TOR GHUWAYR 1-3: SURVEYS AND EXCAVATIONS OF TAILED TOWER TOMBS IN THE NORTHEASTERN EDGE OF THE JAFR BASIN, SOUTHERN JORDAN

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Introduction

As referred to elsewhere in this volume, the first three field seasons of the Jafr Basin Prehistoric Project (Phase 5) aimed to refine the Jafr chronology, a basic framework which traces the process of pastoral nomadization in southern Jordan (Fujii 2013). Two sites were examined; Jabal Juhayra, a small Neolithic settlement at the northwestern corner of the basin (Fujii *et al*. in this volume), and Tor Ghuwayr 1-3, Early Bronze Age (hereafter EBA) burial fields in the northeastern edge of the basin. This report focuses on the latter sites. A series of surveys and excavations at these sites has proved that the EBA eastern Jafr Basin witnessed the penetration of the tower tomb culture, which probably originated in the Arabian Peninsula. What follows is a brief summary of the research outcomes for the unique burial fields.

The Sites and Site-Settings

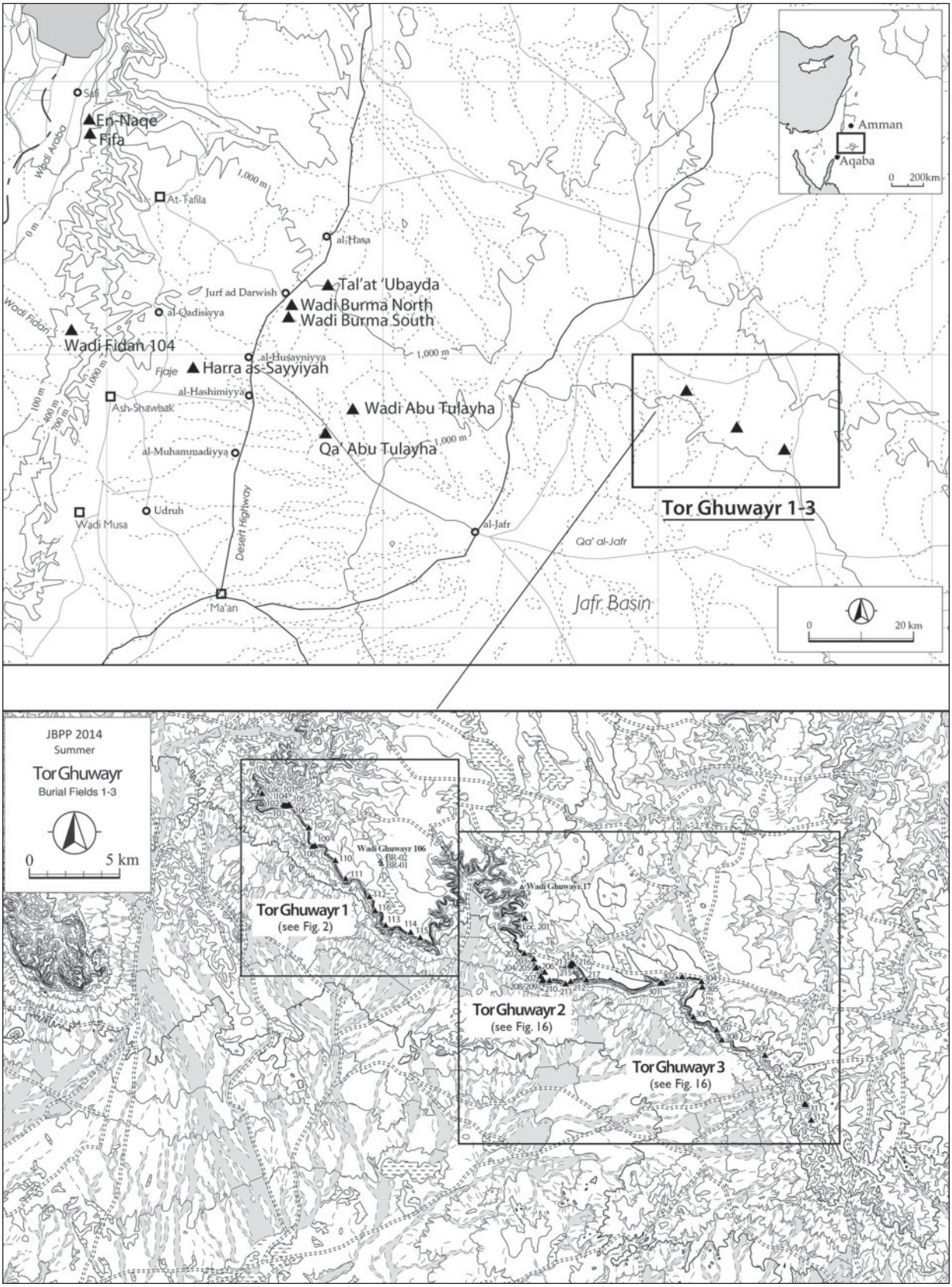
Tor Ghuwayr 1-3 are located at the northeastern edge of the Jafr Basin, a large-scale highland depression whcih occupies the southern half of the Transjordanian Plateau (**Fig. 1a**). The three sites extend east to west along an escarpment, constituting an elongated composite burial field *c*. 40 km in total length (**Fig. 1b**). The sites were found for the first time in 2010, during excavations at the nearby PPNB barrage system of Wādī Ghuwayr 106 (Fujii, Adachi *et al*. 2011) and a contemporary outpost of Wādī Ghuwayr 17 (Fujii, Quintero *et al*. 2011). The area was previously surveyed by an American team who focused on lithic study (Quintero and Wilke 1998a, 1998b; Wilke and Quintero 2014), and our discovery was its extension.

To date, the investigation has been conducted twice. The first survey and excavation were carried out in March 2014, and the second in August the same year. The surveys covered the whole range of the three sites; however, the excavations focused only on Tor Ghuwayr 1, which is easier to access from the Azraq-Ma‘an Highway. The sites’ stratigraphy was roughly identical with that of the neighboring two sites referred to above, and no repetition is needed, except for the fact that, while the two PPNB sites belonged to Layer 3, the two excavated tower tombs described below were equally included in Layer 2. This means that the Tor Ghuwayr sites postdate the PPNB in terms of area stratigraphy.

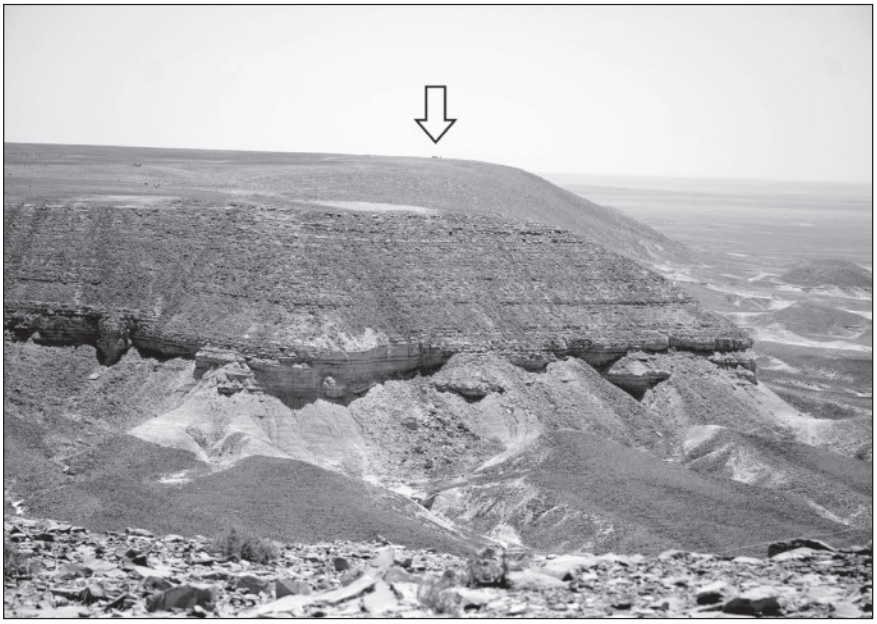
The site-setting of Tor Ghuwayr 1-3 is similar to other Jafr sites’, being characterized by a hyper arid climate and consequent poor vegetation. Understandably, no traditional settlements exist around the sites, and local land use has been limited to sporadic pasturing, taking advantage of perennial shrubs and annual grass plants dotted on the wadi beds. What differentiates the Tor Ghuwayr sites from other Jafr sites (excluding Tal‘at ‘Ubayda: Fujii 2005), is their unique location on the top of the escarpment, and the elongated site form stretching along it, both of which are probably attributable to their site function as communal burial fields of prehistoric pastoral nomads.

