TALL EL-HAMMAM SEASON TEN, 2015: EXCAVATION, SURVEY, INTERPRETATIONS AND INSIGHTS

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ABSTRACT

The Tall el-Hammam Excavation Project (TeHEP) is a scientific endeavor of the College of Archaeology, Trinity Southwest University, Albuquerque, New Mexico, USA, under the auspices of the Department of Antiquities of the Hashemite Kingdom of Jordan. The Institute of Archaeology, Veritas Evangelical Seminary joined the TeHEP Consortium for the 2015 and future seasons. The Project has now completed its tenth excavation season.

The goal of TeHEP is to study the relationship of this immense and strategically-located site within its ancient cultural, socio-economic, and political contexts, and to ascertain its position, function and influence within those contexts.

In addition to the broader focus of incorporating historical and archaeological data from neighboring sites in the Middle Ghor and beyond, the Project is studying Tall el-Hammam as a microcosm of life and activity within its own local environment, seeking to determine its phases of settlement, urbanization, and the reasons for its decline, destruction and/or abandonment at archaeological period interfaces.

Within this micro-context the Project seeks to shed light on how the inhabitants of Tall el-Hammam adapted to the local environment and environmental changes, and utilized available resources, enabling them to attain levels of city planning and building on a resultantly large scale, particularly during the Bronze Age.

The present report provides a general overview and introduction to the geographical, chronological, and archaeological data distilled from ten seasons of exploration and excavation at this remarkable site with emphasis on Season Ten and to foster interest in Tall el-Hammam as a significant source of present and future information regarding the history of the southern Jordan Valley and, indeed, of the southern Levant.

INTRODUCTION

Season Ten of the Tall el-Hammam Excavation Project (for previous seasons see Collins, Byers, et al 2006; Collins, Byers, et al 2007; Collins, Abu Dayyeh, et al 2008; Collins, Hamdan, et al 2009a; Collins, Hamdan, et al 2009b; Collins, Hamdan, et al 2010; Collins, et al 2011; Collins, Eylayyan, et al 2012; Collins, Tarawneh, et al 2013; Collins, Byers, et al 2014) was conducted from 25 January through 26 February 2015, with the authorization and support of Dr Monther Jamhawi, Director General of the Jordan Department of Antiquities. TeHEP Season Nine was overseen by Director/Chief Archaeologist, Dr Steven Collins (Dean, College of Archaeology, TSU), with the assistance of Mr Gary Byers (TSU, Senior Archaeologist; Assistant Director), Dr Carroll Kobs (TSU, Senior Archaeologist; Assistant Director), Dr David Graves (Liberty University, Field Archaeologist), Mr Phillip Silvia (TSU, Field Archaeologist), Mr Michael C. Luddeni (TeHEP, Director of Photography), Mr Daniel Galassini (TSU, Director of Videographic Documentation), and Mr Qutaiba Dasouqi (DoA, Surveyor). We were joined in the field by DoA Field Archaeologists Mr Khalid Tarawneh and Mr Khaled al
Hawawrah. Dr Adeib abu-Shmais (former DoA Archaeological Inspector of Amman; Senior Archaeologist) served as head ceramic diagnostician, assisted by Mr Jehad Haroun (The Technical Assistant for the Director General, DoA).

TeHEP professional archaeologists were assisted by a team of Square Supervisors and specialists from various institutions in the USA, Europe, and Australia. Mr Victor Bauer, Ms Danette Collins, Ms Shanah De Boeck, Dr Chris Durham, Dr Marc Durham, Dr Rosemary Durham, Mr Josh Errington, Ms Nicole Gonzales, Mr Paul Hull, Mr Jeff Kobs, Ms Esther Lovato, Mr Terry Lowe, Mr Craig Olson, Mr Walt Pasadag, Mr Mark Sweberg, Mr Anton Thery, and Ms Catherine Ujma. Volunteer excavators from the USA, Australia, Great Britain, Canada, Belgium, and Germany, along with 20 local workers, rounded out the TeHEP Season Ten Team.

Tall el-Hammam (TeH) is located 12.6km NE of the Dead Sea, 11.7km E of the Jordan River, 8km south of the modern village of South Shouna (the location of Tall Nimrin), and approximately 1km S of the Kufrayn Dam (see Figure 1) (UTM coordinates for approximate site-center = 36R 0752901 3525784). This area of the southern Jordan Valley, particularly the eastern half of what should properly be called Òthe Jordan DiskÓ1 (the circular alluvial area north of the Dead Sea, approximately 25km in diameter, also called the Middle Ghor), lies on the crossroads of the regionÓ ancient N/S and E/W trade routes.2 Several

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1 The wide, circular, flat alluvial area of the southern Jordan Valley immediately north of the Dead Sea is approximately 25km in diameter, and split down the center by the Jordan River. The biblical term for this phenomenologically disk-shaped region is kikkar (= disk, circle), appearing as hakikkar (the disk/circle) and kikkar hayarden (disk/circle of the Jordan River). When not used geographically, kikkar refers either to a talent (flat, circular weight of metal) or a flat, circular loaf of bread. Although cognate forms of kikkar appear in virtually all ANE languages (including Akkadian, Ugaritic, and Egyptian), the term is never used in a geographical sense outside the Old Testament, but always refers to a disk-like talent or loaf. The rare, geographical usage of kikkar lies at the core of the phrases ÒPlain (kikkar) of the Jordan RiverÓ and ÒCities of the Plain (kikkar)Ó as seen in Genesis 10:19. The entire area was visible from the highland hilltops near the Jordan Valley WNW of Jericho, the location of Bethel and Ai (see Genesis 13:1-12).

2 There is debate regarding whether or not some kind of traversable road or trail existed on or near the eastern and western shores of the Dead Sea by which travelers could move N and S through the Dead Sea Valley. Even though much of the terrain was difficult, it is hard to believe that at least some kind of stable footpath did not exist, affording one the opportunity to move from towns/sites near the Dead Sea shore northward into the Jordan Valley without having to mount up into the high terrain to connect up with roads on the Trans- and Cisjordan plateaus, then return to the Jordan Valley at a location farther to the N.

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Figure 1. The location of Tall el-Hammam S of the Kufrayn Reservoir.
significant sites, all variously occupied during the high points of Levantine Bronze Age\(^3\) civilization, hug the eastern edge of the Jordan Disk beyond the spread of the ancient flood plain, bounded on the north by the throat of the Jordan Valley, and on the south by the rocky terrain of the Dead Sea area\(^4\) Tall Nimrin, with Tall Bleibel and Tall Mustah in close proximity, and sprawling Tall el-Hammam encircled by Tall Tahouna (NE), Tall Barakat (N), Tall Kufrayn (NW), Tall Rama (SW), Tall Mwais (SSW), Tall Iktanu (SSE), and several small un-named sites, all within a .75 to 2.7km radius of Hammam (Glueck 1945; Ibrahim and Yassine 1988; Khouri 1988; Leonard 1992; Chang-Ho 2002). Although the ancient eastern Jordan Disk towns and villages vary site to site as to periodization, particularly during the Bronze Age, Tall el-Hammam was their connecting common denominator positioned at the center of what must surely be described as a city-state\(^5\) and a relatively large one at that.

