THE TALL EL-HAMMAM EXCAVATION PROJECT

SEASON ACTIVITY REPORT

SEASON TWO: 2006/2007 EXCAVATION & SURVEY

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The goal of the multi-year Tall el-Hammam Excavation Project (Project) is to study the relationship of this immense and strategically-located site within its ancient period socio-cultural, economic and political contexts, and to ascertain its position, function and influence within those contexts. In addition to this broader focus incorporating historical and archaeological data from neighboring sites in the southern Jordan Valley and beyond, the Project will study the site 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.
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I. INTRODUCTION

Season Two of the Tall el-Hammam Excavation Project (TeHEP) was conducted from 22 December 2006 through February 4, 2007, with the authorization and support of Dr. Fawwaz Al-Khraysheh, Director General of the Department of Antiquities (DoA) of Jordan, and with the assistance of Dr. Mohammed Najjar, Director of Excavations of the DoA of Jordan, and Departmental Representative Mr. Mohammad Ali Al-Khatib. The excavation proceeded under the direction of Dr. Steven Collins (Dean, Trinity Southwest University, College of Archaeology), assisted by a team of 102 scholars, students and volunteers from Jordan, the United States, Canada, England, Australia, Russia and the Ukraine. Field Supervisors were (alphabetically): Mr. Gary A. Byers, Dr. David Fouts, Mr. Hussien Al-Jarrah, Dr. David Maltsberger, Dr. Sahar Mansour, and Mr. Adeib I. Abu-Shmais. Square Supervisors were (alphabetically): Mr. David Breidenbach, Mrs. Danette Collins, Mr. Christopher Craig, Mr. Carl Fink, Prof. David Graves, Mrs. Carroll Kobs, Ms. G.K. Massara, Mr. Steve McAlister, Mr. Carl Morgan, Mrs. Sheresa Sparks, Dr. Scott Stripling, and Mr. Aaron Taylor. Dr. John Moore served as human remains analyst and computer specialist. Survey work was performed by Mr. Tawfiq al-Hunaiti of the Department of Antiquities.

Tall el-Hammam (hereafter referred to frequently as TeH) is located approximately 8 km N of the Dead Sea, 12 km E of the Jordan River, 8 km S of the modern village of South Shouna (the location of Tall Nimrim), and 1 km SSW of the Kafrein Dam (see aerial and satellite photographs). This area of the southern Jordan Valley, particularly the eastern half of what many now call “the Jordan Disk” (the circular alluvial area N of the Dead Sea, approximately 25 km in diameter), lies on the crossroads of the region’s ancient N/S and E/W trade routes. Several significant sites, all seemingly occupied during the high points of Levantine Bronze Age civilization, hug the eastern edge of the Jordan Disk just beyond the spread of the ancient flood plain, bounded on the N by the throat of the Jordan Valley, and on the S by the rocky terrain of the Dead Sea area—Tall Nimrim with Tall Bleibel, Tall Mustah, and several smaller sites in close proximity, and sprawling Tall el-Hammam with comparatively petite Tall...
Kafrein a short distance to the NE, Tall Iktanu approximately 2 km to the S, and numerous small sites in close array. Also nearby are hundreds of dolmens and cemetery sites that, for the most part, remain unexcavated.

Tall el-Hammam is the largest of the Jordan Disk sites. The general settlement area spreads roughly 1000 m E/W, and from 500 m to 700 m N/S. The site footprint proper is about 400 dunams (about 100 acres). These dimensions approximate the areas of the site occupied in more remote antiquity, from at least the Early Bronze Age through the late Iron Age. There is, additionally, ample evidence of Hellenistic and Roman Period occupation off the mail tall to the immediate south (see above aerial photo with captions). Reports about the site from the late 19th century\(^1\) describe an aqueduct that fed the area south of the upper tall. There is also a warm spring at about the E/W center of the site in close proximity to what may have been a Roman bath complex. However, the extent of the Hellenistic/Roman occupation remains an unknown quantity except for the Hellenistic/Roman(?) structure in Field A (see below).

Owing to the fact that the Middle Bronze Age is not well-documented in the area (the excavation at T. Nimrin reveals a significant MBA presence there, but the work was not extensive), Tall el-Hammam Area U (the upper tall) may hold the key to understanding the entire region during that period, a reasonable expectation based on the ceramic profile derived from both surface and in situ excavation contexts together with the fact of its strategic, dominant location. The lower, western extent of the site boasts an Early Bronze Age city of no small proportions (at least 200 dunams inside the city wall). It is possible that a Chalcolithic village lies underneath the EBA remains (based on surface finds), and future excavation in Area L (the lower tall) will attempt to clarify the beginnings of the EBA occupation, and even earlier settlement if it exists. The sheer size of the lower tall, the EBA city, suggests that it must have been a towering regional influence during that period.

