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The circular pond of Dehbarm in the Firuzabad Plain (Fars, Iran)

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Abstract: *We present the preliminary results of our recent find, a circular pond, and its surrounding structures, built in stone masonry of Sasanian tradition in the Dehbarm village, west Firuzabad Plain (Fars, Iran). We elaborate on this site and suggest it belongs to the Early Sasanian Ardashir-Xurra (Ardašīr-Xwarrah), the first Sasanian capital and complex urban plan of the Firuzabad plain. Based on comparable finds, we interpret Dehbarm as a garden settlement, a so-called paradise, and consider it a case study for water management and landscape manipulation of the Late Antiquity in the Greater Fars. Additionally, we ponder on the broader aspect of spring-fed ponds in the Sasanian architectural tradition. Further investigation, as well as extensive fieldwork, is planned to address this aspect.*

Key words: Sasanian, water management, paradise, Iran, Fars, Firuzabad

Introduction

We present a recent find in the Firuzabad Plain's western edges (Fars, Iran) in the Dehbarm village (28° 52' N and 52° 31' E). It consists of a circular pond built with smooth stone masonry, one outlet canal, an architectural structure in the western part [Fig. 2], and material culture [Fig. 3].

Dehbarm [Fig. 1] was probably one of the satellite paradises (*sensu lato* garden settlements) of the Early Sasanian urban Ardashir-Xurra (Ardašīr-Xwarrah), built by Ardashir Papakan in 220 C.E.¹ A survey has mentioned this site (national registry no. 13514) based on hearsay,² but failed to deliver any archaeological evidence or documentation of the structure and its surroundings. The full extent of this find was unknown because the structures were buried under the village's recent secondary sediments. Only the spring was still active at the heart of the village.

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¹ Huff, 1999; 2014.

² Norouzi, 2005/1384: 114-115.

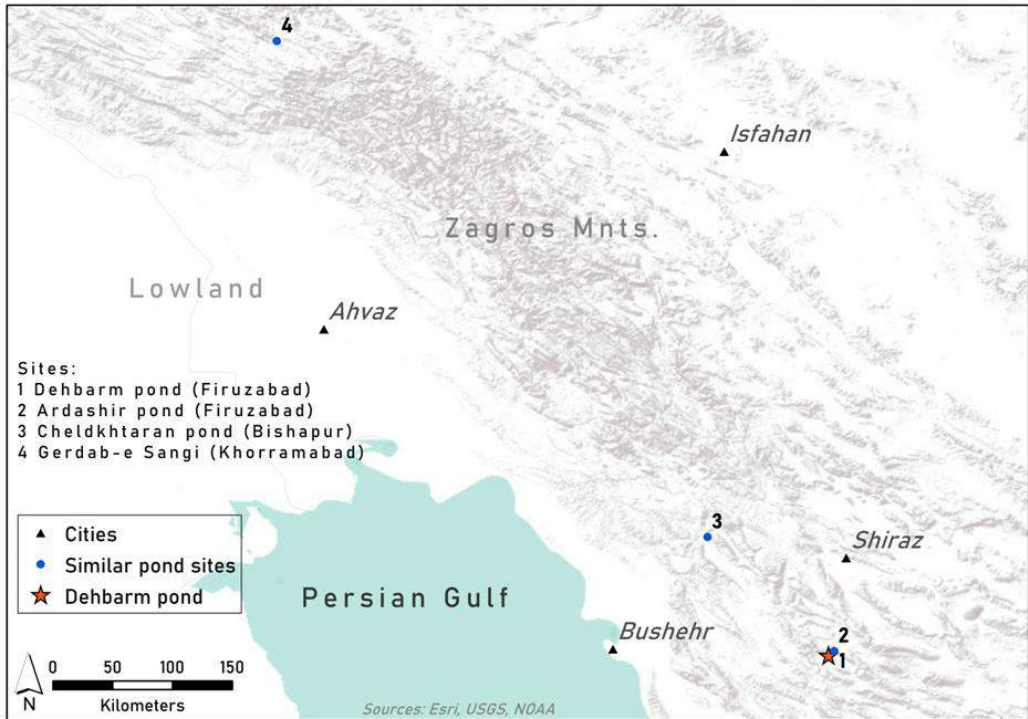


Fig. 1. The location of mentioned sites (E. Rashidian)

The structure's re-discovery was accidental. In the late parched summer of 2021, the locals dug the spring's location to extract more water [Fig. 3, A] when they discovered the pond structure with its perfect stone masonry floor at the spring's exit point [Fig. 3, B]. The Firuzabad UNESCO station (reference no. 1315) was immediately informed and documented the find.

Our brief fieldwork included visual documentation of the site, taking photographs of the finds as they came to light during the bulldozing process, cleaning the pool, and gathering the material culture. Furthermore, detailed orthophoto documentation and high-resolution DEM have been conducted via drone photography. The results are shown here [Fig. 2] and will build the basis for our fieldwork.