Also nearby an extensive megalithic field (Prag 1995)\(^6\) now collectively known as the Hammam Megalithic Field (Schath, Collins et al 2011)\(^6\) and tombs that, for the most part, remain unexcavated or robbed out.\(^3\) The Hellenistic, Roman, and Byzantine periods are represented architecturally at and near the site, including forts, guard towers, aqueducts, large cisterns, and by at least one monumental structure located on the S side of Tall el-Hammam near two springs, one thermal, one sweet.\(^5\) Tall el-Hammam is the largest of the Jordan Disk sites. It is certainly one of the largest, if not the largest, Bronze Age site in Jordan. The tall proper spreads over approximately 36ha (360 dunams)\(^5\) 26ha of which is strongly fortified\(^5\) bounded by the Wadi Kufrayn on the N and the Wadi Ar Rawda on the S, and by the main road to the E of the tall, against the foothills, and the confluence of these two wadis to the W (see Figure 1). The site footprint for general settlement is well over 400 dunums (100+ acres). These dimensions approximate the areas of the site occupied in more remote antiquity, from at least the Chalcolithic Period through the Middle Bronze Age (there is a systematic occupational gap on the site footprint during the LBA and IA1\(^6\)). Hammam\(^4\) IA2 occupation is mostly confined to the upper tall, although there is an extramural fireplace or cultic site on the lower tall (Field LS). There is, additionally, ample evidence of Hellenistic/E Roman/Byzantine Period occupation just off the upper tall to the immediate south (see Figure 2). Reports about the site from the late 19\(^{th}\) century (Tristram 1874: 330-333; Thomson 1882: 371-376) describe an aqueduct that fed the area south of the upper tall, much of which we have identified. There also seems to have been some re-use of earlier structures on the upper tall (particularly those built initially during the Iron Age) periodically from the Iron Age through the Late Islamic Period. However, sherds from the Islamic Period are rare.

Surface surveying and excavation reveal occupation beginning at least during the Chalcolithic Period (some Neolithic artifacts are also present in fills) and extending with detectible consistency through the Early Bronze Age, Intermediate Bronze Age, and most of the Middle

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\(^3\) See the new archaeological period abbreviations in section, "Stratigraphy" in Collins et al 2009a.

\(^4\) The Hammam (ar-Rawda) dolmens tend to be on the higher, flatter parts of the hills to the ESE of Tall el-Hammam, while the tombs are below them in the steeper walls of the wadis. However, there is evidence that at least a few dolmens were located very close to the tall itself, on the adjacent alluvial plain.

\(^5\) D. Graves and S. Stripling reason that this must somehow be connected to the ancient Roman city of Livias, perhaps a guesthouse or palatal structure on the eastern edge of the Livias precincts (Graves and Stripling 2011).

\(^6\) For example, the smaller Iron Age occupation, confined to the upper tall, covers approximately 12 ha. During Season Ten an isolated, free-standing structure was excavated on the upper tall (Field UA) dating to LB2a. The LB2a structure is described in this report.
Bronze Age (all with associated architecture). Late Bronze Age sherds are extremely rare in the area, and there is no discernable LBA\textsuperscript{7} stratum except for an isolated, free-standing structure unearthed on the upper tall W acropolis during Season Ten (discussed in this report).

One of the more surprising discoveries\textsuperscript{6} confirmed through Season Ten\textsuperscript{6} was that the EBA city wall extended not just around the lower tall (as originally thought), but also around the entire base of the upper tall as well. Equally surprising was the fact that the MBA city fortifications were not confined to the mudbrick/earthen rampart ringing the upper tall (Parr 1968; Burke 2008; McAllister 2008), but also extended around the lower tall, following the line of the EBA/IBA city wall, integrating the older wall into the MBA defensive architecture (Zayadine, Najjar, and Greene 1987; Najjar 1992; Burke 2008; Falconer 2008). During Seasons Nine and Ten additional towers and postern (\textdelta{}arm\textdelta{}) gates were identified and documented (discussed in this report).

Also during previous seasons, detailed surface sherding of the lower tall revealed a large quantity of ceramic forms dating to the Intermediate Bronze Age (cf. Homè\textdelta{}s-Fredericq and

\textsuperscript{7} See the new archaeological period abbreviations in section 5V. Stratigraphy\textsuperscript{6} in Collins, Hamdan, Byers, et al 2009a.

\textsuperscript{6} See the new archaeological period abbreviations in section 5V. Stratigraphy\textsuperscript{6} in Collins, Hamdan, Byers, et al 2009a.
visible features that are stratigraphically and architecturally from Season Five through Season Ten. Perhaps owing to Tall el-Hammam’s access to multiple water resources, the Jordan River, seasonal rainfall and wadi flows, and numerous nearby and on-site springs, residents seem to have overcome the negative factors leading to the decline and/or demise of other cities in the region at the end of EB3, ca. 2500 BCE (Prag 2007; Regev et al 2012).

Like Tall el-Hammam, nearby Bronze Age sites such as Tall Nimrin, Tall Iktanu, and Tall Kufrayn (and all others in eastern Jordan Disk area, for that matter) seem to lack discernable, or any, Late Bronze Age strata (Dornemann 1990; Prag 1974, 1991; Strange 2008). Is the LB.IBA gap as the Tall Nimrin excavators call it (Flanagan, McCreery, Yassine 1990, 1992, 1994, 1996) a regional phenomenon, and can TeH shed light on what caused it? The data through ten seasons of excavation support the existence of a general LBA occupational gap at TeH, with the exception of a modest, short-lived, singular LB2a structure excavated in 2015, likely a waystation or tariff-house (discussed later in this report). Whatever caused the absence of settlements on the eastern Jordan Disk during the LBA/IA1 timeframe did, in fact, not continue, as most sites were resettled toward the end of Iron Age 1 into Iron Age 2 (cf. Dornemann 1983). Indeed, the Iron Age 2 occupation at TeH is quite extensive, and surrounded by a 3+ m thick fortification wall, perhaps casemate, at least in part. What gave rise to the site’s Iron Age city, and what brought about its end? It now seems clear from the data (Collins et al 2013, 2014) that successful agricultural production led to large quantities of surplus cereal crops (like wheat and barley) which, in turn, led to the construction of numerous stone/plaster lined grain silos around the slopes of the upper tall, guarded by a walled town on top. Thus, Tall el-Hammam served as a storage and distribution center for agricultural products during IA2. It is possible that the incursion of Babylonian forces during the late 7th and early 6th century BCE led to the site’s demise.

During Season Ten we concentrated our efforts on both the upper and lower tall segments, extending excavations in four principal locations: Field LA (the city’s southern defenses and adjacent domestic architecture); Field LS (the sacred precinct at the approximate geographical center of the lower tall); Field UA (on the W acropolis of the upper city); and Field UC (in the east/central section of the upper tall). Each of these segments of the excavation has yielded important results in terms of the site’s occupational profile and phasing, with some remarkable results. Throughout Season Ten we continued to examine closely and make survey notes on TeH’s many surface-visible features that are stratigraphically readable by comparison with, and physically traceable to, excavated and ceramic-dated features. A substantial understanding of the layout of the

8 In antiquity, both the Wadi Kufrayn and the Wadi Ar Rawda/Hisban probably sustained perennial flows more often than not.

9 Tall Iktanu, 2 km to the S of Tall el-Hammam, also has strong IBA occupation, but not fortified. Although Tall Iktanu has generally been seen as a defining IBA representative in most of the relevant literature, it must now be interpreted as one of many satellites of the much larger, and fortified, Tall el-Hammam.

10 Although not much has been published on the ongoing excavation at Tall Kufrayn, our personal contact with the director of the excavation confirms that there is not an LBA architectural presence at the site. There is a strong EBA/IBA and MBA presence, as at Tall Nimrin.
Bronze Age city is emerging, and preliminary reconstruction drawings of the EBA/IBA and MBA features at Tall el-Hammam are now available (see Figure 3 as an example).

Tall el-Hammam certainly holds key pieces of the archaeological puzzle from which a greater comprehension and appreciation of the regional history is emerging. The focus of the tenth season of excavation was to continue to identify and sound sections of the site determined to offer reasonable opportunities to expose stratigraphic sequencing on the lower tall (Area L) and upper tall (Area U) while, at the same time, continuing to survey, map, and document important geographical features and archaeological sites on the eastern Jordan Disk, with a view to determining the relationship of Bronze Age Tall el-Hammam to the territory under its hegemony and to surrounding polities.

