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 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 southern Jordan Valley and beyond, the Project is studying the 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 nine seasons of exploration and excavation at this remarkable site with emphasis on Season Nine 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 Nine of the Tall el-Hammam Excavation Project (for previous seasons see Collins, Byers, Luddeni 2006; Collins, Byers, Luddeni, Moore 2007; Collins, Abu Dayyeh, et al 2008; Collins, Hamdan, et al 2009a; Collins, Hamdan, et al 2009b; Collins, Hamdan, et al 2010; Collins, Aljarrah 2011; Collins, Elyayan, et al 2012; Collins, Tarawneh, et al 2013) was conducted from 1 February through 27 February 2014, with the authorization and support of Dr. Munther 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. Carl Morgan (TSU, Field Archaeologist), Mr. Phillip Silva (TSU, Field Archaeologist), Dr. John Leslie (TSU, Osteologist), Mr. Michael C. Luddeni (TeHEP, Director of Photography), Mr. Daniel Galassini (TSU, Director of Videographic Documentation), and Mr. Qutaiba Dasouqi (DoA, Surveyor). Dr. Adeib Abu-Shmais (former DoA Archaeological Inspector of Amman; Senior Archaeologist) served as head ceramic diagnostician. Dr. Leen Ritmeyer (Cardiff University, Wales; Architectural Reconstruction Specialist, Ritmeyer Archaeological Design, Wales) joined the TeHEP Team once again toward the end of the season to continue his work on the Master Plan of the site, and section and reconstruction drawings for publication.

TeHEP professional archaeologists and specialists were assisted by a team of Square Supervisors consisting of graduate and doctoral students in archaeology from various institutions in the USA and Europe. Volunteer excavators from the USA, Australia, Great Britain, Canada, Belgium, and Germany, along with 20 local workers, rounded out the TeHEP Season Nine Team.

Tall el-Hammam (TeH) is located 12.6 km NE of the Dead Sea, 11.7 km E of the Jordan River, 8 km south of the modern village of South Shouha (the location of Tall Nimrin), and approximately 1 km S of the Kafraw Dam (see Figure 1). This area of the southern Jordan Valley, particularly the eastern half of what should properly be called “the Jordan Disk” (the circular alluvial area north of the Dead Sea, approximately 25 km in diameter, also called the Middle Ghor), lies on the crossroads of the region’s ancient N/S and E/W trade routes.\(^1\) 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 25 km 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*.\(^2\) The rare, geographical usage of *kikkar* lies at the core of the phrases *Plain (kikkar)* of the Jordan River and *Cities of the Plain (kikkar) 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.
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\(^3\) Tall Nimrim with Tall Bleibel and Tall Mustah in close proximity, and sprawling Tall el-Hammam encircled by Tall Tahouna (NE), Tall Barakat (N), Tall Kafrayn (NW), Tall Rama (SW), Tall Mwais (SSW), Tall Iktanu (SSE), and several small un-named

![Figure 2. Multi-period site plan showing excavation Fields.](image)

sites, all within a .75 to 2.7 km 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\(^3\) and a relatively large one at that.

Also nearby an extensive megalithic field (Prag 1995; Aljarrah tbp)\(^3\) now collectively known as the Hammam Megalithic Field (Schath et al 2011)\(^3\) and tombs that, for the most part, remain

\(^3\) See the new archaeological period abbreviations in section, "Stratigraphy" in Collins, Hamdan, Byers, et al 2009a.
unexcavated or robbed out.\(^4\) 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)\(^6\) 26ha of which is strongly fortified\(^6\) bounded by the Wadi Kafrawy on the north and the Wadi Ar Rawda on the south, 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 Figures 1 and 2). The site footprint for general settlement is well over 400 dunams (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 major occupational gap on the site footprint during the LBA and IA1\(^6\)). Hammam\(^6\) IA2 occupation is mostly confined to the upper tall, although there is an extramural \(\text{farmhouse}\) or \(\text{cultic site}\) on the lower tall. There is, additionally, ample evidence of Hellenistic/E Roman/Byz 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 material is also present in fills) and extending with detectible consistency through the Early Bronze Age, the Intermediate Bronze Age, and most of the Middle Bronze Age (all with associated architecture). Late Bronze Age sherds are extremely rare in the area, and there is no discernable LBA\(^7\) architecture thus far.

One of the more surprising discoveries during Season Four\(^6\) confirmed through Season Nine\(^6\) 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, generally following the line of the EBA/IBA city wall. During Season Five, it was discovered that the MBA city wall and rampart system, aggregately from 33m to 50m thick, buried and dwarfed the 6m-thick EBA city wall with its many towers and multiple gates (Zayadine, Najjar, and Greene 1987; Najjar 1992; Burke 2008; Falconer 2008).

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. Homès-Fredericq and Franken 1986: 98-114; Brown 1991; Palumbo 2008), indicating that the city likely survived the ubiquitous period-ending calamity that caused the demise of EBA cities throughout the southern

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\(^4\) 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.

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

\(^6\) For example, the smaller Iron Age occupation, confined to the upper tall, covers approximately 12 ha.

\(^7\) See the new archaeological period abbreviations in section fV. Stratigraphy in Collins, Hamdan, Byers, et al 2009a.
Levant, many of which never recovered (Richard 1987; Ben Tor 1992; Finkelstein and Gophna 1993; Harrison 1997; Avner and Carmi 2001; Philip 2008). This was confirmed stratigraphically and architecturally during Seasons Five, Six and Seven. 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 (Prag 2007).

Like Tall el-Hammam, nearby Bronze Age sites such as Tall Nimrin, Tall Iktanu, and Tall Kafrawin (and all others in eastern Jordan Disk area, for that matter) seem to lack discernable, or any, Late Bronze Age occupation (Dornemann 1990; Prag 1974, 1991; Strange 2008). Is the LB 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 nine seasons of excavation support the existence of such a gap at TeH. Whatever caused the absence of occupation at the eastern Jordan Disk sites 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 demise? The answers to these questions are now being addressed by the Data from TeH.