Survey and Excavation at Tor Ghuwayr 1

Tor Ghuwayr 1 is the westernmost of the three sites, having a total length of *c*. 12 km (**Figs. 2 , 3**). The surveys recorded a total of sixteen localities associated with a tower tomb or a collapsed stone concentration probably



1. Tor Ghuwayr 1-3 and Early Bronze Age sites in and around the Jafr Basin.



2. Tor Ghuwayr 1: Partial view of the site (looking towards Loc. 111 from Loc. 108/109).

derived from it. We designated them as Loc. 101 to Loc. 116, starting from the northwest. Five of them (i.e. Locs. 102-106) concentrated on a flat terrain in the northwestern part of the elongated burial field, but the others were aligned along the escarpment at an interval of *c*. 0.5-1.5 km. Two of them were excavated.

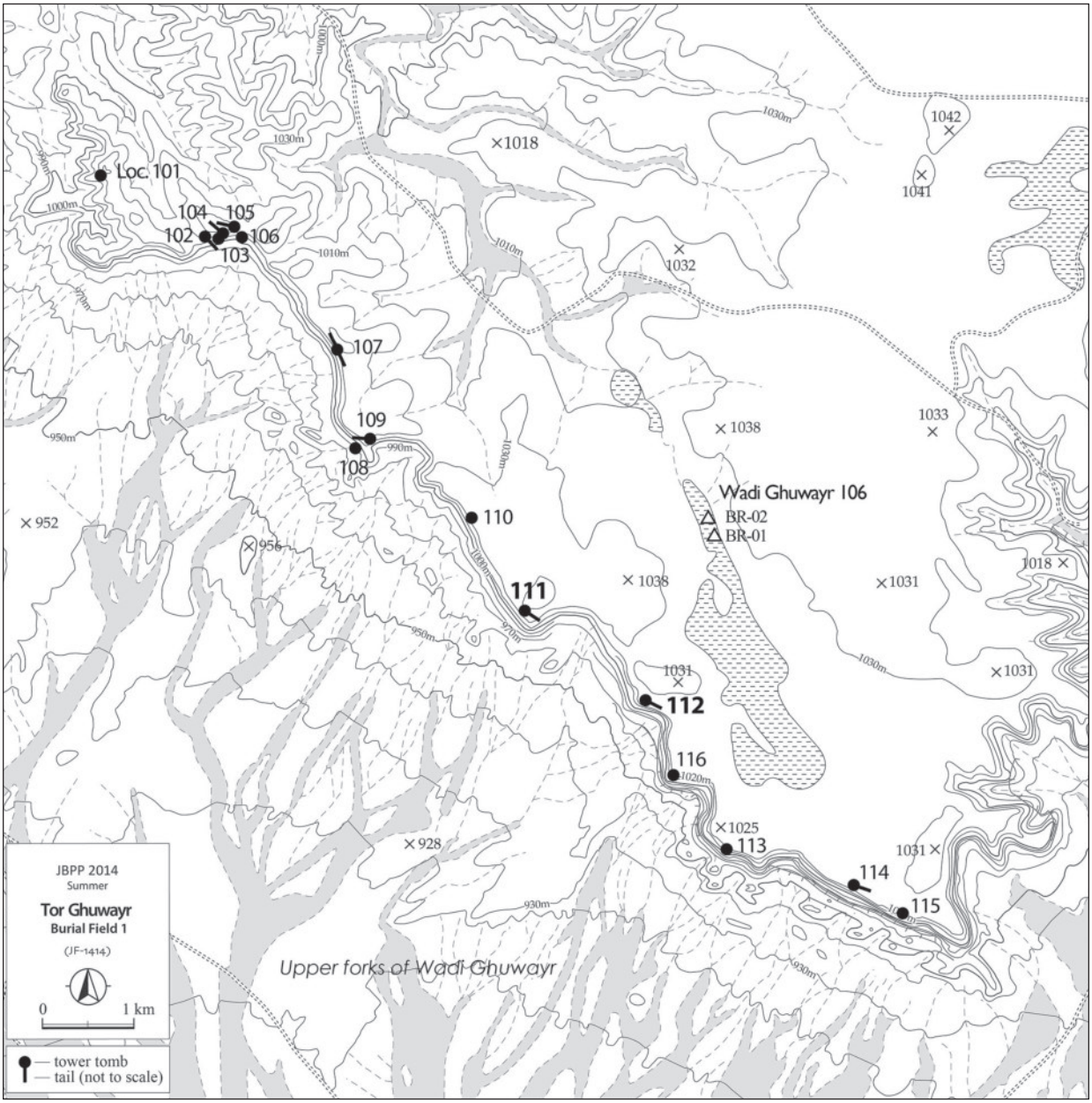
Locality 111

Locality 111 (N: 30˚33′46.20″/ E: 036˚29′29.22″/ Elevation: *c*. 1043 m) lies roughly in the middle of the elongated burial field, occupying the tip of a cape-like protrusion which commands an extensive prospect of the upper reaches of Wādī Ghuwayr. Though partly disturbed by illicit digging, this locality proved to contain a typical tailed tower tomb complex.

The tower tomb, the main body of the complex, had a cylindrical profile, measuring *c*. 2.5 m in outer diameter, *c*. 1.6 m in inner diameter, and *c*. 0.9 m (five to six courses) in maximum preserved height (**Figs. 4-6**). In view of the volume of fallen stones, it is presumed that the cylindrical masonry wall was originally at least a few courses higher than the present state. Flat limestone boulders, *c*. 50-70 cm long, were used as major construction materials. They were probably procured from limestone layers exposed at the edge of the escarpment. Some were partly trimmed at both ends, indicating that constructors attempted to adjust the size of building materials.

The wall of the tower tomb was consistently one stone-row wide from top to bottom, but two different masonry techniques were used in combination (**Fig. 7**). The lower courses, including the foundation, used larger limestone cobbles and boulders, arranging them in a stretcher bond. In addition, limestone and flint rubble were often inserted into gaps between stones as adjustment materials. Meanwhile, preserved top courses arranged smaller slabs in a header bond, which probably formed (together with many slabs removed by illicit digging) a corbelled ceiling to cover the tower tomb. Given this, it would follow that the present top course represents the lowest course of the corbelled ceiling. What attracted our attention in this regard was a long limestone boulder that was found leaning on the northwestern corner of the tower tomb (**Fig. 8**). The length of the boulder was roughly equivalent to the presumed wall height of the tower tomb, and was trimmed flat at both ends. Both facts suggest that it was originally used as a central pillar to support the corbelled ceiling. As referred to below, a similar stone pillar was found *in situ* at Loc. 205 of Tor Ghuwayr 2 (**Fig. 17: 3**), suggesting that a semi-corbelled technique using a central pillar was standard practice for the Tor Ghuwayr tower tombs.