Nearby sites such as T. Nimrin, T. Kafrein, and T. Iktanu seem to lack significant, or any, Late Bronze Age occupation. The preliminary surface ceramic indicators suggest that T. el-Hammam follows suit. Is the “LBA gap” (as the T. Nimrin excavators call it) a regional phenomenon, and can T. el-Hammam shed light on what caused it? There are now excavation data that seem to support such a gap at T. el-Hammam (see below). Whatever caused the absence of occupation at the eastern Jordan Disk sites during the LBA timeframe did, in fact, not continue, as most were resettled during the mid-Iron Age. Indeed, the Iron Age II occupation at T. el-Hammam is quite extensive, and surrounded by a 3+m thick fortification wall (see below). What gave rise to the site’s Iron Age city, and what brought about its demise? These are questions that are only beginning to be probed by the first two seasons of excavation.

Tall el-Hammam certainly holds key pieces of the archaeological puzzle from which a greater comprehension and appreciation of the regional history can emerge. The focus of the second season excavation was to continue to identify and sound sections of the site determined to offer reasonable opportunities to expose stratigraphic sequencing in the upper tall (Area U).

A. Methodology

When considering its constituent components collectively, TeH is enormous. But there are factors that have assisted us in narrowing the focus of the first two excavation seasons. First, the ease of access to the EBA city led K. Prag, about sixteen years ago, to do a few soundings on the far western extremity of the lower tall (our Area L). The fortified EBA

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4 See footnote 2.
occupation spreads over a circular area some 500m in diameter, much of which is exposed to, or near, the surface. Fortification walls and towers are clearly visible in many places, making the approximate parameters of the EBA city relatively easy to identify. Thus, while certainly in need of excavation, the lower tall is at least a partially-known quantity.

Second, the ruins of the Iron Age city (mainly Iron II) spread over the top of the upper tall, and much of it, too, is exposed to the surface. Considerable segments of the fortification wall are visible, especially on the northern-most side. The remains of mudbrick walls and stone structures, many of them of monumental scale, are clearly visible in several locations. The first two seasons of excavation have begun to help in the periodization of the Iron Age occupation (see below), but again, the IA city is a partially-known quantity.

Third, at some point in the recent history of the site, likely from the Ottoman Period through the late 20th century, the upper tall was made into a military outpost of some kind, with trenches, and gun and tank emplacements. Most or all of the military hardware comprising the outpost are long gone, but the military use of the site left behind a collection of huge, bulldozed scars across the site. The main scar is an ingress/egress “road” cut in from one to three meters in depth, from five to ten meters wide, and generally running NE/SW for 500m. It cuts a deep gouge through the SW (acropolis) end of the upper tall to a depth of more than 3 m in places, ejecting large amounts of ancient debris over and down its SW slope. Ancient debris is cast up on the sides of these bulldozed trenches along their full extent. Obviously, whatever stratification had existed in these disturbed/removed sections of the tall is gone, and that is unfortunate. However, for all of its destructive results, there are areas of the military trenching (now officially designated as MT) that we have used to our advantage in clarifying some exposed stratigraphy across the upper tall. The end result is not unlike putting some sections of the site though a giant MRI scanner, and the clarity is certainly better than Ground Penetrating Radar or other currently-available subsurface analysis methodologies.

With these three factors in mind, our methodology for approaching the excavation of Tall el-Hammam in this second season was as follows:

1. We re-surveyed the grid for both the lower and upper tall, designating the lower tall as “Area L” and the upper tall as “Area U.”

2. We established fields for the convenient division of both Area L and Area U, designated “Field A,” “Field B,” Field C,” and “Field D” in both areas. Due to the generally circular shape of the lower tall, it was divided into four quadrants. Because
of the elongated shape of the upper tall, it was divided into four sections delineated by three N/S lines.

3. We set a 6m x 6m grid over the entire site, with separate number/letter coordinates for Area L and Area U: an Arabic number sequence designates N/S lines on the grid; a letter sequence designates E/W lines on the grid. The resultant S/W coordinate (the intersecting lines at the southwest corner of each square) in such a system becomes the designation for a given 6m x 6m square, along with the Area and Field designations. Thus, the “name” of each square follows this pattern: UB-22T = U (Area U) B (Field B) 22 (N/S grid line) T (E/W grid line).