During Season Nine we concentrated our efforts on the lower tall, 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 LE at the base of the upper tall (NW side); and Field UB toward the SW end 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 Nine we continued to examine closely and make survey notes on TeH’s many surface-visible

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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 and MBA presence, as at Tall Nimrin.
features that are stratigraphically readable by comparison with, and physically traceable to, excavated and ceramically-dated features. A substantial understanding of the layout of the Bronze Age city is now 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 ninth 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.

METHODOLOGY

When considering its constituent components collectively, TeH is enormous. But there were six considerations in specifying the focus of the 2014 excavation season.

First, the exposure of multi-phase Bronze Age domestic and fortification architecture on lower Hammam during the previous five seasons (Field LA) set the stage for furthering our understanding of these features by continuing to expand the excavated area during Season Nine. Field LA was originally singled out for several reasons: (a) it was adjacent to, and included, a well-defined section of the city wall(s); (b) it included several surface-visible domestic structures; (c) it was a raised area offering the potential of deep layering; (d) it had dense Bronze Age sherd scatter; and (e) it had not fallen prey to "deep plowing" agricultural activity. Indeed, previous work in this trench suggested unbroken occupation in the form of Chalcolithic, EB1-2-3, IB1-2, and MB1-2 architectural remains, but further clarification was needed. Thus, the continuation of excavations in Field LA was a priority. The eastward expansion of this trench during Season Seven led to the discovery of a monumental MBA gateway system complete with both small and large defensive towers. Season Eight excavations revealed a pillared gatehouse, distinct from the chambered gateways typical of the southern Levant. Season Nine had as a goal the further excavation of the pillared gatehouse in order to determine its architectural history. Another goal was to continue the excavation of the domestic structures in Field LA.

Secondly, based on a number of small probes excavated in Field LS (the sacred precinct) during Season Eight, because we have determined to focus on the architectural structures underlying the extramural IA2 dıarmhouse with cult center in Season Ten, we set forth in Season Nine to meticulously remove portions of the now-well-documented IA2 structure. This process also allowed for a more precise dating of the building phases of the IA2 structure.

Third, the location we have designated as Field LE had, in the past, been severely bulldozed by local farmers from the N-side base of the upper tall (Area U) N to the scarp overlooking the Wadi Kufrayn. Although from one to three meters of occupational matrix had been removed from an area measuring roughly 150x300m (the dimensions of Field LE), numerous architectural foundations were still visible across the resultant surface. The bulldozed dıuatı along the base of the upper tall subject to erosion for decades since the bulldozing took place also revealed in its vertical section many stone foundations topped by several mudbrick courses. Foundations too large to be domestic, along with dense EBA, IBA, and MBA sherd scatter, led us to believe that this had been an important part of the city during the Bronze Age. It also provided the best opportunity to determine how (and when) the MBA upper city rampart was constructed over the
previous EBA and IBA phases of the city. The potential for unearthing important stratigraphical data from Field LE is significant, and this was confirmed during Season Eight. Thus, for Season Nine, two additional, strategically-placed squares were planned in addition to the two started during Season Eight.

Fourth, because of the existence of major retaining walls and a roadway from the MBA seemingly leading toward the gateway area of the upper tall (excavated in Field LE), we set as a goal the further excavation of the area in front of the IA2 gateway (which itself is built atop the MBA rampart and (likely) gateway, in Field UB. A huge amount of stone collapse makes this area difficult, but it is critical for ascertaining the topographical advantages of this location for gate placement. For stratigraphic purposes, a related probe was also planned just to the SSW of the gateway area in Field UA.

Fifth, the work in field LR needed to be continued, if for no other reason than it is subject to damage by local waterworks and bulldozing. It was determined that we needed to continue to salvage as much as possible from Field LR as possible before the entire area is destroyed by local agricultural activities.

Sixth, previous seasons have given us a reasonably good picture of the Bronze Age fortification systems and their evolution, as well as that of domestic structures. During Season Nine it was decided to perform systematic sampling of all building materials—mudbricks, mortars, plasters, surfaces—as well as collecting as much data as possible on engineering features—materials, lay-patterns, spacing, dimensions, angles, slopes, phasing, re-utilization. This data will further assist in developing an understanding of Tall el-Hammam’s architectural history in as comprehensive a manner as possible.

During Season Nine, we were able to successfully address all of the methodological approaches outlined above.

**Activity in Area L**

**Field LA, Gateway: Excavation and Stratigraphic Interpretation.** During Season Four we laid out a trench down the 28 N/S gridline comprised of Squares LA.28J, LA.28K, LA.28L, LA.28M, LA.28N, LA.28O, LA.28P, LA.28Q, LA.28R, and LA.28S. In previous reports, we have referred to this as Trench LA, and it is now several squares wider than the original ‘string’ adding Squares LA.23H, LA.23I, LA.24H, LA.24I, LA.25H, LA.26H, LA.27H, and LA.27I (plus the squares of the domestic area below). 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 Tall el-Hammam’s defensive systems reveal an unbroken architectural evolution from EB2 through MB2, the domestic architecture adjacent to the immediate N of the MBA city wall provides an equally dramatic testimony of architectural evolution spanning at least 2,000 years, terminating toward the end of MB2 (ca. 1700 BCE +/-). From Seasons Six, Seven, Eight, and Nine we have been able to trace the integration and continuing use of older walls and rooms laterally and vertically into later walls and rooms.

