags; C: wall frags & floors; FG: sherds; K: cave tomb
Hiatus?	LB I			No clear remains so far
14	LB II	c 1400-1250 BC	ABFN	BN: Palace/temple; F: terrace wall; AH: wall frags
13	LB/Iron I	c 1230-1200 BC	B	B: Sherds in rampart and in the Stratum 12 bricks; destroyed by earthquake
12	LB/Iron I	c 1200-1150 BC	ABEFHN	ABHN: Perimeter wall & houses destroyed militarily, 4-room house; E: sherds; F: wall frags
11	Iron 1A	c 1150-1100 BC	AH(M?)	A: Wall frags above Str 12 destruction; H: wall frags; M: sherds
10	Iron 1B	c 1050-1000 BC	ABH	A: House; B: storeroom; H: lowest courtyard sanctuary with model shrine
9	Iron IB-IIA	c 1000-850 BC	ABH	AB: Few red-slipped, hand-burnished sherds; H: poss continuation of courtyard sanctuary
8	Iron IIB	c 850-700 BC	AHLM	A: House; H: sanctuary surfaces; L: large stone walls & terrace wall; M: Cobble surface
7	L Iron 2/Iron IIC	c 600-550 BC	ABCDFHLMN	ABCDFLMN: Administrative complex & houses; E: watersource; H: sanctuary in Field H
6	Iron IIC/Per	c 550-475 BC	AHL(M?)	AM: Changes to administrative complex; B: houses; H: subterranean room; L: walls
5	E Persian	c 475-400 BC	AHM	AM: Prob domestic wall frags; H: poss cont of sanctuary; AH: Persian provincial seals
Hiatus	L Persian			No remains so far; poss also very early Hel
4	Hellenistic	c 300- 50 BC	HLKM	H: Pits; L: farmstead; K: tomb with Greek inscription at SE slope of site; M: wall frags
3	E Roman	c 50 BC-AD 135	ABH	AB: Ritual pool from a prob farmstead/villa; H: one small cooking pot
Hiatus	L Roman			No remains so far
2	Byzantine	c AD 330-650	FL	F: Farmstead wall fragments and pottery; L: field wall & sherds similar to Field F
1	Islamic	c AD 650-Pres	ABCDEFHLMN	All: Few topsoil sherds from all the Islamic periods; FHM: 3 shallow burials

4. 'Umayri Stratum Chart.

Field H: The Southwestern Acropolis

Monique D. Vincent, University of Chicago
 Assisted by Mary Boyd, Langley, Washington

During the 2014 season we returned to Field H to continue excavation in Square 7K02, not excavated since 1998. Unable to excavate in the main area of Field H due to unresolved land-ownership issues, we turned instead to the area available to us in order to explore the unanswered question of the southern perimeter wall of the LB/Early Iron Age settlement. During the 2012 season, excavation in several key probes revealed evidence of the site-wide LB/Early Iron I Stratum 12 destruction layer (Vincent in Clark and Bramlett 2017). Wall 7K30:046, explored during the 2008 season, was the southern continuation into Field H of the western perimeter wall of Stratum 12 (Vincent in Herr and Clark 2010). The search for a southern perimeter wall turned to Wall 7K10:004 during the 2012 season, although excavation proved that Wall 4 was founded later in the Iron I period and could not have served as the southern perimeter wall for Stratum 12 (Vincent in Clark and Bramlett 2017). A second candidate is Wall 7K02:002, discovered in Square 7K02 during the 1998 season. The top of Wall 2 was rebuilt in the Late Iron II/Persian period, the only part of the wall visible in

1998, but the alignment seemed promising as a southern perimeter wall (see Berge and Willis in Herr *et al.* (eds.) 2014). With this in mind, we returned to Square 7K02 and resumed excavation north of Wall 2 [Mary Boyd supervised the excavation of Square 7K02, with the assistance of Laura Conley, Maria Alvarez Folgado, Ruth Kent and Amjad Omar Abd Al-Nahdi Almarai Al-Ajarmah]. While this season's work did not provide a definitive answer to the question of the southern perimeter wall, we did prove that Wall 2 predates the Late Iron II/Persian period. Hopefully future excavations can return to this area and continue the investigation.

With regard to field phases, the situation in Field H has changed considerably since the 1998 excavations, especially for the Late Iron II/Persian-period phases which have not been well correlated over time and across multiple changes of field supervisors. With two main Late Iron II/Persian-period phases already represented in 7K02 in the 1998 excavations, two more discovered this season, but only two Late Iron II/Persian-period phases known field-wide, it is difficult to know how to correlate phases in this peripheral area with the rest of the field. There is also a conflict with pottery dates, as previously the earliest phases were assigned to a Late Iron II or Early Iron II date.

However, the earth layers excavated this season contained Late Iron II/Persian-period pottery to an additional depth in excess of 1.5m, indicating that previous phase assignments to Early Iron II must be incorrect. The previous phasing therefore needs to be adjusted to take this into consideration.

The current solution offered is that the previous architectural phases were of a more subordinate nature than realized, and should be lumped closer together in the Late Iron II/Persian or Early Persian-period phases of Field H. Future excavation of Square 7K02 should help better to connect 7K02's stratigraphy with better to the rest of the field. Until then, we treat the two Late Iron II/Persian-period phases as roughly fitting in with 2012 Field Phases 5 and 6. Here they will simply be described as Late Iron II/Persian-period Sub-Phases 1 and 2. The single phase pre-dating these will be referred to as a Late Iron II-period phase until further excavation provides better pottery dates.

