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The Second Season (2012) of the University of Minnesota Duluth Project: Archaeological Mapping at the Early Bronze Age Settlement of al-Lajjūn, Karak Plateau, Jordan

A Landscape Approach to the Early Bronze Age

The purpose of my archaeological work at al-Lajjūn on the Karak plateau is to understand how people lived and made a living in the southern Levant during the period of settlement aggregation in the 3rd millennium BC. The Early Bronze Age (EBA) witnessed a change in land use toward the occupation of larger and fortified settlements and the intensified cultivation of grains and orchard crops. As Philip (2008) has argued, these changes meant that people's routes through the landscape would increasingly intersect the settlements, fields and orchards of other people. The increased investment in fields, tree crops and fortification walls would also have altered people's perceptions of the land. For example, the initial care that tree crops require to reach maturity and the number of years that they can produce fruit may have implications for changes in land tenure as people expected to stay in the vicinity for decades or the entirety of their adult life. Larger and larger numbers of fields would segment the land over a broader area, imprinting the human alterations for all to see. Fortified settlements would be visible from far away and, depending on relations, would be something that navigated toward or away from.

Interest in a landscape approach to the archaeological record includes understanding how people experienced the land as they moved across it gathering resources, conducting ceremonies, producing objects and exchanging items (see e.g. Wilkinson 2003; Cameron 2013). For the EBA in Jordan, this direction has been taken up by Philip and others in a 2003 volume of the Journal of Mediterranean Archaeology. A landscape approach requires us to conceive of people as being engaged in a variety of activities that cause them to experience the land at different scales, in different seasons and for different purposes. Such an approach supplements the richness of the information generated by the intensive excavation of large sites which has allowed us to develop EBA chronologies and to better understand a range of issues such as architectural types, ceramic seriation, exchange patterns and craft production. Connecting data generated from site-specific work with that created by a landscape approach pulls the archaeological imagination out into the spaces occupied by active agents.

Archaeologists disagree over how to define properly the population aggregation seen during the EBA. The development of larger sites than previously known and ones that contain new evidence for large-scale human effort, such as fortification walls, inspired the use of the term 'urban' and city-state to describe the settlement

shift. A newer approach holds that these sites are too small to be 'urban' and the EBA settlement pattern is best characterized as one of larger and smaller agricultural villages (Falconer *et al*. 2007). Another recent approach shifts attention from the size of sites to a discussion of EBA decision-making which places the increased investments in agriculture within cooperative, corporate and kin-based organizational structures (Chesson 2003). See Philip (2008: 161-165) for a thorough discussion of the history and implications of these theoretical shifts.

In the near term, we may find that using terms like population aggregation and dispersion will adequately describe the settlement shift without the meanings embedded within other terms like 'urban'. Using more descriptive terminology will postpone, but not eliminate, the need to deal with other changes in the Early Bronze Age. Labeling an entity as 'urban' or more complex than what preceded it is only the start of what we might like to know. For example, a certain degree of effort is implied by the construction of fortification walls. How were these walls built and maintained by settlements with only a few thousand people? What sort of coordination was needed to build these walls, whilst ensuring that the workers were fed and the rest of the community could continue productive activities that were no less time-consuming? Were corporate, cooperative organizational structures sufficient to get this work done?

