

Bone tools from Getahovit-2 cave site (Armenia)

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Abstract: *The paper presents the results of osteological and typological bone tools recovered from Getahovit-2 cave site (Armenia) during excavations held in 2018-2019. A multi-aspect analysis revealed the kinds of raw materials used for the production of bone tools and provided insights into how the specimens were worked and used. All were made from mammal bones, mostly cattle, sheep/goat and deer. Awls used to work with a soft organic material, were the most common tool types at the site. The presence of tools made from wild mammals' bones may possibly contribute to the discussion on contacts between farmers and hunter-gatherers or to the farmers that also practiced hunting.*

Rezumat: *Lucrarea prezintă rezultatele osteologice și tipologice ale uneltelor de os identificate în peștera Getahovit-2 (Armenia) în timpul săpăturilor desfășurate în perioada 2018-2019. Analizele complexe au avut rolul de a identifica tipurile de materii prime utilizate pentru producția uneltelor de os și au oferit sugestii asupra modului în care au fost prelucrate și utilizate acestea. Toate uneltele au fost realizate din oase de mamifere, în principal bovine, oi/capre și căprior. Împungătoarele cu care se lucrau materialele organice moi reprezintă cele mai comune tipuri de unelte pentru acest sit. Prezența uneltelor realizate din oase de mamifere sălbatice sugerează existența relațiilor dintre crescătorii de animale și vânători-culegători sau de ce nu practicarea vânătorii de către crescătorii de animale.*

Keywords: Bone tools, osteological analysis, Getahovit-2 cave, Armenia.

Cuvinte cheie: unelte de os, analize osteologice, peștera Getahovit-2, Armenia.

◆ Introduction

'Bone tool' is a generic term used to identify implements made of various animal tissues that include bone, tooth, antler, and ivory. During the Paleolithic (2.6 Ma to 10,000 BP), these tools took different forms and have been studied by archaeologists to address a variety of questions (L. Backwell, F. d'Errico 2014).

This paper presents the results of analysis of 21 artefacts made from animal bones showing traces of working or use, recovered from Getahovit-2 cave archaeological site, in Tavush Province in Armenia. The analysis aimed to identify the animal species the raw material came from and possible uses.

However, numerous evidences, coming from Armenia, suggests that the exploitation of modified animal bones should be viewed as an expression of a much older behavior. Some of the oldest evidence relating to the use of modified animal bones comes from Late Neolithic site (K.A. Hayrapetyan *et alii* 2014) and Chalcolithic site in Armenian contexts (L. Stapleton *et alii* 2014). Animal bones were used by early hominids for termite foraging at the sites (B. Gasparian *et alii* 2014).

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◆ Getahovit-2 Cave Site excavation and stratigraphy

The Eneolithic period of Getahovit-2 cave has a unique position due to both environmental and archaeological contexts. This cave is the perfect example of a site that was used by pastoralists during the Chalcolithic period in the region. It is the first, where the phenomenon has been fixed and studied in depth.

◆ History of Research

The cave survey launched by international joint Armenian-French (Mission Caucasus) expedition, aimed to investigate the early period occupations at the Northern Armenia. Under the direction of I. Kalantarian the collaborative excavations here started at 2011 and continued to 2017, unfolding cultural deposits of few Medieval period horizons, that were overlaid by the layers of Chalcolithic. Finally, with the help of the deep test sounding the horizon of Upper Paleolithic period was discovered in the cave under the sterile layer.

Chalcolithic period represented in Getahovit-2 cave placed in the middle sequence of the chronological chart based on radiometric dating. More, one data from 2014 deep sounding excavations, showed the very early Chalcolithic period presence (5289-4995 cal BC), which is extremely interesting because the time range still remain unknown in Armenia and in the southern Caucasus in general.

Starting from 2018, the excavations at Getahovit-2 cave are conducting by Institute of Archaeology and Ethnography NAS RA with the very actual financial support of Ijevan Wine and Brandy factory. During the last field season, we uncovered several layers of the earlier occupations that were post-dated 4700 BC and pre dated upper Paleolithic (the last ¹⁴C date that we have is *terminus post quem* for the mentioned layers).

◆ The cave

Getahovit-2 small cave is placed (located) at the valley (N 40°54'38.5'', E 045°05'59.7'') formed by the Khachaghbyur river (the tributary of Aghstev) at the elevation of ca 968 m a. s. l., in between modern villages Yenokavan and Getahovit (Tavush region, north east Armenia). It is one among the numerous caves located on the terraces and vertical, sheer cliffs of the canyon (fig. 1, 2). The cave consists of two halls: the first one, opened to the south, covers an area of 64 m² and second (small one), that can be accessed through a narrow passageway. This second room is filled by a large accumulation of sediment. Even it has smaller scales, the presence of the artifacts indicate that this place can give some perspectives of occupation also. During last excavation season some parts here started to be cleaned. In front of the entrance of the cave, a terrace covering a surface of about 60 m² overlooks the valley.

The excavations started at the first hall of the cave sized 13x8 m in 2011 with the small-scale trench (2x2 m). As a result, two main occupation phases had been fixed (attested)- Medieval (IX-X, XI-XIII cc.) and Chalcolithic (the last quarter of the fifth millennium BC (4360-4320)).

Based on the whole period of the excavations the stratigraphical review of the cave layers is possible to conclude, that the general time periods of occupations that are known until now are 1. Upper Paleolithic, 2. Chalcolithic and 3. Medieval (tab. 1).

◆ General stratigraphy

Upper Palaeolithic, Level 6 (Level VII - 2014)

The deepest, Upper Paleolithic occupation level, we got by deep sounding excavation in 2014 (fig. 3, 4). It appeared at a depth of about 3.2 m and lies directly on the bedrock, which is strongly sloped in the excavated place. However, the virgin soil has not yet been reached on the terrace side, where other earlier levels probably remain to be discovered.

