

EASTERN BADIA ARCHAEOLOGICAL PROJECT (EBAP): 2018 AT WISAD POOLS*

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The Eastern Badia Archaeological Project (EBAP) began investigations at Wisad Pools in 2008 and 2009 when our small team focused on surveying the area, recording the locations of chipped stone concentrations, structural features, and petroglyphs. Our multiyear project alternates exploration of Wisad Pools and the Wadi al-Qattafi region.

The survey seasons at Wisad in 2008 and 2009 demonstrated that while the core of the area was about 1.5 × 1 km, the greater vicinity contained structures across a region measuring approximately 4 km N-S × 3.5 km E-W (Rollefson, Rowan, and Wasse 2008, 2011, 2014). In the core area, we recorded more than five hundred structures using handheld GPS devices. We originally assumed many of these to be mortuary structures, alongside the many animal enclosures and smaller hut-like buildings.

In 2011 we undertook the first excavations at Wisad. Assuming that we were investigating a tomb preserved to a height of about 1.5 m, we soon realized that what we were excavating was not a burial structure at all, but a corbeled building with a central standing stone (W-66). Patches of gypsum plaster floor were preserved, and an alcove on the edge above the interior floor had at least four different plastering episodes. From these plaster layers, a radiocarbon date of 6530 +/- 70 cal BC confirmed the Late Neolithic dates indicated by arrowheads and a Yarmoukian ceramic vessel sherd. The central standing stone presumably supported a low corbelled roof, and a cache of basalt pestles was found tucked under the wall (Rollefson, Rowan, and Perry 2011; Rollefson, Rowan, Perry, and Abu-Azizeh 2012). This structure was our first indication that the many collapsed structures at Wisad Pools might not be mortuary in nature, but used for living and working.

In 2013 we initiated excavations of W-80. Initially, W-80 appeared to be a large mound of basalt blocks approximately 12 m in diameter preserved to a height of 1.94 m above local ground level. Visible in the collapse of the basalt slabs was a wall alignment 3 to 4 courses high that was mostly curved, but that also had a rectilinear section on the eastern side of the mound. This proved to be a much later tomb constructed on top of the earlier Neolithic structure below. To the west of the mound, an arc of basalt slabs set on edge formed a semicircular wall that enclosed a forecourt of the structure. Our crew was larger than in 2011, and we were able to move an immense amount of both basalt and sediment. Nevertheless, the size of the mound was such that we were not confident that we could excavate the entire building in a single season, so we focused on the southern half, leaving the northern portion of the structure as a stratigraphic control and for future investigations.

In 2014 we concentrated on excavating the northern half, following natural, cultural, and arbitrary archaeological layers/levels. The interior of the visible walled part of the mound was filled with basalt blocks of varying sizes, ranging from several tens of kilograms up to a half ton. An upper wall was part of a tomb, disturbed (perhaps looted) in the past. Although there were human bones in the sediment, they were no longer articulated, and quickly disintegrated. In addition to the artifacts recovered from the 2013 season, in 2014 we recovered a bronze arrow point, a silver (?) ring or earring, a copper finger ring, two more cowrie shell beads, and more carnelian beads. Based on parallels

*Addendum. Published online February 5, 2020.

to these finds, we now believe that the age of the burial remains is probably early Iron Age (Rowan et al. 2015a, 2015b), further supported by the technical analysis of a glass bead (Dussubieux et al. 2018).

Below this mortuary use of W-80, we continued to expose architecture. As was the case of W-66 excavated in 2011, the structure seemed to be used after it collapsed, perhaps as a windbreak for various tasks (butchering, flint knapping, and bead production). Some of the collapsed roof slabs were set on edge to subdivide the area inside the house walls, and one alcove was created in the southwestern corner of the building for some as yet unknown purpose. A low bench or platform was also installed along the interior of the southern wall. But the building no longer served as a residence in view of the amazingly rich amount of animal bone in the sediments; the faunal remains included a considerable focus on gazelle, but larger animals such as onager and *Bos* were also present in addition to small amounts of domesticated sheep/goats. Of interest is the relative importance of bird bones and gizzard stones, possibly suggesting that the occupation of Wisad extended into the spring migration period from Africa to Eurasia. Other activities carried out in the windbreak included grinding (based on many grinding stones, including a cache of three massive basalt pestles in one niche), bead manufacture, and stone tool manufacture (including the production of arrowheads, knives, and scrapers).