Aside from the semi-corbelled ceiling, the tower tomb was very simple in structure, with no additional features such as an entrance

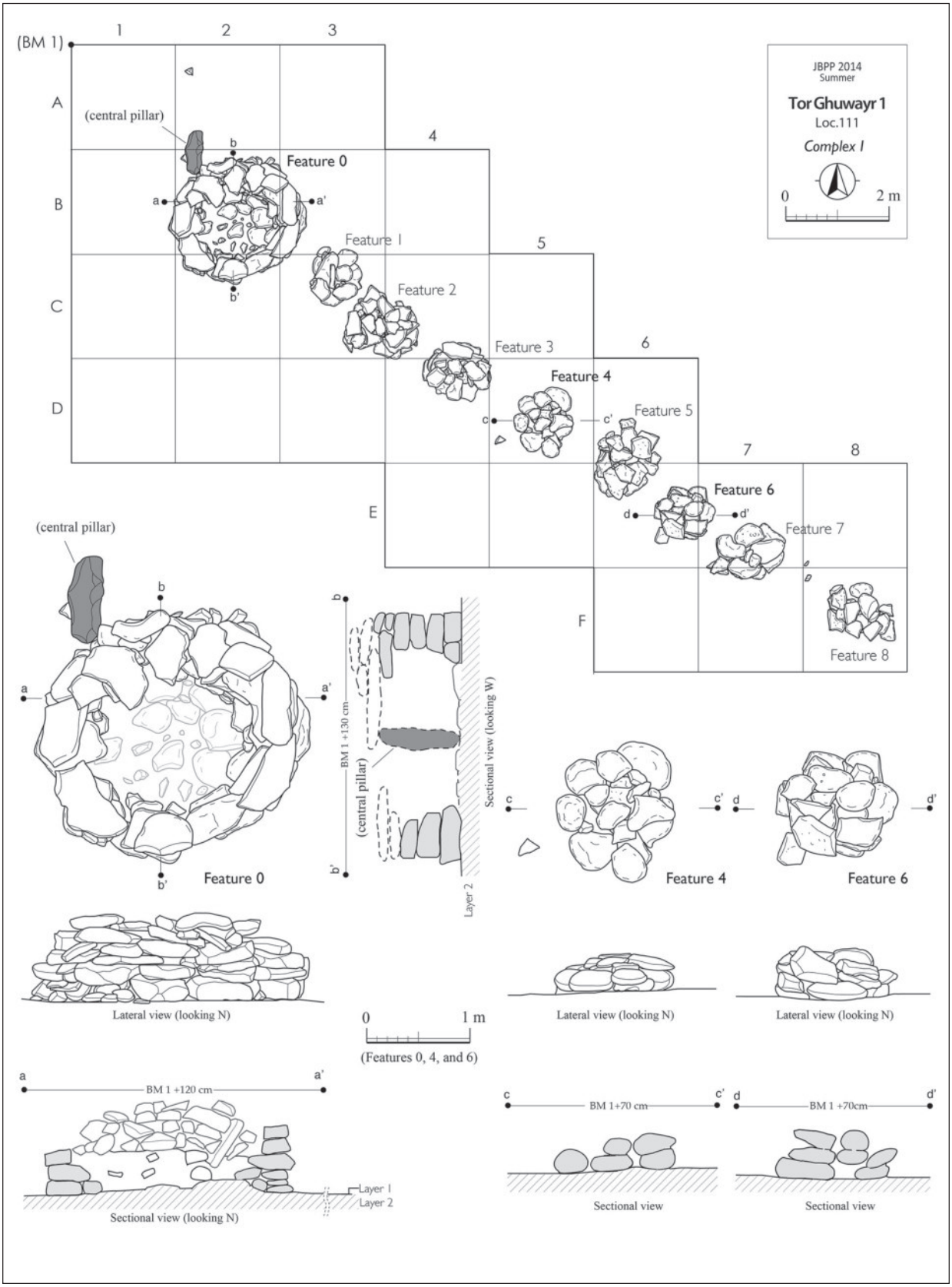


3. Tor Ghuwayr 1: Site map.

or stone-lined sepulcher. The absence of a built-in entrance was common practice, and characterizes the tower tombs at the Tor Ghuwayr burial fields. Meanwhile, the floor utilized the upper surface of Layer 2, without any additional treatment.

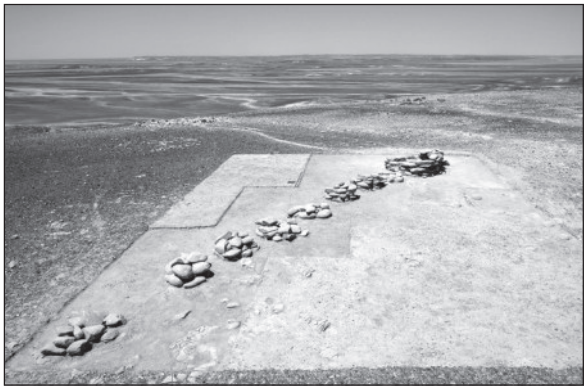
The tower tomb was empty; neither human skeletal remains nor burial gifts were found. As even small fragments were not discovered in disturbed fill layers, it is possible that nothing existed from the beginning. This makes sense when we consider that symbolic interment without human bones was the norm of initial pastoral nomads who migrated a long distance (e.g. Haiman 1992). A few Jafr blades (**Fig. 14: 1**) and tabular scraper cores (**Fig. 14: 2**) were collected around the tower tomb, but the contextual correlation between the two is uncertain.

The tail, or minor component of the complex, stretched in a linear fashion from the southeastern corner of the tower tomb. This composite feature consisted of a total of eight small stone concentrations *c*. 1 m in diameter

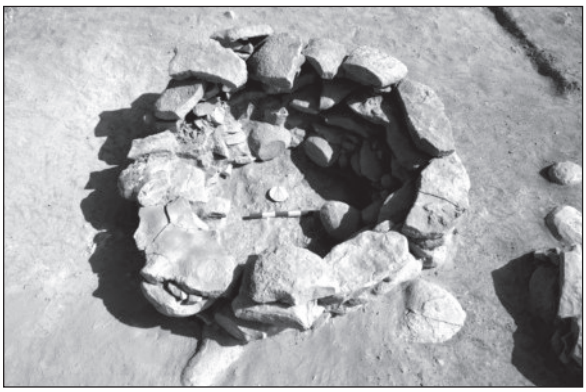


4. Tor Ghuwayr 1: Plan and section of the tailed tower tomb complex at Loc. 111.

5. Tor Ghuwayr 1: General view of the tailed tower tomb complex at Loc. 111 (looking E).



6. Tor Ghuwayr 1: General view of the tailed tower tomb complex at Loc. 111 (looking W).

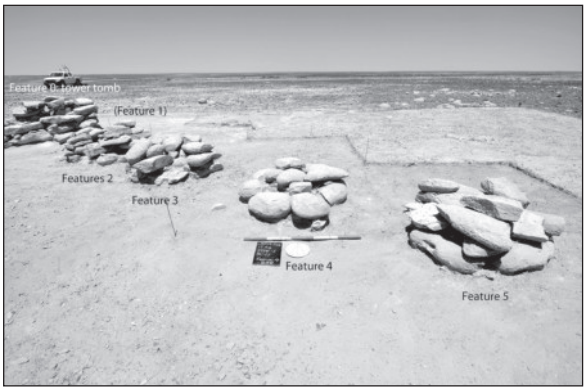


7. Tor Ghuwayr 1: Bird's-eye view of the tower tomb at Loc. 111 (looking N).

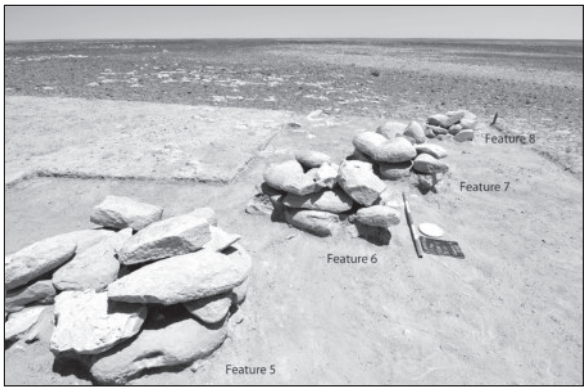
8. Tor Ghuwayr 1: Lateral view of the tower tomb complex at Loc. 111 (looking SE).