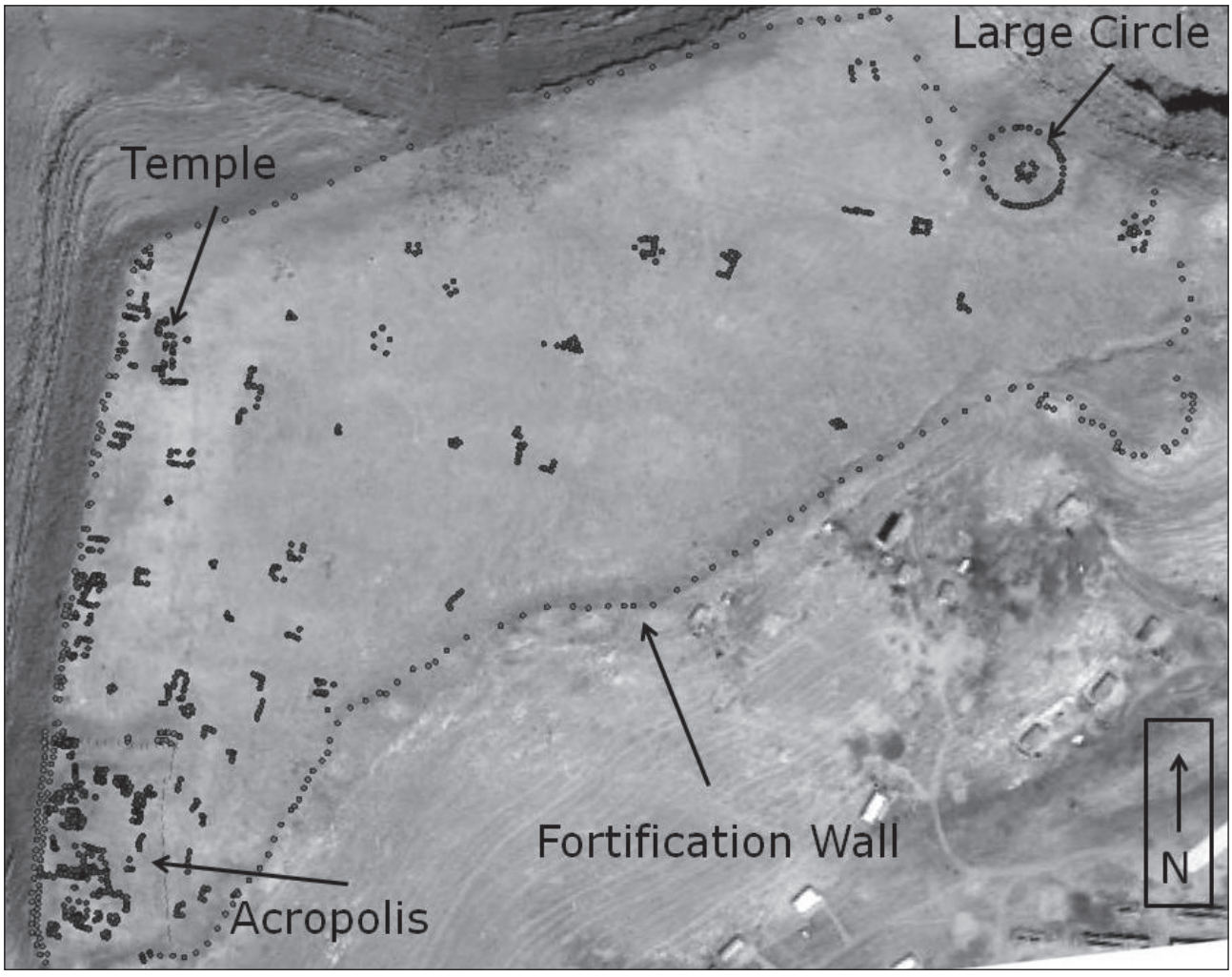
EBA al-Lajjūn on the Karak plateau illustrates the overall problem since it has evidence for large-scale construction projects that lead us to envision a large, well-organized labor force. However, using the common estimate of Middle Eastern population of 200 - 250 persons per hectare, approximately 2,350 - 2,937 inhabitants might have lived at the 11.75 ha settlement. Was this enough people to build such a wall and to carry out the other productive activities needed for them to live? Although al-Lajjūn raises certain questions, it also holds considerable promise to illuminate a variety of subjects related to population aggregation and land use because no subsequent occupation buried the EBA deposits. Many other large southern Levantine sites of this period are buried under many meters of later deposits. In contrast, at al-Lajjūn artifacts and features are visible on the surface of the site and it is possible to collect data on the distribution of activities and the internal layout of the site.

Description of al-Lajjūn and Past Research

Early Bronze Age al-Lajjūn is located in south-central Jordan between Karak and Qaṭrāna (Miller 1991: #239; JADIS #2307001; MEGA #2706). The site-name in earlier published work has been spelled el-Lejjun, with a more recent shift to al-Lajjūn - a usage which agrees with the modern Arabic spelling. MEGA-Jordan lists the site under both spellings. The settlement sits on top of a ridge along the edge of a gorge, with a perennial spring and small watercourse within 150 - 900 meters of the various sections of the site. It lies at the eastern edge of the area in which rainfall agriculture would have been agriculturally productive (Philip 2001).

The best extant map is one done in 2001 based on GPS coordinates which shows the fortification wall, towers, menhir line and a large wall in the south-western corner encircling an area known as the Acropolis (Chesson *et al*. 2005). The extent of the fortification wall, a wall bounding an area on the south-western side and a large circle are also visible on aerial photos and the Google Earth view available through MEGA-Jordan (FIG. 1). The foundations of structures, wall alignments, and pottery and stone debris are visible on the surface of the site. Outside the town wall, along Wādī Lajjūn, are a row of menhirs well-known to archaeological and local communities (MEGA #2974).

