



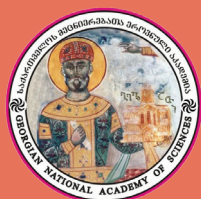
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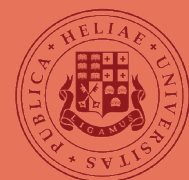
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Artificial Cavities Within the Kura River: From Turkey to Georgia

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Abstract

The Kura River, known as the Mtkvari in Georgian, traverses approximately 190 km within Turkey before flowing through Georgia and Azerbaijan and ultimately discharging into the Caspian Sea. As the most significant watercourse in the region, it acts as the primary catchment for surface waters within its basin. This river, extending a total of 1,515 kilometers, is characterized by numerous rock-cut churches, monasteries, and settlements carved into the valley walls in both Turkish and Georgian territories. While extensive scholarship has focused on the rock-cut structures within the Georgian segment—highlighted by the designation of Vardzia as a UNESCO World Heritage Site—systematic research regarding the Turkish segment of the Kura River has only commenced in recent years. Although less abundant than their counterparts in the Georgian segment, a significant number of rock-cut structures have recently been identified and documented in the Turkish section. This presentation explains the findings from our four-year investigation of the rock-cut settlements along the Kura River. Our fieldwork utilized a combination of archaeological surveys and digital mapping techniques to categorize these previously overlooked sites, creating a detailed inventory of the region's cultural heritage. The investigation revealed a diverse array of rock-cut typologies, ranging from simple monastic cells to complex, multi-chambered habitation units interconnected by tunnels and internal staircases. Preliminary analysis suggests a strong architectural and chronological continuity with the better-known sites in Georgia, indicating a unified cultural landscape that historically transcended modern political borders. Furthermore, this study addresses critical gaps in the understanding of medieval habitation patterns in northeastern Anatolia, offering new insights into the socio-religious dynamics of the region. By documenting these vulnerable heritage sites, we aim to provide a comprehensive baseline that lays the groundwork for future conservation efforts and comparative cross-border analysis.

Keywords: Kura River, Ardahan, rock-cut structures, Harosman Caves

Geology

The Kura River, the region's largest fluvial system (1,515 km total length; 190 km within Turkey), collects surface waters from the basin before draining into the Caspian Sea. Originating south of the Göle district, the river traces a semicircle through Ardahan, eventually flowing northward near Kaşlıkaya Village. The riverbed morphology is characterized by deep canyons with wall heights ranging from 150 to 300 meters. These geological features, along with plateaus at elevations of 1,750–1,850 meters, are the result of continuous tectonic uplift driven by NE-SW and NW-SE trending faults in a region of relatively young volcanism (approx. 3.8–2.6 Ma).

The lithology of the study area is dominated by Pliocene volcanic rocks, divided into two distinct formations:

- **Kura Volcanics (Upper Miocene-Lower Pliocene, 3.8–3.6 Ma):** This unit represents the oldest identifiable rock formation in the region. Extending

from Altaş Village to the Georgian border, it consists of basal agglomerates followed by alternating calc-alkaline volcanoclastics, tuff, and andesite flows. These formations create distinct sequences within the canyon walls, occasionally exceeding 300 meters in thickness.

- **Öncül Volcanics (Pliocene, 3.6–2.6 Ma):** Representing the final phase of volcanism, these basaltic andesites conformably overlie the Kura Volcanics. Varying in thickness between 60 and 80 meters, these lavas erupted from structural fractures and constitute the plateau morphology observed on both banks of the river (Innocenti et al. 1982; Aktimur et al. 1991; Duru & Keskin 2014).

Historical Background

While prehistoric habitation in the region is hypothesized, it remains unproven due to a lack of systematic archaeological excavation. Similarly, although Urartian inscriptions have been located in Hanak and Çıldır, de-

finitive evidence of the Urartian Kingdom's control over the Ardahan plain is insufficient. Historical data becomes more robust regarding the Late Antique Period.

From the 4th century BC, Georgian culture was predominant in the region. The area (Tao-Klarjeti) was under Roman rule until the 4th century AD, followed by a period of Persian occupation. King Vakhtang liberated the region in the late 6th century AD and established a bishopric in Erusheti.

