

Prehistoric sites in Northwest Armenia: Kmlo-2 and Tsaghkahovit

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Introduction

The early Holocene in the Southern Caucasus is poorly understood due to the scarcity of archaeological evidence from this period. According to our current knowledge, early farming settlements appeared in the beginning of the 6th millennium BC. Such settlements are attested in the Kura and Ararat plains, and these sites can be grouped into the so-called Shulaveri-Shomutepe culture. In particular, recent excavations at Aratashen and Aknashen-Khatunarkh in the Ararat plain conducted by an Armeno-French mission have revealed that these settlements had fully domesticated plants and animals from their inception (*cf.* Badalyan *et al.* 2007). We ask how early farming communities appeared in the Southern Caucasus; to answer this question, it is necessary to research early Holocene sites in that area.

For 10 years, an Armeno-French mission has conducted archaeological investigations in Armenia focusing on prehistory. The aim of this article is to present the recent results from two prehistoric sites, Kmlo-2 and Tsaghkahovit, in the Aragats mountain area (Fig. 1).

Kmlo-2

Site

Kmlo-2 is situated on a high plateau in Northwest Armenia, at an altitude of 1700 m, 40 km north of Yerevan. The site is a rockshelter on the western slope of a deep valley, formed by the Kasakh river (Fig. 2). The rockshelter is set into a sheer cliff and faces southeast. At one time the sheltered area covered approximately 3×6 m, but it has been reduced by the collapse of two large blocks at its mouth. The site was discovered in 2002 by the Armenian Archaeological Survey because of the abundant obsidian artifacts on the surface. It was thought to date to the terminal Pleistocene or early Holocene, periods of Armenian prehistory that have not been well understood. The excavations started in 2003 and continued in 2004–2005 and 2009 under the direction of Boris Gasparyan and Christine Chataigner.

The excavations revealed dark brown sandy deposits that were divided into five layers, totaling 40 to 50 cm, based on sediment texture and features. The upper layers include potsherds from several later periods and the Chalcolithic, while lower layers have almost no ceramics. Fireplaces with charcoal and ash were found in several layers, along with abundant obsidian artifacts and animal bones.

Except for the uppermost portion of the later period of occupation (Iron Age/Middle Ages), indicated by the presence of some potsherds, deposits from Kmlo-2 probably belong to the early Holocene and/or late Pleistocene: judging from the C14 dates (Table 1), these deposits can be divided into three phases, Chalcolithic (6th–5th millennia BC), Mesolithic/Neolithic (10th–8th millennia BC), and Epipaleolithic (12th–10th millennia BC)¹.

Lithic Industry

Four seasons of excavation have yielded numerous lithics made from local obsidian. Other raw materials, such as dacite

¹ The dating of Kmlo-2 is a difficult issue (Arimura *et al.* 2010), but the 2009 excavations and additional C14 dating confirm three different prehistoric phases.

and flint, were also used but in limited quantities. Cortical flakes of obsidian found at the site indicate that approximately 10 cm-sized river pebbles were brought to the cave and knapped on site. Such obsidian pebbles are available on the banks of the Kasakh River and originate in the large obsidian sources in the Tsaghkunyats range.

The lithic industry of Kmlo-2 is apparently blade-oriented; there are numerous blades or bladelets, corresponding to blade or bladelet cores (Fig. 3: 1). The blade/bladelet production technology is rather simple, and blades/bladelets are removed from pebbles or flakes without specific core preparation. Butt preparation is in general done by abrasion and in some cases they possess thick butts without careful butt preparation. Most blanks are apparently detached by direct percussion. On the other hand, there are several thin bladelets of regular form, probably detached by a pressure flaking technique, but such pressured specimens are not common (Fig. 3: 3). One small bullet core attests to such bladelet production on the site (Fig. 3: 2).

One important characteristic of the tool assemblage of Kmlo-2 is an abundance of microliths (Fig. 3: 4-9). There are various forms, such as lunates and trapeze-rectangles, but backed bladelets and scalene triangles (straight-backed and obliquely truncated bladelets) are predominant (Fig. 3: 4-6). The presence of microburins and remnants of microburin scars on backed bladelets indicate that the microburin technique was used for their production.