Dating based on ceramics collected by two surveys and radiocarbon dating of material from two test units both indicate dates falling in the



1. Google Earth image of al-Lajjūn with fortification wall and selected features marked.

EB II period (Chesson *et al*. 2005; Miller 1991; Parker 1987). Chesson *et al*. (2005) identified 0.4 - 0.6 m of soil deposition in the test units along with lithics, ceramics, and floral and faunal remains including grass pea, common pea, large legume, olive, grape, barley, einkorn, emmer, sheep , goat, gazelle, cattle and donkey (Chesson *et al*. 2005: tables 2 and 3).

My first two seasons of research at al-Lajjūn included mapping artifact distributions and intramural architecture. During the 2003 season, I mapped concentrations of ceramics and chipped stone artifacts in four sampled areas inside the fortification wall to understand the location of intrasite craft production and artifact deposition (Jones 2003, 2006, 2007a, 2007b, 2010). Sherds and lithic tools were present in low but consistent quantities within the sampled areas, suggesting low intensity use and deposition of these items. The lithic debitage proved most revealing of patterns of nucleated vs dispersed production, with concentrations identified in two of the four sampled areas. So, lithic production occurred in nucleated areas in contrast to the low-level deposition of pottery and other lithic debris derived from midden or use contexts. The 2012 season, documented here, focused on identifying architecture within the fortification wall and collecting locational data to map topographic and architectural elements.

2012 Field Methods

We used a Topcon GTS 230 total station to collect locational data to map features and topography across the site. Finer scale details,

e.g. house foundations and other features, were plan mapped on graph paper at a scale of 1:50. We drew features that we deemed gave us a sample of different types, those that were 50 % or more complete (to judge from the surface remains) or those that gave a sense of the dimensions of a building. These are not the only structures that we could have drawn, but are an initial sample showing a range of different forms.

We identified features by one of two transect methods. In the first method, the three-person team walked transects across a defined space 10 m apart marking potential walls and structures with pink flagging tape. We would then confer about what we had seen and use the total station to collect points. This method worked well in areas with dense quantities of loose stone that obscured features and complicated the identification of structures. In the second method, used in areas where rubble or features were not as dense, one team member walked along 10 m transects to locate features, one operated the total station and one drew the plan view maps.

Three issues complicated our identifying features from surface remains and required us to look at some areas multiple times to check our original ideas about the presence, extent or shape of structures. First, there are far more structures present at the site than we anticipated. Second, there appear to be some areas with abutting or overlapping features, suggesting chronological overlap of occupation in these areas. Needless to say, disentangling the walls in these areas was a challenge. Third, in some areas there is a fair amount of loose building rubble on the surface or that has fallen down slope. The amount of rubble impeded our walking in these areas and obscured wall alignments that lay underneath the rubble.