Arab dominance extended into Transcaucasia in the mid-7th century, leading to significant architectural destruction. By the late 8th century, Georgian King Ashot I established his capital in Ardanuch (Artvin). He allied with the Byzantine Empire, receiving the high-ranking title Kouropalates (Guardian of the Palace), but was ultimately killed by Arab forces in 826/830 AD.

The 10th century witnessed the political unification of the Georgian and Abkhazian kingdoms under Bagrat III (1008–1014). However, relations with Byzantium deteriorated under his successor, Giorgi I. In 1021 AD, Byzantine Emperor Basileios invaded the region, plundering Ardahan (Artaani). The subsequent weakening of both the Georgian and Armenian kingdoms by Byzantine aggression created a power vacuum that facilitated the later Turkish conquest. The majority of surviving medieval archaeological assets in Ardahan date to this 10th–12th century interval (Bayram 2014; Patacı 2015).

Rock-cut Structures of the Region

The earliest mention of rock-cut dwellings in the region is found in the *Anabasis* written by Xenophon in the 4th century BC. The Ten Thousand were a force of mercenary units, mainly Greeks, employed by Cyrus the Younger to attempt to wrest the throne of the Persian Empire from his brother, Artaxerxes II. Their march to the Battle of Cunaxa and back to Greece (401–399 BC) was recorded by Xenophon in his work *Anabasis*. In Book 4, Chapter 5 of this work, the exact location is not specified, it is written:

“Their houses were underground, the entrance like the mouth of a well, but spacious below; there were passages dug into them for the cattle, but the people descended by ladders. In the houses were goats, sheep, cows, and fowls, with their young; all the cattle were kept on fodder within the walls” (Brownson 1922).

Although some researchers claim the region referred to is Cappadocia (Giovannini 1971), this section of the book is the Ten Thousand's return route and passes much further east, near Lake Thospitis (today's Lake Van) and the Euphrates springs. Therefore, the region in question could be Ani near Kars or the rock-cut dwellings near the Kura River.

Rock-cut structures in the region begin to appear in volcanic rocks in the Kura River basin, approximately

30 km west of Ardahan. From there, these structures increase in density eastward, exhibiting an incredible diversity after crossing the Turkish border. The rock-cut structures of the Georgian side of the Kura River—Vardzia, Vanis Kvabebi, Gelsunda Caves—possess an architectural richness. All these structures along the Kura River extend up to Gori.

The fortified citadels carved out of the rock are found mainly in the Kartlia region, a morphologically very varied area, in which the mountain complexes shrink into a narrow valley crossed by the Kura River. To the west of Tbilisi, in the Gori area, in a rocky massif above the Kura, the Uplis-Cihe complex was excavated at the turn of the Crisian era, which had maximum development between the 9th and 11th centuries and was destroyed in the 13th century by the Mongols. The remains show caves for housing and others, larger, for collective function, whose ornamental elements, carved in the rock, repeat those of traditional wooden structures, including beams and coffered ceilings.

The most spectacular example of a Georgian rock-cut settlement is that of Vardzia. Also dominating the course of the Kura River was initially conceived as a fortified city and later adapted as a convent. The work was commissioned by King Giorgi III (1156–84) to prevent attacks by Arab neighbors. The death prevented the king from completing it. His daughter Tamar (1184–1213) enlarged many of the 550 rock-cut rooms already excavated (Nicoletti 1980; Bakhtadze 2019).

Despite the richness of rock-cut structures on the Georgia side of the Kura River, the Turkey side is not as productive. Our research in the Kura River basin, which we began as the OBRUK Cave Research Group in 2020, continued for four years. During this time, the entire basin and its surrounding area, from east of Ardahan to the Georgia border, were surveyed. Although more than 40 caves were identified in the region during preliminary research, surface studies revealed that most of them were natural. Only 11 caves were artificial or has human intervention to natural caves.