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11 A note on the size of Tall el-Hammam: Our surveyed site grid now contains over 12,000 6x6m squares spreading over 43 ha.
During Season Nine, Square LA.25H was remarkable in that it divulged more of the traditional architectural features dating to the EBA rather than the IBA phases. This was evident in three column bases dating to EB3. In Season Eight we excavated IBA and MBA column bases, but did not imagine that this type of pillared gatehouse would have originated during the EBA. Now this is confirmed. Hammam’s unique, pillar-style gatehouse originated during EB2, and was successively refurbished or rebuilt as a pillared entry hall through EB3 and both the IBA and MBA (see Figure 4).

Associated pottery and the superposition of levels helped to determine the date of the pillar bases excavated during Season Nine.

We also chose to employ the standard, vertically oriented Wheeler-Kenyon method instead of the architecturally-oriented, horizontal method of excavation used in this field during Season Eight (which had been done in order to reveal as much of the gatehouse perimeter as possible). This season’s methodology allowed us a slower, more methodical style in which five surfaces (floors) were examined and recorded (some plastered, some beaten earth, and some cobbled/pebbled). Walls with several courses of mudbrick were also exposed. The most prominent was an EB3 mudbrick wall (set on a stone foundation). The top of these mudbricks were later utilized as part of the surface of an entryway to the MBA gateway tower.

**Figure 4.** Hammam’s Bronze Age pillared gatehouse.

**Figure 5.** Curving wall between the gateway sector and the domestic quarter, Field LA.
Square LA.25G¹ exposed an array of tumbled EB3 mudbricks that were disarticulated (probably due to an earthquake). In addition, an EB2/3(?) pillar base was exposed, similar to those in LA.25H¹.

Work continued in Squares LA.26H¹ and LA.27H¹ to uncover a 1+ m-thick mudbrick wall with stone foundation corresponding to the domestic portion of Field LA (see Figure 5).

The other focus in Field LA was to excavate outside the MBA phase of the main gateway in order to locate the earlier EBA entry to the city. Based on topography and the newly-discovered EBA pillar levels inside the interior gatehouse, we suspected that the MBA gate system had been built directly over the EBA gateway, with similar symmetry. This suspicion was confirmed. By exposing a massive tumble of small boulders in Square LA.24H¹ purposefully laid for drainage by the MBA builders we discovered the gateway built during EB3 and used through IB1 and IB2.

Toward the beginning of MB1, the flanking EBA/IBA gateway towers still in use had collapsed (earthquake) and filled the central gate passage with a slurry of mudbricks and mudbrick debris several meters deep. As a result of this event and this is seen around the entire defensive perimeter the old EBA/IBA fortifications were damaged so severely that it became necessary to construct an entirely new defensive system. The new fortifications were styled in what has become commonly known as the classic MBA perimeter-rampart-and-wall system (Burke 2008). It was an engineering marvel in which the earlier defensive structures that had served the city continuously for a millennium were deconstructed, modified, and incorporated as components of the new system, mainly as footprints and/or foundations, recognizing that the earlier defenses had already maximized the topographical features of the site. In other words, the earthquake damage had made reconstruction of the old defensive architecture unfeasible, but it was so well-positioned and fundamentally sound that not using what remained stable was illogical. Thus, the new was integrated onto the old by remarkable feats of engineering.

The excavation of Square LA.23H¹ revealed that the MBA builders had dug out the mudbrick tumble from the EB/IB passageway, replacing it with a field of dry-laid boulders underneath what was to become the central axis of their new gateway, obviously for drainage and drying purposes. They also deconstructed the left and right EB/IB gate towers, then carved the remaining mudbrick courses to match the dimensions of the new towers (see Figure 6). The MBA architects knew that the massive, 6m-thick stone foundations and remaining 10-to-15 stable courses of well-made

Figure 6. MBA right gate tower cut into the previous EBA/IBA tower.
(yellow mudbricks were foundation enough for their own external towers, architectural add-ons constructed of reddish-brown mudbricks.

Beginning at the inside face of the old EBA/IBA city wall, which also served as a foundation for the thickest/tallest part of the MBA defensive rampart, the new 4m-thick city wall stone foundation was installed, topped by a mudbrick superstructure. The MBA defensive system slavishly follows the EB/IB city wall around the lower/outer city perimeter. [A soaring, free-standing rampart (Burke 2008) was then built to create an upper/inner city rising 30+ meters above the lower city. While the EBA/IBA citizens did have an upper city built on a natural rise on the NE side of the tall, it was not separately fortified. Thus, the MBA upper city rampart was built directly over the debris of the ca. 1950 BCE earthquake event with no evidence of natural (wind- or water-deposited) sedimentation between.] The earthquake seems to have provided the impetus to build a new, more massive defensive system around the 26ha (62-acre) city.

The EBA/IBA gateway was excavated in Square LA.23H¹ just outside the dry-laid boulders and stones which stopped just short of the MBA tower exteriors (on the outside of the gateway). There were significant amounts of burned timbers, mudbricks, and ash within the gateway. The threshold of the EBA/IBA gate entrance was constructed with flat stone pavers.

All of the above confirms that the main gateway remained in the same place along the city wall from ca. 3000 BCE until the final destruction of the Bronze Age city ca. 1700 +/- BCE.

**FIELD LA, DOMESTIC: EXCAVATION AND STRATIGRAPHIC INTERPRETATION.** During Season Nine the Field LA domestic quarter (G. Byers, Field Supervisor; see Figure 7) excavations were expanded to include Squares LA.29I¹, LA.29J¹, LA.29K¹, LA.29L¹, LA.29M¹, and LA.29N¹. This allowed further excavation of a large domestic compound revealing architectural evolution beginning in EB3 and continuing into MB2. The necessity here is to ascertain which construction phases belong to which periods, because the domestic architecture continues to follow virtually the same lines throughout the Bronze Age. Thus, the stratigraphy
is often discernable in horizontal expression—refurbishing of walls, floors, plasters, additions, extensions, etc. over a long period of time. There is also a significant amount of vertical accumulation as older rooms were sometimes filled in for purposes of stability while other rooms were added and/or modified higher up. At this point, it is not possible to determine how many stories may have existed, but it is likely that these dwellings had more than one level.

