

**POOLS AND POOL BUILDING TECHNIQUE DURING PRE-POTTERY
NEOLITHIC PERIOD**

**ÇANAK ÇÖMLEKSİZ NEOLİTİK DÖNEMDE HAVUZLAR VE HAVUZ YAPIM
TEKNİĞİ**

**ТЕХНОЛОГИЯ И СТРОЕНИЕ БАСЕЙНОВ В ДОКЕРАМИЧЕСКИЙ
ПЕРИОД НЕОЛИТА¹**

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ÖZ

Günümüzden yaklaşık 11000 yıl önce, Çanak Çömleksiz Neolitik Dönem'de, Güneydoğu Anadolu Bölgesi'ndeki Neolitik toplulukların bazıları yüksek ve dağlık bölgelerde yaşadıklarından ve buralarda yerleşimlerini kurduklarından su ihtiyaçları ortaya çıkmıştır. Bu ihtiyacı karşılamak muhtemelen kış ve bahar aylarında yağın yağmurları biriktirmek için ana kayayı oyarak havuz yapmaya başlamışlar ve bölgenin yaz aylarında baş gösteren susuzluk problemlerini bu şekilde çözmüşlerdir. Bu çalışmada, su biriktirmek için yapılmış olan havuzların nerelerde bulunduğu ve havuz yapım tekniğinin neler olduğu üzerinde durulacaktır.

Anahtar Kelimeler: Havuz, Havuz Yapım Tekniği, Çanak Çömleksiz Neolitik Dönem, Dağ Yerleşimleri, Ova yerleşimleri.

ABSTRACT

Some of the Neolithic societies in the Southeastern Anatolia Region inhabited highland and mountainous areas and founded their settlements at such locations during Pre-Pottery Neolithic Period, circa 11.000 years before the present day, which brought forth the need for water. In order to fulfill such need, the Neolithic societies started to build pools by coving the bedrock in order to accumulate rain waters probably during winter and spring seasons in an effort to resolve the aridity problems that appear during summer season in the region. The present study will address to the locations where the pools build to accumulate water are present and to the pool building technique applied.

Keywords: Pool, Pool Building Technique, Pre-Pottery Neolithic Period, Mountain Settlements, Plain settlements.

АННОТАЦИЯ

Примерно 11 000 лет назад в догончарный период Неолита, на юго-восточной части Анатолии в высокогорных поселений из-за нехватки воды на главном месте была проблема ее хранения. Таким образом, чтобы решить эти неудобства, нужно было как-то собирать накопившуюся от весенних дождей и зимнего снега воду для

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использования ее в засушливое лето. В исследовании делаются попытки выявления местонахождения бассейнов, построенного для хранения воды и изучение технологии их строительства.

Ключевые слова: Бассейн, технология строительства бассейна, докерамический период неолита, горные поселения, равнинные поселения.

Introduction

The fact that proto-settlements are all founded at waterfronts is actually a generalization acknowledged by all as stereotyped information. Recent archeological excavations and studies conducted at Southeastern Anatolia Region, however, revealed that such generalization is not always accurate. In particular, we observe that, during the Pre-Pottery Neolithic Period, when the proto-settlements were founded, the settlements were also founded on high mountains and hills beside the settlements founded at waterfronts or lakesides. The mean elevation of the hills or mountains in Southeastern Anatolia varies in the range of 600-2000 m a.s.l. Until today, no water source was encountered in proximity to the Neolithic settlements founded at such mountains at an elevation in the range of 600 to 1000 m. Supplying the water demand of the Neolithic settlements founded at highlands should have been extremely challenging. Let's assume that the water zones are present at an elevation of circa 300-400 m, the Neolithic societies were obliged to descend approximately 200 to 600 m downhill and climb back in order to transport water. As this practice was not rather feasible for the Neolithic mountain settlements, there was an explicit need to make a discovery and implement the same. The region receives rainfalls during autumn, winter and spring seasons. In general, the rainfalls pour more frequently during spring season. During post-Neolithic periods, cisterns, pools or spring systems were built in almost entire Anatolia, except for several locations, at the areas where settlements and trade routes are present. In the Pre-Pottery Neolithic Period, pool-like structures around mountain settlements were also present.