4. For each 6m x 6m square we established a 1m balk on the north and east sides, leaving a 5m x 5m portion of the square for excavation.

5. We continued to concentrate on squares in the upper tall (Area U) that were providing us with information regarding the nature and extent of the Iron Age city, as well as the Bronze Age material beneath it. These decisions were based on clarified segments of the MT (from last season) as well as walls exposed to the surface. The intentions of our proposal were followed with modifications and adjustments made as a result of on-site analysis.

6. Squares were excavated according to the methodology established by the Madaba Plains Project, with site-specific modifications.

B. Generalizations

With known quantities in Area L (dominated by the EBA city) and Area U (the surface-exposed Iron Age occupation) we chose to focus on a series of squares in locations that would yield, in this and coming seasons, the nature of the unknown quantity, i.e., the stratification that lies within and below the Iron Age material. Thus, we continued excavating in locations (Area U) represented by squares in Fields A and D that were proximate to the city wall (confirmed to be Iron Age II) that might eventually lead to the detection and assessment of earlier fortification systems that would also exist at the edges of the tall. Last season, when a section of IA II city wall was “cored” away, the top of what seemed to be an extensive mudbrick and compacted-earth structure was revealed. We theorized, on the basis of its proximity, size and visible construction pattern, that is was perhaps the top of an MBA fortification system (this hypothesis turned out to be correct). We also continued several squares in Field B because they lay over surface-exposed monumental walls, giving us the possibility of eventually revealing the entirety of the preserved structure. Another square in Field B was continued because it represented the lowest spot on the upper tall, with up to three meters of original tall already removed by MT. Our continuation in Field C was driven by a significant amount of Iron Age II pottery, including both large jars and smaller vessels, originally exposed in an MT clarifying procedure, providing an opportunity to view many pottery forms, likely from several IA phases. We also opened up two new squares in Field C (on the south side of the MT), in what we felt was a more domestic context (which, as it turned out, was correct).

C. Procedure

The team continued squares begun in the prior season in Fields A, B, C, and D. In Field D, excavation proceeded immediately north of where the MT had bulldozed through the eastern-
most portion of the upper tall. Last season, as the cast-up from that MT activity was cleared, it became apparent that a 3m high section through the city fortifications had been created. In that massive section it was easy to ascertain that the foundation trench for the Iron Age city wall (3m thick) had been cut into a compacted-earth/mudbrick matrix of huge proportions. The Iron Age wall was large enough in and of itself, but it seemed dwarfed by the structure into and over which it was constructed. The glacis associated with the IA wall was clearly visible in the MT section, and it, too, was built over the top of the earlier earthen structure, some of it faced with hard, yellowish mudbrick. Last season, two squares were excavated just northeast of this MT section, exposing the IA city wall and how it was constructed (details below). This season, two adjacent squares were added to the east of the original two squares, creating a 5m trench approximately 24 meters in length and spreading down the easternmost glacis, exposing a significant portion of the earlier fortification rampart. In the remaining three Fields, all squares begun in the prior season were re-opened, with several new squares added to expand our views of architectural remains.

II. SQUARES EXCAVATED

A. Area L: Lower Tall (No excavation activity; however, surveying was performed just prior to the beginning of the season, and during the season a 2m x 24m trench was laid out for future work.)

Although we did not excavate in Area L (the lower tall), several team members spent a considerable amount of time doing visual examinations and sherding. This information will support future work in the lower city.

B. Area U: Upper Tall

1. Field A

Field A is cut approximately E/W by MT. A 3m deep trench through the highest point of the tall destroyed a 5m wide swath of ancient occupation, including massive stone and mudbrick structures. Our goal in this area has been, and continues to be, a clarification of the “mess” created by the MT, and a determination of the stratigraphy still discernable. MT clarification from last season revealed at least three occupational levels: Hellenistic/Roman, Iron Age and, perhaps, Bronze Age (initially indeterminate as to periodization and/or phasing). During this season the presence of Late Hellenistic (LH) and Early Roman (ER) ceramics confirmed that the uppermost architectural remains were built at least partly on Iron Age foundations. As the Iron Age stone and mudbrick wall foundations were exposed to their bases, it became increasingly evident that the Bronze Age was present in some manner, but it may take one or two more seasons to determine how.

a. clarification of exposure due to military trenching (MT)