and *c*. 0.5 m in preserved height, respectively. They were arranged regularly at an interval of *c*. 0.5-1 m and formed, as a whole, a feature alignment *c*. 16 m in total length (**Figs. 9 , 10**). Unlike the main body of the complex, untrimmed roundish limestone cobbles up to *c*. 50 cm long were used as the chief construction material. Most of the features were simply a stone pile, but a few (e.g. Feature 4) formed a pseudo stone circle, with the center filled with smaller cobbles. Nothing was found in and around the eight features.

Having established that the tower tomb and the tail shared the same site stratigraphy, and that a similar combination was ubiquitous at the three sites, it is indisputable that the two components combined to form a tailed tower tomb complex. Incidentally, the main component of the complex was generally called *namus* (or *nawamis* in the plural form;



9. Tor Ghuwayr 1: Partial view of the tail at Loc. 111 (looking N).



10. Tor Ghuwayr 1: Partial view of the tail at Loc. 111 (looking E).

e.g. Avner 2002; Bar-Yosef *et al*. 1977, 1986), a beehive tomb (e.g. Doe 1983: 47-51), or simply *tumuli* (e.g. Zarins 1992: 50) in earlier publications. We refer to it as a (tailed/untailed) tower tomb following the recent terminology of Arabian and Jordanian archaeology (e.g. Abu-Azizeh 2014; Rollefson *et al*. 2011; Rollefson 2013; Steimer-Herbet 2004; Weeks 2010). As described below, tailed/untailed tower tombs and their variants constituted the core of the Tor Ghuwayr burial fields.

Locality 112

Locality 112 (N: 30˚33′20.76″/ E: 036˚30′09.90″/ Elevation: *c*. 1027 m) was situated *c*. 1.5 km southeast of Loc. 111 and, again, occupied the tip of a cape-like protrusion where sebveral layers of limestone and flint are exposed. Though seriously damaged by recent looting, the excavation revealed a tailed tower tomb complex similar to that of Loc. 111 (**Figs. 11-13**).

The tower tomb had a slightly oval plan, and its major axis was oriented NW-SE. It was slightly larger in dimension than the core feature of Loc. 111, measuring *c*. 3.5-4.0 m for the outer diameter and *c*. 2.2–2.8 m for the inner diameter. The wall had entirely collapsed, leaving the foundation course only, which was constructed using a two-rowed upright slab wall technique common to prehistoric desert sites in the southern Levant (e.g. Garrard *et al*. 1994; Fujii 2013). In view of the volume of collapsed or removed stones scattered around the foundation wall, it is assumed that the tower tomb originally had a wall height of at least several courses or *c*. 1 m. Limestone and flint rubble, *c*. 10-20 cm long, filled the narrow space inside the dual wall. The stone pile scattered around the foundation included a few long boulders, one of which was possibly used as a central pillar for supporting a semi-corbelled ceiling. No clear evidence of a built-in entrance was recognized.

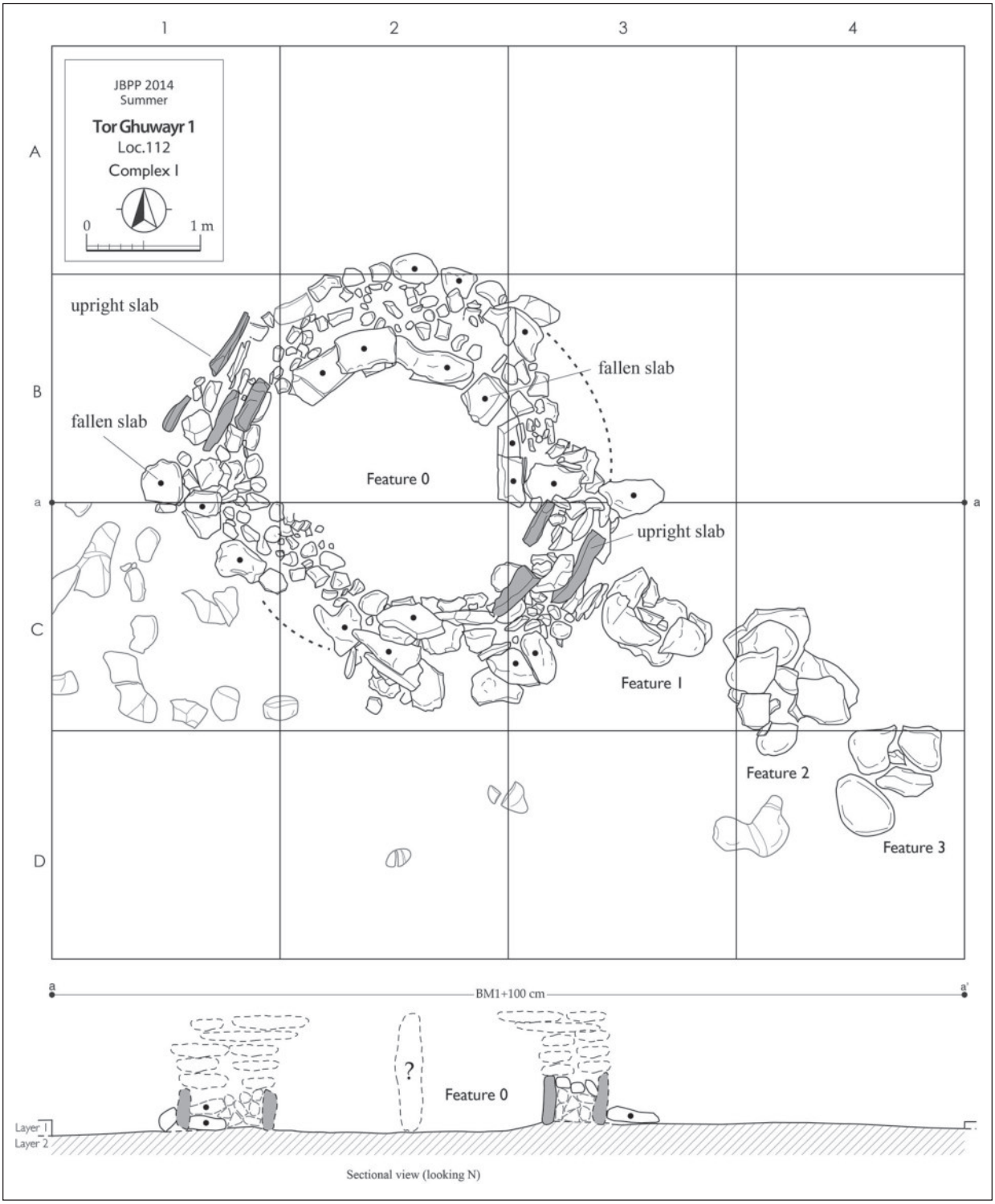
The tail of this complex was very short (*c*. 3 m in total length), consisting of only three stone concentrations *c*. 1m in diameter, respectively. As with the case of Loc. 111, it was attached to the southeastern corner of the tower tomb, and stretched southeastward in a linear fashion. Here again, untrimmed roundish limestone cobbles were used as major construction materials. This case exemplifies that there is no dimensional correlation between the scale of a tower tomb and the total length or element number of an attached tail.