Pools

The diameter of such pools coved into the bedrock in order to accumulate water in order to meet the water needs at the region, which is very arid during summer season varies in the range of approx. 1.5 to 3 m, while their depth varies in the range of 70 cm to 1.5 m (Beile-Bohn 1998: Abb. 20; Çelik, 2004: 3; 2006: 222; 2010: 259, fig.6). Built in round shape; the bedrock on which such pools are built is the calcareous rocks that dominate the region (Schmidt 2007: 118; Beile-Bohn ve diğ. 1998: 50). The pools, however, were built on smooth and crack-free zones rather than fractured zones of the calcareous rocks. At this moment, we have no information on how they identify intact, crack-free rocks and what was the method they implemented in this respect. However, we can easily mention that, in all Neolithic settlements where pools are discovered in the vicinity, the pools still retain water even today and that the pools were built at the crack-free intact areas. Similar structures for this type of round-planned pools are also encountered at Göbekli Tepe (Schmidt 2007: 118, fig.5 ; 2011: 47, fig. 5; Beile-Bohn ve diğ. 1998: 50, Abb. 20), Karahan Tepe (Çelik 2011: 242, fig.5), Hamzan Tepe (Çelik, 2004: fig.3; 2006: fig. 4; 2010: fig.7-8), Kurt Tepesi (Çelik 2015a: 442, fig.2), Domuzcurnu Tepesi (Çelik 2015a. 447) and Harbetsuvan Tepesi (Çelik 2015b: 85) settlements.

Apart from the round-planned pools, another pool with rectangular plan that appears as the sole example was also discovered. Raceways and gutters were built besides such

rectangular-planned pool built at the northern slope of Göbekli Tepe in order to allow more fluent flow of water (Beile-Bohn et al. 1998: 50).

In general, the pools were built on, or at the close proximity of, the slopes of the Neolithic settlements. Although their intention is to supply the water demand of the settlements, in some cases, they were also built right beside the cult buildings discovered at the settlements. In particular, not only the foundations of the cult building carved into the bedrock but also two pools at the northern edge of such structure were discovered at an area south of Göbekli Tepe settlement. Within one of such pools, a seat formed when carving the bedrock and a staircase with 5 steps used for plunging into the pool were identified (Schmidt 2007: 118, fig.5).

Pool Building Technique

During the Neolithic Period, the pools were generally built by coving the bedrock. And, if we look into the stones to be used for such process at that period, no tools other than Flintstone, obsidian, and pebbles were available. It is very challenging process to crush rocks using stones. Despite such unfavorable conditions, however, the Neolithic societies managed to develop an innovative method. Based on such method, they were building small burrows with diameter of 10-15 cm and depth of 10-15 cm at frequent intervals so as to form a circle (Figure 1). Then they broke the edges of the burrows in order to combine such burrows. As a result of this process, they managed to excavate a circular area at the depth of approximately 10-15 cm where such pool will be built (Figure 2). The pool was completed after repeating this process for 10 or 15 times at the same circular area (Figure 3). Indications of this method are determined at majority of the Neolithic settlements at highland areas. In particular, Göbekli Tepe (Schmidt 2007: fig. 5; 2011: fig. 5; Hauptmann 1999: fig.32; Beile-Bohn ve diğ., 1998: Abb. 20), Hamzan Tepe (Çelik 2010: fig. 6; 2006: fig. 3; 2004: fig.2), Karahan Tepe (Çelik 2011: fig. 5), Başaran Höyük (Güler ve diğ. 2012: fig. 2), Ayanlar Höyük (Çelik 2015a: fig. 21) and Aksoy Tepesi settlements where both pools and small burrow groups are found together are the settlements that illustrate such pool building technique.

We contemplate that this pool building technique encountered for the first time in the Neolithic Period should be an outcome of a social organization. The fact that the settlement is founded on the highland area is further important in terms of revealing another fact that such social organization was already present from the beginning, because choosing an intact, crack-free mountain area and to found the settlement there prior to building such pools requires planning in advance.