**SEASON GOALS AND METHODOLOGY**

At the end of Season Nine, both the Jordanian and American team members consulted regarding what should be the focus of Season Ten. As we approached TeHEP Season Ten, the following goals were proposed and adopted:

First, all agreed that excavations should continue in Trench LA on the lower tall in order to define further the phasing and features of the Bronze Age gateways, fortifications, and associated domestic structures in that location. It remains one of the best-preserved areas of the site (which is suffering damage from agricultural activity on a continuing basis).

Second, given that most of the ‘temple’ complex in Field LS has now been reclaimed for banana farming, the ‘administrative’ area to the immediate W is now the primary target of investigation. The stratigraphy in this area is already known to have several periods, so we committed to concentrate on the structures still available for excavation.

Third, we felt that excavations in Field LE should continue at the NW base of the upper tall. However, we decided not to pursue Field LE during Season Ten due to a need for additional supervisors in other Fields.

Fourth, we proposed to open additional squares in Fields UB and UA on the upper tall as a follow-up on the good results attained during Season Nine revealing the MB2 destruction level with significant architecture and an associated ceramic assemblage. As it turned out, two of the Squares we decided on were actually located in adjacent Field UC and not Field UB (the line of demarcation between the two is somewhat arbitrary).

Fifth, the team agreed that an aggressive strategy should be employed to measure and map as much of the Bronze Age fortifications as physically possible. Since we now have extensive experience identifying and excavating key segments of the city defenses (walls, towers, ramparts, gates, etc.), coupled with the fact that many features are surface-exposed across the

![Figure 3. Reconstruction drawing of the MBA gateway complex.](image-url)
site, it is possible to pursue a near-comprehensive representation of Hammam’s fortifications. A great deal of this work was accomplished during Season Ten.

Sixth, we continued our anthropological analysis of the site and city-state, taking a holistic/systems approach in developing hypotheses and theories regarding an integrated understanding of the landscape of the Tall el-Hammam city-state.

**ACTIVITY IN AREA L**

**FIELD LA, FORTIFICATIONS AND GATEWAYS: EXCAVATION AND STRATIGRAPHIC INTERPRETATION.**

In previous seasons Field LA (C. Kobs, Field Supervisor) has allowed us to document several periods of fortification development, as well as domestic architecture. While the plans for Season Ten were primarily twofold a) additional excavations down to the MBA on the Upper Tall, and b) continue to define the Domestic Area on the lower tall one of our minor goals in 2015 was to continue mapping out fortification components on the lower tall. Due to the aforementioned foci, only the final week of the season was devoted to this task, under the direction of C. Kobs and D. Galassini, with the assistance of K. Tarawneh and J. Kobs.

**Additional Features of the MBA Fortifications**

During the time allotted, an additional three Middle Bronze Age rectangular towers were identified. The MBA lower city fortifications at Tall al-Hammam were well-designed, with the 5-6m-thick EBA city wall repurposed as the foundation for long sections of the MBA external supplemental rampart system abutting the 4m-thick MBA city wall. The MBA ramparts were as much as 50m wide from city wall to their outer base.

MBA Tower 1 (the left protruding tower when facing the main gateway central axis) was excavated in 2012. Its width is just over 10m, and it protrudes 15m from the outer face of the MBA city wall, overlying the ‘deconstructed’ 5m-6m thickness of the EBA city wall. The three newly-surveyed towers all lie to the west of Tower 1 along the MBA city wall-line equidistant one to the next. [All of the following descriptions assume that one is facing the outside of the city wall.] From Tower 1’s left wall face to the right wall face of Tower 2 (Figure 4) is a distance of 40m. The width of Tower 2 is 10m. From Tower 2’s left wall face to the right wall face of Tower 3 (Figure 5) is 40m. Tower 3 is also 10m wide. The right wall face of Tower 4 is an identical 40m from Tower 3’s left wall face, and its width is also 10m. Thus, we now have
confirmation that the spacing of the towers along the southern/western defensive line of the MBA city is uniform: 40m (= 80 cubits) between towers.

The remnants of Tower 1 consist of one to ten mudbrick courses atop its foundation stones. Unfortunately, Tower 2’s foundation stones are disturbed in places due to the recent creation of a dirt road. Because of this we did not have ample time to clarify its total dimensions. However, the Tower 3 dimensions proved similar to the first. Its foundation stones were defined for measurements and photos with the intent of defining it further in the next season. The distance of the outer face of Tower 3 to the outer perimeter of the EBA city wall is identical to Tower 1, at 10m. The precise width of the EBA city wall and the outer face of the MBA city wall were unidentifiable at this point. Thus, these measurements will wait until next season.

The identification of these three new MBA towers is significant for understanding the city’s defensive system. Their similar measurements—length, width, and magnitude—and the uniform distance between each tower, contribute to our understanding of the sophistication of Tall al-Hammam during the Middle Bronze Age.

**Additional Features of the EBA Fortifications**

Two additional Early Bronze Age access points along the city wall were defined in Season Ten, along with a few more possible openings. In Season Six (2011), an EB2-3 gateway was excavated. The entrance measured 1.4m wide and had two flanking rectangular towers—one on either side of the opening. Stones installed during the IBA blocked access through this gate.

This season, another opening was excavated 18.2m to the west along the
EB2-3 city wall in Squares 29P and 30P (Figure 6). The opening, again, measured 1.4m and its length was the full width of the city wall, 5m. Unlike the blocked gateway, however, this new entrance may not have had towers, and was not blocked. It was most likely a postern or δάμμα gate, a simple opening along the wall with a single door, similar to those at EBA Arad and Ai (et-Tell). This particular gate was later filled in by laid mudbricks from the Middle Bronze Age as part of that rampart system which surrounded the lower city.

Twenty-two meters to the west of this postern gate, we discovered a much wider opening in the EBA city wall, 5.4m (Figure 7). As there was insufficient time left in the season to excavate it, we clarified what we could to obtain measurements and photos. Along the opening, large stones were placed at the base, although they did not abut the corners of the opening. In addition, there was a line of flat stones along the western side of the entryway. This consisted of only one course and one row, and did not abut the western side of the EBA entry. Besides these flat stones, there were laid mudbricks. We hypothesize that this is similar to the previously described postern entryway. This major EBA gateway was filled in by the MBA builders with stabilizer stones and mudbricks as part of their rampart system.

Figure 7. Wide EBA/IBA gateway, southern defenses, Field LA.

Figure 8. Field LA: EBA, IBA, MBA domestic quarter (green shading); multi-phase Bronze Age monumental gateway (red shading); EBA/IBA city wall (yellow shading); MBA city wall (blue shading); ring road between the Field LA domestic quarter and the city wall (violet shading).
Several additional wall lines and proposed gaps, measuring the standard 1.4m in width, could be seen along the Early Bronze city wall but will await next Season’s continued surveying and future excavations.

FIELD LA, DOMESTIC: EXCAVATION AND STRATIGRAPHIC INTERPRETATION

LA Domestic Quarter, Previous Seasons (2009–2014)

Excavations in LA during Season Ten were directed by G. Byers with the assistance of C. Kobs.

The original lower tall excavations—Field L.A.28 Trench, 2009 (Season Four)—had been expanded in recent years: E to the N/S 26 line, and W to the N/S 29 line. This helped us first identify the MBA city wall, and then trace the domestic quarter directly inside. The quarter’s E side was found to be bounded by an open plaza inside the MBA city wall (SW of the city gatehouse). The S extent of the domestic area was bounded by a ring road immediately inside the MBA city wall (Figure 8).

While the LA.28 Trench was originally excavated down to EB3 levels, this season we planned to expand our look at the domestic quarter to the N and W, with two concentrations: a) identifying any terminal MB2 levels that may still be recoverable; and b) excavate the MB1 or IB2 city plan directly underneath, which has been shown consistently to be constructed on the same basic urban plan, following similar or identical wall lines.