In the previous season, this procedure cleared away approximately 1m of MT cast-up, revealing a significant sectioning, albeit “bulldozer fine,” of what we thought might be the western-most section of the IA city wall, with about the same dimensions (3m thick) as had appeared on the opposite side of the tall. However, additional excavation this season revealed that the thickness of the wall actually represented two phases, one seemingly LH/ER, built alongside the other IA II wall for the purpose of creating a larger foundation during the later period. The configuration of the walls suggests monumental buildings and not fortifications.
b. square UA-15DD

The walls underneath the LH/ER tower are clearly IA II in date, and are, in turn, built into and over a mudbrick matrix, which preserves several walls and corners with well-preserved plaster over orange-colored brick (bricks average approx. 25x45cm). The mudbrick of the earlier phase is associated with both EBA and MBA pottery, but further clarification is needed to determine the likely date of construction. Many of the lower mudbrick walls are faced with plaster, and there are many instances of well-preserved wattle and daub, as well as ceiling/floor plaster (see photo) from an upper story, strewn throughout the collapse matrix inside the room formed by the mudbrick walls. Iron Age II pottery sherds are present but rare in the rubble matrix associated with the plastered mudbrick walls. Much work remains to be done in square UA-15DD, and additional contiguous squares will be needed to sort out the puzzle of wall relationships. There seems to have been much re-use of earlier structures by later inhabitants.

One of the biggest problems at the present time is determining the relationship between the mudbrick construction and the boulder construction. Currently there is quite a bit of disagreement about whether or not the mudbrick construction is contemporary and tied in with the boulder foundations. One thing is certain: The boulder foundations “inside” the mudbrick structures are dry-laid and of loose compaction, and are installed (cut into?) in/over the mudbrick walls. In other words, there is no doubt that the mudbrick structures were built first, then the “rounded-bottom” boulder foundations (1m+/- thick) were added later. But how much later? This is the operative question, and unanswerable at this time. For some of us it seems that constructing a thick mudbrick wall to serve as the base of a stone foundation is, at least, extremely odd. The mudbrick structure itself is built directly over a massive, and seemingly deep, field of medium-to-large dry-laid leveling-boulders (see photo). A sequence of (a) leveling boulders, (b) mudbrick walls, and (c) stone foundations, built as a single project, makes little or no sense. The mudbricks are full of EBA (perhaps some MBA) pottery sherds as binding. The stone walls in/above it are definitely IA II. It seems most logical to postulate that the monumental mudbrick structures underneath the IA II walls at least belong to an earlier IA phase, or perhaps EBA or MBA. This puzzle will likely sort out as excavation continues next season. Organic samples were taken at several levels and contexts.
c. square UA-15EE

The stratification in 15EE is the same as in 15DD, with the same difficulties regarding the relationship between the (lower) mudbrick walls and the boulder/chink walls build into and over them. Several mudbrick walls exist with plastered faces. There is also an abundance of wattle and daub roofing material present in the collapse matrix representing the inside of rooms and/or chambers. Organic samples were taken at several levels and contexts.

d. preliminary interpretation

It seems that the LH/ER structure represents the final building phase on the upper tall, and it appears from extensive sherding over the entire upper tall that it is the only structure from that period in either Area U or Area L, i.e., virtually the entire site (except for the area off the main tall to the south in the location of the reported “Roman bath complex”) is Bronze Age and Iron Age. There seem to be at least two IA II phases in Field A. The lower construction of orange mudbrick could be an earlier IA phase, or perhaps it belongs to the Bronze Age. Presently, the lowest revealed stratum is unclear as to its dating. All representative phases thus far can be classed as monumental or public architecture.

2. Field B

a. clarification of exposure due to MT

During the last season, it was seen that MT activity in Field B had cut through numerous walls, both stone and mudbrick, as well as floors and deposits of debris-strewn ash. The amount of ceramic debris and range of types from represented periods is impressive. Field B encompasses the lowest level in the “saddle” of the upper tall, and is also the most extensively damaged by MT activity. However, Field B also has a significant
amount of undisturbed surface with evidence of many structures clearly visible.

b. square UB-19U

Trenched through by modern military activity, 19U is a complex pile of tumble and poorly-laid (re-used) stones along its northern third for a depth of about 1m. However, once the surface “mess” was removed, several phases of Iron Age construction became apparent. A cobble surface at about the same level as the cobble layer in 20U (see below) is perhaps an extension of the same road or plaza (see photo above). Some aspects of the larger walls in the square suggest that we may be in a gateway or something related to it. This is a new square opened this season, so future clarification is expected.

c. square UB-20T

20T preserves a complete small room of the monumental IA II building excavated first in 20U. The room was excavated to a depth of about 2m below surface level. At that depth both IA and MBA pottery were present in a mixed locus. Further excavation may clarify the separation between the two periods, as occurred in 20U.