Review and Conclusion

In general, Southeastern Anatolia Region did not experience a major variation in climatic terms since the last Ice Age. The best proof for this is the carbonated plant remains unearthed at Göbekli Tepe (Neef, 2003:14), Nevalı Çori (Hauptmann 2007: 148), Çayönü (Stewart 1976: 221; van Zeist 1972: 3, tab. 1) and Şanlıurfa-Yeni Mahalle (Çelik 2007: 173) settlements in the region, which are currently under excavation. Pursuant there to, dominantly wild pistachio trees, oaks, almond trees and fig trees were present during the Pre-Pottery Neolithic Period. Such tree species are also encountered at the mountainsides even today.

The evidences pointing out to the pools built at the settlements from Pre-Pottery Neolithic Period are frequently encountered during the studies conducted at Şanlıurfa region. Such settlements were generally founded at mountainsides where no tributaries are

present. All settlements were founded on bedrocks formed by calcareous rocks. In general structures like burrows were not built for the pools at the slopes or edges of the settlements. Due to intense evaporation at the round embouchure of the pools, they were probably covered with some tree branches and leaves.

Such pools, also encountered around the cult buildings, appear at Karahan Tepe (Güler and Çelik 2015: res. 20), Hamzan Tepe (Güler and Çelik 2015: res. 15), Göbekli Tepe (Schmidt 2007: fig 5), Kurt Tepesi (Güler and Çelik 2015: res. 20), Harbetsuvan Tepesi and Ayanlar Höyük (Güler and Çelik 2015: res. 21) settlements in the region which are characterized as cult settlements. Also encountered at the settlements characterized as civilian settlements, such pools or pool building techniques were identified at Başaran Höyük (Güler ve diğ. 2012: 159,166), Aksoy Tepe and Domuzcurnu Tepesi (Çelik 2015a. 447) Neolithic settlements.

In conclusion; The Neolithic societies achieved the freedom to found settlements wherever they desire during the Pre-Pottery Neolithic Period for the first time by virtue of the pools covered into bedrock built for accumulating water and reserve the same for more arid summer season, which further became a prevalent tradition of the mankind also during the late periods.