Intramural Architectural Feature-Types at al-Lajjūn

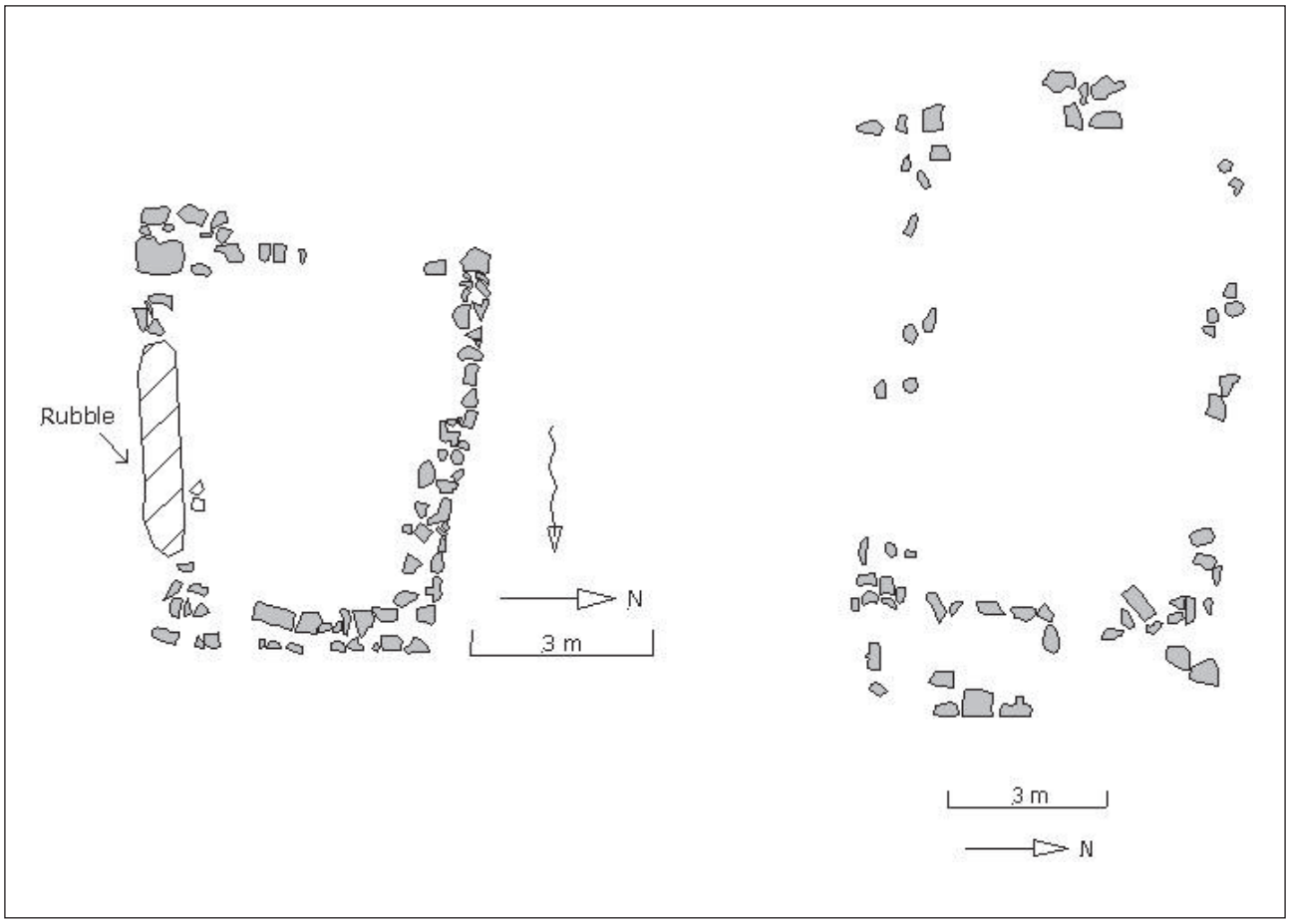
Among the work completed during 2012 was (1) the gathering of data needed to generate a digital map of the topography and natural features of the site, (2) the gathering of locational data for approximately 100 unique features and (3) the drawing of detailed 1:50 scale plan drawings of approximately 25 structures, many of them complete.

Among the nearly 100 complete and partial features are the following: (1) rectilinear, single or multi-room structures, (2) tombs. (3) possible cisterns and (4) terraces. Unique features at the site include: (1) a long narrow building at the peak of the site which is likely to be a temple and (2) two large stone circles, one 32 m in diameter inside the fortification wall and a second, smaller, 15 m-diameter circle above the spring.

Single and Multi-Room Structures

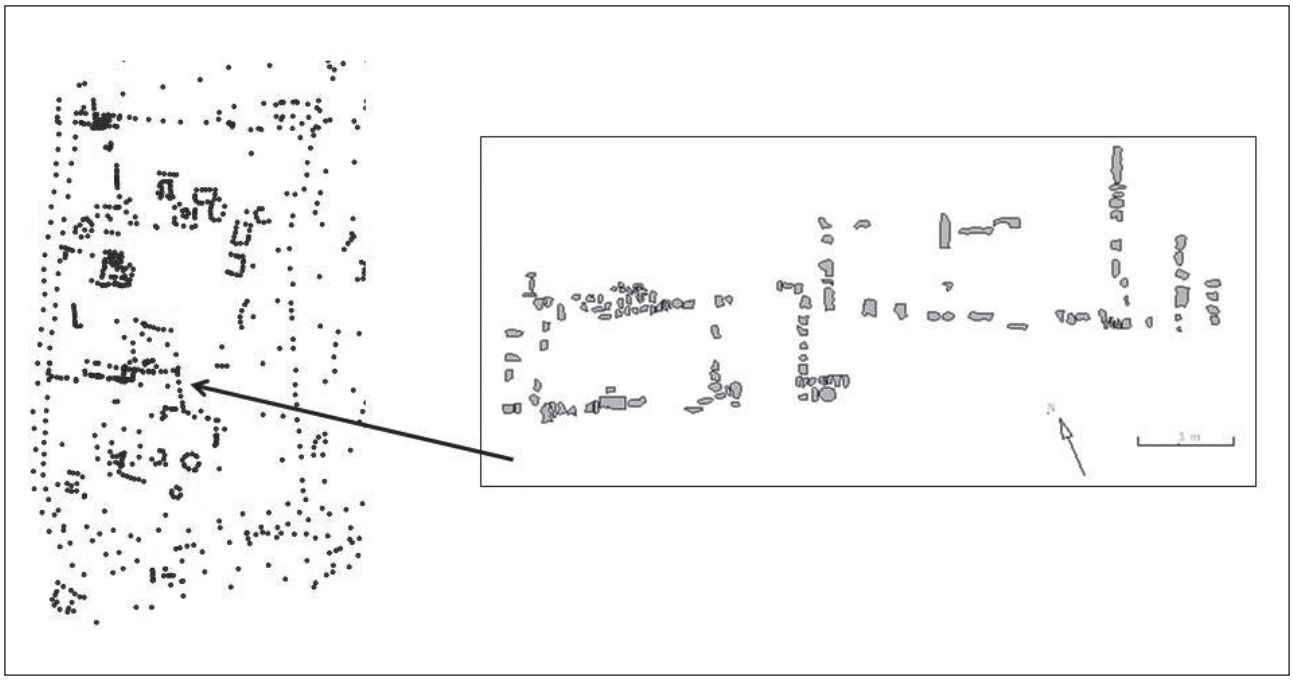
We identified single and multi-room structures in three areas of the site: (1) in the south-eastern quarter of the site nearest ʻAyn Lajjūn, (2) in the flat area along the entire western side of the site nearest Wādī Lajjūn and (3) in the south-western corner of the site which is bounded by stone walls and has been called the Acropolis for decades. These rectilinear structures were built either from slabs of stone set up on end or from courses of stone laid two stones wide. These two types of construction occurred together in a few structures so the chronological or functional significance of the two construction types is not yet clear.