d. square UB-20U

Selected for initial excavation because of the surface visibility of a monumental building foundation, square UB-20U (and adjacent squares opened up during this season) has within its balk boundaries walls of 1m (loci 1 and 6 in the final phase) and 2m thickness (locus 2 in the final phase), the intersection of which forms two inside corners (loci 3 and 4, and subsequent loci within the wall boundaries). The well-leveled tops of wall loci 1 and 2, with reddish decomposed mudbrick tightly packed between the stones, seems to indicate, at least in this square, that the tightly-laid boulder and chink foundation is preserved in its entirety. The pottery associated with the wall foundation is Iron Age II, and exists in several phases. The final IA II phase is delineated by a clear burn layer, the conflagration of which was hot enough to crack large boulders and leave behind many “klinkers” (melted mudbrick and other material). This final phase was built squarely over at least one earlier phase which defined the monumental building at this location.

The first phase of the IA II monumental building was built over a layer of cobbles (20cm to 30cm thick) that seems to form a stretch of road or plaza pavement, associated with a wall-stub of only one preserved course installed over the cobbles. Under that wall stub and cobbles is another wall (at least 1m thick) existing as one
preserved course of large boulders (at an oblique angle relative to the later phases). These are cut into a mixed matrix of decomposed mudbrick, mudbrick fragments, and ash, associated with two earlier walls and a floor with clay-lined silo (see photo above). The pottery associated with these two earlier walls, floor and silo is Middle Bronze Age, and all associated loci seem to be sealed and free from later intrusion. Significant portions of two MBA storage jars and a distinctive piriform juglet were discovered in this context (see photo above). Organic samples were taken at several levels and contexts.

e. square UB-21T

21T was opened this season primarily to extend our excavation of the multi-phased IA II monumental building first seen in 20U. Along with two additional walls from that structure, another building was discovered adjacent to it. This new structure is also from IA II, and contains a well-preserved doorway (see photo).

f. square UB-21W

Last season a 2x2m sounding was made to a depth of just over 3m, and the results were instructive. An Iron Age structure with a plastered stone wall and contiguously plastered mudbrick wall were encountered just below the surface (loci 3 and 4), giving us the corner of a room. The walls ran to a depth of nearly two meters, and ended on a firmly packed layer of mixed debris (locus 6) from 20cm to 30cm thick. Inside the corner of the room to the full depth of the wall were layers of collapsed debris (loci 1, 2 and 5). The sequence revealed the collapse of what was probably a two-story structure: from top to bottom, earth and plaster, the remains of wood beams, and a thick matrix of ash, mudbrick and stone. There was no discernable floor at or near the base of the wall. The pottery was mostly late IA II, giving a clear read on the date of the structure. Under the IA walls and locus 6 was a clean, clear interface with hard, yellowish mudbrick. The yellowish mudbrick were tightly laid and very solid (locus 7), with Bronze Age pottery, EBA mixed with MBA.

Another 2x2m sounding was begun this season, and reached a depth of about 2m. The material in the probe was mostly washed-in sediment and tumbled stones, without any discernable architecture other than the other side of the mudbrick wall unearthed last season. Unfortunately, a rainstorm filled the probe with water, making it too muddy to continue for the balance of the season. Organic samples were taken at several levels and contexts.

g. preliminary interpretation

As seems to be the pattern around the site, the IA was built directly over earlier Bronze Age (EBA/MBA) material, with the conspicuous absence of an LBA presence.

3. Field C

a. clarification of exposure due to MT
There were numerous structures and layers visible after MT cast-up was cleared away in several locations. One location in particular seemed to constitute a hoard of vessels including storage jars and smaller juglets from IA II.

**b. square UC-28J**

This square was placed to include the pottery discovered by MT cleanup. The square is bounded on three sides by MT destruction, but remains as an “island” of preservation. The context clarified rather quickly with the discovery of an *in situ* mudbrick wall (locus 2) laid over the top of the destruction debris (locus 3) containing a pottery hoard. The top of the wall had been destroyed by MT activity. We could not get a good read on the mudbrick wall in the first season. Looking at it this season, it seems to date from the late IA II, but the pottery in the burn layer underneath was definitely IA II A-B. One distinctive vessel from last season was a Cypro-Phoenician olive oil jug, white-slipped, with reddish-brown painting, found nearly intact with only the spout broken. Two small spouted juglets were also found, along with at least ten broken medium-sized storage jars, and that was only within the confines of a 2x2m probe.