Field Phase 7: Late Iron II Period

Two surfaces and an earth layer were revealed in small probes against the faces of Walls 7K02:004 and 2 that are best dated before the Late Iron II/Persian-period phases. They are all stratigraphically below the central Wall 3, which was founded after this phase. The earliest surface is a cobble surface that seals against Wall 2. Over this, an earth-and-plaster surface was laid 0.26m deep, though only a small part of it was excavated this season (**Fig. 5**). North of Wall 3, a small probe at the juncture of Walls 3 and 4 reached Earth Layer 7K02:041, which also ran just under Wall 3. The probes against Walls 2 and 4 indicate that they continue from



5. Plaster Surfaces 40 and 42 between Walls 2 and 3.

an earlier phase, pre-dating the Late Iron II/Persian period.

Earth Layers 40 and 41, respectively south and north of Wall 3, may represent the last pre-Late Iron II/Persian-period use of this area, or may have been used as fill layers for the founding of Wall 3 in the following phase. Only Surface 42 was certainly used in a pre-Wall 3 phase, in association with Wall 2. Too small an exposure was made to guess at the function of this area. One pile of pottery from where Surface 40 was excavated over Surface 42 contained Late Iron II sherds, providing the only date at this point for the phase.

Field Phase 6: Late Iron II/Persian Period - Sub-Phase 2

It is at the beginning of this phase that Wall 7K02:003 was founded on top of Earth Layers 7K02:040 and 41, these being either from an earlier phase or intentionally laid down to support Wall 3. On the north side of Wall 3, Beaten-Earth Surface 7K02:039 was laid and, by the end of its use, it was covered in large, broken pottery sherds dating to the Late Iron II/Persian period (**Fig. 6**). Surface 39 was only excavated in a small probe against Walls 3 and 4, but the pottery conforms to that of a typical domestic assemblage. A fragment of a basalt milling stone (A140194) was also wedged into the top of the surface, further suggesting domestic use of this area.

South of Wall 3, Surface 7K02:040 may have continued to serve as a surface in this phase, although there was little buildup from use. Wall 3 may have served as the southern boundary for activity during this phase, with little activity taking place between Walls 2



6. Surface 29 with pottery sherds.

and 3. Alternatively, the activity we describe in the following phase could have taken place here in this phase, and the activity described in 1998 in association with Surfaces 7K02:018 and 28 could have followed in Late Iron II/Persian-period Sub-Phase 1. With the homogenous pottery assemblage and slope at the lip of the *tall* to take into consideration, it is difficult to correlate activities across Wall 3.

Field Phase 6: Late Iron II/Persian Period - Sub-Phase 1

This phase is marked by the construction of a large stone bench abutting the north face of Wall 7K02:003. Bench 7K02:033 measures 2.3m long, 0.72m wide and nearly 0.60m high (**Fig. 7**). The bench was built of small and medium boulders on top of hard-packed Earth Layer 7K02:038, which must have served as a surface in conjunction with Bench 33 and Walls 3 and 4. Earth Layer 38 could represent build-up on top of earlier Surface 39, and was simply used as the foundation of Bench 33 in this phase.

Two similar stone features have been ex-



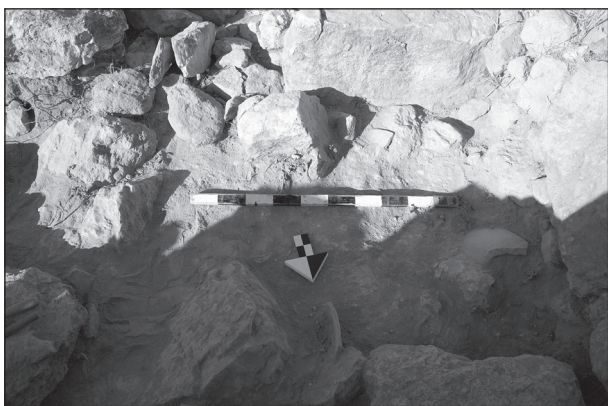
7. Bench 33.

cavated in Field H in earlier seasons. The first (7K22:035) was interpreted as the foundation for an awning or a use stage in a courtyard sanctuary dating to the Late Iron I period (Cormack in Herr and Clark 2003). The second (7K11:078) was interpreted as a possible cultic presentation bench outside a building of the Iron II period (Vincent in Clark and Bramlett 2017). Artifacts found in the mudbrick and earth debris (7K02:032, 37) after the abandonment of the space around Bench 33 included a large basalt weight fragment (A140194), a bone weaving spatula fragment (A140074) and a faience bead fragment (B140004), none of which are indicative of cultic activity. This bench may have been used instead for food preparation or other domestic activities. Large pockets of ash were excavated around the bench throughout Layers 32 and 37. The ash may have resulted from further domestic activities such as cooking, or might have been part of the abandonment of this space.

South of Wall 3, the space between Walls 2 and 3 was filled in with medium and large boulders and loose earth: 7K02:036. The large size and random placement of the boulders - and scarcity of pottery - could be indicative of an intentional fill used to bring this space to a higher level. A thin mud-plaster surface, 7K02:035, was found in the western part of the small space on top of Rock Tumble 36, sealing against Walls 2, 4 and 3; it was disturbed by later Flagstone Pavement 7K02:028. Pavement 28 possibly represents a succeeding phase of occupation, the foundation of which involved large, flat boulders that considerably disturbed Surface 35 from this phase. On the other hand, the many pieces of pottery from Surface 28 were mendable Late Iron II/Persian-period vessels, found under, among and on top of the stones and plaster from Surface 28, suggesting that Surface 28 was built up over time on top of Surface 35 and thus represents a continuation of this phase, rather than being a separate phase (**Fig. 8**). The pottery found on and under Surface 28 included mendable kraters and jars - evidence of domestic use of the space.

