

## Neolithic Barrage Survey in the Eastern Jafr Basin, March 2014

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### Introduction

Since the first field season in 2009, the Phase 3 of the Jafr Basin Prehistoric Project (JBPP) has addressed the comprehensive research of Neolithic barrage systems in southern Jordan. During the first four seasons, we excavated a total of ten barrages probably dated to the PPNB: one at Wadi Abu Tulyaha (Fujii 2007), two at Wadi Ruweishid ash-Sharqi (Fujii *ibid.*), two at Wadi Ghuwayr 106 (Fujii *et al.* 2011), two at Wadi Nadiya 1 (Fujii *et al.* 2012), and three at Wadi Nadiya 2 (Fujii *et al.* 2013). The next issue is to trace their functional change in the course of pastoral nomadization. The last field season was devoted to the general survey of Late Neolithic barrages in the eastern Jafr Basin (Fujii *et al.* in preparation). This season addressed their final documentation including aerial photography and the production of a contour map.

### Neolithic barrage survey in the eastern Jafr Basin

We found a dozen new barrages in the course of the final documentation of the previously located barrages, and the recorded examples, as a whole, amounted to thirty-nine (**Fig. 1**). They fall into the following five types: 1) the large-scale, open barrage constructed at the lower edge of a semi-open playa system; 2) the small-scale, semi-circular barrage constructed in the center of a shallow depression or along a small gully; 3) the small-scale, semi-closed barrage with a narrow opening and a few water-guiding walls (**Fig. 2**); 4) the small-scale, closed barrage with a few narrow inlets and water-guiding walls (**Fig. 3**); and 5) the large-scale, semi-rectangular or amorphous barrage constructed on the bank of a relatively large wadi.

The first type has much in common with the barrages at Wadi Abu Tulayha (Fujii 2011) and Wadi Nadiya 1 (Fujii *et al.* 2012) and, therefore, can probably be dated to the PPNB. On the other hand, the other four types may be regarded as their subsequent forms on the basis of a series of collateral evidence (Fujii *et al.* in preparation). It should be noted that while the first type of barrages focuses on the western half of the basin nearer to contemporary farming

communities, the other types of barrage penetrated deep into the eastern Jafr Basin, and that while the former is often associated with an agro-pastoral outpost, the latter is isolated in desert and not associated with such a fixed operating body. Both facts seem to suggest that the Jafr Neolithic barrage shifted from the large-scale basin-irrigation barrage as a full-fledged social infrastructure of PPNB pastoral transhumants to the small-scale cistern type of barrage as rather an *ad hoc* water-use facility of LN pastoral nomads in the course of pastoral nomadization.

We opened a test trench at two of the newly-located barrages, BR-02 (Type 2) and BR-12 (Type 3), and briefly examined the depth of a pond dug in front of the barrage wall (Figs. 4, 5). As a result, the pond has proved to be more than 1 m deep and reach the impermeable limestone bedrock layer. The preliminary information has enabled us to make a specific plan of a full-fledged excavation scheduled in the near future.

### **Test sounding at Tor Ghuwayr**

In combination with the barrage survey, we conducted a test sounding at Tor Ghuwayr, an elongated cairn field extending for ca. 9 km along the escarpment that fringes the northern edge of the Jafr Basin. The purpose of the sounding was to explore the possible correlation with the neighboring barrage system of Wadi Ghuwayr 106. Though seriously disturbed by illicit digging, the sounding at BC-12 revealed that it incorporates a roughly round cist ca. 3.5 m by ca. 3 m in floor area and up to ca. 0.5 m in preserved height. Several plain ware sherds, a carnelian bead, and a small number of human skeletal remains were recovered from disturbed fill layers in and around the cist. The cairn was associated with a tail ca. 3.2 m, suggesting some correlation with EBA burial cairns in northern Arabia. Further investigation is needed to understand the archaeological implication of the unique cairn field.

### **Concluding Remarks**

The series of barrage surveys taken place since 2009 has proved that the Neolithic Jafr Basin witnessed the florescence of various types of water catchment facilities. It is our tentative perspective that overall, they shifted from the large-scaled basin-irrigation barrage to the small-scale cistern-type barrage. It is conceivable that the techno-typological shift of the Jafr Neolithic barrages mirror the transition in lifestyle from the PPNB pastoral transhumance to the Late Neolithic pastoral nomadism. The OSL dating now in progress is expected to provide another line of evidence for the tentative perspectives.





Fig. 2 BR-15: aerial view (looking N).



Fig. 3 BR-11: general view (looking S).





Fig. 4 BR-02: test trench (looking W).



Fig. 5 BR-12: test trench (looking N).