As of the end of the 2014 excavation season, it appears there is a domestic quarter SSW of the city gate and EBA/IBA/MBA and extending SW and W along the city wall. From the gate area there also appears to be a ring-road constructed against the inner face of the city wall that separates the domestic quarter from the city wall (see Figures 8 and 9).

Of varying widths (as narrow as 1.5m), while the ring-road continues on to the W, it also seems to connect to a lane going N into the city in Square LA.29N. It is also instructive that ash has been found throughout the domestic quarter and the adjacent ring-road as well. But mudbrick debris, also found throughout the domestic quarter has been virtually absent in the adjacent ring-road to the S.

While the domestic quarter offers plenty of evidence for domestic activity, the spaces do not lend to any clear understanding of discrete individual structures—just a series of rooms with shared walls and a number of doorways, many with in situ socket stones.

An extension of the domestic quarter W of the lane going N from the ring road into the city seems certain, but excavations have only demonstrated

Figure 8. Top Plan of the domestic quarter.

Figure 9. Overhead shot of the Field LA domestic quarter.
a single room at this point.

**Square LA.29J**: This new 6x6m square was excavated along with its E balk. The area was found to be disturbed by later, even modern, human activity. Wall 7, with a 50cm-wide cobble-stone foundation, was identified almost 30cm below the surface. It extended from the W balk near the S corner where two courses of sundried mudbrick superstructure were identified in the W balk. It was disturbed at 2m where a presumed *in situ* socket-stone (Locus 21) was identified.

E of the socket-stone, the 50cm-wide cobble-stone foundation of perpendicular Wall 14 abutted the S face of Wall 7 at the place of the disturbance. Wall 14 only extended 1m to the S and was disturbed by later human activity. On the E side of this disturbance, the 50cm-wide cobble-stone foundation of Wall 9 (= 13) continued along the same line as Wall 7 to the N balk.

Along the N balk, the cobble/small boulder foundation of Wall 12 abutted the S face of Wall 9/13. Wall 12 was excavated into the E balk, and at its S end may have abutted boulder/stone foundation Wall 15.

**Square LA.29K** *(italics = L. Ritmeyer wall #s on the site Master Plan):* This square was reopened in an attempt to clarify remains for new LA.29J, old 29L and old 28K. In the E balk, the E face of the cobble-stone foundation of NS Wall 4/106 was excavated, but not yet to the base of the foundation. We clarified the small-boulder/stone foundation of EW Wall 15 in the E balk. It most likely connects to the stone foundation of EW Wall 102 in LA.28K. The W face of Wall 15 did not seem to abut Wall 4/106. We also excavated an ashy mixed matrix with only a 3-stone W extension of the cobble/stone foundation of EW Wall 2/134.

**Square LA.29L** *(italics = L. Ritmeyer wall #s on the site Master Plan):* All 6x6m of this old square were reopened this season. The large cobble/small boulder stone foundation of Wall 17/135 along the N balk (= Wall11 in LA.29L) was found to corner on the E with the 50cm-wide cobble-stone foundation of new NS Wall 25 along the E side of the square. Unlike most walls in the domestic area, Wall 25 was not straight, and had a couple of slight bends in it. The S end of Wall 25 ran beneath installation 7 and connected in the E balk to EW Wall 3.

Wall 3, 70cm wide had three courses of mudbricks above three courses of large cobble/small boulder foundation. In Wall 3, 1m W of the corner with Wall 25 was a doorway with no socket stone or stone threshold. In the N face of the Wall 4 doorway was an *in situ* buried storage jar (Locus 38) with grinding stone *in situ* now fallen into the broken top of the jar (see Figure 10).

The W end of Wall 3 cornered with 90cm-wide NS Wall 15/137, also with mudbrick superstructure on cobble-stone foundation on the W. Wall 15 may just be a N extension of Wall 3/138 in LA29M because Wall 15/137 stopped just S of Installation 10.

With Locus 32 as the presumed floor level, Room 32(4m NS x 3m EW) was created by Wall17/135 on the N, Wall 25 on the E, Wall 3/136 on the S, and Wall 15/137 on the W. It appears to be a kitchen/work area with a tabun constructed above a large stone (Installation 6),

![Figure 10. Jar installation with grindstone in situ.](image-url)
Square LA.29M\(^1\) (italics = L. Ritmeyer wall #s on the site Master Plan): All 6x6m of the reopened square was excavated this season. The 80cm-wide mudbrick superstructure of NS Wall 3/138 was extended into the N balk, and clearly bonds as a S continuation of Wall 15/137 in Square LA.29L\(^1\). The 80cm-wide mudbrick superstructure was also excavated down to the cobble-stone foundation. At its S end, NS Wall 3/138 cornered with 80cm-wide EW Wall 31/113 from Square LA.28M\(^1\). Wall 31/113 was also comprised of a mudbrick superstructure above a cobble-stone foundation. S of the Wall 3/138 and Wall 31/113 corner was a hard-packed surface, probably representing a W extension of street/alleyway in Square LA.28M\(^1\).

The 90cm-wide sundried mudbrick EW Wall 10/139 was also excavated to its cobble-stone foundation. 90cm-wide mudbrick NS Wall 24/140, which corners on E end of Wall 10/139, was also excavated to its cobble-stone foundation. At the S balk, there is evidence of a blocked doorway with a stone threshold in Wall 24/140, with an apparent in situ socket stone on the W side (Square LA.29N\(^1\)).

NS Wall 3/138 apparently represents the W wall of a room with bonded EW Wall 136 on the N, bonded EW Wall 113 on the S, and the remains of Wall 109 on the E. It appears the 2.25m-wide space between NS Wall 3/138 and NS Wall 24/140 represents a NS lane N into the city from the city wall on the S (Square LA.29N\(^1\)).