Below this last use of the collapsed structure, excavation revealed an elaborate complex that underwent a series of renovations and changes to the earliest use of the building. Large grinding slabs with “cupmarks” were especially prevalent in the northern half of the building. Arrowheads were numerous, particularly transverse arrowheads (almost 90 percent of the recovered arrowheads). Several hundred cores clearly indicate that stone tool production was a major pastime in this structure, with drills and borers being especially popular, as were endscrapers, sidescrapers, cortical scrapers and knives, and denticulates and notches.

It seems likely that this was a corbelled house, in part, that parallels the somewhat similar dwelling W-66, dug in 2011 (Rollefson et al. 2012), although W-80 is much larger and more multifaceted (fig. 1). A west-facing doorway (e) was located, leading from the interior of the structure onto a small “porch”-like area (f) that may have been an outdoor food processing (suggested by grinding stones) area protected from the wind by a low wall of basalt slabs set on edge. The porch itself was also surrounded by a walled compound or forecourt (g) farther to the west.



Figure 1. Overhead view of W-80 (view to northwest): (a) eastern doorway, (b) blocking of the opening in the north wall, (c) central pillar, (d) the alcove, (e) the western doorway leading to (f) the porch, (g) the western forecourt, and (h) sondage.

THE 2018 SEASON AT WISAD POOLS

The primary objective of the 2018 season was to continue the excavation of structure W-80, hopefully to the earliest phases of occupation and building. In addition, we hoped to investigate a pen and house structure, a feature quite different to W-80 and W-66, but potentially similar to features examined at Wadi al-Qattafi. This was done to examine whether or not hut and enclosure compounds appear relatively late in the Late Neolithic sequence, as proposed by Betts et al. (2013, 189). For this, we selected a structure designated W-400, 600 m to the north of W-80.

We were unable to reach the earliest floor of the original W-80 structure in 2014, and so our objective for the 2018 season was to complete the excavation of the interior cultural deposits, and hopefully examine other aspects of building and reconstruction of the structure, including exterior additions. Initially, this seemed a simple task, but the deposits and complexity of W-80 continue to surprise us.

Our initial aim was simple: to complete excavation of the structure by careful removal of what was believed, on the basis of a 1 × 1 m sondage excavated in 2014, to be the final 20–30 cm of cultural deposit remaining within W-80 above the natural, sterile sediment. However, it rapidly became clear that these last remaining cultural deposits were associated with an earlier Late Neolithic phase of the structure that had undergone considerable architectural modification prior to the accumulation of the later Late Neolithic deposits excavated in 2013 and 2014, especially in the area of the two doorways. The first task of the 2018 season was therefore to determine the architectural layout and extent of W-80 in its earlier Late Neolithic iteration before the deposits of that phase could be removed. A 1 × 1 m grid was dropped into the structure, and excavation proceeded by subdividing the single-context record into 1 × 1 m squares excavated in 5 cm spits. As has been the case since 2013, all sediment was dry-sieved through a 5 mm mesh. Numerous flotation samples were also taken.

This substantial structure was repeatedly occupied, abandoned, modified, and rebuilt over a prolonged period. No two sections of wall were built exactly alike, and in the later stages of use, the internal space of W-80 was increasingly subdivided. In some cases, deep cuts were made into earlier deposits in order to erect internal dividing walls using substantial upright basalt slabs. These reconstructions and mixing of deposits make it difficult to understand the sequence of building and changes across the structure. Nonetheless, after three seasons working on the structure, some general observations about the stratigraphy and phasing is possible.