Conclusion (Fig. 9)

Excavation in Square 7K02 this season continues the illustration of Iron-Age activities



8. One of the plaster layers of Surface 28.



9. Overhead drone photo of Square 7K02.

on the southwestern corner of the acropolis of al-‘Umayrī. Though separated from the rest of Field H by the large N-S Wall 4, the areas excavated this season north and south of Wall 3 fit in with the general picture of domestic activities involving food storage and preparation. The fine faience bead and weaving spatula are small windows into the daily life of the people living in this space, working on and around the stone bench at the very southern edge of the *tall* and storing jars of their foodstuffs in a small room next door.

Field J: The Southern Slope

Monique D. Vincent, University of Chicago

This season we marked out a new area of excavation, Field J, on the southern slope of Tall al-‘Umayrī. Field J consists of seven consecutive squares that directly connect Field L in the north with Field D in the south. These previously excavated fields represent both ends of the main occupational history at the *tall*, with Hellenistic remains at the top of the *tall* (Field L) and Early Bronze Age remains at the bottom

(Field D). The north-to-south sequence of the squares provides a full exposure of the southern slope, from the upper lip of the *tall* to the lower bedrock shelves.

The goal of opening Field J this season was to connect these fields stratigraphically and explore the nature of occupation and fortification on the southern slope. While most of the season was spent excavating topsoil and debris tumbled from settlements at the top of the *tall*, two key features did appear. The first was a large stone structure at the base of the *tall*, founded just above bedrock late in the history of occupation at al-‘Umayrī. The bedrock confirms the existence of another shelf above that upon which Field D’s Early Bronze Age buildings were built. The second feature is a possible earthen rampart similar to the LB/Early Iron Age rampart built on the western slope of al-‘Umayrī. This is an important discovery, indicating that fortification was a concern of the inhabitants not only on the vulnerable western slope, but on the sharper southern slope as well. These discoveries made the season’s work worthwhile, and suggest promising results from future seasons.

Field J comprises Squares 6K76, 6K66, 6K56, 6K46, 6K36, 6K26 and 6K16. All of the squares except 6K16 were excavated during the 2014 season (**Fig. 10**).

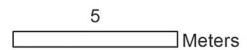
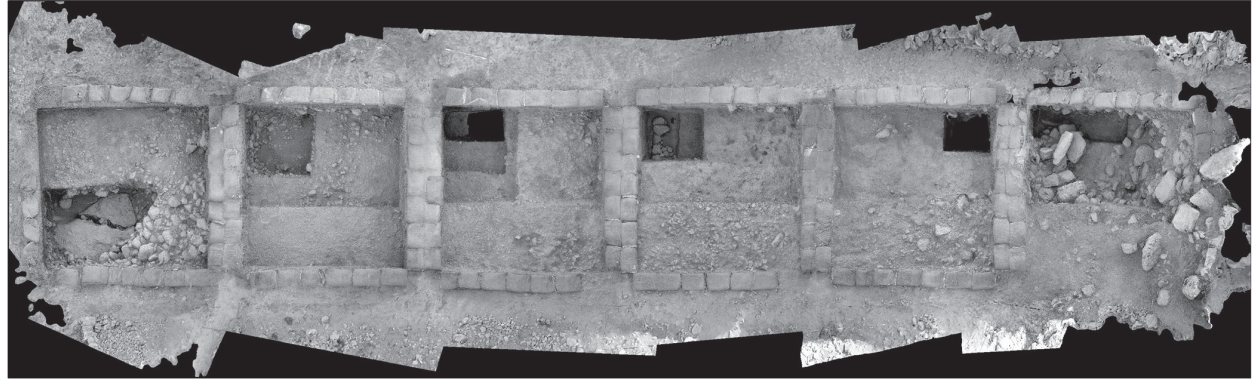
Field Phase 5: Iron I Period

Small probes in Squares 6K66 and 6K76 revealed a homogenous dark-brown earth layer full of *nari*, yellow clay and charcoal fragments. Characterized by loamy or loam-with-sand-or-clay texture with slightly worn particles, this earth layer has been tentatively identified as an earthen rampart. In Square 6K76, two main layers are identifiable in a section of Rampart 6K66:7 (=Rampart 6K76:7): a gray earth layer topped by a thin plaster line, and below that a dark charcoal lens with the darker-brown earth layer filled with the *nari*, clay and charcoal inclusions. In Square 6K66, Rampart layers 6 and 7 were both dark-brown earth filled with the same inclusions, but Locus 7 was established as a new locus based on a 4 to 5cm-thick charcoal lens separating it from Locus 6 (**Fig. 11**). However, further excavation of Locus 7 established that it was the same consistency and color as