This season the square was opened up to its full extent, revealing several phases, all IA II, including a good look at some human remains initially discovered last season, but left *in situ.* The human remains have every appearance and orientation of having been buried when the building containing an abundance of storage vessels collapsed (earthquake? See Dr. Moore’s analysis below). They are just west of a well-laid mudbrick wall preserved to a height of at least 1m. Several phases of an IA II structure were unearthed, including an installation appearing to be some sort of cultic, stone and plaster “table” on a floor, with fragments of several juglets and “chalices” dating to IA II (see photo). The mix of ceramics is interesting throughout this square, as IA II A, B and C (and even a few Persian Period) forms are present, often in the same context. This suggests re-use and remodeling of these structures throughout IA II. The earliest phase seems to be domestic, while the latest phase, and the one prior to it, seem to be cultic,
containing not only the chalices, but fragments of at least one figurine. (see photo above). Organic samples were taken at several levels and contexts.

c. square UC-29P

The house excavated in 29P contained several storage jars, juglets, and cooking pots. Several “hearths” were present, with associated tabun fragments. Obviously destroyed by an earthquake during one of the latest phases, several repairs and remodels were visible, represented by numerous floor levels and wall additions. The residence was obviously rebuilt and re-used over a long period of time. Storage jars were of types used both in IA II A and B. Iron II C forms seem rare and only fragmentary. Underneath the floor of the IA house were the remains of an oval-shaped structure, perhaps Bronze Age (see photo). Organic samples were taken at several levels and contexts.

d. square UC-29Q

29Q contains an extension of the same IA II house excavated in 29P. Doorways and cooking installations are present. A virtually intact cooking pot was found in the ashes of a hearth. A short distance away an intact IA II B storage jar was discovered (see photo). What seems to be a pottery hoard (dump?) was discovered on the final day of excavation, and thus was left for next season. Organic samples were taken at several levels and contexts.

e. analysis of human remains from UC-28J

The remains of two infants and one adult were identified in an Iron II A-B context (preliminary determination of the date). The placement of the remains does not appear to have been an intentional interment. The bones were uncovered in a condition of disarray with the adult bones located with the bones of the two infants as if “at her feet.” Initial speculation is that the building collapsed, trapping the three occupants and crushing them as they fell.

The assemblage of bones was incomplete due to extreme decomposition, and the lower body of all three individuals was mostly missing. The skulls of all three had been crushed into small fragments of bones. Numerous ribs, vertebral bones, and occasional fragments of the extremities and were recovered, separated into anatomic divisions and photographed. Bones of the three individuals were collected separately, as much as possible, but some mixing of the two infants seems to have occurred.

Osteological remains, individual #1:

- Bones recovered:
  - The bones were those of a small, but fully developed, adult.
  - The skull was largely absent with the exception of numerous fragments of the calvaria.
  - Thirty-two ribs and fragments were recovered.
  - The sternum and manubrium were recovered intact.
Fourteen vertebrae were recovered.

The sacrum was recovered intact.

Several fragments of the pelvic bones were recovered, but the pubic symphseal surfaces were absent.

Both distal ulnae, one proximal humerus, and one proximal femur were recovered.

Numerous bones of the hand and foot were recovered.

Portions of the dentition and fragments of the mandible were recovered.

**Interpretation:**

- **Os coxae:**
  - The fragmentary nature of the os coxae and the lack of a pubic symphseal surface precluded a definitive estimation of the age or sex of the individual. However, the iliac crest and the ilium were very thin and delicate, possibly suggesting that the individual was female.

- **Dentition:**
  - Several permanent teeth were recovered, and all demonstrated complete root formation. Most importantly, the right angle of the mandible was recovered with an intact third molar tooth. The tooth was fully formed, suggesting a minimum age of approximately 21 years. In addition, there was modest abrasion of the entire dentition, suggesting an additional several years of wear, so it seems appropriate to speculate an age of 30 years ± 5 years.

Osteological remains, individuals #2, #3:

**Bones recovered:**

- The bones were separated into two collections, but, upon evaluation, appear to have been mixed. Therefore, with the exception of the dental evaluations, they will be listed as a single collection.

- The skulls were crushed and the only bones recovered were fragments of the calvariae.

- Approximately 35 ribs and fragments were recovered.

- Several vertebrae were recovered.

- A large collection of fragments of shattered extremity bones was recovered.

- Numerous deciduous and partially-formed permanent teeth were recovered. Several of these were duplicate teeth, leading to the conclusion that the remains had become mingled.