The most remarkable finds at Kmlo-2 are obsidian “Kmlo tools,” which we named after the site (Chataigner *et al.* 2007). This tool type could be a marker of a cultural entity in the Aragats mountain area: Kmlo tools have been found at other sites near Kmlo-2². Kmlo tools are characterised by continuous and parallel retouch by pressure flaking on one or both lateral edges (Fig. 3: 10-14, Fig. 4). They are usually made on blades but are also made on flakes. In many cases, linear or heavy abrasion can be seen on the retouched edge (Fig. 4). Additionally, the lateral (retouched) edge is often removed by burin blow. The ends of the tool are also frequently truncated or snapped.

Even though there is a wide range of C14 dates for the occupations in Kmlo-2, clear change in the lithic industry is rarely observed throughout the layers. However, the following two points could be cited as changes in the lithic industry. First, the distribution of Kmlo tools is noteworthy; Kmlo tools appear to be absent in the lowermost layer 5 (12th–10th millennia BC) but to gradually increase towards the upper layers (layers 4 to 1). Secondly, although pressured-blades are not frequent in Kmlo-2, clear examples of such blades are found in the upper layers but not in the lowest layer, layer 5. These differences probably indicate technological differences in lithic industries among phases.

Discussion of Kmlo-2

Based on the thin deposits and the size of the rockshelter, Kmlo-2 was a short-stay camp site, probably occupied by hunters, as indicated by the site’s location on the slope of the valley, where one can easily find animals coming to the river to drink or, if one goes up the slope, find animals living on the plateau. Although analysis of animal bones found from the rockshelter is in progress, according to a preliminary study there are bovids and horses, and Kmlo-2 was probably used for hunting these animals.

² Chataigner 2005, pp. 68-71.

As noted above, the C14 dates from Kmlo-2 suggest three different occupational phases that could also be observed in the layers. The C14 dates show that the site is earlier than Aknashen and Aratashen-Khatunakh. In addition, the lithic industry of Kmlo-2, which is characterised by abundance of microliths, simple blade/bladelet production, and the presence of Kmlo tools, is quite different from those of Aknashen and Aratashen-Khatunakh, where highly developed blade production was practiced.

As for the cultural affinity of Kmlo-2, the lithic industry seems to compare to Epipaleolithic and Aceramic Neolithic sites in Taurus-Zagros mountains (*cf.* Raffar 1996, Peasnal and Rosenberg 2001). In particular, Kmlo tools, the typical obsidian artifacts in Kmlo-2, are key items to be compared to those at other sites. As mentioned elsewhere (Arimura *et al.* 2010), specimens similar in typological aspect to Kmlo tools may be present in Georgia (hooked tools) and Western Asia (Çayönü tools). Although direct relationships among these tools are not obvious, we suggest that there was an “atmosphere” in which populations in both the northern part of Western Asia (Southeast Anatolia and North Mesopotamia) and in the Southern Caucasus had common ideas for making certain tools³.

Tsaghkahovit

Site

Tsaghkahovit is a rockshelter site located at an altitude of about 2000 m on the last foothill of the northern flank of the Aragats range (Fig. 5). The shelter itself is a basalt rock, 2.5 m high, and situated on a gentle slope scattered with smaller blocks. The excavations were carried out in 2007 and 2008 and revealed that light brown sediments had accumulated to a depth of approximately 30 to 50 cm. Archaeological materials were found scattered along the slope, but finds were highly concentrated in front of the rockshelter. No structural features were found.

Most of the archaeological finds are lithics, but animal bones and pottery sherds are also present. Most animal bones are from mammals. Their state of preservation is very poor due to complex taphonomic processes, and it is mainly the remains of large animals that have survived, especially the teeth, which enabled identification to species. Preliminary analysis shows that there are wild horses, wild boars, and very large-sized bovinds.

Five C14 dates from Tsaghkahovit are available (Table 2) and indicate that the site was occupied in the second half of the 5th millennium BC; the site seemingly has only one occupational phase.