These are:

Village	Cave
Kotanlı	Şadırın
Akkiraz	Pedris
Akkiraz	Rock-cut settlements
Akkiraz	Gaçıyan
Övündü	Beyaz
Övündü	Kızıl
Övündü	Rock-cut settlements
Övündü	Rock-cut church
Ortakent	Harosman caves
Taşdeğirmen	Keçi
Akçıl	Şiko Cave



Fig. 1. Location map showing the Ardahan Province and the caves explored (after Google Maps - elaboration A. Yamaç)



Fig. 2. Harosman Caves from the southwest (photo A. O. Turan).

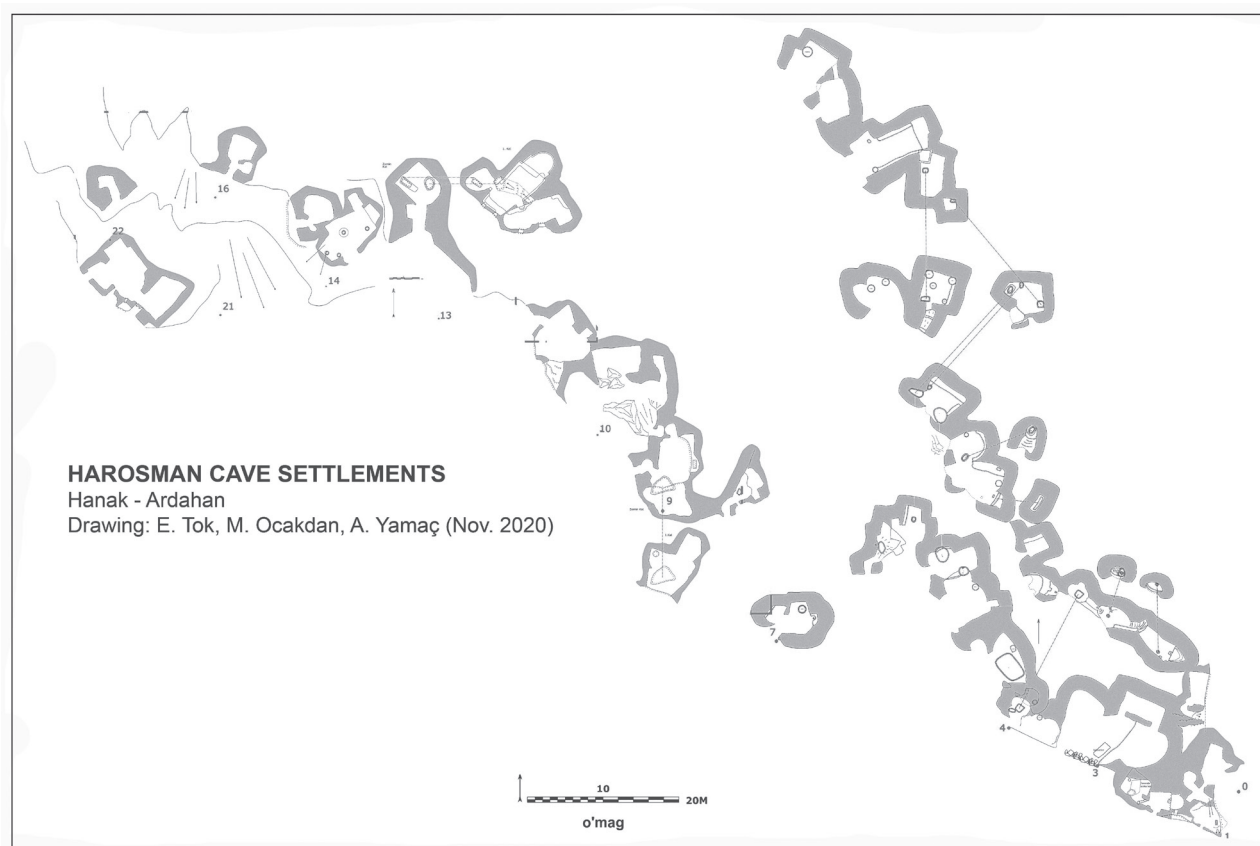


Fig. 3. Plan of Harosman Caves (drawn E. Tok, M. Ocakdan, A. Yamaç)

These 11 caves were documented, surveyed and mapped. Seven of the studied caves are small, isolated dwellings, only four are multi-story rock-cut settlements. These are; Harosman Caves which is the largest rock-cut settlement in the Kura River basin within Turkey, Şiko, Övündü and Akkiraz settlements (Fig. 1).