Our first order of business was understanding the doorway on the northeast, exposed in 2014. The narrow (ca. 70 cm wide) entrance is associated with the later phases of the structure and was apparently created by blocking a much wider entrance (ca. 2.4 m), possibly paved (fig. 2). On the outside section of this blocking, a partially paved activity area (or platform) seemed to be used as a work area. When this blocking wall was removed, a large, pierced mother-of-pearl pendant was found secreted at the base of the narrow, later Late Neolithic entrance (fig. 3).

The earlier Late Neolithic phase within W-80 deposits proved different from the later Late Neolithic deposits excavated in 2013 and 2014. Instead of the large grinding slabs and deep firepits associated with the latter, the former consisted of multiple short-lived, stone-lined hearths, fire-cracked rock, and associated pale ash deposits in the southeastern quadrant of the structure, with darker occupation and activity deposits (associated with heavily worked cores and small grinding stones) elsewhere. The abundance of ashy refuse in the interior suggests that refuse disposal may not have been a priority, possibly reflecting relatively intermittent use and concomitantly low site-occupation intensity (Munro 2004, S7). All this activity, likely the result of short-term seasonal visits, seems to have badly damaged a gypsum-rich surface laid within W-80 at the start of the earlier Late Neolithic phase. As a result, this surface was only preserved around the perimeter of W-80's interior and in isolated patches within the main activity areas.



Figure 2. View of later phase entrance to W-80, narrowed by blocking stones behind the meter stick. Platform visible behind blocking stones on the northeast exterior.



Figure 3. Perforated mother-of-pearl pendant, found tucked behind northwest jamb of doorway. Photo: G. O. Rollefson.

Within W-80, a substantial irregular pit containing a large number of equid cranial fragments and teeth was cut through the early LN / later LN deposits in the area between the southwest doorway and central pillar. This pit was at least secondarily associated with the erection or underpinning of the central pillar and north wall of the alcove (Rollefson et al. 2013, 12, figs. 6, 7a) and is one reason for our imperfect understanding of whether or not these architectural elements were part of the early LN / later LN structure. Hopefully additional radiometric samples will shed light on the matter.

There is good evidence (Rowan et al. 2015a, fig. 5) to suggest that a corbelled basalt-slab roof existed over at least part of the southeastern quadrant of the structure during this phase, probably utilizing the central pillar as a support. It seems unlikely this extended over the

entire structure, suggested by the lower volume of potential roofing slabs in the north half. Nevertheless, it does seem probable that—at the very least—a cantilevered overhang of large basalt slabs existed around the internal perimeter in this area. Such a construction would have provided shelter from the elements for stored items.

Paving seems to characterize the later phases of the building, although earlier paving may have been removed and repurposed. Paved areas or low benches were built along the northern and south-eastern internal wall perimeter (Rollefson, Rowan, and Wasse 2013, 12, figs. 6, 7b) of the main structure. External areas such as the “porch,” the alcove, and the area inside the southwest entrance all seemed roughly paved.

Whether or not there was an intervening lapse in occupation before the later LN activity remains unclear. Moreover, we remain uncertain how long it endured, or if occupation was continuous or intermittent. Two radiometric dates are attributed to this phase: 5765–5670 cal BC from a fire pit southwest of the central pillar; and 5710–5570 cal BC from a slightly later subphase (Rollefson et al. 2018, tab. 2). This later phase began with remodeling of the building that included the narrowing of the main northeast doorway (Rowan et al. 2015a, 4, 6, fig. 12) and possibly the narrow, secondary doorway on the southwest side. That secondary doorway provided access to the external area that we often referred to as the “porch,” with the in situ cupmark on a grinding slab in the center (Rollefson, Rowan, and Wasse 2013, 12, figs. 6, 9b). The “porch” in turn, leads to the larger west enclosure. We still must establish the relationship with these external areas to the phases of building.