We report our findings, albeit brief, and elaborate our idea on this find's context regarding the urban planning and water management of Firuzabad's Sasanian landscape. Finally, we argue that the Dehbarm pond and its surrounding architecture shall be integrated into our already known urban plan of Ardashir-Xurra,³ similar to the recently investigated pond of the Ardashir palace.⁴

³ Huff, 1999.

⁴ Djamali *et al.*, 2021.

The Dehbarm pond

The pond is a perfect circle measuring 27 meters in diameter and 2m deep [Fig. 2, B], made of smoothed sandstones and mortar in regular rows at the source of a spring. The stone blocks come in three sizes; $40 \times 32 \times 20$ cm, $48 \times 33 \times 22$ cm; $60 \times 35 \times 26$ cm, arranged increasing with depth [Fig. 3, B].

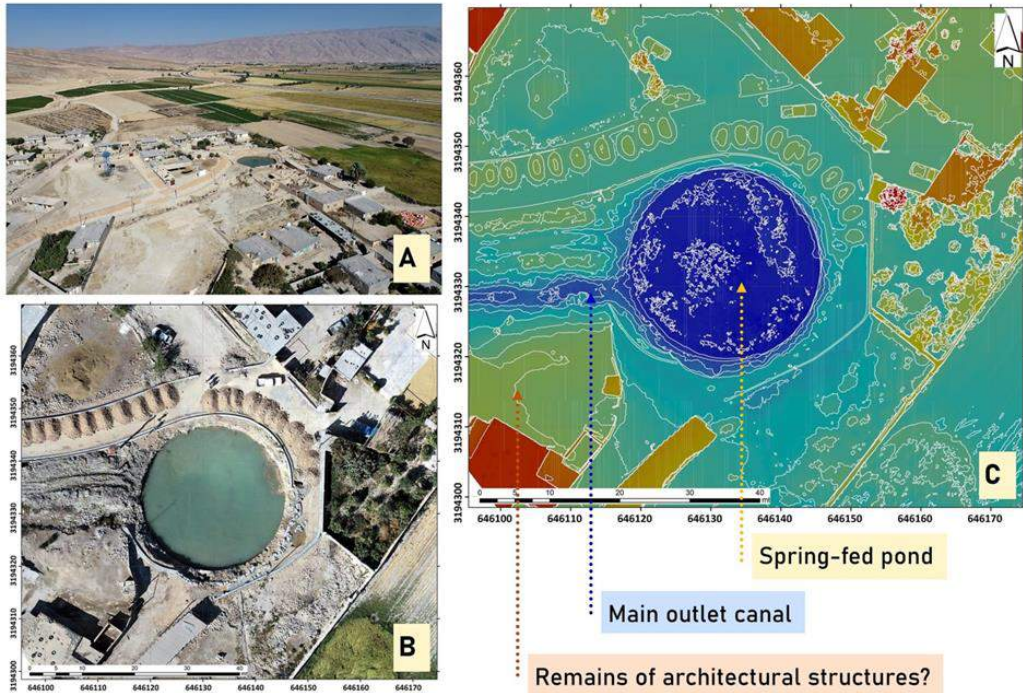


Fig. 2. The Dehbarm pond and its surroundings (orthophotos by A. Eghra, Summer 2021, courtesy of Firuzabad UNESCO Station; illustrated by E. Rashidian)

The pond seems to be surrounded by a rectangular structure; the space between them staired (at least) in two levels. The stair blocks ($60 \times 37 \times 17$ cm) are carved with a concave surface [Fig. 3, C] to integrate into the pond's round shape. The high-quality masoned blocks are smoothed and joint using perfect masonry so that no mortar is needed to keep the stairs' structure together.

The pond consists of an outlet at its western edge, where remains of an extended structure (buildings?) came to light [Fig. 2, C], their majority is buried under the modern village. Reports from the 19th century confirm the existence of a monumental unit ("a mud fort"),⁵ whose remains are currently buried

⁵ British Army Headquartes, 1910: 251.

under the modern village. The outlet is regular in shape and about 2.5 m wide. Currently, less than 100 m of it is visible on the surface.



Fig. 3. The Dehbarm pond structure and mentioned finds
(photo by A. Askari Chaverdi, summer 2021; illustrated by E. Rashidian)

A semi-sphere (47cm diameter) and a pale sandstone vessel (50cm outline diameter, 30cm inline diameter) are amongst the documented material culture [Fig. 3]. During the documentation, a grey stone pillar base (34cm high) was found on the pond's floor [Fig. 3, D]. It consists of a circular disc (38×7cm) on a quadrate base (40×40×27cm). This item is damaged and highly eroded by the constant water contact. It seems to belong to the architectural structure and having fallen into the pond in the past.

A piece of dark grey pottery [Fig. 3, E] has been found in the pond. The pottery's fabric and decorations are similar to the excavated material known

from Gur (Firuzabad) and Qasr-e Abu Nasr (Shiraz). Unfortunately, other pottery sherds in the rubble were extremely eroded and not diagnostic. An excavation of the western structure may yield further pottery and shed light on the nature of the building and its probable function.