Square LA.29N\(^1\) (italics = L. Ritmeyer wall #s on the site Master Plan): Opened this year, both the N and E balks were at least partially excavated. The S extension of 90cm-wide, mudbrick superstructure, stone foundation NS Wall 140 was traced into this square (Wall 3/140).

Cornering at the S end of NS Wall 3/140 was EW Wall 9. It was identified on the surface with the lowest course of mudbrick superstructure and top course of stone-foundation. The E end of Wall 9, at the corner with Wall 3/140, was very clear. But Wall 9 became increasingly unclear along the square W side. Yet, the mudbrick superstructure of Wall 9\(^1\) W extension into Square LA.30N\(^1\) was clearly identified. Along the W balk of the square where fragments of Wall 9 were identified, on its N face, it cornered with the mudbrick superstructure of NS Wall 16. Wall 16 extends further N into E balk of Square LA.30N\(^1\) as the mudbrick superstructure and stone foundation of Wall 4.

In the NW corner of LA.30N\(^1\), the mudbrick-superstructure and stone-foundation of EW Wall 6 was excavated. Wall 6 is the SW extension of Wall 10/139 in Square LA.29M\(^1\). Wall 6/139 also extended further SW into Square LA.30N\(^1\) as Wall 3.

Thus, within 6x6m Square LA.29N\(^1\), are remnants of all four walls of a room Wall 3 (E), Wall 9 (S), Wall 16 (W) and Wall 6 (N). The room measures 2.25m (NS) x 4.25m (EW). Based on a surface level within this space from Square LA.30N\(^1\), we are calling this Room 10\(^1\). Within the room was a buried holemouth storage jar with in situ grinder on top (Installation 14). Apparently cut by Installation 14 was a lower stone foundation of NS Wall 20. It appears to extend from Wall 6 (N) to Wall 9 (S) through the length of the square.

Along W face of mudbrick superstructure and stone foundation NS Wall 3/140 was an in situ socket stone (Locus 11) at a possibly-blocked doorway.

Along E face of mudbrick superstructure and stone foundation NS Wall 16 was another apparent socket stone (Locus 18). Possibly not in its original position, its precise nature is unclear. In the SE corner of Square LA.30N\(^1\), the N (inner face) of City Wall 4 was identified in fragmentary state. Between Wall 9 (N) and Wall 4 (S) was the mixed matrix soil above the city\(^1\) EW ring road.

\(\text{\ding{202}}\)able\(^1\)(Installation 7), in situ grindstone (Installation 10), two 40cm-diameter huwar\(^1\) installations (Loci 22 and 29), and another cobblestone Installation (Locus 30).
Square LA.29O: The square N balk was excavated (but not E balk). From the E balk to the W balk, the top course of large boulders/stones of the inner (N) face of the E/W City Wall 1 foundation were fully identified along the surface. Additional rows of top course of Wall 1 boulders/stones were not excavated to the S. North of City Wall 1 was mixed matrix above the city ring road.

Square LA.30N (italics = L. Ritmeyer wall #s on the site Master Plan): The full 6m of the square E balk was excavated. Identified along the surface of the NE balk was the mudbrick superstructure of EW Wall 3, a W extension of Wall 6/139 from LA.29N. Wall 3 mudbrick superstructure was two courses high and excavated down to the top two courses of the stone foundation along the wall S face. The stone foundation was not excavated to its base.

The W end of the excavated portion of EW Wall 3 mudbrick superstructure cornered with the N end of the mudbrick superstructure of NS Wall 4, also identified along the surface. Wall 4 mudbrick superstructure was up to 3 bricks high and excavated down to the top two courses of its stone foundation in two locations along Wall 4 NE corner and SW corner. The stone foundation was not excavated to its base.

On the E face of the Wall 3 and Wall 4 corner was the unusual circular stone Installation 12, abutting each wall mudbrick superfecures and stone foundations (remnants of a possible later burial?).

S of Wall 3 and E of Wall 4 we identified numerous sherds on a packed earth surface (Locus 10). It may represent a floor for this space thus, Room 10.

Along the E balk, inside Room 10, was the buried storage jar Installation 14 (= Installation 14 in LA.N29). Cut into Floor/Surface 10 (S of Wall 3 and along E face of Wall 4) a half circle of stones was identified along the jar W side. A plaster layer (Locus 15) was identified beneath storage jar Installation 14, but the jar was not found sitting on it.

The mudbrick superstructure of EW Wall 7 cornered with the S end of NS Wall 4. Wall 7, no doubt, continues to the W and represents the far-W end of a long wall extending to the E which is parallel to the City Wall. The space between these parallel walls is understood as a ring road inside the city wall, at least in this part of the site.

Square LA.30O: Identified along the surface of the N Balk, in the NE corner, was the mudbrick superstructure of EW Wall 2. It is an extension of the mudbrick superstructure of Wall 7 in Square LA.30N. To the S of Wall 2 was the ashy soil of Locus 1 above the city ring road.

FIELD LS: EXCAVATION AND STRATIGRAPHIC INTERPRETATION. Field LS (P. Silvia, Field Supervisor) of the Tall el-Hammam Excavation Project is located in the central area of the lower tell and consists of two sub-fields: öempleöprecinct and öadministrativeöquarter as shown in Figure 11. No excavation of the öempleöprecinct was conducted during Season Nine. The entire effort for Season Nine 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).

Excavation of the admin quarter began in Season Five (2010). During Seasons Five and Six, the structure shown in Figure 14 was, at first, thought to have been a Middle Bronze Age building associated with the MBA öempleöthat was concurrently excavated by another team. The MBA identification was based on the consistent recovery of much MBA pottery in the adjacent öempleöprecinct. The problem with this identification, however, was that a fair amount of Iron Age 2 (IA2) pottery was being found in the admin quarter. The clear dominance of MBA pottery in the adjacent temple precinct led to the conclusion that the IA2 pottery found in the admin area was possibly the result of contamination from the IA2 fortified town found on the
upper tall. The possible MBA identification was challenged during Season Seven, but insufficient evidence was found to confirm or deny it.

