New Archaeological Research in North-West of Iran: Sangar Water Supply System

Mamash Amir Ashayeri

Department of Archeology, Mahabad Branch, Islamic Azad University, Mahabad, Iran
amirashayerimamash@gmail.com

Abstract: In the mid-ninth century BC, The Urartu was widespread around Van Lake and Urmia, Manna is emerging at the same time in Kurdistan. Few site attributed to Manna have been excavated. Up to now, in the North-West Iran and Urmia Lake basin any Mannaian water supply system not identited. Remnants of a water storage pond, referred to by the natives as "Sangar" lies near Nokhod Darreh Village, some 25 kilometers west of Takab in the West Azerbaijan Province and several kilometers north of Ziwiye. Pond water was supplied from a spring located 2.5 km south, partly through ceramic pipes which are frequently found in the arable lands on the pipeline, and partly by a canal taht excavated through a limestone slope beside Nokhod Darreh Village, which is still sound and viewable. More researches about this problem related to Urartu. Pottery sherd shows good parallels with with the ceramics found at Mannaian site such as Zendan-i-Suleiman 40 Km north of Sangar and Ziwiye, more known as a Median-Manna site, Kul Tarike cemetery several km south of our sitePreliminary observation on the Sangar location and ceramics suggest Mannaean date for this water supply system.
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Key words: Northwest Iran, Water supply system, Manna, Sangar, Urartu

Introduction:

The name of Manna first appeared in Assyrian inscriptions in 843 BC among the lands invaded by the army of Shalmaneser III (Luckenbil 1926). In the mid-ninth century BC The Urartu was widespread around Van Lake and Urmia, Manna is emerging at the same time in Kurdistan (Postgate 1989). Manna is probably caused by some regional developments and reaction formation against Assyrian invasions (Kroll 2011).

Few site attributed to Manna have been excavation. Hasanlu excavation was beginning Maanaean archealogy in Iran. Initially Dyson attributed Hasanlu to manaean (Dyson 1961).

But subsequent research showed that there are doubts about the proposed Dyson (Dyson and Muscarella 1989, Danti Kimberly 2004, KHatib-SHahidi 2006).

Ziwiye another manaean site first excavated by Dyson (Dyson 1963) and then it was introduced A Mannaean-Median Fortress (Motamedi 1997).

The Zendan-i-Suleiman was excavated by a German team. The Zendan-i-Suleiman structure consisted of a sequence of rectangular rooms, every third one protruding a few metres, so that the projection gives the whole the character of a fortification (Nauman 1967).

Kul Tarike Manaean Cemetery, excavated in recent year located in near Ziwiye.During the excavation 10 graves were uncovred, the tomb pits have been cut through the loose bedrock and were capped by large slabs (Rezvani and Roustaei 2007)

Qalaychi another famous manaean site located in near Boukan city that excavated after the Iranian revolution. One of the most important findings in this site was a stela with an Aramaic cuneiform inscription. The inscription refers to the gods Haldi and Hadad, and Zaerta (Bashash 1996, Lemaeir 1988, Fales 2003). According to the excavator, Qalaychi is comparable to Izirtu, the capital of Manna (Kargar 2005).

Rabat Tepe is located at the southern fringes of the Little Zab River a, about 30 km away from the border of Iraq. Objects from Rabat bear peculiarities which are typical only for the region under consideration, the Mannean kingdom of the 9th-7th centuries BC (Kargar and Binandeh 2009, Heydari 2010).

According to archaeological data the Mannae state encompassed the area east and south of Lake Urmia, from modern Maraghe to Miane (Hejebri and Molazadeh 2004).

Up to now in the North-West Iran and Urmia Lake basin any Mannaian water supply system not identited. More researches about this problem related to Urartu. Preliminary observation on the Sangar location and ceramics suggest Mannaean date for this water supply system.