Considerable careful work was done around the central standing stone in the interior of W-80. Buttressing stones were certainly placed around its base at the start of the later Late Neolithic phase, suggesting that the standing stone was part of the earliest Late Neolithic architectural plan, maintained through centuries of interior use and rebuilding. What was discovered, however, was a foundation deposit directly under the buttressing stones. This consisted of multiple gazelle mandibles and cranial fragments placed carefully at the base of the standing stone (fig. 4).

In an intriguing twist, it was discovered in the final days of the 2018 season that the earlier Late Neolithic deposits within W-80 do not represent the earliest phase of the structure. Separated from these deposits by 10–15 cm of aeolian deposit and in-washed natural, likely representing a temporary abandonment of the structure, was an underlying, very substantial paved surface, consisting of smooth basalt slabs, some up to 1 m in length. Some of these slabs underlay the base of the interior face of the southeast wall of W-80 by up to 18 cm and, indeed, seemed to run under those wall slabs. The relationship of this paved surface to the structural components of W-80 exposed so far remains to be determined.

Analysis of the chipped stone assemblage by Gary Rollefson suggests that over eight



Figure 4. Deposit of gazelle cranial elements and mandibles at base of central pillar. Note typical disturbance by *Polyphylla* sp. beetle larvae. Photo: B. Heidkamp.



LEFT: Figure 5. Haparsa points from W-80. RIGHT: Figure 6. Red ochre block found immediately inside the W-80 northeast doorway. Photos: G. O. Rollefson.

hundred formal tools were recovered during the 2018 season at W-80. Blanks for formal tools are predominantly manufactured from blades and bladelets, while flakes make up the majority of other blanks. A small number of formal tools were made on older recycled flakes and cores. Projectile points are a substantial percentage of formal tools, yet fewer than the upper layers of the structure excavated in 2013 and 2014. Still, like those later phases, two thirds of the arrowheads are transverse arrowhead types, a form not found at the Wadi al-Qattafi structures excavated by EBAP. Haparsa arrowheads were the most common, non-transverse form (fig. 5). Other tool types, particularly burins, drills, and scrapers are represented in low to medium levels, which Rollefson points out is consistent with the samples from the earlier excavations. Additional details about the chipped stone assemblage from 2018 will be available in the upcoming publication in *Neo-Lithics*.

As in past seasons, handstones dominate the ground stone assemblage excavated in 2018. At W-80, the highest relative frequency of ground stone items (44 percent) is also handstones made of basalt. Grinding slabs and grinding slabs with a cupmark, also of basalt, are next in terms of frequency. Nonetheless, the very large grinding slabs with central cupmark are less common as in the later phases of the structure. A small percentage of ground stone artifacts from W-80 are not made of basalt. Smaller, thin-worked pieces of sandstone, about 14 percent of the ground stone assemblage from 2018, appear to be palettes or small ground stone fragments.

A few finds are notable. One is a particularly large block of red ochre (fig. 6) that weighs 580 gm. Not only is this large, but this has numerous broad negative flake scars on both surfaces. Ochre potentially serves a variety of purposes, from hide tanning to polishing decorative objects and as a mastic for hafting stone tools. Another special find is the perforated plaque of mother-of-pearl mentioned above. Although fragments are commonly recovered at Wisad, the nearly complete state and the hidden nature of its find spot suggests something special to the original owner(s). A similar object, identified as *Unio* sp. freshwater mussel of similar dating was recovered at El Kowm 2 in the Syrian steppe (Stordeur 2000, 201–11, fig. 2a, 304, fig. 1).

The placement of these finds underscores a phenomenon that has been noted since excavation started in 2013, the intentional deposition of specific items, particularly relative to the entrance and the central pillar. The ochre, for example, was discovered set vertically immediately inside the doorway. Nearby, the mother-of-pearl pendant was set in the wall adjacent to and slightly above the same threshold. Somewhat higher (ca. 18 cm) than the red ochre, a cache of gazelle astragalae (Rowan et al. 2015a, 6, fig. 11a) were recovered, clearly cached next to the doorway. A similar cache

of gazelle/caprine astragalae was deposited at the base of the pillar (Rowan et al. 2015a, 6, fig. 11b), where the earlier gazelle cranial fragments and mandibles were discovered (fig. 4). In this area a polished macehead fragment and bone spatula were also recovered. These deposits were not only intentional, but established in specific places within the structure, and places that endure through time because they were not all in the same phase or stratum.