Tall al-'Umayri

Final, Field J, 2014

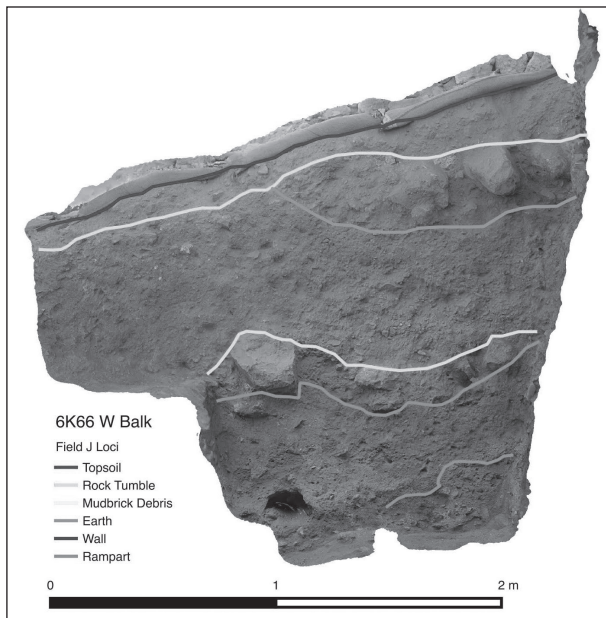
Plan by Matthew L. Vincent



10. Orthographic view of Field J.

Locus 6, and these two *loci* represent lenses of a larger rampart layer. There was considerable disturbance of both *loci* in ancient times, with numerous large bioturbation tunnels throughout the earth in 6K66. In 6K76, later rock tumble cut into the plaster and mudbrick line of the top layer, making the top of the rampart nearly impossible to trace outside of the West Balk. The slope of the rampart is 18 degrees in a south-westerly direction, when calculated between the two squares.

Earlier work on the western slope of al-'Umayrī identified an earthen rampart



11. Digital Western Balk 6K66.

system, of which the majority dated to the LB/ Early Iron Age transitional period (site-wide Stratum 12). This earthen rampart system utilized supporting walls and natural bedrock as a foundation, sealing against the settlement's perimeter wall at the top of the *tall*. The slope of this earthen rampart was 35 degrees, and its layers consisted of dark, yellowish-brown earth with *nari* inclusions (Clark 1997: 75-76, 2000: 66). The similarity of the earthen layers of Squares 6K66 and 6K76 to those of the Stratum-12 rampart system encourages the conclusion that we are here encountering a similar rampart system on the southern slope. However, the pottery found in the Field J earthen rampart dated to the Iron I period, with the cooking pots being clearly later than those found in the Stratum 12 dwellings. A few Late Iron II/ Persian sherds were found in the layers as well, but these are most likely contamination from the bioturbation tunnels as the majority of the pottery predated the Iron II period.

In conclusion, these small probes provide tentative evidence that an earthen rampart was in use on the southern slope of the *tall*. These layers of the rampart appear to postdate the Stratum 12 rampart on the western slope, but that rampart did see later activity in the Late Iron II period (Clark 2000: 90-91). It is possible these layers represent a later Iron I addition to an earlier rampart system below that will be discovered by future excavation.

Field Phase 4: Late Iron II/Persian Period

The beginning of this phase was marked by the discovery of bedrock, designated Locus 6K26:005, near the base of the slope. Bedrock 6K26:5 consists of a shelf running roughly northwest to southeast, with a break where the bedrock dropped 0.23m to the west of a 0.25m-wide fissure (**Fig. 12**). When probed, this fissure continued to a depth past the reach of our 5m steel tapes. In this phase, a firm, yellowish earth layer, 6K26:004, was laid 0.15-0.29m thick on top of Bedrock 5. The fissure in the bedrock was not filled with Earth Layer 4, so may have occurred as the result of an earthquake after this phase. However, the inhabitants might also have found it impossible to fill such a deep fissure completely and thus laid Earth Layer 4 over the bedrock to provide a stable and flat surface for the founding of a large stone structure, 6K26:003. Possible Wall 6K26:003 also ran from northwest to southeast, and was built primarily with medium-size, hard and soft, reused limestone boulders. Only the southern face of the wall is visible, but four courses appear to have been laid in a two-row-with-rubble pattern. The boulders of the entire southern face are precariously and randomly positioned, making the definition of an actual face difficult. An outer layer of boulders was removed in an attempt to find the face of the wall. However, these boulders were likely part of the original structure, whose south face would have then sloped at an approximate angle of 65 degrees. The top of the wall sloped at a 22-degree angle southward, giving the wall an overall unstable appearance. The greatest height of the wall on the southern face is 2.03m.

The pottery from Earth Layer 4 dated at latest to the Late Iron II/Persian period, giving a probable date for the building activity of this phase. All of the earth layers over and against Wall 3 contained pottery dating to the Hellenistic period, but these layers were the result of erosion and tumble down the *tall*, not from a specific use phase in Field J. The main question that remains, then, is how was Wall 3 used? Having only excavated the southern face of the wall, we may find that excavation along the north face will help clear up this question. From comparison with the earthen rampart from Field Phase 5, it is possible that this was a revetment

wall added on to the earlier rampart system in the Late Iron II/Persian period. The western slope rampart system did contain at its base a large, irregularly built wall from the Late Iron II period, leaning at 70 degrees against an earlier Stratum 12 wall (Clark 2000: 90-91). We may have a similar situation here on the southern slope, where earlier fortifications were reused and rebuilt in an uncharacteristically irregular fashion in the Late Iron II/Persian period.

Field Phase 3: Late Iron II/Persian Period

Field Phases 3 and 2 do not represent true field phases in the sense of having clear architectural remains with stratigraphic relationships to each other. Instead they represent the decay and abandonment of the later acropolis settlements at al-'Umayrī. The earth layers excavated from these two 'phases' contained a complete collection of pottery from all periods of settled occupation at the *tall*, but broken into two main 'phases' by the predominant latest pottery and the existence of two phases of field walls in Square 6K66. Field Phase 3 is demarcated by



12. Bedrock 5 with Wall 3.

debris and tumble layers that contained at latest Iron II/Persian-period pottery, while Field Phase 2 is characterized by Hellenistic-period pottery. Although both phases contained ephemeral field walls, it was difficult to identify any surfaces in use with the walls as they were buried in later rock tumble. There is probably considerable overlap between the two phases in representing the demise of the settlements at the top of the *tall*. These layers might not even be restricted to the Late Iron and Hellenistic periods but - on the strength of unworn pottery sherds - could represent wash coming from Middle and Late Bronze Age settlements as well.