Water was a main concern of Urartus. Employing complicated methods of irrigation, they had achieved great success in crop production. Excavation of irrigation canals and water reservoirs was a part of their activity for water supply and conveyance to the forts and arable lands. There are several Urartian inscriptions on implementation of canals, some of which have been inscribed on the stones used in the structure and some on the rocks on

the route. Such development activities are observed on memorial inscriptions of Urartu Rulers too. Rusa son of Argeshti points to construction of canal and planting vineyards on the Coast of Razavan River and sacrifices he offered for the flow of water in the canal (Piotrowski 2004: 200). In his report to the god of Assyria, Sargon-II too, mentions that Rusa has dug a canal and flowed water through (Piotrowski 2004: 202). In addition to irrigation networks, artificial lakes and ponds were constructed. Considering their achievements in water supply techniques, some researchers have called the Urartus a hydraulic community (Zimansky 1990).

Sangar Water Storage Pond

Remnants of a water storage pond, referred to by the natives as "Sangar" lies near Nokhod Darreh Village, some 25 kilometers west of Takab in the West Azerbaijan Province and several kilometers north of Ziwiye (Figure 1).

Water conveyance system consists of an intake located in a place called Kani Bolagh, which is higher than the surrounding lands and a canal excavated in an earth and rock route ending in the storage place.

The storage pond is rectangular in plan and lies on a mass of impermeable and rather soft conglomerate (Figure 2). To construct the pond, first the land has been dug and within the pit realized this way, the pond has been excavated in the dimensions 50 m by 110 m by 3 m in width, length and height, respectively. The pond is northwest-southeast lengthwise. Four sides of the pond are supported by limestone blocks which are available nearby. These blocks are about 30 cm thick and up to 130 cm in other dimensions. The space between adjacent blocks is filled with small rock fragments (Figure 3).

With an even spacing inside the pond, cubic bastions support the side walls of the pond from inside while the space outside the side walls are filled with fine grain soil and screen to make it impervious. Floor of the pond is the initial conglomerate with no permeability problem. Making retaining walls with large rocks free of mortar and filling the voids with rock fragments and making half bastions square in plan were routine in architectural practice of Urartus. Today, only the south and west side walls can be observed and the north and east ones are covered with the soils removed in the course of new development activities (Figure 4).

Pond water was supplied from a spring located 2.5 km south, partly through ceramic pipes which are frequently found in the arable lands on the pipeline, and partly by a canal some 90 cm wide and 70 cm high excavated through a limestone slope beside Nokhod Darreh Village, which is still sound and viewable. Other parts of the conveyance canal have been filled with soil in the course of time and due to stop of its utilization (Figure 5, 6).