Complete structures have up to three rooms and range in interior length from 6 - 11 m and in width from 2.5 - 5 m wide (FIGS. 2 and 3). Two are attached narrow end to narrow end, the south-west corner of one connecting to the north-east corner of the other (FIG. 4). Outside of the Acropolis, structures are not as dense and many appear to be freestanding. One two-room structure along the *wadi* edge has two adjacent one-room structures that may be outbuildings (FIG. 5). The main building was identified, mapped and two units test excavated within it

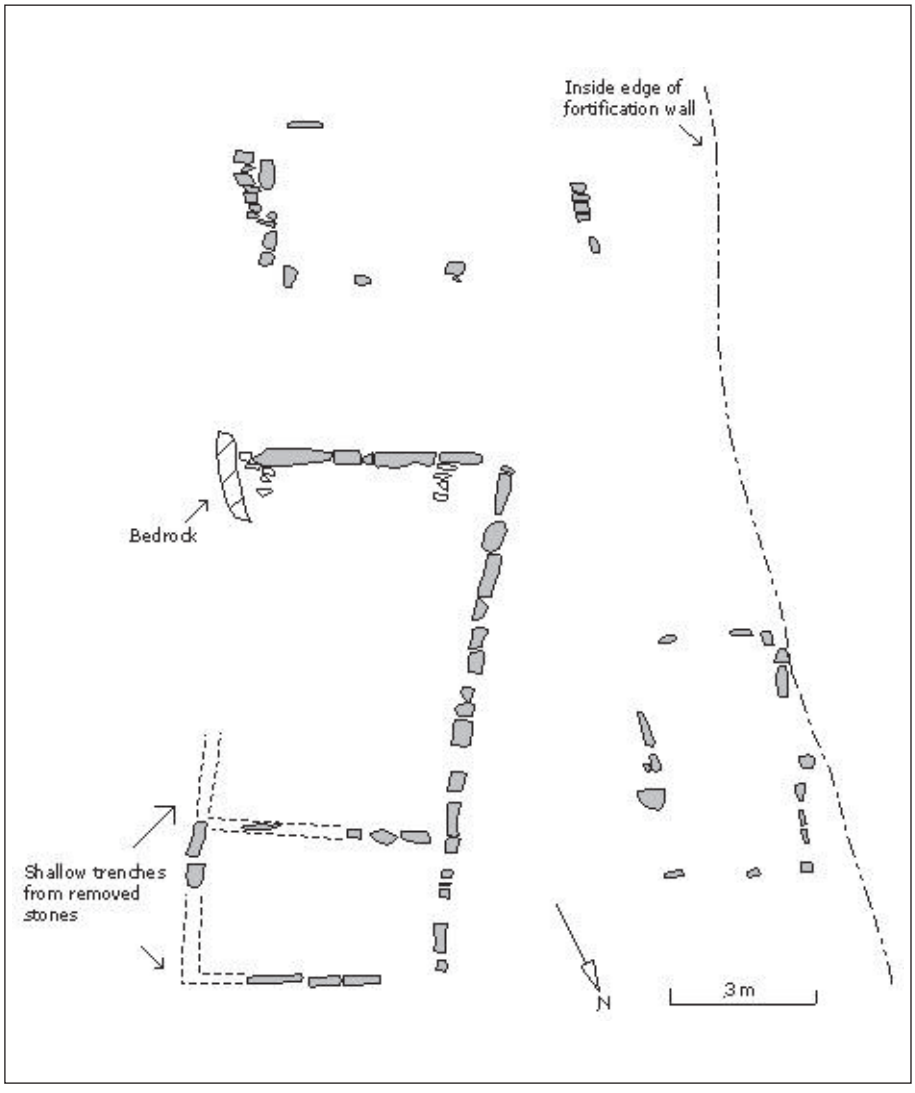


2. Examples of single room structures.

3. Examples of multi-room structures.



4. Two-room structure with two adjacent, single room buildings.



5. Acropolis area showing outline of wall, density of features and plan of two adjoining, multi-room structures.

by a previous team (see Chesson *et al*. 2005: fig 16). The one-room buildings are newly identified, as are two internal features on the south end of the two-room building that may be part of a platform or supporting structure for pottery.

Given the mix of domestic and public structures found at other EBA sites, it is premature to assume that all rectilinear features at al-Lajjūn are houses, although it is likely that many are domestic in nature (Ben-Tor 1992). See for example the remarkable finds recently reported from a 'palace' at Khirbat al-Batrāwī that is in form similar to other domestic structures, yet contains a decidedly non-domestic mix of pottery and artifacts (Nigro 2010). Given the large number of complete and fragmentary buildings at al-Lajjūn, we can likely expect to find ones with a variety of functions. Excavation will be needed to verify the function and building sequences for individual structures.