In Field Phase 3, the erosion - or wash - layers consisted of mudbrick detritus with patches of softer earth washed down from the acropolis into one or two thick, hard, homogenous earth layers. The mudbrick layers found in the bottom of probes in Squares 6K46 and 6K56 in particular were part of the same mudbrick debris wash when viewed across the West Balks. Earth layer 6K66:004 was particularly rich in organic residue, coating several pails of pottery sherds with the infamous yellow-green color that usually results from pit deposits. At the top of the slope, the lowest layer of the rock tumble discussed in Field Phase 2, 6K76:006, produced clean Iron II/Persian-period pottery and so may belong here. Two small, two- or three-course, single-row walls - 6K76:004 and 6K66:005 - ran horizontally along the slope and may have been small retaining or terrace walls (**Fig. 13**).

Artifacts from these layers included a figurine fragment portraying two hands and a round object (B140022), a tiny tuff bowl (A140171), three Canaanian blades, a tabular scraper, and numerous broken basalt and limestone ground-



13. 'Field' Wall.

stone objects and ceramic stoppers and spindle whorls.

Field Phase 2: Hellenistic Period

Following on from the above discussion of Field Phase 3, this phase is characterized by rock tumble and loose earth, with some mudbrick debris. The pattern of rock fall can be interpreted as collapse, with large boulders having toppled off enormous walls at the top of the *tall*, tumbling down to cover the top of the slope (6K76:002, 4, 5; 6K66:002). When viewed in the West Balk, the rock tumble layers of Square 6K76 appear as one, or possibly two, large rock and earth tumble layers. However, when excavated, the rock-tumble layers were clearly resting on top of earth layers which, when excavated, revealed another rock layer. These sub-layers may have represented seasonal washes of debris not separated by much time. Smaller boulders and cobbles rolled a bit further downslope (6K56:002), while a heavy concentration of pebbles and pottery sherds washed down to rest on the lower slope where it levels into a terrace (6K46:002; 6K36:002, 3). South of the large Wall 6K26:003 from Field Phase 4, two distinct layers of cobbles with earth and large voids were washed over the top of the wall but were excavated as one locus, 6K26:002. They were only distinguishable when viewed in the East Balk after excavation: one layer with air pockets just south of the wall, and the other with earth flowing over the top of the wall and the earlier wash layer. This rock-tumble layer, mixed with mudbrick debris in some of the squares and loose earth in the others, and exhibiting a natural grading in the size of rocks from top of slope to bottom, is visible as a single earth layer down the field when viewing the balk sections (see **Fig. 11** for the West Balk section, although in some places this earth layer was clearer in an eastern subsidiary balk section maintained 3m from the West Balk in nearly all of the squares this season). Mudbrick-debris layers are also assigned to this phase on the strength of pottery dates (6K36:004; 6K56:003), although further excavation of 6K36:004 may lead to its reassignment in future seasons as the pottery sample was small. These layers of debris lacked any characteristic marks of destruction or burning,

and probably represent simple weathering over the side of the *tall* from abandoned buildings on the acropolis.

Two single-course, single-row walls are assigned to this phase, probably having served as retaining or terrace walls: 6K66:003 and 6K76:003 (see **Fig. 11**).

Artifacts from these layers include a stone mace-head fragment (A140119), a bronze needle with intact eye (B140032), a bronze ring/earring (B140031), a sherd incised with a walking figure (B140010), a female figurine fragment (B140009), an incised plaque (B140030), a lithic projectile point and tabular scraper, and numerous basalt and limestone groundstone fragments as well as ceramic stoppers and spindle whorls.

Field Phase 1: Modern

Before the excavation season began, a large front-end loader was used to remove decades of sift piles from the area where Field J was planned. In the process, it may have removed some topsoil as well, especially from the squares higher up the slope. Square 6K26 was, however, mostly untouched by the machinery, and provided enough comparison for topsoil depth and characteristics to know that the topsoil was mostly undisturbed.

Topsoil was loose, windblown earth of fairly standard color (10YR5/3 and 5/4) and texture (sandy loam/clay) across the squares. Depth ranged from 0.01-1.05m, with the deposit consisting of a thin, easily swept-up earth layer in Squares 6K56 and 6K46; it was deeper in the other squares. Again, this may have been altered somewhat by the machinery. In Square 6K46, where the slope levels out on a small terrace, roots had taken concentrated hold to a depth of up to half a meter in places. The roots caused the earth to be more crumbly in the southern part of the square, where they loosened up the mudbrick debris of 6K46:002 to a depth of 0.32m in some places, compared to the 0.06-0.09m depth in others. No visible plow lines were detected on this small plateau, although the loader may have removed evidence of agricultural use in modern times.

The topsoil pottery ranged from Byzantine to Early Bronze Age sherds, representing every period of settlement occupation at the site,

whose wash after abandonment made its way down the southern slope. Artifacts included a glass bracelet fragment (B140023), a possible Horus figurine fragment (B140001), a fine metal chisel (B140007), a possible model shrine fragment (B140006), a tuff pendant (B140003), many fragments of basalt and limestone groundstone objects, ceramic stoppers and spindle whorls, and a flint geometric sickle.