Harosman Caves

Harosman Caves are in the Kura River basin within the borders of Hanak District. The pyroclastic rock commonly observed in the south of Hanak and around the Harosman Caves is ignimbrite. This is a rock type that

is much more difficult to excavate than the soft tuff found in Cappadocia. The rock on which these caves are located is approximately 236 meters long, 25 meters high (Fig. 2).

There are a total of 66 caves. Interior spaces of the caves grow towards the middle parts of the range from the southeast direction, and become smaller sized cave settlements towards the northwest. It can be thought that the caves in the southeast direction were mostly used for worship, and the cave settlements in the northwest side were arranged in smaller spaces, so they might have been used for shelter and/or residence (Fig. 3). One of the most important parts of the caves complex is the place arranged as a rock church. The



Fig. 4. Apsis of the main church of Harosman Caves (photo A. Yamaç)

part of this cave, which we think is the only entrance gate, has been partially destroyed due to natural reasons. Although traces of a thick layer of white plaster were found on the surfaces of some walls of the cave, it was not possible to get an idea whether the other walls were plastered due to the thick oily soot and soot layer on the other walls of the building. The naos is in the west and the apse is in the east (Fig. 4). To the south of the apse, there are sections belonging to pastohorion. It is understood from the grooves opened in the form of channels on the floor, side-upper walls and ceiling that these parts of the rock church were closed and separated from the naos part by piers/plates. Except for the apse part, culverts were opened along the northern wall of the cave. There is also a martyryrion part in this rock church. One or more burial chambers carved into the rock structure under the ground were destroyed.

The spatial arrangement of another cave within the cave complex is particularly noteworthy. The entrance to this cave is through a carefully opened doorway. The cave has two rooms; The first room is the section where the entrance is located, and there is an altar in the middle of the opposite wall, a niche on the side wall and a window opening on the river side in a small area in the form of an apse, which is reached by two steps on the east side. The second room is accessed through a rectangular shaped door. The sacrificial/votive/offering pits and some of the associated channels opened on the floor of this place were opened especially from the fa-

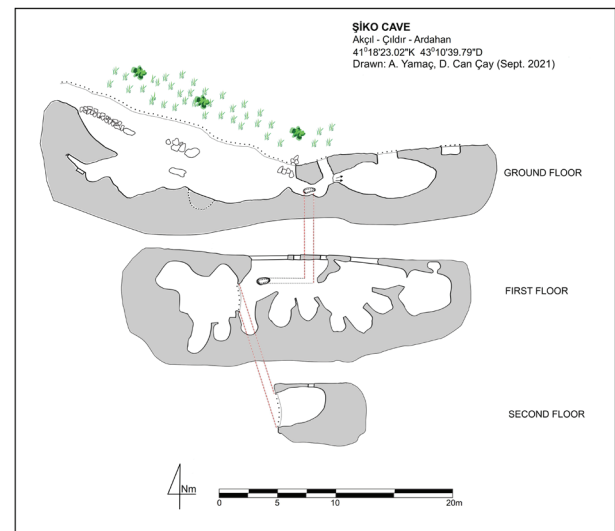


Fig. 5. Plan of Şiko Cave (drawn A. Yamaç, D. Can Çay)

cade of the cave facing the river.

The second floor of these caves, carved into the rocks, is reached by tunnel passages opened through another cave, which first continues vertically and then horizontally. While some of the caves carved into the rock mass consist of a single space, it has been determined that most of them have 2-3 rooms.

The transitions between the spaces are provided through doors and stairs opened properly into the rock. Channel-shaped cavities and stepped formations on the sills of some cave entrances are traces of mechanisms used in door closing. There are culverts or lighting holes in the northern part of the caves and on the facades facing the river, and almost all of them have shafts. Seating benches, small and large niches on the walls and hollows used as shelves can be seen in almost all of the spaces built into the rock (Arda 2023).