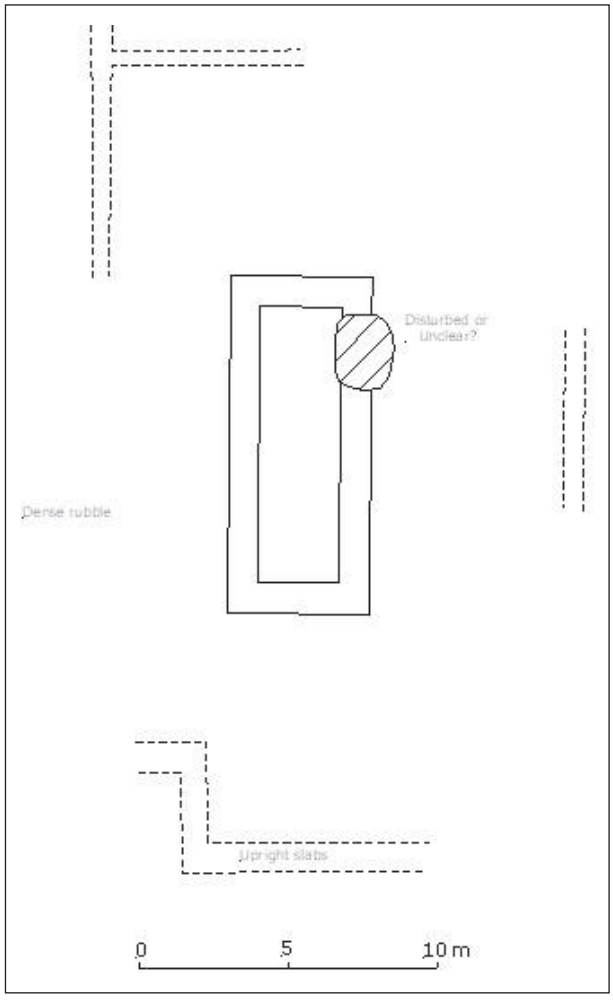
A Temple

Close examination of a large rubble field at the north-west corner of the site, near where the fortification wall bends to follow the topography of the hill, showed the presence of a structure that appears to be a temple (FIG. 6). The modern quadrangle map shows this part of the hill to be 928 m above sea level. Among the rubble around the temple itself, we could see sections of other walls that may be portions of the surrounding walls identified at other Chalcolithic and EBA pillared temples (Kempinski 1992). We did not see a circular feature that could be an altar, but the rubble area is densely choked with stones. This is a substantial and important public building at the site and merits excavation to confirm its boundaries and internal structure.

In terms of external dimensions, the most visible part of the temple structure is 12.7 m long and 4.7 m wide. The internal space is approximately 10.7 m long and 2.8 m wide. The stones laid in the 1 m-wide walls are large for the site, as large as any stones in the fortification wall (0.8 m). The building is oriented east-north-east to west-south-west, roughly parallel to the edge of the site which lies a few tens of meters to the north. The wall remnants around the temple are either large slabs set on edge or double laid stones; in the latter case the walls are narrower and built of smaller stones than those in the temple itself (0.3 - 0.4 m). Defining the exact dimensions of the surrounding wall is not possible at this point, but visible wall sections suggest possible dimensions of 27.5 m length × 15.3 m width, with the temple located in the approximate center.