Conclusion

The excavations in Field J this season provide insight into natural and anthropogenic formation processes at al-‘Umayrī. The earth and rock tumble layers from the southern slope allow the reconstruction of a story of decay and abandonment of the later settlements at al-‘Umayrī. The diverse range of pottery mixed in with windblown earth, rock tumble and mudbrick debris point to the collapse of thousands of years of habitation on the acropolis. The demise of large Late Iron II/Persian- and Hellenistic-period structures contributed to the easing of the southern slope over time, filling in its curve and disturbing the earlier rampart layers. While some of the Bronze Age sherds found in the debris most likely originated from mudbricks, there was a significant number of Middle and Late Bronze Age sherds (including a couple of brightly painted Mycenaean sherds) that were unworn and thus give a good indication of there being Bronze-Age settlement nearby. While excavation this season did not reach below these naturally deposited earth layers, future seasons should continue to complete the picture of use and habitation on the southern slope.

Field P: The Southeast Shelf

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Assisted by Jillian Logee, Calgary, Alberta and Monique Vincent, University of Chicago

Field P was opened during the 2014 season on the southeastern shelf of the *tall*. The location was selected for work this season for several reasons: (1) proximity to the Field K dolmen and associated features from the Early Bronze Age; (2) GPR work performed by Bilal Khrisat of Hashemite University in July 2013 which produced data showing subsurface anomalies in this area, perhaps tombs; and (3) evidence suggesting more than one dolmen located on the southeast-

ern shelf. This came about through a photogrammetric image of the Field K dolmen showing the possible outlines of the foundation of another dolmen immediately west of the first one.

Two squares, 4N80 and 4N93, were opened in areas where subsurface anomalies were indicated by the GPR data. Square 4N93 is located directly north of the Field K dolmen and associated features, separated from it by only a few meters. Square 4N80 lies just to the west of 4N93. Designation of a new field for these excavation areas was predicated on the move to a new geo-referenced grid system in 2010 (Clark and Bramlett 2011) that adjusted the orientation of the Field K grid in this area, which was originally part of the al-‘Umayrī Survey and thus not tied to the *tall* grid. While no tombs emerged during the 2014 season, plastered surfaces and postholes cut into bedrock attest to further features likely in use with those around the Field K dolmen. The topsoil was very thin in some areas of the squares, revealing large expanses of bedrock just below the surface. A wide range of dated pottery from the topsoil and sub-topsoil layers probably originated from the surface and slopes of the *tall*, washed down to the rock outcroppings over millennia, this constituting Field Phases 1 and 2. However, the pottery sherds associated with stratigraphic features indicate the presence of predominantly Early Bronze Age activities, represented by Field Phase 4. Possible later activity in the Middle Bronze Age (Field Phase 3) is limited in exposure. The suggestion of tombs in this area, while not proven, is perhaps still to be confirmed in view of the discovery of a human mandible protruding from the balk of Square 4N93.

One of the main goals of the season was to discover and explore the anomalies shown during GPR-data analysis. With the proximity of the EB IB dolmen burial and an MB IIC chamber burial further to the south, there was the possibility that more tomb structures might be located in the area. Following excavation along the southern face of the bedrock shelf in 4N93, no tomb entrance was found although chiseling marks were evident. It is possible an entrance may be located in an adjacent area outside the excavated area. Continued work in 4N80 is necessary to establish probable cause of the anomaly registered there.

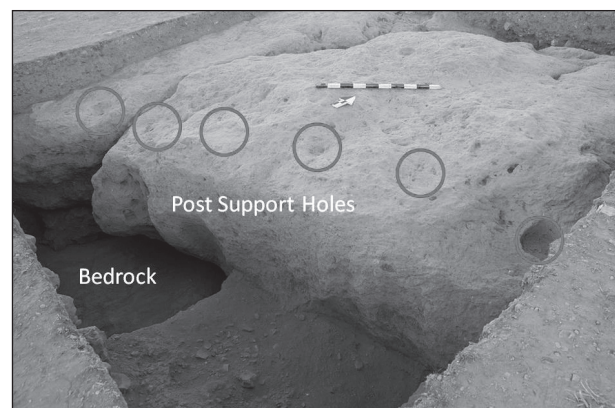
Field Phase 4: Early Bronze

The bedrock shelf above and north of the southern escarpment face where ancient chiseling had made what looked like an aborted preparation for a tomb entrance had numerous postholes carved into its surface (Fig. 14). These postholes were associated with a plaster surface that smoothed and leveled portions of the exposed rock into which the postholes were cut. A second plaster surface was constructed on top of fill layers below the shelf and abutted the vertical escarpment face from the south. This second surface was possibly a continuation of a surface traced in Field K; it was associated with the dolmen and hypothesized to function in ritual ceremonies at the dolmen. This intentional construction of leveled surfaces near the postholes may be evidence for a raised structure or shelter related to the events associated with the Field K dolmen, which is directly south of this feature.

Square 4N80 showed no coherent architecture or stratigraphy dated to the Early Bronze Age. However, parts of two fragmentary walls and poorly preserved clay- and mortar-like layers are perhaps intentional fill layers on the bedrock, laid to support the walls. A layer of mudbrick collapse produced only EB pottery sherds and may be part of the post-use abandonment phase.

Field Phase 3: Middle Bronze?

The top courses of two small field walls, tentatively assigned to this phase, were uncovered directly beneath the topsoil in Square 4N80. These two walls run parallel to each other from SW to NE, with Wall 5 located in the NW corner and Wall 3 bisecting the square on the west side (Fig. 15). The placement and difference in



14. Field P bedrock with postholes.

elevation of these field walls might suggest possible agricultural terracing. However, the exact relationship between them was not explored this season. Only the eastern face of Wall 3 was exposed; the rest remains obscured by rubble and will have to be excavated in a future season (see Phase 1).