Northern Extension of the LA Domestic Quarter

In the N zone, between the previously excavated domestic quarter and the previously excavated MBA gatehouse, the stone foundation of an 80cm-thick domestic wall (27I¹ and 27J¹) was found extending from the domestic quarter (S) toward the MBA city gatehouse (N). While it cornered with and tied to a previously known wall on the S, its N extension is still not clear.

In addition, two segments of a more substantial E/W (1m thick) mudbrick superstructure and stone foundation wall were clarified (Figure 9). Its purpose between the existing MBA gatehouse (N) and the tightly-packed domestic quarter (S) is unclear at present. Thought to have been a W extension of the open plaza around the S and E of the MBA gatehouse, it apparently was not. The exact nature of these structures or activities conducted here awaits further excavation.

Western Extension of the LA Domestic Quarter

The W edge of the domestic quarter was expanded by 4 Squares along the NS.30 line (30L¹, 30M¹, 30N¹ and 30O¹) with an additional extension to 31N¹. These Squares were to clarify the domestic quarter as it extends N of the MBA city wall and ring road. This space is W of the lane which corners with the E/W ring road on the S and heads N into the city.

The lowest courses of a few stone foundation walls were all that could be identified with the
MB2 domestic quarter in this area (30L\textsuperscript{1} and 30M\textsuperscript{1}). They were, as anticipated, constructed atop and along the same lines as the overall IB1-2 and MB1 footprint of domestic stone foundations and mudbrick superstructures.

The N/S lane extending from the ring road\textsuperscript{6} the E limit to this season\textsuperscript{6} excavation\textsuperscript{6} was found to extend at least another 5m to the N (30L\textsuperscript{1}). The E/W ring road, with the MBA city wall on the S and domestic quarter house walls on the N\textsuperscript{6} representing the S limits of the domestic quarter\textsuperscript{6} was found extending almost 10m to the W.

With rooms and courtyards sharing contiguous 80cm-thick (= width) mudbrick superstructures and stone foundation walls, discrete structures have not been identified. All four walls of at least two rooms have been identified in 28M\textsuperscript{1}, 28N\textsuperscript{1}, 29M\textsuperscript{1}, 30N\textsuperscript{1}, and 31N\textsuperscript{1}.

The doorway in a particular common NS wall, later blocked by destruction debris, once connected two rooms (Figure 10). A courtyard opening onto the W side of the NS lane was adjacent to the E room, but their exact relationship is not clear. All spaces were filled with ash and disintegrated mudbrick debris.

Two separate floors with numerous in situ broken pottery vessels (IB1-2 and MB1) were not clearly connected to specific walls (30L\textsuperscript{1} and 30M\textsuperscript{1}). Both floors demonstrated clear evidence of fire destruction.

In addition, the inner face of the MBA city wall\textsuperscript{6} on the S side of the ring road\textsuperscript{6} demonstrated some anomalies, possibly suggesting tower passageways or postern gateways. These will need to be further examined in the future.

**Diagnostic Pottery, Field LA, Season Ten (for publication)**

The TeHEP four-step methodology for reading excavated ceramics involves a triple-blind analysis protocol. The first (SFR = staff field reading) is performed weekly during the excavation season by members of the Senior Staff (S. Collins and G. Byers, principal readers). The second (JSR = Jordanian specialist reading) occurs at the close of the season with in-country experts (A. Shmais and J. Haroun, principal readers). The third (OER = outside expert reading) takes place in the US under the auspices of TSU\textsuperscript{6} College of Archaeology (R. Mullins,\textsuperscript{11} principal reader). In the fourth and final stage (UPR = unified publishable results) the relatively few instances of reading discrepancies are studied and harmonized in preparation for official publication.

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\textsuperscript{11} Robert Mullins, PhD (Azusa Pacific University) is a leading specialist in ancient Levantine ceramics. He is currently Director of the Tel Abel Beth Maacah Excavations, Israel.
The following vessel counts for the Season Ten excavations in Field LA are based on diagnostics selected for publication from the first two ceramic readings and are considered preliminary. Final reads will appear in a subsequent Season Ten report for *ADAJ* (*Annual of the Department of Antiquities, Jordan*) and additional technical publications.

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**Total Diagnostics to Publish: 160**

**FIELD LS: EXCAVATION AND STRATIGRAPHIC INTERPRETATION**

Field LS (P. Silvia, Field Supervisor) is located in the central area of the lower tall and consists of two sub-fields: temple precinct and administrative quarter as shown in Figure 11. No excavation of the temple precinct was conducted during the previous season. The entire effort for Season Nine (2014) in Field LS was focused on investigating the architecture of the administrative (admin) quarter that was partially exposed during Seasons Five (2010), Six (2011), and Seven (2012).

What was possibly an MBA wall segment was exposed in Square LS.42J through a probe that was excavated during Season Six. The top of another short section of wall was found below it and was perhaps either IBA or EBA. The tops of additional portions of MBA architecture were minimally exposed in Square LS.42K at the end of Season Nine.

The primary objective of Season Ten was to investigate the architecture lying below the IA2 structure excavated during Season Nine. A minor effort was also conducted in LS.43K to clarify some MBA architecture that was exposed during Season Nine. The majority of this season’s effort was focused to two Squares, LS.42J and LS.42K, as shown in Figure 12.

Expectations from Season Nine for excavating Middle Bronze Age architecture and the destruction layer seen elsewhere across Tall el-Hammam were not realized this season. In fact, no
An identifiable MBA destruction layer appeared, and most (but not all) of the MBA architecture had been robbed out for the construction of the IA2 building.

The MBA foundation walls that were exposed this season were mostly disconnected segments that were difficult to visualize as complete structures. It did appear, however, that at least three phases, possibly four, of construction occurred during the MBA. The largest MBA stones were found in the NE corner of a building located in the SW corner of Square LS.43K. The SW corner of another building was found in the E half of Square LS.42J. The foundation of this second building was laid more carefully with smaller stones, so it is assumed to be from a later phase of construction. A third phase of construction added connecting walls between the previously described buildings. These walls spanned Squares LS.42J and LS.42K. They were closer to the surface, however, and were heavily exploited by the IA builders, so it was difficult to identify individual rooms or the purpose of connecting the previous buildings.

After documenting the remaining MBA wall segments, the stones were removed from Squares LS.42J and LS.42K. A small portion of a laid mudbrick wall was found in the NW corner of Square LS.42K that disappeared into the north balk of the Square (Figure 13). Based on the yellowish-brown color of the mudbricks, this wall was initially thought to be Early
Bronze Age. Except for the mudbricks, no additional architecture and very few individual stones were found in Square LS42K through 1.5m of further excavation.

A 2m swath of light gray ash streaked with darker ash traversed the northern 2m of Square LS.42K, including the 1m balk (Figure 14). The depth of the ash exposed in the balk was ~80 cm, but it tapered off to nothing within 1m to the south. The soil within the rest of the Square was mostly decomposed, with chunks of mudbrick mingled with medium-gray ash and occasional 1-3cm layers of darker ash. The pottery sherd s retrieved were a fairly even mix of EB3 and IB1. A few sherds from both earlier and later periods were also found, but none of these periods were represented by more than a half-dozen pieces.

Continued excavation in Square LS.42J exposed a cobble surface about 50cm beneath the IA2 foundation wall and about 20cm below the remaining course of MBA wall. A small segment of foundation wall was also exposed nearby (Figure 15). A huwar-lined storage pit was also found between them. Joining the cobble surface, the top of the storage pit, and the wall segment is a 3cm-thick dark gray ash layer which indicates the floor level that is common to all three features.