**Interpretation:**

- The only findings which allowed interpretation of age were the dental remains.
  - **Individual #2** – A partially-formed permanent central incisor crown and a partially-formed permanent first molar crown suggests an age of 2 years ± 8 months.
  - **Individual #3** – A fully-formed central incisor crown without attendant root formation and a fully formed permanent first molar crown without attendant root formation suggests an age of 3 years ± 1 year

**f. preliminary interpretation**
Within only a few meters of UC-28J were found surface finds including a door socket stone and the remains of a cult stand/chalice. Additionally, the MT clarification revealed massive quantities of mudbrick. When you add this to the large volume of storage pottery and painted vessels emerging from the upper levels, one cannot help but think that we are excavating within a temple, palace or administrative center, and that we have landed inside a storage facility of considerable capacity, owing to the fact that at least ten broken-but-mendable medium to large jars and variety of painted vessels and chalices have already been unearthed. This square may also hold key indicators of the nature and date of destruction of the IA city. Analysis is pending on several cultigen and organic samples, which may also allow for C14 dates at some point in our analysis.

4. Field D

a. clarification of exposure due to MT

The MT makes a 3m deep cut through the eastern boundary of the upper tall, effectively creating a 3m vertical section in which several features are discernable. One of these features is a 3+m wide fortification wall that turned out to be IA II in date. But the cut also revealed that the wall was built into and over an earlier packed-earth and mudbrick structure of seemingly huge dimensions. Pottery imbedded in the earthen structure was MBA. At the end of last season it seemed that earthen structure had a facing of hard, yellowish mudbrick on its outer surface, but that was difficult to determine. The clearly-defined glacis associated with the 3m-thick IA II city wall, as well as the wall itself, rides atop the earlier earthen structure, which was obviously thought by the builders of the later city wall to provide a substantial substrate over which to build their towered fortification perimeter. Last season, a deep look at a cross section of at least two fortification systems, one atop the other, in the MT cut provided a key insight into the history of the site. It also gave us a very good reason to place two adjacent squares perpendicular to the city wall line immediately north of the MT cut. This season, that activity expanded to include two additional squares east of 38E, creating a deep trench and further exposing the phases and extend of the fortification systems for both the IA II and MBA.

b. square UD-37E

Dubbed “the kitchen” by excavators last season, UD-37E yielded numerous artifacts of food preparation within a relatively small area of locus 1 (about 2x2m): five grindstones, a mortar and pestle, and a very large IA II cooking pot that could be accurately described as a cauldron. A wall averaging approximately .80m in thickness (locus 4) seemed to define the NE extent of the room. A mudbrick wall (locus 5) seems to bond at a near right angle to the stone wall (locus 4). As the square was taken down through several IA phases this season, it became clear that each of these phases had been at least partially cut into a pre-existing...
mudbrick structure of immense proportions (see photo above). Floors and storage silos were cut into the thick mudbrick matrix of an earlier period. It now seems reasonably clear that that mudbrick matrix belongs to the inside “half” of the MBA fortification rampart which was likely terraced down into the MBA city.

c. square UD-38E

The width of the 3+m city wall (locus 2) is contained entirely within square 38E, thus both inner and outer faces of the wall were able to be exposed last season. As the excavation proceeded, our suspicions were confirmed that (a) the wall dated to IA II, and (b) it was indeed built on and over an earlier, massive structure made of very hard, yellowish mudbrick and compacted earth (loci 5, 6, 10 and 12) laid tightly at right angles squaring with the direction of (what seemed) an earthen rampart and IA city wall. But as large as the 3+m IA city wall is, it is dwarfed in UD-38E by the mudbrick/earthen structure over which it is built. Last season we discovered that the extent of the yellowish mudbrick structure runs at least several meters inside the inner face of the IA wall, and extends beyond the outer face as well. As we had said regarding the mudbrick/earthen structure in the report from last season, “Whatever it is, it is monumental in nature.” But we did not determine the date of the mudbrick/earthen structure last season.

However, this season, with the help of hired local workers over a period of about three weeks, the date and nature of the structure is now clear: It is a typical MBA fortification rampart system of common construction. In order to discover the extent of its height and breadth, we extended a trench eastward (squares 39E and 40E). The results of this decision were nothing short of dramatic. Approximately 9m of the MBA rampart face was uncovered, to a height (or depth, depending on perspective) of 5m (see photo). We did not reach the (typical) revetment wall at the base of the rampart, and we estimate that it could be as much as 3m to 5m lower down, possibly making the full height of the MBA rampart something on the order of 10m, with a 38° sloping

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face of 16m to 18m. The construction is similar to MBA ramparts at both the Amman Citadel\(^6\) and Tall el-Umayri.\(^7\)

d. square UD-39E

See UD-38E.

e. square UD-40E

See UD-38E.

f. preliminary interpretation

In our “Season Activity Report” for the 2005-2006 season, we stated that “The massive mudbrick structure underneath the IA city wall in UD-38E is oriented as if it might possibly be a monumental gateway typical of MBA rampart fortification systems, but for the present that is merely speculation. Only further excavation will reveal its nature and function.”\(^8\) This speculation has turned out to be substantially correct. It is MBA in date. And while this section of the fortification system does not include the gateway, it is a massive rampart typical of MBA city builders. We are still speculating on the location of what would be the mudbrick gate system.