A small number of human skeletal remains were recovered from disturbed fill layers left inside the tower tomb. This means that practical interment took place in this case, although it does not always represent primary burial when the tower tomb was constructed. In addition, a flat carnelian bead with a central hole (**Fig. 14: 12**), a small stone disc with a (natural ?) central hole (**Fig. 14: 11**), a neck fragment from a small pot (**Fig. 14: 9**), and a few base and body fragments of a medium-size bowl with a handle-like protrusion (**Fig. 14: 10**) were also found in the same context. The pottery sherds are suggestive of an Iron Age date, or slightly later. It is possible however, that together with the scattered human bones, they represent later reuse of the tower tomb. Meanwhile, the surface collection around the complex included a dozen Jafr blades (see **Fig. 14: 3-6**), a Jafr blade core (**Fig. 14: 7**), and a few tabular scraper cores (**Fig. 14: 8**).

The Other Localities

The remaining fourteen localities also included a tower tomb or a disturbed stone pile similar to it. Most of them consisted of only a single complex, but Loc. 115 appeared to contain a few complexes. It would follow that a minor gap intervenes between the total number of localities and that of tower tomb complexes, but this issue has been left for future reinvestigation.

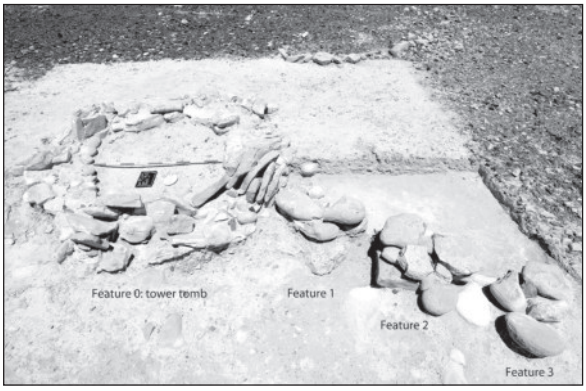
Six of the fourteen localities contained a typical tailed tower tomb complex analogous to the two excavated examples (**Fig. 2; Figs. 15: 2-4, 6-8**), whereas a few localities had an untailed tower tomb (**Fig. 15: 1, 5**). The others were seriously disturbed and, therefore, unidentifiable for details. The tailed/untailed tower tombs varied in scale from locality to locality, with a wide variety of outer diameters ranging from *c*. 3.5 m to *c*. 6.5 m. The attached tails also varied in dimensions; the longest example (*Loc*. 105) was *c*. 25 m in total length. However, there is no doubt that the sixteen localities (including *Locs*. 111 and 112)



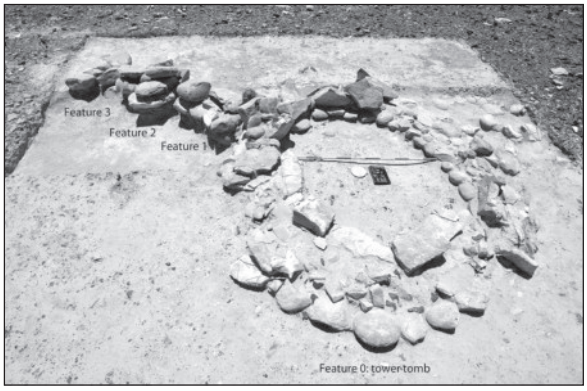
11. Tor Ghuwayr 1: Plan and section of the tailed tower tomb complex at Loc. 112.

constitute a unified burial field. Incidentally, the tails varied in orientation depending on locality but were consistent in the sense that they followed the general direction of the adjacent escarpment in every case (**Fig. 2**). As described below, the same was also true with the other two sites. Thus, it is likely that tail orientation, at least at the Tor Ghuwayr burial fields, had no special ritual meaning.

Surface finds from the other localities were



12. Tor Ghuwayr 1: General view of the tailed tower tomb complex at Loc. 112 (looking N).



13. Tor Ghuwayr 1: General view of the tailed tower tomb complex at Loc. 112 (looking S).

limited to a white bead made of unidentified material (**Fig. 14: 13**) and a handful of reddish, wheel-made ware sherds probably of the Iron Age or later. They were recovered from disturbed deposits around tower tombs and, therefore, do not always represent the precise date of the adjacent complexes. In addition, a certain number of tabular scraper cores and Jafr blades were collected around several complexes.

Surveys at Tor Ghuwayr 2 and 3

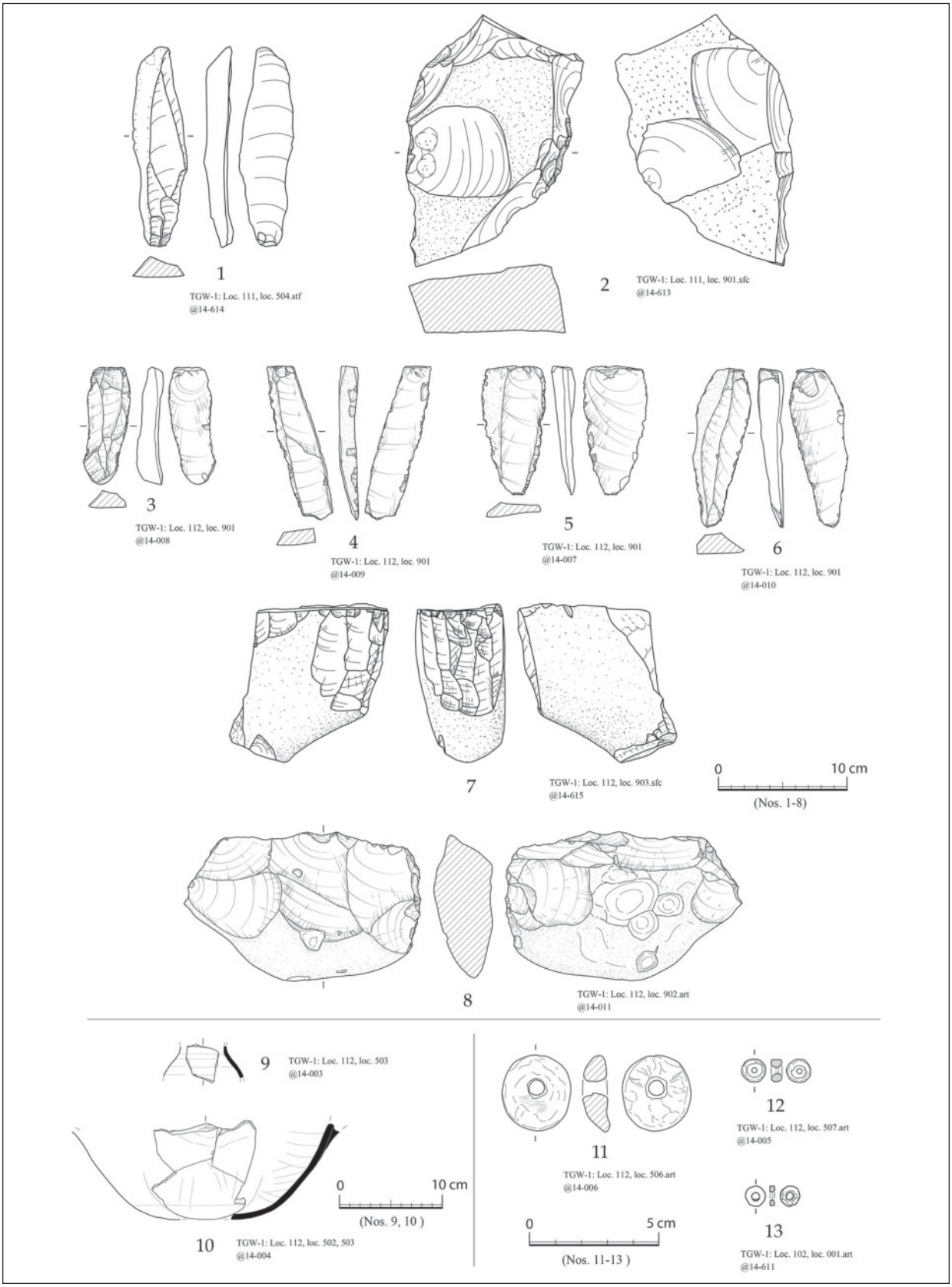
We repeated an intermittent survey in the neighboring two burial fields between the excavations at Tor Ghuwayr 1. The surveys registered a few dozen tower tomb complexes or disturbed stone concentrations (**Fig. 16**). Since surface finds were limited to ubiquitous tabular scarpers and Jafr blades, the following description will deal only with the structural remains.