A small segment of stone foundation (discovered below an MBA wall in the Season Six probe of the IA2 building) emerged in Square LS.42J from the LS.42K balk opposite the mudbrick wall. This piece of foundation was found to be sitting directly on top of the EBA mudbrick, and its height matches the aforementioned cobble surface, storage pit, and wall segment. (Note that IBA
foundation walls sitting on top of EBA mudbrick walls have also been encountered in the LA Domestic Area.) Since the transition from stone foundation to mudbrick superstructure occurred within the north balk of LS.42K, and since the balk was inherently unstable because of the thick ash layer within it, the decision was made to remove the balk entirely. The fully exposed wall segments are shown in Figure 16.

A secondary, two-week effort was undertaken to investigate a curved wall that was discovered west of the previously mentioned structure in Squares LS.45J and LS.45K during Season Seven, which hinted that it might be a circular foundation wall approximately 20-25m in diameter. Another short piece of wall was discovered during Season Ten under the SE corner of the IA2 foundation in Square LS.42L which was thought to be related to this curved wall. Excavation of the curved wall was limited to removing the surface soil overburden and clarifying the top edges to about 30cm on either side. Continuing from the previously exposed wall in Square LS.45K, the curved wall was easily followed across the SW corner of Square LS.43K and the top of Square LS.44L, until it disappeared into the side of a ‘night diggers’ hole. A short section of the curved wall was found beyond the night diggers’ hole in Square LS.43L, but it soon disappeared again due to what was presumed to be the construction of the IA2 surface building. A cobble surface was found in Square LS.42L that appeared to be associated with an IA2 wall projecting southward from the IA2 building foundation.

Diagnostic Pottery, Field LS, Season Ten (for publication)
The TeHEP four-step methodology for excavated ceramics involves a triple-blind analysis protocol. The first (SFR = staff field reading) is performed weekly during the excavation season by members of the Senior Staff (S. Collins and G. Byers, principal readers). The second (JSR = Jordanian specialist reading) occurs at the close of the season with in-country experts (A. Shmais and J. Haroun, principal readers). The third (OER = outside expert reading) takes place in the US under the auspices of TSU’s College of Archaeology (R. Mullins, principal reader). In the fourth and final stage (UPR = unified publishable results) the relatively few instances of reading discrepancies are studied and harmonized in preparation for official publication.

The following vessel counts for the Season Ten excavations in Field LS are based on diagnostics selected for publication from the first two ceramic readings and are considered preliminary. Final reads will appear in a subsequent Season Ten report for ADAJ (Annual of the Department of Antiquities, Jordan) and additional technical publications.

**EB2**: med bowl 2; storage jar 2; **total—4**.
population who built the IA2 gateway and their own 
following seven centuries of erosion after the Midd 
the first IA2 inhabitants arrived. This, in turn, might give us a picture of 
intrusion in the form of IA2 foundation trenches disturbing the original surface of the tall before 
UA and the gateway(s) in Field UB in which 

after the 
demarcation of the 
clarification. Part of that clarification was to find a location where there was an unequivocal 
and the MBA strata exposed in Field UB during previous seaso 
W
Field UA (S. Collins, Field Supervisor) is most noted for the large MBA σαλακταστικόστρακον on the 

A
excavation of LS
inconclusive 
and the short piece that was discovered during Season Nine 
The appearance of EBA mudbrick beneath a segment of IBA foundation wall suggests that more 
was found within the footprint of the IA 
sector of the 
MB2
MB1
MB2
IA2
Rom

Total Diagnostics to Publish: 282

Field LS Summary
True to form, the Iron Age builders dug through the previous (MBA) occupation of Field LS to 
acquire the stones for their own construction. By so doing, they destroyed most of the evidence of the MB2 destruction event that decimated Tall el-Hammam and its neighbors. Little remains of the MBA occupation in Field LS, which may have helped us understand their use of this sector of the site.

Some architecture from the IBA has been found below the remnants of the MBA. Too little was found within the footprint of the IA2 structure (excavated last season) to determine its use. The appearance of EBA mudbrick beneath a segment of IBA foundation wall suggests that more EBA architecture lies below this year’s stopping point.

The possible connection between the curved wall segment unearthed during Season Seven and the short piece that was discovered during Season Nine beneath the IA2 wall remains inconclusive as of the end of Season Ten. If they are, in fact, the same wall, then expanding the excavation of LS.42J outside of the IA2 foundations and into LS.41J may reveal it.

ACTIVITY IN AREA U
FIELD UA: EXCAVATION AND STRATIGRAPHIC INTERPRETATION
Field UA (S. Collins, Field Supervisor) is most noted for the large MBA σαλακταστικόστρακον on the W acropolis of the upper city (Collins, et al 2007-2009). The relationship between that structure and the MBA strata exposed in Field UB during previous seasons was, we felt, in need of further clarification. Part of that clarification was to find a location where there was an unequivocal demarcation of the MBA/IA2 interface on the tall as it existed at the time of the first IA2 activity after the 600/700-year occupational hiatus following the destruction of the city toward the end of MB2. Thus, we planned a probe-trench (Square UA.7GG) between the σαλακταστικόστρακον in Field UA and the gateway(s) in Field UB in which we anticipated there might be less architectural intrusion in the form of IA2 foundation trenches disturbing the original surface of the tall before the first IA2 inhabitants arrived. This, in turn, might give us a picture of what the situation was following seven centuries of erosion after the Middle Bronze Age terminal event. In turn, that erosional deposition would have been friendlier to the underlying ruins than the Iron Age population who built the IA2 gateway and their own σαλακταστικόστρακον over the MBA σαλακταστικόστρακον on the
Figure 17. Field top drawing of UA.7GG showing MB2 structures (shaded).
acropolis that is Field UA. In both these locations, deep IA2 foundation trenches had obliterated significant portions of the MBA structures that lay beneath the surface.

The 2x2m UA.7GG probe which was cut to a depth of more than 3m excavated during Season Nine exceeded even what we had hoped it would accomplish, revealing a precise demarcation between the terminal MB2 stratum and the overlying IA2 material. It also provided numerous sealed MB2 loci with a definitive ceramic assemblage placing the terminal MB2 phase of the city ca. 1650+/1 BCE. The expansion of Square UA.7GG to 6x6m during Season Ten provided a remarkable view of what is likely an extension of the MB2 palatial structure/complex dominating the W acropolis (upper tall). Soil Loci 33, 34, 35, 37, 42, 47, 48, and 49 [= Loci 3, 4, and 5 of the Season Nine 2x2m probe; below 131.60m/131.78m], associated with Wall Loci 36, 38, 39, 40, and 41 (see Figure 17 and 19).

**Figure 18.** Square UA.7GG looking WSW (W balk is topmost) on the final day of Season Ten. In view are the walls (foundations with mudbrick superstructure still adhering to several. The MB2 loci between these walls produced diagnostic sherds from over 130 separate vessels.

**Figure 19.** Wall locus 41 foundation (red shading) with mudbrick superstructure (yellow shading), UA 7GG, upper tall, W acropolis.
Figure 20. Field top drawing showing Wall Loci 26, 30, 31 of LB2a structure (green shading); possible column base (blue shading); stones partially robbed away, likely by IA2 builders; inset—W balk showing clear delineation of the floor level of the LB2a structure.
yielded diagnostic pottery sherds from over 130 separate MB2 vessels including several varieties of storage jars, bowls, carinated bowls and chalices, jugs, juglets, cooking pots, and cooking 'casseroles'. There was also a significant quantity of fine ware forms with exquisite burnishes and painted decoration typical of an upscale palatial context. Wall Locus 41 was 1.4m thick; 1.5m thick including plaster finish was preserved up to 13 mudbrick courses (see Figure 19), representing a monumental structure that may have been three to four stories tall.