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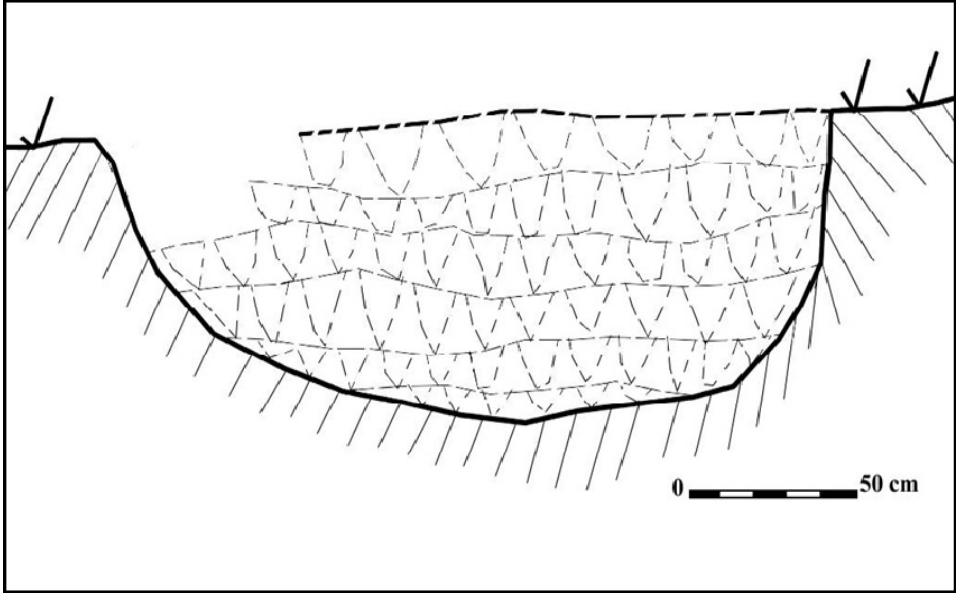
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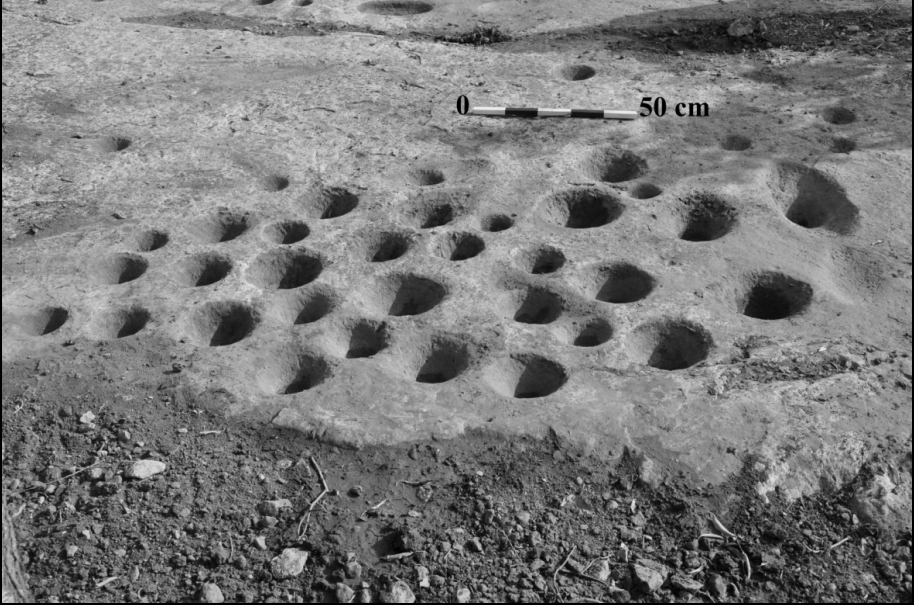
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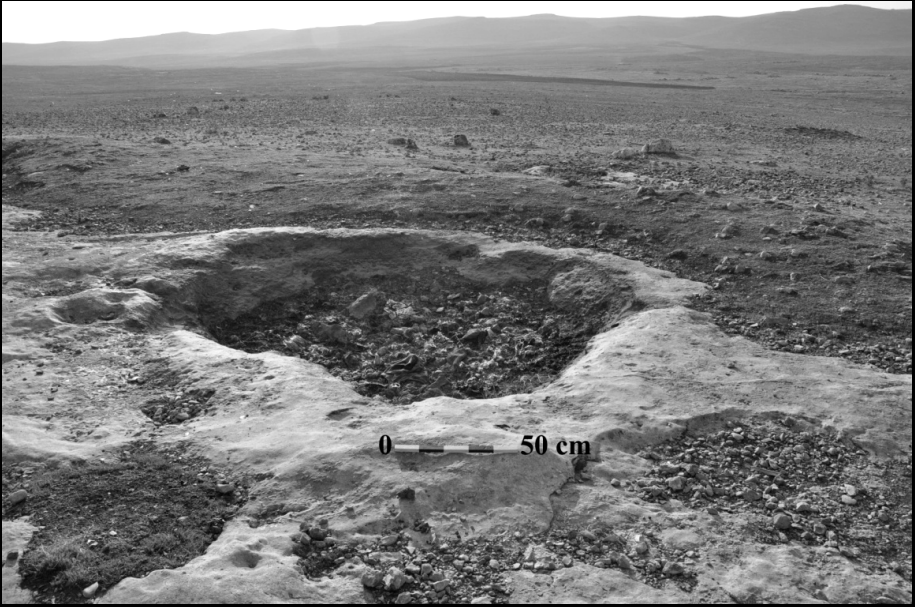
Resim 1: Havuz Yapım Tekniğini Gösteren İllüstrasyon.

Figure 1: Diagram Illustrating the Pool Building Technique.



Resim 2: Dairesel Şekilde Yapılmış Küçük Oyuk Grupları.

Figure 2: Circular Shaped Small Burrow Groups.



Resim 3: Yapımı Tamamlanmış Bir Havuz.

Figure 3: Finished Pool.