Tor Ghuwayr 2

Tor Ghuwayr 2 extended in a southeasterly direction, a distance of *c*. 5 km from Loc. 115, the easternmost component of Tor Ghuwayr 1. This small-scale burial field was relatively high in density, containing a total of seventeen localities. Again, tailed tower tombs or their supposed remnants accounted for the vast majority of registered complexes. Most typical were two complexes at *Locs*. 203 and 207, both of which were associated with a long tail consisting of six to eight stone concentrations (**Fig. 17: 2, 4**). Although seriously damaged, the other localities also appeared to contain a similar complex. The only exception was Loc. 206, where an ashlar-lined rectangular cist was exposed in the center of a large looters' pit. This feature was clearly different in character (and probably date) from the other complexes. It also differed from the others in that it was located on a plain *c*. 100 m behind the escarpment.

The following two cases attracted our special attention. One was the tower tomb complex at Loc. 201, which was associated with a very long (*c*. 60-70 m) tail stretching northward along the escarpment (**Fig. 17: 1**). Unlike the typical examples described above, this tail consisted of sporadic stones or vaguely delineated stone concentrations. This type of tail is probably a simplified version of the original form. Parallel examples were recorded at *Loc*. 214 of Tor Ghuwayr 2 and *Loc.* 312 of Tor Ghuwayr 3, indicating that such techno-typological simplification was not always exceptional. The existence of untailed tower tombs might also be understood as an extension. Such atypical examples were distributed at random within the three sites, suggesting they originated as a spontaneous idea rather than sequential change.

The other was the tower tomb at *Loc.* 205, which adopted the two-rowed upright slab wall technique, similar to the complex at *Loc.* 112 (**Fig. 17: 3**). Both examples indicate that the tower tomb constructors adopted different construction methods depending on the size and shape of available building materials. Surprisingly, the tower tomb preserved a central pillar still standing in its original position. There is little doubt that the flat-topped limestone boulder supported a semi-corbelled ceiling. This example corroborates our interpretation concerning the long boulder found beside the tower tomb at *Loc.* 111.

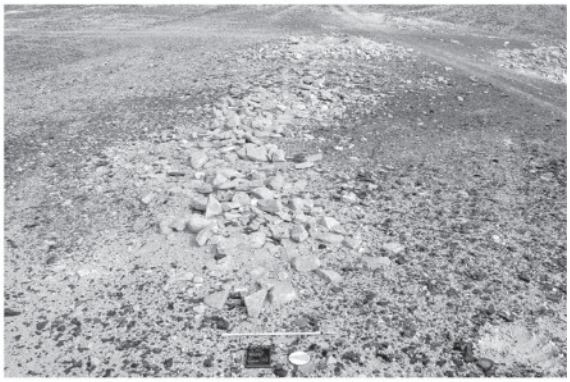


14. Tor Ghuwayr 1: Small finds from Locs. 102 (no. 13), 111 (no. 1-2), and 112 (no. 3-12).

1. Locality 101: Feature 0 (looking N).

2. Locality 102: Complex 1 (looking NW).

3. Locality 104: Complex 1 (looking E).



4. Locality 105: Complex 1 (looking E).

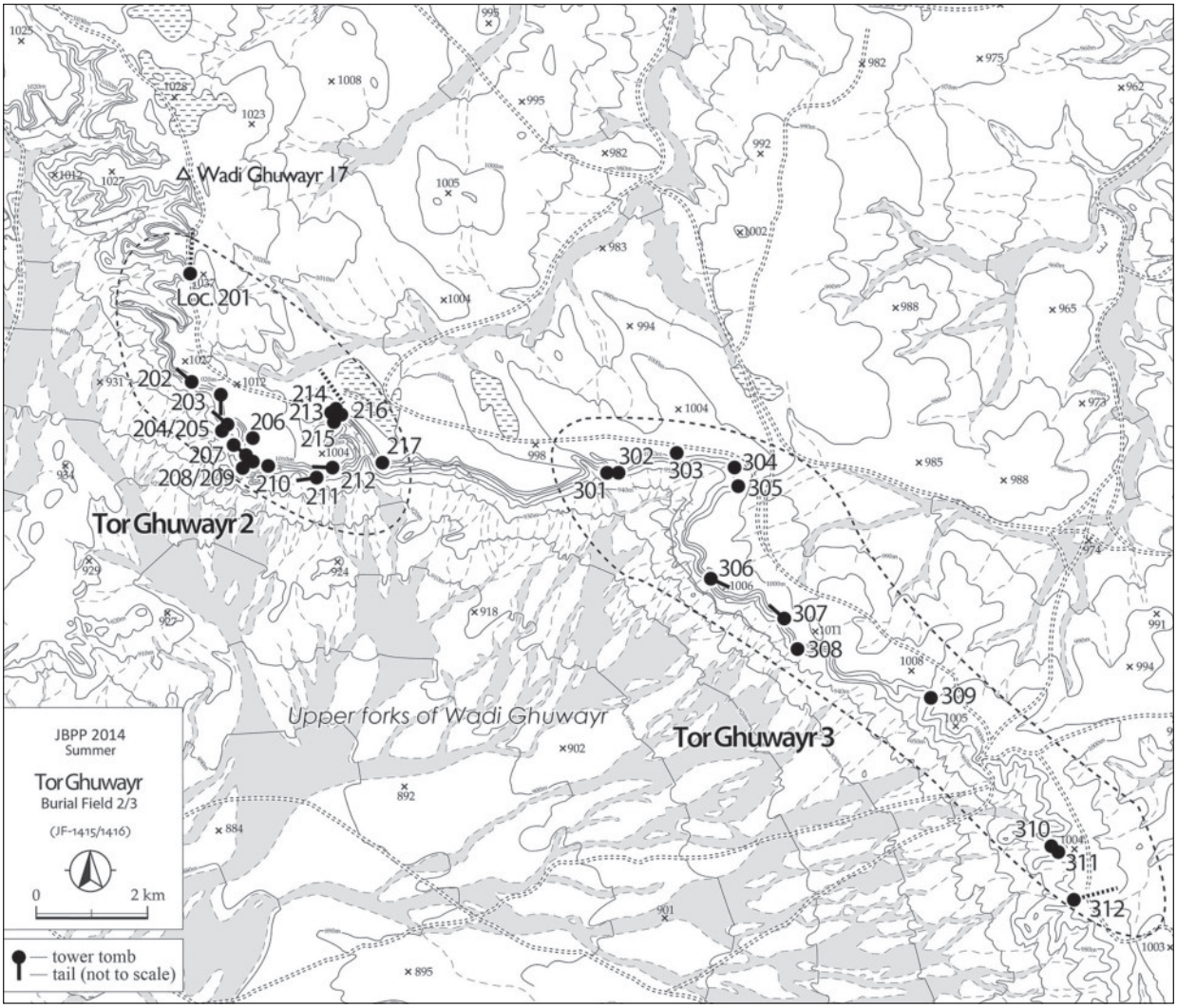
5. Locality 110: Feature 0 (looking N).