The biggest surprise of Season Ten from Square UA.7GG (6x6m) was the discovery of the remains of two phases of an isolated, freestanding structure of modest size (visible room: estimated interior dimensions = 2.5x4m, based on excavated foundations and related debris field; there could be an adjacent room to the S and W) dating to LB2a (see Figure 20). There also appears to be a column base in the center of the room. The remains of the LB2a building consist of nearly 1.2m of tumbled mudbricks and destruction matrix at the SW corner of UA.7GG (Loci 14 and 27), trailing off to less than 30cm in the NW corner of the Square (Locus 27), with only a skiff of dark ash in UA.7GG's SE corner, and not a trace of the LB2a matrix at the NE corner of the Square. Additionally, there is not a hint of LB2a material at any other location across the

Figure 21. UA.7GG W balk showing Loci 14 (green shading) and 27 (red shading). Both loci are destruction matrix with broken and tumbled mudbricks and mudbrick fragments, ash, pottery and objects, and a large quantity of carbonized wooden beams, planks, and what appear to be furniture parts. These and related loci belong to the freestanding LB2a 'tariff house'.
upper or lower tall. The MB2-to-IA2 stratigraphic sequence visible across Tal el-Hammam is thus far determined to be systematic as excavation and/or probes in all sectors of the site have confirmed. Interestingly, even the 2x2m probe (2014) in the SE quadrant of UA.7GG gave no evidence of the LB2a material which exists almost entirely in the W half of the Square. It is obvious, then, that the LB2a structure was a freestanding building with no observable associated habitation.

While the dimensions of the stone foundations of this LB2a building (Wall Loci 26, 30, and 31) are relatively small (2.5x4m), the prodigious amount of pottery amongst the tumbled mudbricks and on the floor is noteworthy storage jars, bowls, pitchers, jugs, and juglets. It suggests that the room was well stocked with provisions. A second story is suggested by two observations: a) the

![Figure 22. Large ring base of a LB2a jar.](image)

**Figure 23.** The *in situ* carbonized remains of a piece of furniture (chair?) and a broken jar on the floor of the LB2a structure in UA.7GG, upper tall, W acropolis. In the background (W balk) is the collapse matrix of burned bricks, ash, and carbonized wood.
amount of pottery and artifacts ‘suspended’ above the floor in the tumbled mudbrick matrix, and 2) the large ratio of wood-to-mudbricks in the debris field and on the floor, including the carbonized remains of large beams and planks (significant ‘overkill’ for a single-story structure). One piece of timber 30cm in diameter could have served as the central pillar of the lower story. The quantity and size of the wood elements in the construction suggests that, although the structure was modest in size, it was extremely well built, atypical of common domestic construction (Figure 21).

The artifacts recovered from amidst the LB2a rubble also denote a more sophisticated purpose than conventional domesticity. Much of the pottery was decorated with painted designs. One extremely large jar est. 1.5m tall with a huge ring base (see Figure 22) and thick walls, ave. 3.3cm would have been difficult to move even when empty. Some of the carbonized wood appears to be from furniture such as chairs and tables (Figure 23). The small building was well-equipped and well-appointed. Among the artifacts recovered were a finely-crafted ‘amulet’ stone (Figure 24) and bone (perhaps horn) pendant, stone weights (Figure 25), and the two bronze pans of a balance scale (see Figure 26). These objects are certainly atypical for occupants ‘squatting’ in the ruins of a
formerly grand MB2 city. Since Tall el-Hamam is located at the principal N/S and E/W trade routes crossing in its shadow, our preliminary hypothesis is that this sturdy, freestanding building was constructed on the order of an external governance for the purpose of collecting tariffs from passing caravans and other commercial traffic. The state of the debris field indicates that the building was not abandoned and left to disintegrate by natural means, but was burned and purposefully demolished.

**Diagnostic Pottery, Field UA, Season Ten (for publication)**

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**Total Diagnostics to Publish: 198**

**FIELD UC: EXCAVATION AND STRATIGRAPHIC INTERPRETATION**

Field UC (D. Graves, Field Supervisor), during Season Ten, yielded important stratigraphic data for both the Bronze and Iron Ages. A mudbrick wall visible from a modern bulldozed road that cut through the centre of the upper tell prompted the investigation of this area and the placement of two Squares (UC.20SS and UC.21SS) in the 2015 season. However, there was a modern military trench that cut southward into this area which created contamination of the top soil to about 127.5m. Squares UC.20SS and UC.21SS were laid out in order to investigate this area.

**Square UC.20SS**

The first architecture encountered in UC.20SS just under the surface were a number of stone foundations and mudbrick walls with curious underground cavities. The cause and reason for these cavities remains undetermined, but perhaps they were the result of water runoff that washed away softer dense of decomposed mudbrick and ash, leaving spaces. An IA2 wall (Loci 25 and 26 in UC.20SS and Locus 6 in UC.21SS) was excavated. At 128.85m the corner
of a room was exposed, dating to IA2 (associated ceramics). In an ash layer below the surface of this IA2 room an infant jar burial (sacrificial?) was encountered (Locus 46), adjacent to a wall. The burial jar was resting (albeit crushed) on a cobble surface, the floor of an MB2 room, confirmed by the abundance of MB2 ceramic evidence. The burial jar itself is a typical MB2 form with a piriform juglet inside. Mostly, these kinds of MBA jar burials are found installed beneath floors.

While it appears that this jar was smashed in situ on the cobble surface, it is possible that the construction of the IA2 house above it may have obliterated an original MB2 floor beneath which the jar was interred the cobble surface being an earlier floor. However, in such a case one would expect the jar to be mostly-if-not-entirely intact by virtue of its purposeful placement in a pre-excavated cavity below the floor in a packed-earth substrate typical of floor construction. In this case, there is no evidence that such a firm matrix ever existed to support a floor above the jar. The material surrounding and covering the burial jar was a thick, relatively soft, ashy matrix consistent with a destructive scenario covering (and crushing) the jar on the cobble surface (could it have been dropped?). If this is true, then an interment never took place, perhaps prevented by the MB2 destruction of the city.

In UC.20SS there were many building phases and crossing walls dating to IA2, including a large pit or trench (trash? engineered fill?) with a huge quantity of broken pottery. Many of the IA2 foundation trenches were dug deep into the underlying MB2 destruction layer, placing some of the IA material below the level of adjacent MBA architectural elements and associated ceramics and objects. However, the pottery types of the two periods are quite distinct (separated by six to seven centuries), making it possible to unravel much of the tangle.

**Square UC.21SS**

The first thing we encountered in Square UC.21SS, just under the surface, was a stone wall that formed part of five additional rooms dating to IA2, confirmed by an abundance of ceramic evidence. The IA2 wall cut into an earlier wall (date uncertain; likely IA2) in the southwest corner of the Square, shared with Loci 28 and 32 of Square 20SS (Locus 10 of 21SS). This earlier wall was plastered on both sides along with a 3mm-thick yellowish huwar clay floor that initially

![Figure 27. MB2 vessels from Square UC.21SS, Locus 15, upper tall—jug, carinated bowl, piriform juglet.](image)
appeared to be mudbrick. A similar yellowish huwar clay floor was identified at Hurvat Shilhoh in an Iron Age house (Mazar, Amit et al 1996).

A small tabun was discovered on top of the huwar clay floor at 127.58 m. (A 3D computer model was created of the installation prior to its deconstruction.) On the north side of the wall was a pottery dump with several hundred sherds dating to IA2a, IA2b, MB1, and MB2 – storage jars, holemouth jars, jugs, kraters, cooking pots, bowls, and oil lamps. The dump/pit was dug into the underlying MB2 destruction layer, accounting for some mixing of IA and MBA sherds. Two intact IA2a-b juglets were excavated from locus 17 N of the mudbrick wall (Locus 19).