W400

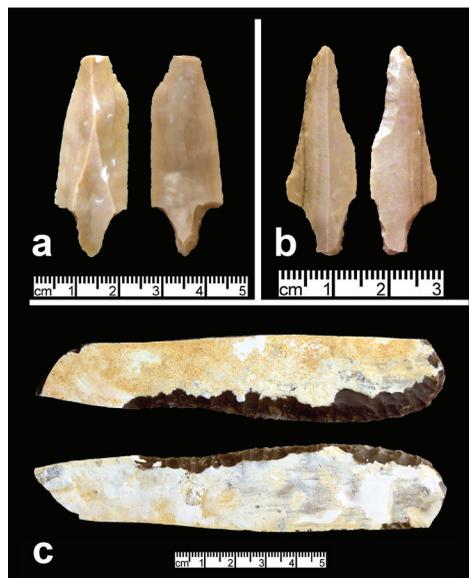
Due to the primary focus of work on W-80, our excavations at W-400 were limited in scope (fig. 7). This complex was selected because it was an unlooted, smaller building attached to an animal pen—a configuration we identified during our research along Wadi al-Qattafi (Wasse et al. 2012). Figure 7 shows the sectioned structure, with northern excavated area and minimal collapsed basalt slabs, indicative of a much more modest structure than W-80. Only a relatively small amount of sediment was excavated, and the number of chipped stone artifacts was low. They included two Badia points and a bifacial seam knife (fig. 8), the latter a close parallel to one from Late Neolithic Dhuweila (Betts et al. 1998, fig. 4.28: 1). Small finds were also limited in number, but included clinopyroxene spheres, carnelian chunks, Dabba marble fragments, a small fragment of red ochre, and two stone beads.

Although the material recovered from W-400 is indicative of a Late Neolithic date for this structure, whether this structure is contemporary with, or overlaps with the other LN structures (W-80, W-66), remains to be determined. The two Badia points hint at closer affiliation with the sites at Wadi al-Qattafi (Rollefson et al. 2016, table 2, fig. 7, 2017, table 5, fig. 7c–d), and the attached enclosure hints at use by herders. The distance of W-400 some distance north of the pools is perplexing; whether herders or hunters, one would assume close proximity to the water in the pools would be of key interest. Perhaps that space was occupied? This is a question we hope to answer with additional dates and excavation.

Our understanding of the Late Neolithic in the Black Desert has been transformed since launching the EBAP ten years ago. The situation at Wisad Pools indicates that the development of pastoral-hunting exploitation of the desert/steppe area was far from tentative. Combined with the Eastern



LEFT: Figure 7. Overhead view of W-400, looking north. Pen, attached to structure, is to right of photo. Photo: Y. M. Rowan. right: Figure 8. (a), (b) Badia points from W-400, and (c) bifacial seam knife from W-400. Photo: G. O. Rollefson.



Badia Archaeological Project's investigation of the pastoral settlements among the mesas in the Wadi al-Qattafi, a more exciting picture of what the *badia* was like eight thousand years ago is emerging with greater clarity, as well as the strategies that the new inhabitants were evolving to take advantage of this underutilized resource area during a time of socioeconomic and environmental uncertainty in the farming areas to the west. We are increasingly convinced that the changes at Wisad Pools and Wadi al-Qattafi are not idiosyncratic desert shifts, but reflect much wider regional processes extending from upper Mesopotamian and Levantine desertic space. Indeed, our evidence is increasingly suggestive that Wisad Pools and Wadi al-Qattafi, rather than backwater margins, may have been on the crossroads of the steppe and important nexuses for cultural exchange during at least part of the Late Neolithic.

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