Tombs

Tombs are marked either by standing slabs of



6. Temple schematic showing central, linear building and portions of the possible enclosure wall.

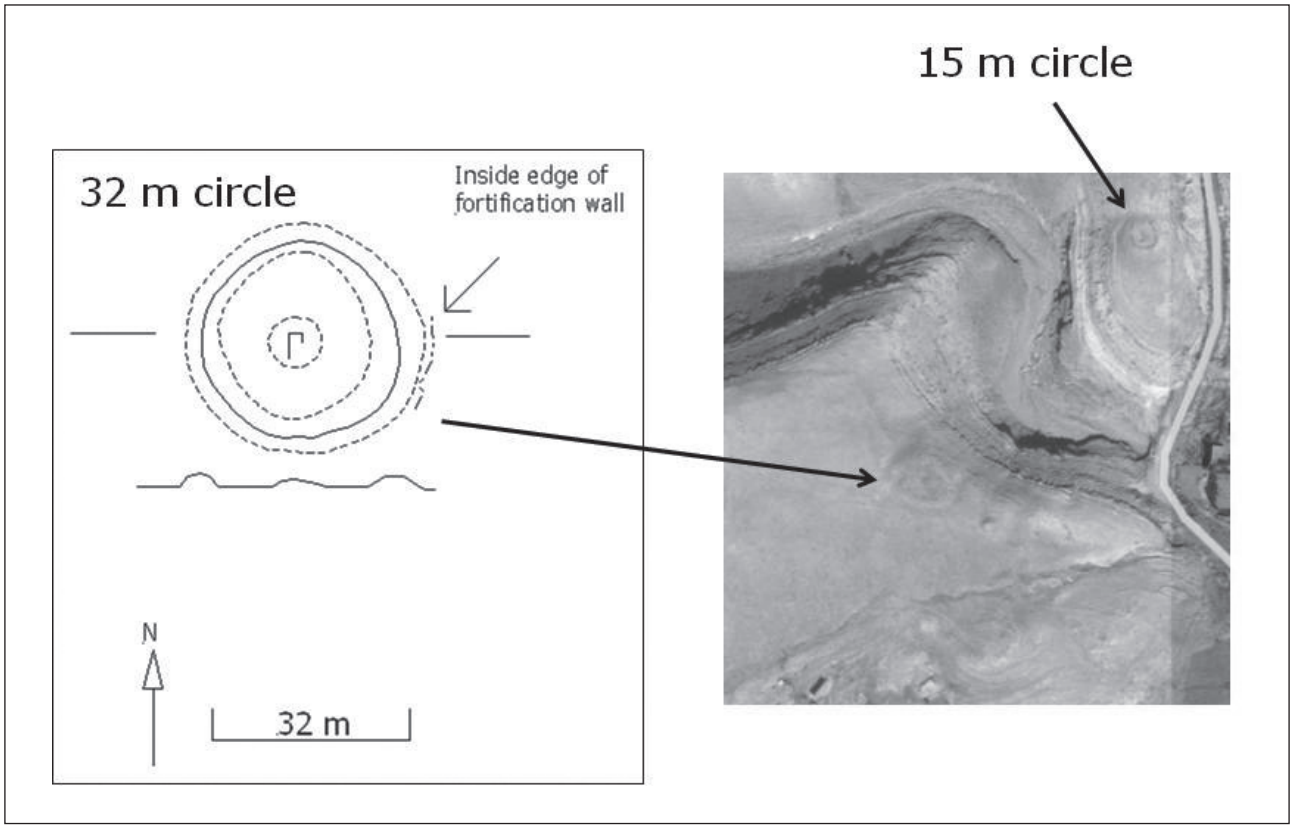
stone (0.6 m high) or by narrow rectangular slabs at ground level (forming spaces about 1×1.5m) that are surrounded by circles. Either type of tomb appears to be of individual internments because the central or internment areas are 1 - 2 m in size. Many are already disturbed but a few look intact. The amount of rubble associated with a tomb varies, with some being marked by a slight circle of rock rubble while, for others, any stones that had been piled up have been scattered across the ground. Tombs are scattered across the site, with some perhaps placed in abandoned structures while others appear to be in areas of sparse occupation.

Cisterns and Terraces

We identified four possible cisterns, including: (1) one in a bedrock cave-like area and (2) three that appear as flat lying areas with fine-grained soil in several of the down slope areas of the site. We did not find as many terraces as might be expected on a site with up to 50 m of elevational difference. The terraces that we tentatively identified lie on the southern slopes of the site and consist of linear piles of stone (*ca* 1 m wide and up to 15 m long) that tend to run perpendicular to the slope.