6. Locality 113: Complex 1 (looking N).

7. Locality 114: Complex 1 (looking W).

8. Locality 115: Complex 1/2 (looking N).

15. Tor Ghuwayr 1: General view of tower tomb complexes for the other localities.



16. Tor Ghuwayr 2 and 3: Site map.

Tor Ghuwayr 3

Tor Ghuwayr 3 is *c*. 4 km southeast of Tor Ghuwayr 2, and is an elongated burial field c. 12 km in total length. This burial field was less dense, consisting of twelve localities. Again, a variety of tailed or untailed tower tombs were recorded (**Fig. 17: 5 , 6**). Two locations were of special interest. To begin with, the tower tomb at Loc. 312 had a simplified version of a tail (**Fig. 17: 8**). Secondly, the complex at Loc. 309 included a square, platform-like feature, with each side measuring *c*. 2 m; neighboring Loc. 310 is a parallel example. Both of these demonstrate that a tower tomb complex can include miscellaneous features other than the two major components. The existence of a platform-like feature is important when discussing the relationship with tower tomb cultures in northern Arabia (Fujii n.d.; Fujii and Adachi n.d.) and southern Jordan (Abu-Azizeh 2014: 170-176).

The survey was interrupted in mid-course due to time constraints, but it was observed that similar features continued southeastward along the escarpment. Thus it is conceivable that several burial fields, most of which contain tower tombs, are a prominent feature of the eastern half of the Jafr Basin. This perspective becomes important when we discuss the overall picture of the EBA Jafr Basin.

Discussion

The series of surveys and excavations registered a total of forty-five localities: 16 at Tor Ghuwayr 1, 17 at Tor Ghuwayr 2, and 12 at Tor Ghuwayr 3. They are the first examples in

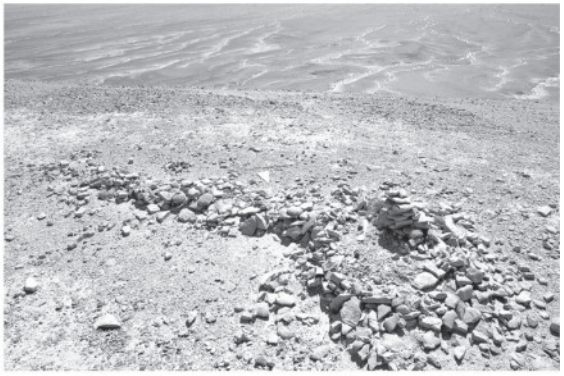
1. Locality 201: Complex 1 (looking E).

2. Locality 203: Complex 1 (looking SW).

3. Locality 205: Complex 1 (looking NE).

4. Locality 207: Complex 1 (looking N).

5. Locality 301: Complex 1 (looking E).



6. Locality 306: Complex 1 (looking SWS).

7. Locality 307: Complex 1 (looking SW).

8. Locality 312: Complex 1 (looking SW).

17. Tor Ghuwayr 2 and 3: General view of tower tomb complexes.

the Jafr Basin to be clearly identified as tower tomb complexes. The following discussion deals with their location, techno-typology, date, function, and archaeological implications in a broader context. We would like to point out in advance that the following perspectives are still tentative and require further verification.

Location

The location of the Tor Ghuwayr tower tombs has been repeatedly noted. They are aligned along the upper edge of the steep escarpment, and have a tendency to occupy the tip of a cape-like protrusion, advantageous in both the availability of construction material and visibility from a distance. This location requirement is consistent in every case (Excluding Loc. 206 mentioned above), corroborating that the three sites developed following the same principle.

Incidentally, the density of tower tombs lessens in a southeastward direction for all three sites. This is probably because the escarpment gradually changes into a moderate slope on its eastern side and, for this reason, progressively loses the two advantages essential for the construction of burial fields. In this sense, the gradual decrease in density highlights anew the unique location requirement of the Tor Ghuwayr tower tomb complexes.

Techno-Ttypology

In terms of technology, tower tombs are divided into two parts; a cylindrical masonry wall forming a round sepulcher, and a semi-corbelled ceiling supported by a central pillar. As noted above, the former adopts a stretcher bond masonry technique, whereas the latter uses a header bond masonry technique. Semi-corbelled ceilings have a certain degree of technical constraint, which in turn affects the dimensions of the lateral wall. It is probably for this reason that in contrast to the outer diameters (*c*. 2.5-6.5 m), the inner diameters converge on a relatively limited range (*c*. 2-3 m). The attached tails, on the other hand, are free from such technical restrictions, and vary a great deal in terms of total length and element number.

Little is known about the typological detail of the tower tomb complexes due to the absence of well-preserved examples. All we can say is that: 1) the Tor Ghuwayr tower tombs are round to slightly oval in general plan; 2) no small features are incorporated into their interior space; 3) no entrance is built in their lateral wall and, therefore, their general orientation is unidentifiable (*cf*. Bar-Yosef *et al*. 1983); 4) a single tower tomb and a single (or occasionally two) tail(s) are combined to form a composite unit; 5) nevertheless, the tail can be simplified into a long stone alignment or entirely omitted; and 6) the tail merely stretches along the escarpment and exhibits no specifc directionality (c.f. Abu-Azizeh 2014: Fig. 9). It should be added that several complexes are associated with a square or rectangular platform-like feature(s). Further scrutiny is required to develop the details of the issue.

Date

Since no C-14 data is available yet, the date of the Tor Ghuwayr sites cannot be determined. Some artifacts are suggestive of a date in the EBA or the Iron Age, but all were found in secondary contexts and require careful handling. We should also pay attention to the possible reuse of tower tombs at a later date, and the possible overlap between tower tomb sites and flint exploitation sites. These unfavorable conditions make dating even more difficult.

An alternative approach is to refer to the local chronology in neighboring areas, which commonly argues that the tower tomb culture dates back to the Chalcolithic or the EBA (e.g. Rollefson *op. cit*.: 213). There seems no particular reason to rule out the Tor Ghuwayr sites only. However, this chronological perspective is a very general framework dealing with post-Neolithic archaeological features in the Levantine arid peripheries, and requires further refinement. Tower tombs in the Sinai, for example, are dated to the EB I-II on the basis of diagnostic finds and several C-14 dates from adjacent structures (Bar-Yosef *et al*. 1977: 87-88, 1986: 164-165). The same is roughly true with those in Yemen (Braemer *et al*. 2001; McCorrison *et al.* 2011). Taking these cases into consideration, we have tentatively dated the Tor Ghuwayr tower tombs to the EBA, probably to its first half. In this regard, it is highly suggestive that flint exploitation in the

Jafr Basin was suddenly reactivated about this period (Abe 2008; Fujii 2013; Quintero *et al*. 2002; Wilke *et al*. 2007).