Figure 1. Landscape of Sangar area

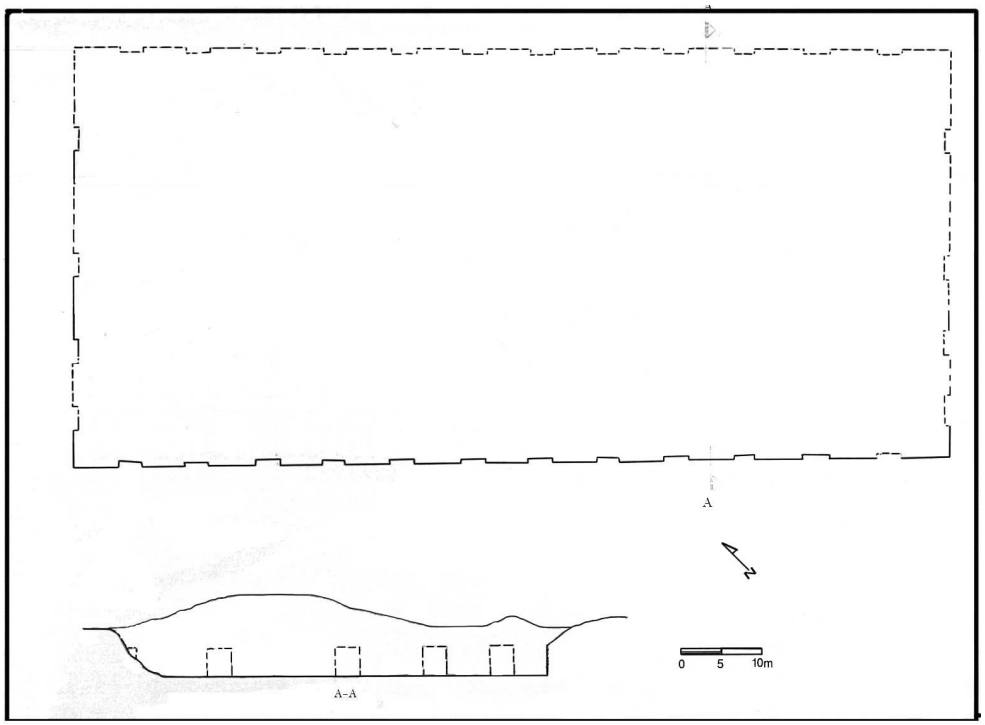

Figure 2. South structure of Sangar pond

Figure 3. General view of Sangar pond

Figure 4. Plan of Sangar pond

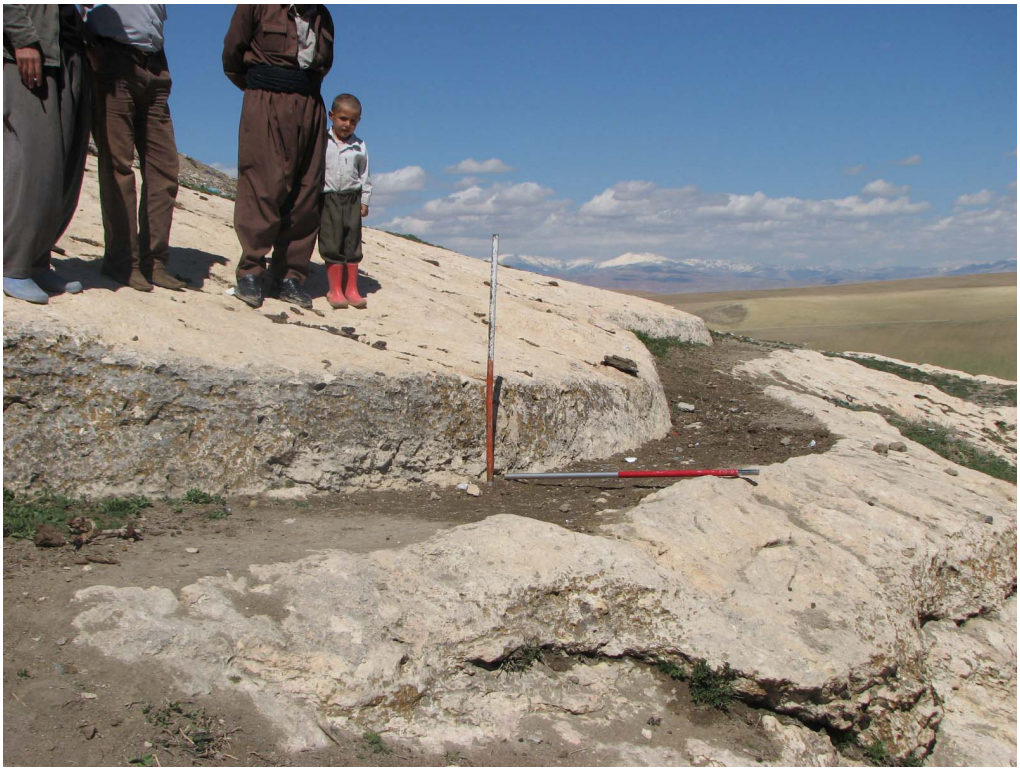

Figure 5. Water canal of Sangar

Figure 6. Water canal have been filled with soil in the course of time

Conclusion:

Agriculture entered into a new stage owing to practice of irrigation by Urartus on north-west Iran. Thanks to the water management exercised, the Oshnavieh plain was so productive for a long time before Sargon's Campaign (Zimansky 1990). Urartian territory was limited on the south of Urmia Lake, to the site of Dash Tappeh inscription in Miandoab and no Urartian relics has been reported further south. Cistern of Caustepe Castle (Belli 2000: 212) 22 Km southeast of Van and Cistern of Argishtihilini are from some structural viewpoints comparable with Sangar. On the south of Urmia Lake, Ajdeha Bolaghi Spring with an inscription from Menoa and Sheitan Abad water conveyance canal have been reported (Kleiss 1970).

Water supply system realized by the Urartu in the first half of the first millennium B.C has been so remarkable that the contemporaneous people imitated them (KHatib-SHahidi 1999: 97).

Concluding remarks

Based on Archaeological and historical data about 820 B.C Urartu south plain of Urmia Lake to Miandoab was occupation and never going lower this region. In new Archealogical survey this region (Boukan, Shahindej and takab) no Urartian site has been identified (KHatib-SHahidi and Binandeh 2008).

Another important data is pottery sherd that collection from the surface survey near Sangar pond (Figure 7). Pottery sherd shows good parallels with with the ceramics found at Mannaian site (Boehmer 1988) such as Zendan-i-Suleiman 40 Km north of Sangar and Ziwiye, more known as a Median-Manna site, Kul Tarike cemetery several km south of our site (Rezvani and Roustaei 2007, pl.22,24,26). Also the pottery forms and types found in the Sangar are matched closely to those found in the Qalaychi (Mollazadeh 2008 pl.8, pl.9) and Ziwiye near Sangar.Regarding the geographic location of the pond on south of Urmia lake no so far from Ziwiye, more known as a Median-Manna site (Motamedi 1997), Kul tarike (Rezvani & Roustaei 2007) and Zendan-i-Suleiman (Numan 1967). Seemingly, Sangar water supply system has been built by the Mannaian people that imitating Urartuian. Sangar supplied water for the irrigable lands on north of Nokhod Darreh Village in the first millennium BC.

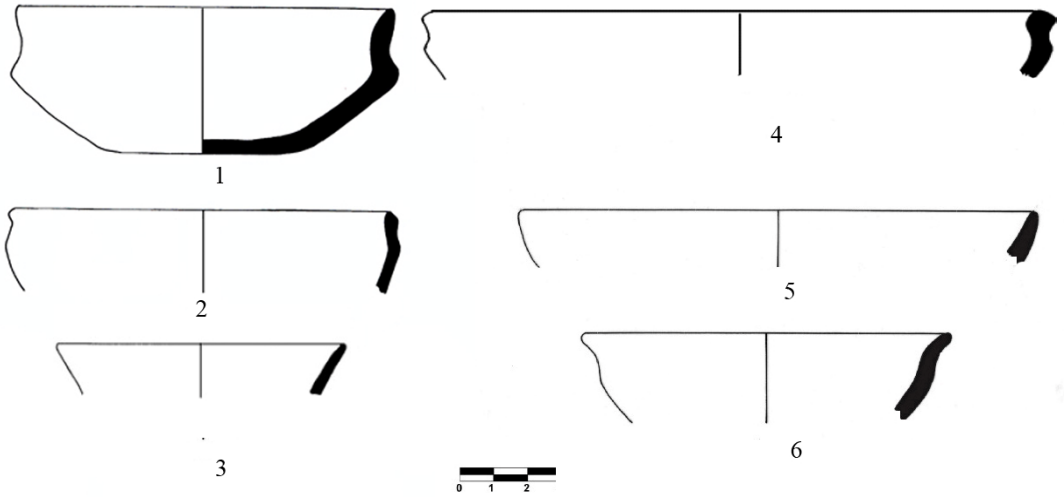

Figure 7. Pottery sherd from Sangar area

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