Large Stone Circles

One large circle lies in the north-eastern side of the site and is visible on the Google Earth view available via MEGA-Jordan. It was a known, though not well-understood feature before the 2012 season. Examination at ground level reveals it to be a square stone feature within a large circle (FIG. 7). The outer ring is 32 m in diameter and 1.1 m wide, constructed of single or double laid stones that are each 0.4 - 0.5 m in size. The ring can be traced around most of its circumference and is surrounded by stone rubble that is itself 2 - 4 m wide on either side of the wall and formed of stones 0.1 - 0.2 m in size. Thus, a 4 - 9 m ring of rubble forms the most visible part of the large circle and this width makes the feature strikingly visible, even from the air. In the center of the circle is a 1 × 1.5



7. The large circles: Plan of the 32 m circle and Google Earth image showing its location and that of the 15 m circle.

(minimum) m rectangular feature preserved at ground level, centered within a 12 - 15 m diameter area of stone rubble. Superficially, such a rectangular feature, presumable covered by stone and enclosed within a circle, resembles a tomb. Only excavation will reveal the function of this feature but, on the basis of the surface remains, there are no intersecting straight walls as seen at Conder's Circle.

The second circle is 15 m in diameter and lies outside of the fortification wall above the spring adjacent to the modern road (FIG. 7). It was identified during the 2012 season as a new site and entered into MEGA-Jordan as 'elLajun Stone Circle' (MEGA #59036). The circle is built of large stones 0.4 - 0.6 m in size that were laid 0.65 m wide. Similar to the 32 m circle discussed above, in the middle of the 15 m circle are several vertically oriented slabs of rock forming one corner of a rectangle that is a minimum of 0.8 - 1.2 m in size. The size of the stones, their shape and composition, the dimensions of the corner at the center and the width of the wall, all resemble the architecture at the EBA site. Excavation will be needed to confirm a date for the feature as it has been scraped clean of rubble and artifacts, possibly by road construction equipment.

The Fortification Wall

Most of the fortification wall and towers are visible on the surface and form a clear boundary (FIG. 1). In some areas it is still preserved up to three or four courses high. In the western two-thirds of the site, the fortification wall appears to be a straightforward feature with rectangular towers at irregular intervals. The eastern quarter, especially the section facing the spring, presents a more complicated picture with multiple, adjacent wall lines suggesting that segments may have been added over time. Because we concentrated on investigating internal features at the site, this season we limited our investigations of the fortification wall to collecting points to map its outline.

The Acropolis

The area known as the Acropolis is on the south-western part of the site within the fortification wall and deserves special mention. Its walls are as wide (1 - 1.5 m) as certain segments of the fortification wall and enclose a rectangular area approximately 100 m long and 60 m wide. The area inside is choked with small rubble and alignments of stone that we now know are structures and tombs. During the 2003 artifact survey, no concentrations of ceramics or debitage were identified at the Acropolis. Thus, lithic manufacture was not occurring on a sufficient scale to leave debitage behind, and deposition of ceramics was similar to the other areas sampled in 2003.

This area has been called the Acropolis since its identification in earlier surveys. An acropolis typically denotes the highest part of a site, which also tended in Near Eastern cultural systems to have structures related to official, administrative or 'palace' activities. The al-Lajjūn Acropolis is tucked into the south-western corner of the site; the entire 300 m long western side, including 200 m outside the Acropolis, is essentially the highest part of the site (within 3 m difference in elevation). The Acropolis is not, technically speaking, the highest part of the site and at this point we have no idea what functions the buildings inside it may have had. None of the structures within it, which appear to be single or multi-room structures, were notably large nor were their walls thicker than structures in other areas of the site. To infer administrative or palace-type functions at this point is therefore premature. We can see that the Acropolis is fortified and densely choked with walls, structures and tombs. It may be that this was the first area occupied at the site and so merited a substantial wall. Likewise it may have housed people of certain standing or wealth. Only excavation will clarify the issue.

Discussion and Conclusions

The architectural detail present at the site far exceeded my expectations. Although multi-

room structures and temples are noted at other EBA sites and are not unique *per se*, the number of complete examples at al-Lajjūn that can easily be excavated is far more than I imagined would be present. This will allow us to sample structures from across the site to get a better sense of the chronological development of the settlement, as well as any intramural difference in the status of the occupants or function of the building. The complete exposure of the surface of the site, combined with the number and diversity of structures identified so far, surely establish EBA al-Lajjūn as a valuable laboratory for using intrasite spatial techniques to better understand intramural architecture layout and activities. These aspects, combined with the age of the site and the type of research questions that can be asked about population aggregation in the 3rd millennium make al-Lajjūn an important site within Jordan.

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