III. STRATIGRAPHY

A. Applied Chronology

We are applying the following general chronology (sub-period phases eliminated for simplicity):

<table>
<thead>
<tr>
<th>Period</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late Neolithic</td>
<td>6000-4300 BCE</td>
</tr>
<tr>
<td>Chalcolithic</td>
<td>4300-3300 BCE</td>
</tr>
<tr>
<td>Early Bronze I</td>
<td>3300-3050 BCE</td>
</tr>
<tr>
<td>Early Bronze II</td>
<td>3050-2700 BCE</td>
</tr>
<tr>
<td>Early Bronze III</td>
<td>2700-2300 BCE</td>
</tr>
<tr>
<td>Intermediate Bronze</td>
<td>2300-2000 BCE (old EBA IV-MBA I)</td>
</tr>
<tr>
<td>Middle Bronze I</td>
<td>2000-1800 BCE (old MBA II A)</td>
</tr>
<tr>
<td>Middle Bronze II</td>
<td>1800-1550 BCE (old MBA II B-C)</td>
</tr>
<tr>
<td>Late Bronze I</td>
<td>1550-1400 BCE</td>
</tr>
</tbody>
</table>


B. Theoretical Stratigraphy for Tall el-Hammam

The stratigraphic profile of Tall el-Hammam had long been suspected,9 but has needed to be confirmed by excavation. The following is a theoretical stratigraphic profile based on observations from extensive sherding, clearing and clarification of MT disturbances, and the results of scientific excavation in both the 2005-2006 and 2006-2007 seasons. Although there have been numerous Late Roman and Byzantine sherds found on the surface in the area of known Roman architecture at the south edge of where the upper and lower talls meet, these periods have not been included here because no excavation has been performed in that location. This stratigraphic profile includes only those periods verified by excavation.

1. Late Hellenistic/Early Roman Period

The Late Hellenistic Period and Early Roman Period seem to be represented at the site, but play an extremely minor role. There is evidence of only one significant structure of such date on the entirety of the main tall. Pottery from either period is relatively scarce.

2. Iron Age

The Iron Age city is quite extensive, but at this point periodization/phasing is not clear. There is some Iron I pottery, but no associated architecture has been identified. The principal Iron Age city at Tall el-Hammam seems to have been built during Iron Age II A-B, but Iron II C sherds are rare at this point, as are Iron III sherds.

3. Middle Bronze Age

LBA structures at the site are currently undetectable, although a few LBA sherds are identifiable. The MBA is strongly represented in ceramics, and accounts for much of the development of the upper tall by way of an earthen rampart system and other monumental features.

4. Intermediate Bronze Age and Early Bronze Age

The EBA city of Tall el-Hammam is unmistakable and massive, but periodization and phasing need to be studied carefully on the basis of future excavation.

5. Chalcolithic Period

Surface sherds and artifacts analogous to those of the Chalcolithic center at nearby Tuleilat Ghassul are not infrequent. However, if a Chalcolithic settlement existed at Tall el-Hammam, its ruins are likely buried beneath the IBA and EBA strata.

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IV. CONCLUSIONS AND RECOMMENDATIONS

The six-week 2006-2007 excavation season has been successful in clarifying many questions remaining from the previous season, 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 managed to clarify a great deal on the upper tall relative to IA II phasing and the clarification of the MBA rampart, but also, the survey, the further building of relationships with local residents, extensive walk-abouts to nearby archaeological sites and features, and the experience of working with the Department of Antiquities, have all come together to build positive expectations for the future of TeHEP. As is now widely known, it was also theorized coming into the excavation that Tall el-Hammam was a reasonable candidate for biblical Sodom, based on a detailed analysis of the relevant biblical data regarding the date and location of the city. Thus far, no data from the excavation contradicts this idea.

We wholeheartedly recommend that The Tall el-Hammam Excavation Project continue into the next season scheduled for winter 2007-2008.