The architecture discovered in previous years was left untouched during Season Eight. Instead, a series of 16 probes were excavated in the 40x40m area immediately to the south. The purpose of the probes was to locate additional architecture not visible at the surface.

The main discovery in the admin area during Season Eight was the non-discovery of any Middle, Intermediate, or Early Bronze Age architectural walls or foundations in any of the probes that were south of the ḫKò grid line. Within the squares north of the ḫKò line that had been excavated during previous seasons, the final occupation was shown to have been built over the substantial foundations of previous occupations, and the architecture of the preceding occupants can still be found below it. In a manner typical of Iron Age builders, however, it appeared that wall stones from previous occupations south of the ḫKò line were dug up and repurposed for construction of the final occupation north of the ḫKò line.

This conclusion from Season Eight was the first circumstantial evidence in favor of dating the surface architecture found during previous seasons. A secondary argument in favor of dating the architecture to IA2 was proposed by P. Silvia. He observed that the temple precinct had been a banana field prior to initiating excavations and suggested that the debris line of stones and dirt that separated the admin quarter from the temple precinct was probably the result of bulldozing the field prior to its initial plowing and planting. He concluded that the debris line was probably IA2 architecture that was scraped from the surface of the temple precinct, and this was the reason why MBA pottery had been encountered so quickly at the surface.

To our knowledge, the admin quarter has never been plowed or used for agricultural purposes, so there is no reason to presume MBA architecture at the surface. Rather, the presence of IA2
Season Nine was to fully expose the foundation of what appeared to be the dominant surface structure within the admin quarter.

The method employed was to excavate a 30cm-wide trench along the previously exposed foundation walls to find the bottom of the base-course of stones. Measurement of wall thicknesses during the first few days of Season Nine revealed distinct differences enabling the identification of external versus internal walls. From these measurements, a symmetrical structure was assumed from the architecture exposed during previous seasons. Based on this assumption, the overburden was removed from the remaining exterior walls to expose the full footprint of the building. The decision was made to preserve the exterior foundation walls and limit further excavation to the interior wall surfaces. Excavation was also continued on both sides of the interior walls.

Figure 12 shows the exposed architecture with about 80% of the trenching complete. After the foundation walls were fully exposed, the interior walls were thoroughly documented and removed, noting the sequence of construction through the wall joints (abutted versus bonded). The remaining soil was then removed to provide a level surface even with the base of the exterior foundation walls.

There were no discernable floor surfaces within any of the rooms. There were areas of closely-placed, unworked fieldstones in some of the rooms that were too large to provide a reasonable walking surface. One such area was found in the NW corner of the largest room. Upon this surface, a 30cm-diameter altar stone with a concave, functional surface was found and removed in Season Six along with an IA2 plaque figurine holding a disc (Kobs 2011).

There were also areas of unworked field stones on both sides of the north-south interior walls at the level of the base course of wall

Figure 12. The IA2 υαρμούσσει with κυτταίκος centerο
stones. Their irregular placement suggested that these stones may have been surplus materials left over from the construction of the foundation walls. Fill dirt had been used to level the floor to about the height of the second (of three) course of foundation stones.

Unlike previous seasons, during Season Nine no intact vessels were recovered from the interior of the structure. However, four flint sling stones, one iron arrow point, and numerous pottery sherds were found. The sherds were mostly IA near the surface, but the percentage of MBA sherds increased as the base of the foundation walls was approached. This suggests that the fill dirt used by the IA2 builders contained significant amounts of broken MBA pottery.

The most interesting collection of sherds was found in the central room on the west side of the building. These sherds are shown assembled in Figure 13. Once assembled, it was clear that they were from an IA2 baking tray. This was the first nearly-complete baking tray found at Tall el-Hammam, although isolated sherds of this form have been found in previous seasons in other fields.

The footprint of the building foundation is shown in Figure 14. Based on the measurements and layout of the building, the two N-S interior walls are load-bearing. Site architect, L. Ritmeyer, identified the large, south-central room as an open courtyard, since the distance between the two N-S walls is too great to be spanned by timbers that would have been available to the IA2 builders. He also stated that the 80cm exterior foundation walls are sufficient to support up to a two-story mudbrick structure.

Figure 14. Foundation of the IA2 farmstead with cult center (P. Silvia).
The overall exterior dimensions of the building are approximately 14m E-W and 12m N-S. The additional 'bump-out' room on the N side of the building adds approximately 3x6m. A 'night diggers hole' that predates the beginning of excavations destroyed the SW corner of the building. Also, the union of the walls at the SE corner of the 'bump-out' room was also unclear due to apparently-missing stones.

There was only one identifiable exterior doorway in the NW corner of the NW room. Only two interior doorways were found— one in the SE corner of the NW room, and one in the SW corner of the SE room. Both of these doorways opened into the south-central open-air courtyard.

Excavations this season were stopped at the base level of the exterior foundation walls. The terminal level consists uniformly of engineered fill. There are a few places where the top surfaces of underlying walls are visible. Based on the ash layer exposed during the Season Five room probe, these are thought to be MBA walls. Care was taken to not break into this ash layer this season in order to prevent weather damage from compromising next season’s excavations.

The discovery of the 30cm-diameter altar stone and figurine in the N end of the open-air courtyard in Season Six suggests that this extramural building incorporated a cultic purpose. The clear architectural horizons and alignment differences between the underlying foundations exposed during the Season Five probe also suggest a cultic purpose for the previous buildings that occupied this site, since cultic buildings typically used cosmic alignments.