Lithic Industry

Hundreds of lithics were found at Tsaghkahovit and are composed of two raw materials: obsidian and dacite. Obsidian represents more than 60% of the whole lithic assemblage. Black opaque or transparent obsidian is predominant; the site's occupants probably exploited the nearest sources in the Tsaghkunyats range or sources at Arteni, southwest of the Aragats range. Cortical pieces of obsidian were found but were low in number. Most of the retained cortex on the obsidian is brown-colored, thin, and flat, which indicates that the obsidian came from nodular blocks; rolled obsidian

³ It does not mean these tools had the same function in Western Asia and the Southern Caucasus because the function of these pressure retouched tools is not clear yet. However, at least as for Kmlo tools in Armenia, which are found in Kmlo and other sites, we infer that these tools could have been used in the same manner because similar characteristics such as abraded trace and tool morphology are observed. Further use wear analysis is needed.

pebbles were not used at this site. Judging from the small number of cortical flakes and the small size of the artifacts, obsidian was probably brought to the site as semi-chipped, small blocks, less than 10 cm in diameter.

The use of dacite, which is an igneous, volcanic rock, is a unique characteristic of the lithic industry of Tsaghkahovit. Several specimens possess a flat cortex, and it is probable that nodular dacite was brought to the site and knapped there. The largest dacite artifact measures more than 20 cm long, indicating that the block used was fairly large. The only source of dacite in the region is found near the top of the Aragats mountains, about 10 km from Tsaghkahovit.

The vast majority of obsidian artifacts at Tsaghkahovit are grouped as flakes. Most of flakes are small pieces; many specimens are less than 2 cm long. Their forms are generally short with wide distal ends. However, blades are rare; we thus infer that flake production was mainly practiced in Tsaghkahovit.

The tool assemblage of Tsaghkahovit is quite particular and is probably related to the site's function. Around half of the obsidian tools are arrowheads. In most of identifiable pieces, arrowheads are made on flakes, and their length varies from roughly 10 to 20 mm. Around three-fourths of the arrowheads can be classified as transverse type (Fig. 6: 1-3), characterised by a broad sharp edge that is formed from a lateral edge of blank. Both lateral edges are generally truncated by abrupt retouches. In some cases, dorsal or/and ventral faces are covered by pressure retouches. Retouch technique for making transverse arrowheads varies, and it might depend on the original form of blank flakes: in order to make arrowheads, various retouch techniques were applied to modify blank flakes. Besides the transverse type, there are several pointed arrowheads (Fig. 6: 4-5). This type is generally formed by pressure-flaking. One arrowhead of this type was found with four lunates (Fig. 7). This probably indicates its use as a pointed arrowhead with barbs.

Interestingly, some debitage products can be related to the production of transverse arrowheads. Judging from the dimensions, some short flakes could be blanks for transverse arrowheads. They are relatively thin and have sharp lateral edges that could be turned into the sharp edges of arrowheads (Fig. 8).

As for the method for making blank flakes for transverse arrowheads, it is important to mention that flakes having two positive faces are often observed among both blank flakes and transverse arrowheads (Fig. 8: 3-5). These can be obtained when blank flakes are removed from the ventral face of a core made on a flake (Fig. 9). In fact, some flake cores have removal scars on the ventral face; this method of making flakes is very simple and no specific preparation is necessary.

The other example of the blank production of transverse arrowhead is *pièces esquillées* (or splintered pieces). Some flakes with bidirectional scars on the dorsal face could be detached from *pièces esquillées*. At Tsaghkahovit, *pièces esquillées* were probably cores used to produce suitable flakes for transverse arrowheads; some flakes with opposing scars were possibly removed from such *pièces esquillées* (Fig. 8: 2).

As for other obsidian tools, one Kmló tool was found (Fig. 6: 7). This maybe indicate that this tool type continued to be used in the 5th millennium BC.

Dacite tools are also characteristic of the lithic industry at this site. As noted above, dacite nodules were brought to the site and tool making was carried out there. Several thin trimming flakes support such on-site production of dacite tools. Most of the dacite tools are made on long flakes and bear retouches on a lateral edge; they can be classified as scrapers or backed knives (Fig. 6: 8). A group of large dacite knives was found in 2007. Other tool types are rare. This uneven dacite tool assemblage may relate to the site's function. Dacite tools were probably used for butchering and cutting hunted animals.

Discussion of Tsaghkahovit

The particular tool assemblage, including the abundance of obsidian arrowheads and dacite knives, suggests that this site was occupied for hunting. Judging from the animal bones, they hunted wild mammals such as horses and bovids. The thin deposits and absence of structures indicates that the site was a short-stay camp, possibly used on several occasions.

At the moment, there is no other site comparable to Tsaghkahovit in Armenia. Our current results from Tsaghkahovit indicate that hunting camps were scattered around the Aragats mountain area in the 5th millennium BC.