Şiko Cave

Şiko Cave is located three kilometers east of Akçıl Village as the crow flies, in the valley floor. In this area, the Kura River flows through a valley approximately 300 meters deep from the plateau and forming a border between Georgia and Turkey. The villages are situated on the plateau, lined up along a northeast-southwest axis. Şiko is carved into a single ignimbrit rock block as a three-storey structure.

Upon entering, there is a large space with its entire facade open to the Kura River. From this space, a shaft leads up to the upper floor through the middle of the gallery that connects to the single, large room on the east.

The absence of steps and handholds in this 4-meter-high shaft leading from the ground floor to the first floor suggests a possible defensive structure, but the large



Fig. 6. Şiko Cave (photo A. Yamaç)

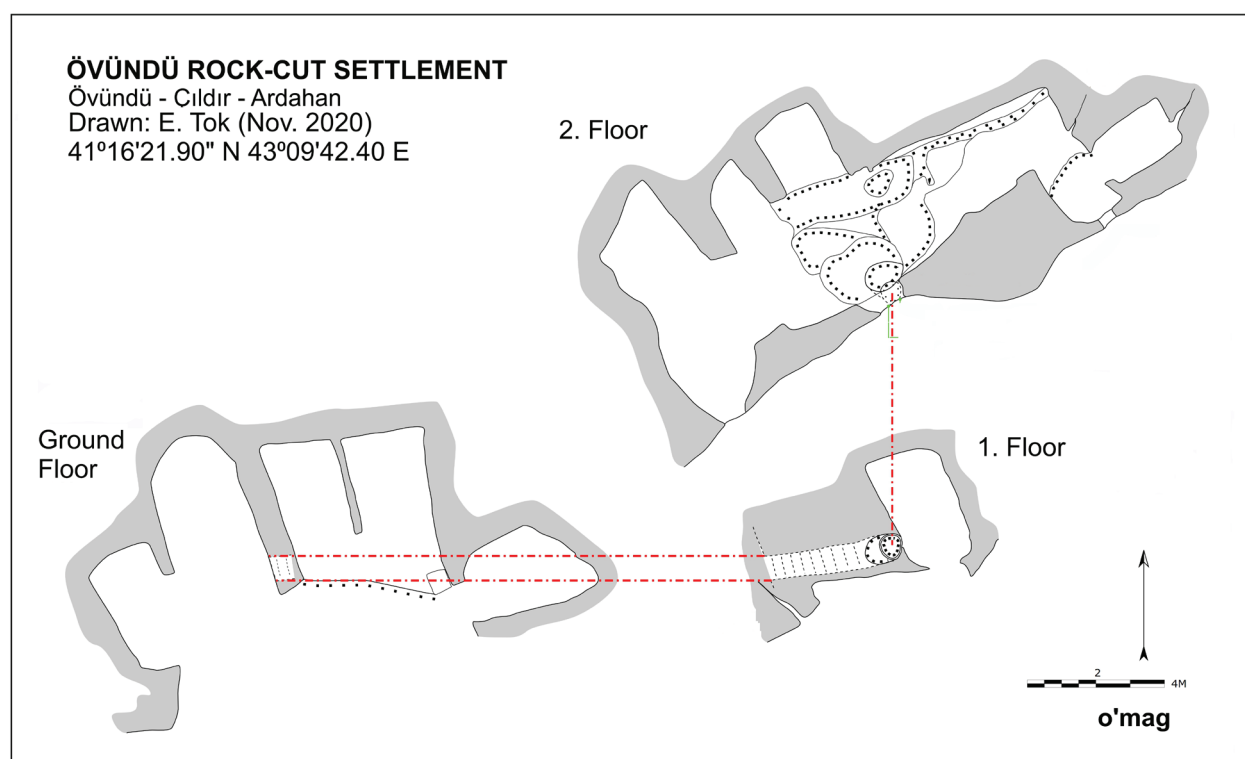


Fig. 7. Plan of Övündü Rock-cut Settlement (drawn E. Tok)

windows on the upper two floors invalidate this idea. The upper floor has a total of 12 rooms that can be divided into four sections. From the western section, one gradually reaches a single room measuring 3x5.5m with a window. All the rooms of the structure are carved amorously with rough workmanship.