This is not to say, however, that all the tower tomb cultures are coeval with each other, because a few remarkable techno-typological differences are recognized between them. For example, while the Jafr tower tomb is devoid of a built-in entrance, the Sinai (and probably Azraq) tower tomb is usually equipped with a rectangular entrance supported by a long lintel (Bar-Yosef *et al. op. cit*.; Rollefson *op. cit*.). Conversely, while the Jafr (and probably Azraq) tower tomb has a semi-corbelling structure, the Sinai tower tomb appears to adopt a proper corbelling technique without a central pillar. In addition, while the former is often associated with a tail, the latter is rarely equipped with it. It is still unknown whether such contrasts are attributable to regional variation, a minor chronological gap, or both. The aforementioned tentative dating of the Tor Ghuwayr sites must be reviewed in such a broad framework.

Another question is the chronological relationship among the three sites. It is doubtful that they developed in sequence either southeastward or northeastward. Firstly because a major spatial gap always intervenes between any two adjacent burial fields, and secondly because no remarkable techno-typological differences are recognized among them. Thus, it seems more reasonable to assume that they developed in parallel with each other. Suggestive in this regard is the fact that, despite the remarkable difference in scale and density, the three sites are roughly equivalent in terms of the total number of localities. Both the techno-typological homogeneity and the existence of the in-between gap also argue for the second interpretation. A similar phenomenon has been observed at the Middle Bronze Age cemeteries in central Syria (Fujii and Adachi 2010), suggesting that multi-linear, synchronized development was the norm for Bronze Age burial fields in the Levantine Badia. This unique site formation process implies that several homogeneous, subordinate groups, possessing their own group identity, assembled to form a superordinate group sharing a unified higher-level identity. It is intriguing to hypothesize that the involvement of pastoral nomads based on a tribal system lay behind the phenomenon.

Function

The function of the three sites is evident. Most of the localities included a tower tomb or a collapsed stone concentration probably derived from it. In addition, though in a secondary context, the tower tomb at *Loc*. 112 actually yielded a small number of human skeletal remains. There is no doubt that the three sites constitute a composite burial field.

The owner of the communal cemetery is also obvious. The series of collateral evidence (the harsh environmental condition, the absence of neighboring settlements, the scarcity of burial gifts, and the synchronized development of plural homogeneous burial fields) strongly suggests the involvement of prehistoric pastoral nomads. It should be added, however, that the Jafr tower tomb is not always associated with practical interment and, in this sense, rather symbolic in character. Thus, it may be more correct to understand the sites as a type of sanctuary, combining a burial field and a ritual place. It appears that this unique trait is common to all the post-PPNB burial fields known to date in the Jafr Basin (Fujii 2013).

Unfortunately, nothing is known about the specific contents of the interment practice, because available information is limited to only a small number of human bones and artifacts, both recovered in secondary contexts. The following two points deserve continued attention, however. One is the fact that all the human bones occurred in a fragmentary state, which was not entirely caused by disturbance from illicit digging. Rather, it seems to be associated with secondary interment, which is common to high-mobility groups. The other point of significance is the absence of a built-in entrance, which suggests that subsequent interment, if any, was implemented by means of removing some of the capstones. The coexistence of heterogeneous artifacts at a tower tomb roughly retaining its original appearance demonstrates that the feature was reused in this way. It is suggestive that, in comparison with proper corbelling, a semi-corbelled ceiling (using a central pillar) is more flexible in term of post-construction handling. There may also have been a functional correlation between the

lack of a built-in entrance and the adoption of the semi-corbelling technique.

Archaeological Implications

Aside from ubiquitous flint mines and workshops, our information source on the EBA Jafr Basin was previously limited to several cairn fields concentrated in its western half. The discovery of the Tor Ghuwayr sites has changed this situation. It is now evident that EBA pastoral nomads secured their livelihood sphere over the whole range of the basin. It should be noted, however, that there is a remarkable difference in remains between the two areas. The western Jafr encompasses a variety of burial features, including the forecourt-type mound tomb at Wādī Burma South (Fujii 2004) and North (Fujii 2005), the corridor-type mound tomb at Talʻat al-ʻUbayda (Fujii 2005) and Wādī Abu Tulayha (Fujii 2006, 2008), the circularly connected pseudo-wall cairn at Qaʻ Abu Tulayha West (Fujii 1998, 1999, 2000), and their eclectic form at Ḥarra aṣ-Ṣayiyyah (Fujii 2004). Meanwhile, the eastern Jafr is devoid of these types and, instead, centered on the tailed/untailed tower tomb. The coexistence and segregation of various types of burial features suggest that the pastoral nomadization in the EBA Jafr Basin took a much more complicated course than previously thought.

Another point of significance is the possible correlation between the tower tomb sites and the flint exploitation sites. Although we have maintained a cautious attitude to the chronological correlation between the two, it is important to note that the two distinct site types perfectly overlap with each other in terms of location (e.g. Quintero *et al*. op. cit.: Fig. 3). Though in secondary contexts, a few of the tower tombs actually yielded tabular scrapers and Jafr blades. In addition, a corridor-type mound tomb at Talʻat al-ʻUbayda in the western Jafr included a few large tabular scrapers as votive offerings (Fujii 2005: Figs. 28 - 32). Thus, the possibility that the same group was involved in the two different activities cannot be ruled out. This new perspective, if firmly evidenced, would enrich our understanding of the EBA Jafr Basin.

This discussion has dealt with the east-west relationship within the basin. In terms of the north-south relations, including neighboring areas, the Tor Ghuwayr sites have the potential to bridge a spatial gap between the tower tomb culture in the Black Desert east of Azraq (Rollefson *et al*. 2012) and that in the al-Thulaythuwat area south of Maʻan (Abu-Azizeh *op. cit*.). It would follow that this unique burial feature penetrated deep into the whole range of the Jordanian Badia. In this sense, we can argue that the study of the tower tomb culture has entered a new stage.

In an even broader context, the new datasets from the three sites may provide a key to exploring the mutual relationship among various tower tomb cultures that cover the southern half of the Near East. As noted above, the Tor Ghuwayr tower tombs are characterized by the adoption of the semi-corbelling technique using a central pillar, the absence of a built-in entrance, and the frequent attachment of a long tail. Most, if not all, of these unique traits are shared with the al-Thulaythwart area in southernmost Jordan and northwestern Arabia, as well as the Black Desert to the north. This possibly means that the tower tomb culture in the Jordanian Badia developed through cultural contact with the south rather than the southwest; that is, the Sinai and Negev (Ingraham *et al.* 1981; Fujii and Adachi *op. cit.*; Fujii n. d.). In addition, the EBA eastern Jordanian Badia may have combined with contemporary northern Arabia to constitute a unified cultural sphere, marked by the tailed tower tomb. Nevertheless, basic data is critically deficient for in-depth discussion. A series of field researches undertaken recently or now in progress near the Jordan/Saudi border is expected to provide further insights into the issue (e.g. Gebel *et al*. 2011; Mahasneh and Gebel 2008; Müller-Neuhof 2014; Tarawneh and Abudanah 2013; Abu-Azizeh 2013, 2014; Wasse and Rollefson 2005, 2006).

Concluding Remarks

The surveys and excavations at the Tor Ghuwayr sites have enabled us to catch a glimpse of another aspect of the rich cultural landscape of the EBA Jafr Basin. Though still patchy, the new datasets suggest that the eastern half of the EBA Jordanian Badia was closely tied with contemporary northern Arabia in terms of burial practice. Thus, in future

discussions concerning the process of pastoral nomadization in southern Jordan, due attention should be paid to the relations with the south, as well as the west or southwest. The genealogy of the tower tomb holds a crucial key to the issue. The investigation results at the three sites will hopefully trigger in-depth discussion. However, much still remains to be determined, including the precise date of the Tor Ghuwayr sites themselves. We plan to rectify these deficiencies in future investigations.

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