Excavations of the admin quarter during Season Nine succeeded in exposing and documenting the surface IA2 structure as the dominant building in the area. The foundation walls of the structure were laid on freshly-leveled engineered fill immediately above the remaining foundation walls of the previous occupation. Due to differences in alignment between the surface structure and what lies beneath, it appears that none of the underlying foundation walls were reused in the construction of the IA2 building.

**FIELD LE: EXCAVATION AND STRATIGRAPHIC INTERPRETATION.** In Field LE (C. Morgan, Field Supervisor), walls visible in a bulldozed cut at the NW base of the upper tall helped us determine the placement of two squares during Season Eight, and two additional squares during Season Nine. The results have been remarkable for the clarity of the stratigraphy and the

*Figure 15. Monumental MBA walls in Field LE.*
diversity of the architectural history of this particular location. The first thing we encountered at the surface was a group of (what turned out to be) circular, stone-lined silos from IA2, confirmed by an abundance of ceramic evidence. They had been built into previously-existing material from the Bronze Age, including a revetment or retaining wall built of large boulders, and the wall of a monumental building (1.6m thick) with numerous mudbrick courses and wall plaster still adhering (see Figure 15). Based on associated pottery, the retaining wall and monumental wall date to the MBA timeframe. These two MBA features were built over IB2 domestic structures showing signs of a significant earthquake event (also seen several seasons ago in Field LA). Earlier EBA structures are also now in view, but require further excavation for clarification (see Figure 16).

It is important to note that Neolithic artifacts are present in the fills of Field LE.

**FIELD LR: EXCAVATION AND STRATIGRAPHIC INTERPRETATION.** Field LR (D. Graves, Field Supervisor) of the Tall el-Hammam Excavation Project is located in the S-center area of the site. In previous seasons, a water retention system and bath complex that operated during the Roman, Byzantine, and early Islamic Periods has been partially excavated. During Season Nine the focus was to salvage as much material as possible from within one of the rooms on the SW corner of the complex. During this process numerous vessels were recovered, providing excellent insights into the history of the bathhouse (see Figures 17 and 18).
ACTIVITY IN AREA U

FIELD UB: EXCAVATION AND STRATIGRAPHIC INTERPRETATION. We had not excavated on the upper tall for several seasons. It was apparent, however, that the MBA roadway and massive retaining wall being unearthed in Field LE was leading up the rampart slope toward the IA2 gateway. We had always suspected that the IA2 upper gate had been built over the MBA entryway to the upper city, since the topography of the upper tall precluded a roadway to any location around the perimeter other than the one leading to the IA2 gateway (the associated city wall of which was built atop, and following the line of, the MBA upper city rampart). Thus, we decided to re-open Squares UB.8MM and UB.9MM in Field UB (S. Collins, Field Supervisor) in order to begin the process of confirming or refuting
the existence of an MBA upper city gateway in this location.

Season Nine excavations in Field UB began to reveal complex construction consisting almost exclusively of limestone boulders and cobbles, characteristically different from the mixed-stone-type masonry of the IA2 gateway architecture (see Figure 19). Additionally, an associated, large limestone basin on a cobbles pedestal was found (see Figure 20). Although the pottery fragments from UB.8MM and UB.9MM were mixed MBA and IA2, at this point it is not possible to establish the period of the limestone construction. Perhaps it is an earlier phase of the IA gateway, but it will take further excavation and analysis to make this determination. It seems to be too high relative to the MBA rampart to be part of a gateway associated with that period. Time will tell.

FIELD UA: EXCAVATION AND STRATIGRAPHIC INTERPRETATION. Field UA (S. Collins, Field Supervisor) is most noted for the large MBA ‘palace’ structure on the SW end 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 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 ‘palace’ structure 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

Figure 20. Large limestone basin, perhaps a libation altar.

Figure 21. Original surface of the upper tall immediately before the IA2 occupation began (dotted line).
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 palace over the MBA palace on the 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 UB.7GG probe, which was cut to a depth of more than 3m exceeded even what we had hoped it would accomplish. The first 1.5m consisted of detritus from the erosion of the IA2 town ruins, with no intruding architectural features. We had obviously landed on an area that was open (packed-earth street? plaza? courtyard?) and between any IA structures. Underneath the IA debris, what appears to be nearly the original surface of the tall as it existed ca. 1000 BCE, before the IA occupation, emerged (see Figure 21). The next meter or so consisted of material eroded from the remains of the MBA city over seven centuries. Immediately under that, we discovered debris from the collapse of an MB2 structure an ashy matrix strewn with broken mudbricks and cobble-sized stones that had landed on a floor, crushing a large storage jar and several smaller vessels in situ and giving us the best assemblage of classic MB2 ceramic forms of any single locus across the site thus far (see Figure 22). The storage jar had landed rim-to-floor as if it had fallen from higher up, and was smashed in place. The mudbricks and brick fragments within the ashy matrix on top of it were

Figure 22. MB2 pottery (rim of jar, above) and destruction debris in situ, Square UA.7GG, Locus 6 (circled).
fired hard, and reddish in color. Many of the limestone cobbles some as large as 20cm had been burned so severely that they had transformed into whitish chalk all through. The pottery had also gotten a significant secondary firing as a result of the heat from the associated conflagration. Toward the end of the season, just below this level, several stone foundations emerged. We anticipate that this 2x2m probe will be expanded during Season Ten.

ARCHITECTURAL SAMPLING ACTIVITY

One glaring gap in the scholarship related to Middle Bronze Age defensive architecture and a systems-analysis of same is data leading to a comprehensive understanding of such fortifications from a single, major site. Most of our knowledge of such defensive systems is collated together from snippets of information gleaned from excavation reports across Mesopotamia and the Levant (Burke 2008). As a result, our picture of the defenses of towns and cities toward the large end of the size-spectrum is mostly a collage of extrapolated features from many sites, or averages struck between the dimensions, slopes, and idiosyncratic components even ethnographic parallels and comparisons from sites across the Near East.