Wall 3 consisted of two courses: a lower course of boulders ranging from 30-50cm long with an upper course of smaller cobbles. Wall 3 was buried by Rubble Layer 4N80:2 to its lowest course and appeared to have been constructed directly on top of Clay Lens 4N80:7, which covered all of the square east of Wall 3. Upon excavation of a 1m x 2.5m probe along the north balk, it was determined that Layer 7 ran underneath the lowest course of Wall 3 with no sign of a foundation trench. The ceramic dates recovered from Layer 7 appear to be Middle to Early Bronze. If Layer 7 is an earlier deposit of sheet wash, then Wall 3 was most likely constructed post-Early Bronze, making it either Middle Bronze or later. There appears to be significant rodent disturbance throughout Layer 7, however, but without more specific dates it is unclear if the presence of Middle Bronze pottery is a result of bioturbation or a genuine representation of Phase 3. Fortunately there is a chance to obtain clearer results in future, as only the area of Layer 7 excavated this season was within the probe.

Field Phase 2: Late Iron II/Persian Period

A layer in Square 4N893 containing Early Bronze to Late Iron 2/Persian pottery sherds represents part of the destruction/post-abandonment history of that phase on the *tall*, and not its use phase. It represents sheet wash of materials off the *tall* from that time period.

Field Phase 1: Modern

The topsoil *loci* are a mix of hill-slide and sheet-wash debris that included modern bullets as well as Byzantine through Early Bronze ceramic remains. In Square 4N80, a rubble layer of small cobbles lay directly beneath the topsoil. This rubble layer was bisected by Wall 3 which separated it into two different *loci*: Earth Layer 4N80:2 east of Wall 3 and Earth Layer 4N80:4 west of it. Only Earth Layer 2 east of Wall 3 was excavated this season. A second rubble layer consisting of larger cobbles/boulders and

sandier earth lay beneath Earth Layer 2, but did not abut Wall 3. Both Earth Layers 2 and 6 contained pottery dating from Early Bronze through Byzantine periods and were also likely deposited by sheet wash and hillside erosion sometime during or after the Byzantine era.

Since Earth Layer 4 was not excavated this season, the only part of Wall 4N80:5 uncovered so far was the uppermost course of cobbles which lay directly below the topsoil surface. Until further excavation can determine the full context of Wall 5 and whether it is in any way associated with the parallel field Wall 3, the actual phasing of this wall is unknown aside from its association with the topsoil/sheet wash.

'Umayrī Survey Site 84

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Theological Seminary

The ancient workers on the hill-slope site of 'Umayrī Survey Site 84 created a dense mélange of rock-cut features. Their activity has been surveyed often (1989, 1992, 1994 and 2014), with their prominent rectilinear structure (9.8m x 9.8m) most likely managing intensive agricultural production. The remnants of this impressive activity lay partially exposed and partially hidden beneath a mantle of agricultural activity dominated by thistle, thorny burnet and cotoneaster.

Excavators in the 2014 dig season concentrated on thorough documentation of the features that constitute Site 84. Documentation included newly identified rock-cut features, a curvilinear pressing surface and those features that required significant clearing, *viz.* a set of cup holes/postholes, a pressing surface, two large basins and one small basin.



15. Walls 3 and 5 in Square 4N80.

Due to the discovery and clearing of numerous features, excavators were unable to return to a natural rock-hewn cave with plaster on the walls and ceilings, partially cleared in 2012. However, based on the evidence of chisel work and plaster, excavators continue to believe that it probably functioned as a cistern.

Plans for the 2014 season also included mapping features of the site on a GIS map in order better to understand the possible relationships of various features of the site with one another. Structure-from-motion imaging and aerial photography created detailed documentation of the site.

Pressing Installations of Site 84

The deeply eroded and degraded exposed bedrock landscape presented extraordinary difficulty in identifying the presence and condition of rock-cut features. Even given this difficulty, most features seem to have a pressing surface with all or some of these other attributes: associated cup holes, basin and/or channel. This suggests that the facilities for the initial stages of wine production occur within close proximity to each other. Absence of one of these attributes raises the level of uncertainty about the identification of the relationship between and amongst features.

One of the features, a curvilinear pressing surface, is located adjacent to a large, rock-hewn ledge (**Fig. 16**). It is east of the farmstead. This feature is exemplary for its workmanship and preservation apart from one section that has been dislocated.

Even though the above associations are visually absent, excavators believe that the surface was used for pressing grapes. Its uniformly dimpled floor and sloping circular raised edges would have made possible its function of pressing and containing the liquid. The absence of an associated basin may be the result of earthquake damage.

Basins of Site 84 not Immediately Associated with a Pressing Surface

The previously noted deterioration of the bedrock produced seemingly natural features that appeared to be possible basins. As excavators investigated these depressions, signs of human labor (primarily chiseling) began to

appear. Further clearing around these features showed that they were indeed basins and some of them had associated cup holes. Lists of these basins with their associations show their substantial number.

Mortars and Grinders

Mortars and grinders were identified during the 1994 excavation of the rectilinear farmstead. Two of these features were cleared during the 2014 season. These are approximately twice the size of those found within the farmstead; they lack associated features.

Quarry Marks

Quarry marks constitute a ubiquitous feature of the exposed bedrock of Site 84. This quarrying often produces a remarkably well-carved bedrock face.