In the SE corner of UC.21SS a 2x3m probe was excavated to determine the depth of the IA occupation. The probe went down to a depth of 129.35m and reached the MB2 stratum (identified by the ceramic assemblage). Three complete (mostly intact) MB2 vessels – carinated bowl, jug, and juglet (Figure 27) were excavated from near (and slightly into) the southern balk and resting on an MB2 floor. Intrusive IA2 foundations were cut into the MB2 living surface. Several walls were identified in this area along with IA2 huwar clay floors, but further investigation is required to determine and confirm MB2 (or earlier) structures that appear to be under this section of floor. It is believed that the MB2 layer has just been exposed, but further excavations in this area will be required for confirmation.

From the ceramic assemblages evident from several hundred publishable diagnostics, it can be argued that Square UC.20SS and UC.21SS contained an IA2 domestic structure down to the level of 129.13m. Below this level is the MB2 stratum. What is clear is that the occupation jumps from IA2a-b-c to MB2, with no LB presence in this sector.

**Diagnostic Pottery, Field UC, Season Ten (for publication)**

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**EB1**: sm bowl 1; **total**—1.

**EB2**: med bowl 1; storage jar 1; **total**—2.

**EB3**: med bowl 4; sm bowl 2; storage jar 1; jug 1; juglet 1; **total**—9.

**IB1**: med bowl 2; sm bowl 1; storage jar 2; **total**—5.

**IB2**: med bowl 6; basin 2; storage jar 3; holemouth jar 2; **total**—13.

**MB1**: lg bowl 3; med bowl 20; goblet 1; krater 2; cooking pot 3; cooking casserole 5; storage jar 20; holemouth jar 5; jug 3; juglet 1; lamp 1; **total**—64.
MB2: lg bowl 6; med bowl 49; sm bowl 3; chalice 4; krater 3; cooking pot 11; cooking casserole 7; storage jar 48; holemouth jar 3; jug 12; juglet 4; lamp 1; total—151.

IA2a: lg bowl 1; krater 1; cooking pot 4; storage jar 3; lamp 1; total—10.

IA2b: lg bowl 10; med bowl 23; sm bowl 2; chalice 1; goblet 2; krater 21; cooking pot 26; baking tray 1; storage jar 58; holemouth jar 3; jug 9; juglet 2; lamp 2; total—160.

IA2c: lg bowl 1; med bowl 5; krater 4; cooking pot 3; storage jar 49; holemouth jar 1; jug 4; total—67.

UD: body 1; storage jar 1; jug 1; total—3.

Total Diagnostics to Publish: 486

**STRATIGRAPHY: INSIGHTS THROUGH SEASON TEN**

When no sub-period designations are identified, general references to the archaeological periods use the following abbreviations: Pre-Pottery Neolithic Period = PPN; Pottery Neolithic Period = PN1; PN2; PN3; Chalcolithic Period = CLP; Early Bronze Age = EBA; Intermediate Bronze Age = IBA; Middle Bronze Age = MBA; Late Bronze Age = LBA; Iron Age = IA; Hellenistic Period = HP; Early Roman Period = ERP; Late Roman Period = LRP; Byzantine Period = BP. Islamic Periods use the traditional designations. We are applying the following general chronology (Collins, Hamdan, Byers, et al 2009a), with new abbreviations given first:

**PNP**
PN1: Pottery Neolithic/early 6000–5500 BCE
PN2: Pottery Neolithic/middle 5500–5000 BCE
PN3: Pottery Neolithic/late 5000–4500 BCE

**CLP**
CL1: Chalcolithic/early 4500–4100 BCE
CL2: Chalcolithic/middle 4100–3800 BCE
CL3: Chalcolithic/late 3800–3600 BCE

**EBA**
EB1: Early Bronze I/early 3600–3000 BCE
EB2: Early Bronze II/early 3000–2800 BCE
EB3: Early Bronze III/early 2800–2500 BCE

**IBA**
IB1: Intermediate Bronze/earlier 2500–2200 BCE (old EB IV)
IB2: Intermediate Bronze/late 2200–1950 BCE (old MB I)

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^12 It is now a virtual consensus among archaeologists working in the S Levant that the end of EB3 must be pushed back to ca. 2500 BCE from the previously-accepted 2350 BCE (Regev et al 2012). The result of this is an Intermediate Bronze Age that lasted for approximately 500 years (2500–1950 BCE). These adjustments, based on a wealth of radiocarbon and stratigraphic data across the S Levant, do not affect the chronological configuration of the Middle Bronze Age.
MBA
MB1: Middle Bronze I 1950–1800 BCE (old MB IIA)
MB2: Middle Bronze II 1800–1540 BCE (old MB IIB-C)

LBA
LB1: Late Bronze I 1540–1400 BCE
LB2a: Late Bronze IIA 1400–1300 BCE
LB2b: Late Bronze IIB 1300–1200 BCE

IA
IA1a: Iron IA 1200–1100 BCE
IA1b: Iron 1B 1100–1000 BCE
IA2a: Iron IIA 1000–900 BCE
IA2b: Iron IIB 900–700 BCE
IA2c: Iron IIC 700–539 BCE
IA3: Iron III/Persian Period 539–332 BCE

Hellenistic Period 332–63 BCE
Early Roman Period 63 BCE–135 CE

The stratigraphic profile of Tall el-Hammam had long been suspected (Prag 1974, 1991; Ibrahim, Yassine, and Sauer 1988), but is now confirmed by TeHEP. The following is, in part, a theoretical stratigraphic profile based on observations from extensive sherdig, clearing and clarification of MT disturbances, and the results of scientific excavation through ten seasons. By theoretical stratigraphy (TS) we mean what is suggested by a general assessment of the ceramic indicators over the whole of the site, giving consideration to the frequency of certain period diagnostics. In other words, significant amounts of pottery from a given period would indicate, theoretically, that an architecturally-based occupation would be likely. On the other hand, rare occurrences of ceramics from a given period would suggest, theoretically, the unlikelihood of a substantial architectural complex dating to that timeframe. Of course, only excavation can reveal the actual stratigraphic profile of a given location on the site. Confirmed stratigraphy (CS) consists of ceramic indicators associated with architecture. Season Ten ceramic distribution by period is represented in Figure 28.

**EARLY-TO-LATE ISLAMIC PERIODS (TS).** These ceramic forms seem to be mixed into contexts with the latest (surface) structures on the upper and lower tells. Re-use of older
structures may account for this, especially in the area of the Roman/Byzantine bath complex on the lower tall (Field LR), where Umayyad pottery is fairly common. However, such sherds are extremely rare on the site as compared to Bronze and Iron Age pottery forms. Only an occasional campsite can be extrapolated from these few Islamic sherds.

**LATE HELLENISTIC/EARLY ROMAN PERIOD AND BYZANTINE PERIOD (CS).** The Late Hellenistic and Early Roman periods are represented at the site, but play a minor role in comparison to the Bronze and Iron Age ceramic assemblages. Roman and Byzantine sherds are present, but are mostly found in two isolated locations, Field LR (monumental building) and Field UA (small guard tower).

**IRON AGE 1, 2, 3 (IA2: CS).** The Iron Age fortified townsite is quite extensive on the upper tall. According to the associated ceramics, it was founded in the early 10th century BCE, with strong presence during IA2a, b, and c, with a significant drop in activity during the Persian Period. Late Iron 1 pottery is infrequent at this point, but present (such as the IA1b style pilgrim flask found in Field UB). This form, however, can be dated to early IA2a as well. The IA2b-c monumental gateway in Field UB has an earlier phase dating to IA2a (perhaps late IA1b), with the terminal phase dating to IA2c, perhaps IA3. The principal Iron Age city at Tall el-Hammam seems to have been built during IA2a-b. IA3 (Persian Period) sherds are present-but-infrequent.