In this vein, we considered that Tall el-Hammam could provide a unique opportunity to study and understand the evolution and details of a large Bronze Age city’s fortification system(s), replete with macro- and micro-analyses everything from materials acquisition to overall strategy and architectural engineering, from landscape utilization to the psychological impacts of design features. Thus, we set upon collecting data from every conceivable direction and dimension of Hammam’s remarkable defensive systems, which include both freestanding and supplemental ramparts, city walls, revetment walls, stabilization walls separate lower and upper city defensive strategies, towers, gateways and related thoroughfares, outer-perimeter walls, and the ingenious utilization of the natural topography and landscape features such as the local wadis. During Season Nine a team (under the direction of S. Collins, TeHEP Chief Archaeologist) identified, measured, photographed, and described defensive structures and features across the entire site. In addition, samples of bricks, mortars, pavements, plasters, surfaces, and building components were collected (see Figure 23). Further, details of construction methods were noted foundation styles, brick lay-patterns, attachments and/or abutments, and the incorporation of previously-existing defensive architecture. In all, a tremendous amount of data was collected, which will provide the basis for a comprehensive picture of Tall el-Hammam’s defensive posture from EB2 through MB2.
We plan to continue this data collection process during Season Ten, particularly a new and detailed survey/plotting of all identified features. Ultimately, a 3-D physical model of Hammam’s EBA/IBA and MBA fortifications (and city) will result, along with a comprehensive systems analysis of its defensive architectural evolution.

STRATIGRAPHY: INSIGHTS THROUGH SEASON NINE

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 = PNP; 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\text{-}5500 BCE
PN2: Pottery Neolithic/middle 5500\text{-}5000 BCE
PN3: Pottery Neolithic/late 5000\text{-}4500 BCE

**CLP**
CL1: Chalcolithic/early 4500\text{-}4100 BCE
CL2: Chalcolithic/middle 4100\text{-}3800 BCE
CL3: Chalcolithic/late 3800\text{-}3600 BCE

**EBA**
EB1a: Early Bronze I/early 3600\text{-}3350 BCE
EB1b: Early Bronze I/middle 3350\text{-}3200 BCE
EB1c: Early Bronze I/late 3200\text{-}3100 BCE
EB2a: Early Bronze II/early 3100\text{-}3000 BCE
EB2b: Early Bronze II/middle 3000\text{-}2900 BCE
EB2c: Early Bronze II/late 2900\text{-}2800 BCE
EB3a: Early Bronze III/early 2800\text{-}2700 BCE
EB3b: Early Bronze III/middle 2700\text{-}2600 BCE
EB3c: Early Bronze III/late 2600\text{-}2500 BCE

**IBA**
IB1: Intermediate Bronze/earlier 2500\text{-}2200 BCE (old EB IV)
IB2: Intermediate Bronze/later 2200\text{-}1950 BCE (old MB I)

**MBA**
MB1: Middle Bronze I 1950\text{-}1800 BCE (old MB IIA)
MB2: Middle Bronze II 1800\text{-}1550 BCE (old MB IIB-C)

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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.
The stratigraphic profile of Tall el-Hammam had long been suspected (Prag 1974, 1991; Ibrahim, Yassine, and Sauer 1988), but is now being confirmed by TeHEP. The following is, in part, a theoretical stratigraphic profile based on observations from extensive shering, clearing and clarification of MT disturbances, and the results of scientific excavation through nine seasons. By theoretical stratigraphy 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 consists of ceramic indicators associated with architecture.

**EARLY-TO-LATE ISLAMIC PERIODS.** These ceramic forms seem to be mixed into contexts with the latest (surface) structures on the upper and lower talls. 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.** 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.** The Iron Age fortified townsite is quite extensive on the upper tall. According to the associated ceramics, it was founded in the early 10\(^{th}\) 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.

**LATE BRONZE AGE.** Material from the Late Bronze Age are systematically absent from the tall proper. However, LB2 pottery vessels were found in a nearby tomb containing forms dating from the Chalcolithic Period through the Iron Age. Thus, some kind of LB2 funerary presence in the area can be surmised, likely associated with the Hammam Megalithic Field; however, no architecture from that period is known in this vicinity of the valley E of the Jordan River. Tall el-Hammam itself as well as surrounding sites within a 10km radius on the valley floor systematically lack LBA occupation.

**MIDDLE BRONZE AGE.** Both MB1 and MB2 are strongly represented in the TeH ceramic repertoire. Typical MBA bronze weaponry, and related fortification, monumental, and domestic architecture are present extensively on both the upper and lower tails. 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 unconceivable that the TeH MBA fortifications with massive ramparts constructed 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.

**INTERMEDIATE BRONZE AGE.** 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 one 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 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.** 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 5–6m-thick EB2 city wall was dramatically strengthened during EB3. The EBA fortification system surrounds both the lower and upper tails (around the base of the upper tall). TeH had numerous satellite towns and villages under its hegemony during the EBA, within a .510km 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. 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 (broadhouses) built on bedrock in Field LA.

CONFIRMED STRATIGRAPHY. A Chalcolithic architectural presence 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 and walls on both the upper and lower tall, the monumental gateway on the south side of the lower tall, and in numerous domestic contexts. No structures belonging to the Late Bronze Age or Iron Age 1 are presently known. 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 2014 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 tall relative to the EBA/IBA and MBA defensive systems, but also it has given us a dramatic look into the EBA, IBA, and MBA occupations on the lower tall vis-à-vis clear stratigraphic horizons, particularly with the excavation of squares in Field LE.

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.

Nine 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.

As is now widely accepted, Tall el-Hammam remains 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; cf. MacDonald 2000: 45-61). Extensive research along with archaeological data from nine 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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