The Kura River valley in this region is extremely fertile for agriculture. As can be seen below in Övündü Village, there are orchards as well as farmlands in the valley. Accessing the valley floor from the top of the plateau,

although not a very long distance, is strenuous. Therefore, the fact that Şiko Cave, despite being three-storeys, has such amorphous and carelessly constructed workmanship suggests that it may have been excavated as a temporary dwelling for villagers working in these orchards and fields. The fact that it is three-storey can be explained by the absence of any other rock formation suitable for excavation in the vicinity (Figs. 5-6).

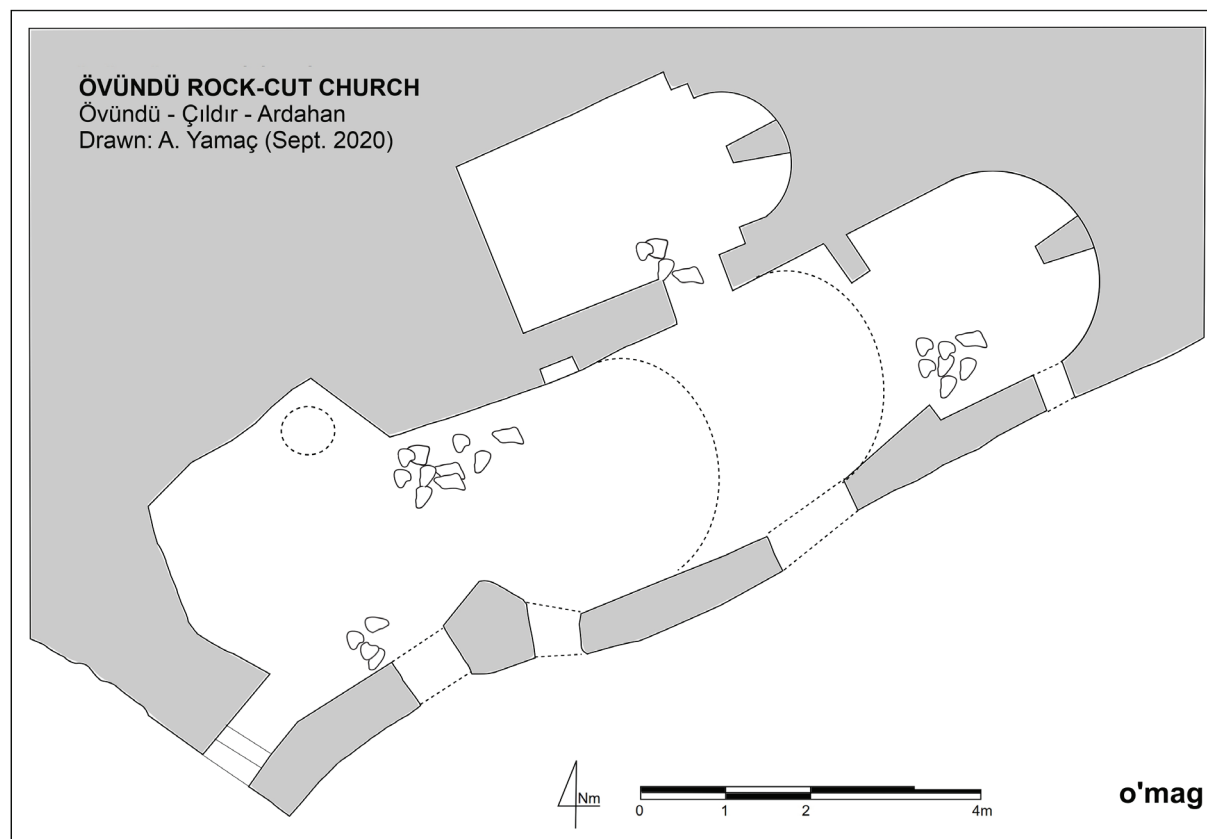


Fig. 8. Plan of Övündü Rock-cut Church (drawn A. Yamaç)

Övündü Rock-cut Settlement and Church

Övündü Village is located seven kilometers south of Akçıl Village and, like the other village, is situated on top of the plateau. The rock-cut structures being explored here are also located in the valley floor and on the banks of the Kura River.