Water-Management Devices

Site 84 offers three types of water-management device: reservoirs, cisterns and wells, along with a nearby trough. The incidence of modern capped wells still in use deepens appreciation for the richness of this site as a major agricultural resource both past and present. One of these features is a large reservoir, measuring 5m x 4.3m (**Fig. 17**). Stone steps found in the northeast corner lead from the surface to the yet-to-be unearthed floor. The walls of the reservoir show chiseling. They and the steps also show signs of dissolution where the topsoil fill rested against them. The northwest wall was cracked along its face.

Wall Lines of Site 84

During the 1992 and 1994 seasons, four wall lines were noted. One, a perimeter wall, is still visible. Two phases of this wall are possible. Some are wholly or partially orthogonal and/or curvilinear.

While there are many unexcavated features to be found at Site 84, a good sample has been achieved. From this we can begin to see some associations among the features (e.g. pressing surfaces to basins and cup holes, and basins with cup holes). One is amazed by the sheer size of this agricultural installation. The facilities of Site 84 have yet to yield features associated with olive oil production (i.e. crushing facilities and separation vats).

Technology

Tall al-‘Umayrī is currently the subject of negotiations connected to land-ownership issues. This has left the future of long-term excavations at the site in something of a state of flux, even if there is some promise of a resolution in favor of the cultural heritage preserved at the site.



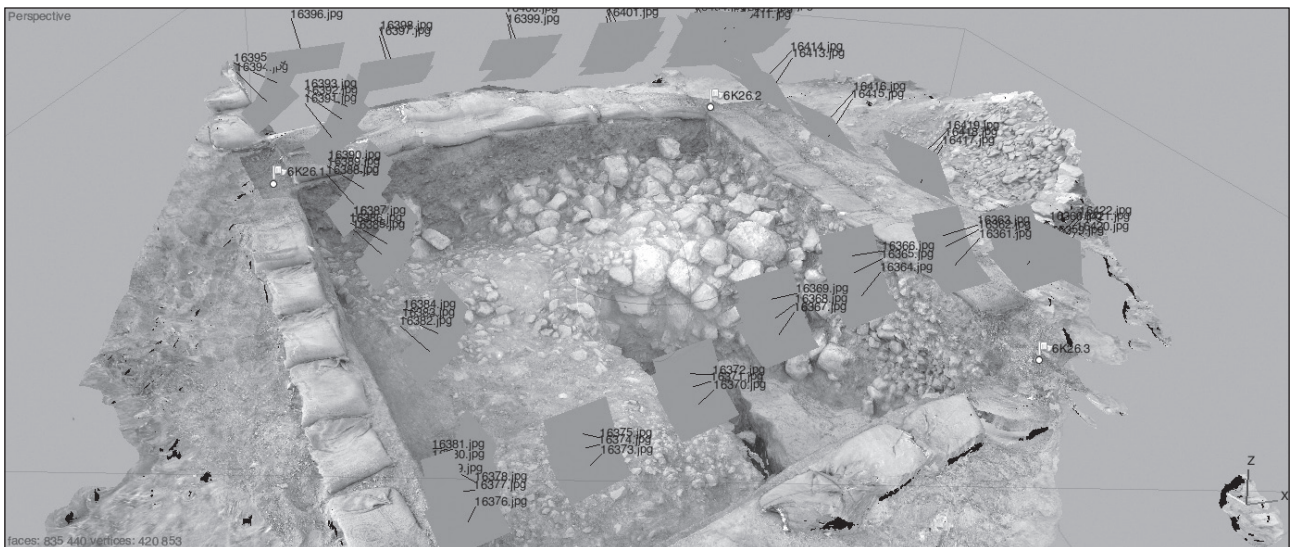
16. Site 84 curved pressing installation.



17. Site 84 rectangular reservoir.

The 2014 season was intentionally arranged to permit the testing of new technologies for the precise and accurate recording of archaeological features and discoveries. Of major significance were the use of a 3DR X8 drone (UAV) capable of supporting multiple GoPro cameras to produce 3D video and still photographs, a Steadicam for recording 3D videos, and implementation of structure-from-motion photogrammetry in order to produce 3D models of squares, features and large portions of the site. With these new technologies, provided in large part by a grant from the Versacare Foundation, the team was able to document everything from small objects to the entire *tall* site with fully manipulable images for a wide range of research applications.

A systematic approach to excavation documentation was employed this season to produce a photogrammetric rendering of each excavation square every morning. A series of high-resolution photos was taken from each side of every square and processed with Agisoft's Photoscan Pro to produce a structure-from-motion 3D model showing the daily excavation progress (Fig. 18). It is anticipated that these models can be digitally stacked so that future researchers will be able to examine the daily progress, and closely examine and manipulate in 3D the emergence of archaeological features to evaluate the interpretations made with improved levels of information than have hitherto been preserved. Use of this type of photography also allowed us, for the first time, to create digital balk drawings which were geo-rectified.



18. Structure-from-Motion in square.

Restoration and Preservation

Following excavation in 2014, all newly exposed architecture was consolidated and conserved, as happens at the end of each excavation season. This has resulted in the complete preservation of virtually all extant architecture at the site, making research easier for archaeologists and visualization of the remains more meaningful for visitors.

The greater threat to the survival of cultural heritage at al-‘Umayrī is a dispute between land owners and the government (referenced above), which may leave vulnerable all exposed surfaces and architecture, and could force an end to excavation. All parties are of good will and are searching for a solution that respects both the cultural heritage of Jordan represented at the site and the rights of those who have invested in the land.

Plans for 2016

While uncertainties continue to plague the process of future planning due to land-ownership issues, the project is planning tentatively to continue excavations at ‘Umayrī in 2016.

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