Concluding Remarks

Our archaeological work shows that some early Holocene sites were present in the Aragats mountain area. These sites are generally small and were probably short-stay hunting camps. Kmlo-2, a rockshelter from the terminal Pleistocene and early Holocene in the Kasakh valley, is the first site to be dated earlier than early farming settlements in the Ararat plain (Aratashen and Aknashen-Khatunarkh), but we hesitate to categorise Kmlo-2 as “Mesolithic” or “Neolithic” since at present we have very little information on the subsistence strategy of its inhabitants. Lithic industries from Kmlo-2, characterised by microliths and Kmlo tools, are quite different from the early farming settlements of the 6th millennium BC. At Tsaghkahovit, a small hunting site of 5th millennium BC, the material culture is not known in the Ararat plain. Based on the results from Kmlo-2 and Tsaghkahovit, we could infer that a different cultural entity was present on the high plateau, distinguished from that in the lowland, the Ararat plain. The relationship between high plateau (Aragats mountain area) and lowland (Ararat plain) is an interesting issue for understanding prehistoric Armenia (Fig. 10).

There is still little information on the people who occupied these small camp-sites on the high plateau. However, we could suggest that they were coming as hunting expeditions from (still unknown) village farming communities in Aragats mountain area or in the Ararat plain, as transhumance, or as local hunter-gatherers who lived in the Aragats mountain area.

Captions of Figures and Tables

Fig. 1 Map of Armenian prehistoric sites.

Fig. 2 Kmlo-2 and Kasakh valley (arrow shows the site).

Fig. 3 Lithic industry at Kmlo-2.

Fig. 4 Kmlo tool.

Fig. 5 Tsaghkahovit (arrow shows the site).

Fig. 6 Lithic industry at Tsaghkahovit.

Fig. 7 Arrowhead and lunates from Tsaghkahovit.

Fig. 8 Transverse arrowheads (4-5) and their blanks (1-3).

Fig. 9 Flake production method.

Fig. 10 Schematic figure of the cultural sequence for the high plateau and the lowland in Northwest Armenia.

Table 1 C14 dates from Kmlo-2 (calibration: OxCal 4.1).

code	layer	material	BP	cal. BC (2 sigma)
Ly-12512	1	charcoal	1095 ± 35	887-1017 cal. AD
Ly-13663	1	charcoal	975 ± 30	1014-1155 cal. AD
Ly-2817 (Sac1777)	2	charcoal	5555 ± 60	4520-4269
Ly-2761 (OxA)	2	burnt bone	5515 ± 32	4450-4328
UGAMS-4077	2	burnt bone	5610 ± 30	4499-4360
Ly-2762 (OxA)	2	tooth	6640 ± 40	5631-5491
Poz-19666	3	bone	8500 ± 50	7596-7492
UGAMS-6457	3	bone	8480 ± 40	7587-7498
UGAMS-6456	3	charcoal	8830 ± 30	8201-7759
UGAMS-6455	3	bone	8980 ± 40	8286-7976
UGAMS-6458	3	bone	9050 ± 40	8305-8227
UGAMS-6459	3	charcoal	10020 ± 40	9794-9366
UGAMS-5797	4	bone	8790 ± 30	8165-7728
UGAMS-5798	4	charcoal	9420 ± 30	8778-8626
UGAMS-4076	5	bone	9840 ± 30	9354-9252
AA-68562	5	bone	10024 ± 91	10012-9300
AA-68563	5	bone	10184 ± 93	10425-9446
Poz-20231	5	bone	10900 ± 50	10976-10680
Ly-6990 (SacA-19541)	5	bone	10990 ± 60	11131-10732
UGAMS-5799	5	bone	11310 ± 30	11344-11165
UGAMS-5800	5	charcoal	11600 ± 30	11645-11363

Table 2 C14 dates from Tsaghkahovit (calibration: OxCal 4.1).

code	layer	material	BP	cal. BC
Ly-6991 (SacA-19542)	2	bone	5300 ± 40	4252-3995
UGAMS-2822a	2	burnt bone	5370 ± 40	4331-4055
UGAMS-2823a	2	bone	5530 ± 40	4456-4330
UGAMS-2824a	2	bone	5450 ± 40	4361-4235
UGAMS-2825a	2	bone	5540 ± 40	4456-4335

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