The three-story rock-cut settlement located here is smaller than Şiko Cave. The ground floor contains five rooms with their fronts entirely open to the valley. The entrance to the central double room is stepped. These rooms, devoid of any architectural elements or ornamentation, must have been used as barns or storage. A staircase carved into the bedrock leads to a single room on the upper level. This room, and indeed the entire structure – much like Şiko Cave described above – may have served as a temporary dwelling. The staircase leading from the ground floor to this room then leads to an upper floor (2nd floor) via a shaft. This upper floor contains a large central space and five different rooms. The function of the stepped platforms in the central space is unclear (Fig. 7).

Located 200 meters south of this rock-cut settlement is a rock-cut church. This church, with a double nave and double apse, has suffered significant erosion and extensive damage from illegal diggers. The main structure is approximately 11.5 meters long and 3.5 me-

ters wide. Although its connection to the church is now completely lost, the large space after the stepped entrance carved into the bedrock to the west must have been the narthex. The eastern wall of the structure has four windows overlooking the valley. The first is in the narthex, two in the nave, and the last in the apse. The presence of a window in the apse is unusual, suggesting that the structure had a later use different from its original purpose, and that this window was added at that time. The templon walls of the apse are quite damaged (Figs. 8-9).

A passage north of this main *nave* leads to another, smaller church. Both churches have horse-shoe *apses*, barrel-vaulted ceilings, and altars carved into the bedrock in each *apse*.

While extensive studies have been conducted on a nearby masonry complex, it is interesting that the rock-cut structures were initially examined by our team. The Vashlobi Monastery structures are situated 300 meters south of the previously mentioned rock-cut formations. From Vashlobi Monastery, a church to the north and a chapel to the south, built adjacent to each other, a two-story section to the west of the church, and a two-story corridor providing access to this section from the chapel have survived to the present day. Remnants of walls adjacent to the north facade of the church in-



Fig. 9. Övündü Rock-cut Church (photo S. Bahadır)

indicate the existence of other spaces. No records have been found regarding the construction date of the structures. It is known that the use of regularly cut stone became widespread in the region from the second half of the 10th century onwards. Therefore, it is possible to place the construction of the chapel, built with regularly cut stones, after this date, in the 11th-12th centuries. Considering both the building materials and the fact that it was constructed before the chapel, it can be assumed that the church was built in the first half of the 10th century, with the two-story space and aisle added shortly afterward (Takaishvili 1909; Bayram 2014).

Rock-cut Settlements of Akkiraz and Kotanlı villages

Kura River flows within Turkey up to 1 km east of Akkiraz Village, at which point it forms the Turkey-Georgia border. Located at the zero point of the border, next to the bridge crossing the river, there are three distinct, small artificial cavities in the rocky outcrop. These caves, which are not of much architectural significance, were probably excavated as barns and temporary dwellings. Similarly, the Pedris and Gaçıyan caves, also near Akkiraz Village, are small structures with simple work-

manship, although they are artificial. There are numerous caves and rock caverns in the valley near Ogeçe, Kotanlı Village. However, most of these are natural formations, with no evidence of human intervention. Only a natural cave called Şadıran Cave has sections artificially carved.

Conclusion

Along a line of approximately 100 km stretching from Turkey to Georgia, countless artificial cavities are carved into the rocks on the slopes of the Kura River. Although the rock formation is the same, the diversity and architectural quality in the Georgian part of these cavities, compared to the limited number and simple workmanship in the Turkish part, can be attributed to a single reason: While artificial cavities in Georgia, as seen in the Vardzia example, are built with state or church support as part of a monumental project, the vast majority of those in Turkey were likely built by local communities for simple needs such as barn, storage or dwelling.

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