As we argue below, the Dehbarm pond and its surrounding structures were probably built in the Early Sasanian period and used until the Middle Ages.⁶ The pond still takes an active role in the plain's water management and waters the gardens of Dehbarm village. However, its initial shape and function are extensively eroded so that it was not recognizable as an archaeological find until its recent reconnaissance.

Comparative finds

The Dehbarm pond is comparable with several finds from the Iranian highland based on its shape and probable function. Amongst them, the Ardashir pond, about 5.3 km to the northeast of Dehbarm, might provide the best comparison. It is located in front of the Ardashir palace in the north-western hills of the Firuzabad Plain. Archaeological evidence suggests that it was integrated into this Early Sasanian palatial structure as an architectural element.⁷

A recent geoarchaeological investigation has reconstructed the physical evolution of this pond, indicating that the area was a spring-fed wetland (at least since the 2nd millennium B.C.E.) prior to its large-scale modification in the Early Sasanian period.⁸ During the early 3rd century C.E., the pond was enlarged and probably shaped into a perfect circle (37m in diameter) with two outlets and a surrounding rectangular wall. This pond also had a stair structure of stone masonry, whose eroded remains are still visible.

A similar evolution for the Dehbarm pond seems logical. The Dehbarm spring's water volume is smaller than the Ardashir (Barm-e Pir) spring, which might explain the smaller pond in Dehbarm (27 m) compared to the Ardashir pond (37 m in diameter).

Furthermore, the Dehbarm pond might be compared with the Chel-Doxtaran (forty goddesses) pond (Bishapur) and the Gerdab-e Sangi (i.e., stone circular) pond (Khorramabad), both dated to the Sasanian period [Fig. 1]. Unfortunately, these finds have never been investigated as architectural and archaeological elements, and we are in the dark regarding their details. However, their integration into the large-scale plans of their Sasanian cities is evident. A few reports, especially from the 19th century,⁹ give insights into their form and function.

⁶ see also Huff, 2014.

⁷ Huff, 1999.

⁸ Djamali *et al.*, 2021.

⁹ Flandin & Coste, 1851.

In summary, the similarities of these ponds include the following aspects:

- The shape: all are wide circular ponds with at least one narrow outlet channel and surrounding stair structure
- The source: all are spring-fed
- The building material: cubic smoothed stone and mortar
- The function: all provide water as an integrated element of an architectural unit

We suggest that manipulating the existing karstic springs in the Zagros foothills and building circular and staired ponds with stone masonry was one of the architectural elements of Sasanian urban planning. This practice seems to satisfy more than the need for water management but rather includes aesthetic and probably spiritual aspects into the plan of a Sasanian urban place. These aspects were probably merged in the framework of a garden settlement surrounding pond structures and their (palatial ?) building, just as the known case in Ardashir palace.¹⁰

Springs are predominantly associated with Anahita in the Mazdian beliefs and were revived in the Early Sasanian period due to Ardashir Papakan's policies.¹¹ Therefore, a further ceremonial function for these spring-fed ponds with their smoothed stoned stairs can be assumed. The authors plan to investigate this question further at Dehbarm and similar locations for the Sasanian period. Therefore, a targeted excavation at Dehbarm is in planning.

Conclusion

The recently re-discovered Dehbarm pond is another piece in the Ardashir-Xurra urban mosaic in Firuzabad. We suggest an Early Sasanian chronology for the Dehbarm structure, based on the following aspects:

- The pond's building material, stone masonry and mortar, predominately follows the Sasanian tradition¹²
- The pond's location correlates with the horizontal axis of Ardashir-Xurra's large-scale urban plan¹³ from the Early Sasanian period (ca 220 C.E.).
- Similar finds (spring-fed circular ponds) with comparable elements are dated to the Early Sasanian period.

Our insight into this re-discovered site is still vague. However, the neighboring Ardashir pond provides evidence for the probable function of such structures, besides

¹⁰ Huff, 1999; Canepa, 2017; Djamali *et al.*, 2021.

¹¹ Daryaee, 2010.

¹² Huff, 1986.

¹³ Huff, 2014.

their practical water management aspect. These ponds were most probably elements of an integrated paradise structure at a larger scale. Furthermore, finds at the bulldozered location [Fig. 3] indicate the existence of an architectural element at the pond's western part, similar to the mentioned Ardashir pond with its palace. This find further supports the "paradise" hypothesis as articulated by others.¹⁴

The archaeological reconnaissance of the Dehbarm pond provides yet another example of the standardized practices of Sasanian landscape change and water management, especially regarding their large-scale urban development, which is comparable with the extensively investigated Roman practices in the Mediterranean cultural sphere. Furthermore, besides their practical implications, structures such as ponds were integrated architectural elements incorporating the Sasanian ideology and the Iranian identity,¹⁵ especially regarding their role in paradise gardens and their institutional integration in Anahita's ceremonies.¹⁶ We aim to address these questions by providing data from our planned fieldwork in Dehbarm.

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¹⁴ Canepa, 2017.

¹⁵ Huff, 2008; Canepa, 2018.

¹⁶ Huff, 2014; Canepa, 2017.

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