![Tall el-Hammam in the Middle Bronze Age](https://example.com/tall-el-hammam-middle-bronze-age.png)

**Figure 29.** A representation of Tall el-Hammam during the Middle Bronze Age (drawing by L. Ritmeyer).
LATE BRONZE AGE (LB2a: CS). Material from LB1 is systematically absent across the site. LB2a is missing in all sectors except for a short-lived, freestanding LB2a structure (tariff house?) in Field UA on the upper tall. (LB2a pottery vessels were found in a nearby tomb also containing forms dating from the Chalcolithic Period through the Iron Age.) No LB2b ceramics or structures have been identified at Tall el-Hammam.

MIDDLE BRONZE AGE (CS). Both MB1 and MB2 are strongly represented in the TeH ceramic repertoire. Typical MBA bronze weaponry, and related fortifications, monumental and domestic architecture are present extensively on both the upper and lower tall. Middle Bronze Age Tall el-Hammam served as the epicenter of an important city-state, the power and influence of which would have been significant across the southern Levant. MBA Hammam was, in many respects, a continuation of the Bronze Age city that had flourished during the EBA and IBA. It seems that, along with the tides of cultural evolution, the MBA occupants were motivated to build an entirely new fortification system because the old EBA/IBA defenses were damaged severely during what appears to have been a major earthquake ca. 2000/1950 BCE. It is not inconceivable that the TeH MBA fortifications with massive ramparts constructed almost entirely of mudbricks, not merely the 'cheaper' packed-earth variety seen at other sites were the first such defensive structures to appear in the southern Levant at the beginning of MB1. Thus, Hammam's fortification system may have provided an architectural paradigm that was reproduced at other large MBA sites in the region (Figure 29). Its unique pillared gatehouse is a notable feature, unparalleled in the S Levant (Figure 30).

INTERMEDIATE BRONZE AGE (CS). IB1 and IB2 pottery forms appear with high frequency across the entire site. These occupants also seem to have re-furbished and re-used many of the previous EBA structures including the city fortifications. IBA domestic structures are clearly confined inside the city walls, with relatively clear indications of fortification alterations (such as the blocking of several of the EB2/3 gateways). Remarkably, there is every indication that during the IBA Tall el-Hammam continued to operate as a city-state. This conclusion is supported not only by the fact that the entire TeH footprint including fortifications and the main city gateway was utilized by its IBA inhabitants, but also by the fact that several other sites in the

Figure 30. Architectural reconstruction drawing of Tall el-Hammam’s monumental MBA gateway (L. Rimeyer).
area had a strong IBA presence (Tall Iktanu to the S and Tall Nimrin to the N are good examples). It is now quite clear that the southern Jordan Valley, east of the river, was a unique location wherein Bronze Age city/town culture continued to enjoy good success when most other sites in the region were abandoned after the general collapse of EBA civilization at the end of EB3.

**EARLY BRONZE AGE (CS).** The EBA city of Tall el-Hammam is unmistakable and massive. On the basis of excavations during Season Five, three phases of the EBA city are clearly visible. EB1 houses protrude from under the EB2 city wall foundation and associated outer roadway. The 3m–6m-thick EB2 city wall was dramatically strengthened during EB3. The EBA fortification system surrounds both the lower and upper tall (around the base of the upper tall). TeH had numerous satellite towns and villages under its hegemony during the EBA, within a 10–10km radius. That this constituted a true city-state, with a strong central administration bolstered by a thriving economy, is hardly debatable at this juncture. Tall el-Hammam’s EBA occupation laid the foundation for its continued operation as a city-state for the next millennium.

**CHALCOLITHIC PERIOD (CS).** Chalcolithic pottery forms of the Ghassulian variety are found with some frequency, as are various basalt bowl fragments. The lithic artifacts from this period are fairly common. It would be understandable if Chalcolithic residents (perhaps moving from Tuleilat Ghassul?) had come to Tall el-Hammam to take advantage of its abundant water resources. Given the immense size of the EBA city, it is in the realm of possibility that the footprint of an underlying Chalcolithic settlement at TeH might eventually come to light. Season Five revealed Chalcolithic architecture (brodhouses) built on bedrock in Field LA.

**CONFIRMED STRATIGRAPHY (CS).** Chalcolithic and EB1 architectural evidence is confirmed at TeH. The EB2 occupants of the site were the original builders of the extensive fortification systems that surround both the upper and lower tall, strengthened significantly during EB3 (cf. Mazar 2002; Schaub 2007; Schaub and Chesson 2007). The Intermediate Bronze Age occupants utilized most-or-all of the EBA footprint, including the fortifications. Excavation on the lower tall suggests a continuous occupation from the CP through much of MB2. The Middle Bronze Age is strongly attested architecturally at TeH, particularly in its fortification ramparts, walls and towers on both the upper and lower tall, the monumental gateway on the south side of the lower tall, a palace complex on the upper city W acropolis, a large temple precinct at the approximate geographical center of the lower city, and in numerous domestic contexts. No structures belonging to the LB1, LB2b, or Iron Age 1 are presently known. One small building on the upper city W acropolis dates to LB2a. Perhaps one structure in Field UB can be dated to late IA1b, but that identification still needs more study. The IA2 townsite is extensively attested by both monumental and defensive architecture, and in domestic contexts. Iron 3 seems present, but yet unconfirmed by anything more than re-use of older buildings. Hellenistic, Roman, and Byzantine architecture (re-used?) seem confirmed on the south side of the site, and perhaps in Field UA on the upper tall. Islamic structures are presently unknown, except (perhaps) some minimal re-use of earlier architecture in Field LR.

**THOUGHTS, CONCLUSIONS, AND RECOMMENDATIONS**

The 2015 excavation season was successful in clarifying the answers to many questions remaining from previous seasons, and has also provided a good foundation for the balance of the Project. Of course, many new questions have arisen that must be answered in future seasons. Not only has the excavation proper continued to clarify a great deal on the lower and upper talls
relative to the EBA/IBA and MBA defensive systems, but also it has given us a dramatic look into the EBA, IBA, MBA, LB2a, and IA2 occupations vis-à-vis clear stratigraphic horizons.

Further, the continuation and building of relationships with local officials and land owners, the extensive exploration of area geographical features and archaeological sites, and the experience of working side by side with our colleagues from the Department of Antiquities, have all come together to build positive expectations for the continuation of TeHEP for many seasons to come.

Ten seasons of excavation have shown that Tall el-Hammam was one of the largest cities in the S Levant from the Early Bronze Age through most of the Middle Bronze Age. It was also the urban hub of a significant city-state that controlled the trade routes coursing through the Middle Ghor from at least EB2 through much of MB2. The scale and strength of its EBA-IBA and MBA defenses attests to a strong centralized government able to maintain its urbascape successfully over two millennia. Every indication is that it retained its city-state status throughout the IBA (ca. 2500–1950 BCE; Regev et al 2012), including numerous satellite towns and villages, a phenomenon unique in the S Levant during this period. Architectural and artistic motifs suggest not only an affinity with certain Canaanite coastal sites (such as Tell Kabri and Ugarit), but also with Minoan Crete. During IA2 TeH became an agricultural ‘store city’ and distribution center of significant import.

As is now widely accepted, Tall el-Hammam remains far-and-away the most logical candidate for biblical Sodom based on a detailed analysis of the relevant biblical and historical materials regarding the chronology and location of the city (Tristram 1874: 330-333; Thomson 1882: 371-376; Collins 2002a, 2002b, 2002c, 2008; Collins and Scott 2013; cf. MacDonald 2000: 45-61). Extensive research along with archaeological data from ten seasons of excavation are now leading most scholars to entertain or adopt this theory on its evidential merits. That the enduring and powerful presence of Tall el-Hammam and its associated towns and villages on the eastern Jordan Disk during the Bronze Age gave rise to the Cities of the Plain tradition reflected in the stories of Genesis 10-19 is a reasonable theory commensurate with all of the available geographical and archaeological data. Future tourism potential for such a site as Tall el-Hammam must not be overlooked or underestimated. From all perspectives, preservation of this highly important site is imperative.

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