In above mentioned level (Beta-393561: 19750 ± 70 BP or 22020-21685 cal BC), faunal remains, charcoal and a lithic industry in obsidian were found in area B6, where an irregular not very deep pit (ST 73) was opened, from where a large number of microliths were found.

Sterile Geological Deposits, Levels 4, 5 (Level VI - 2014)

Half a meter of sterile very compact and stony deposits (Level 5), characteristic of a period of gelifraction covers the Upper Palaeolithic occupation (fig. 4). Apparently corresponds to the cold phases of the end of the Pleistocene, from the Late Glacial Maximum to the Younger Dryas. The latter covered by a very compact clayey sediment characteristic of deposits that have accumulated under a warmer, more humid climate characterized the beginning phases of Holocene (fig. 4).

Chalcolithic Level 3 (Levels IV and III - 2014)

The level consists of horizons that are presenting two phases of period, mostly middle time sequence with some late dates (between 4624 and 4171 cal BC, for the calibrated median values of the dates) and early Chalcolithic part with only one proved radiocarbon date for now (LTL-14987A: 6174 ± 45 BP, that is 5289–4995 cal BC with a calibrated median value of 5127 cal BC). The newly data will come soon that can postdated the last one based on the excavations and stratigraphy. What is very important that the Chalcolithic layers partly has superimposed deposits of the sheepfold with the specific remains and the site in general is the best example of the seasonal home of the ancient herders. The layers that were represented Chalcolithic Middle periods are mostly similar and well differentiated unlike the earliest ones.

Sterile I Level 2 (level II - 2014)

Level II was a sterile solid layer between the Chalcolithic and Medieval and it is separated from the Medieval by a thin, dark brown layer formed by the decay of natural components, also sanitary clean with fire. (tab. 1).

Medieval Level 1 (Level I - 2014)

Level I consisted of conditional nominal units corresponding to the several stages (five at least) of medieval settlement.

The radiocarbon dating indicates an occupation of the High Middle Ages (between 987 and 1102 cal AD, for the calibrated median values of the dates) (tab. 1). The least three general occupation horizons were fixed, with the sub horizons with the numerous structures and the way of the life space organizations inside the cave. The strangest situation was with the several burials had been done inside (I. Kalantaryan *et alii* 2012) and the unknown tomb structure.

The chronological chart of the site can be described as follows (tab. 1 and 2).

The first level is represented by several Medieval occupation horizons in the cave. These are separated from the rest by the second sterile level. Several horizons are represented by different stages and intensity of occupation with the interesting fact of their being burials inside the cave (I. Kalantaryan *et alii* 2012).

Level 3 represents the Chalcolithic period occupation and can be divided into two phases according to the dates based on the data of radiocarbon analyses – middle and early Chalcolithic. The middle Chalcolithic period horizons are seven and the most intense activity apparent during the last occupation layers inside the cave. The cave is also unique because of

the excavated coprolites layers, which indicate various horizons of the Chalcolithic period. It was possible to follow the different stages of accumulation of burnt, mineralized residues of the sheep and goat dung. The process of the accumulation of layers in the cave gives us for the first time the opportunity to study the life and the lifestyle of the region's ancient pastoralists. This level is represented by horizons 1, 2 and 3. Horizon 1 includes US 31, 33-2015 (US 30=32=35). It has mostly no structures, but traces of previous activities are extant. The most interesting and long-term occupation during the middle Chalcolithic was Horizon 2 (2016 - US 34=36, 2014- US 6, Layer 5, US 37) with pits, hearths and even the remains of basic stone masonry, which was probably used as a bench. The next horizons, such as N 4 and 5 represent a short occupation period and contain minor traces of occupation. The sub horizon 5a that includes US 48 a, b (2017 excavations) has another composition and is very well correlated with US 11 and US 12 from 2014, where the first was determined as a yellowish, compact layer with an absence of materials and the second was compacted and yellowish grey, where there were some finds of charcoal pieces and bones, which is quite similar to US 48b. The descriptions noted during 2014 was nearly the same as those described in 2017. Despite the fact that there were unique finds of obsidian flakes and bone remains, these layers (US 48 a, b) seemed to be nearly sterile and the absence of structures can also be regarded as a clear sign of non-occupation (fig. 3).

Finally, very light, episodic traces seen on the mud layer (US 52) were from two hearths. This layer separates the earlier Chalcolithic Horizon 7 from the previous ones. The ¹⁴C data from one of the structures showed a time range of 4542-4371 cal BC. The main layer with the traces of Chalcolithic occupation (US 51, 53 – west and US 54, 55 – east) excavated during the season of 2018 was preserved under a layer nearly 10 cm thick of muddy sedimentation that entered the cave from the southeastern part. In general, the layer was represented by hearths, which differ from each other in terms of structure and use intensity. It was thick enough, in some places, to provide an indication that two phases of the same occupation had been seen obviously, in some cases there were signs of hearth reuse. (for example, str. 213) The fireplace - structure 213 (from where we did the selection of the several types of mollusks) also belong to the mentioned horizon 7, indicated by more intense traces of activity of hunters and herders. It was one of the double used fireplaces, placed at the H5. Its last use appeared during the layer we called US 54 with the sizes NS=0.43 m, EW=0.384 m, alt 2.27-2.34 m (I. Kalantaryan, G. Ghanem 2019).

The second cluster of structures belonging to the same layer, appeared later (US 57), perhaps due to the sharp decline of the southeastern position of the layer. The only one known for now – the early Chalcolithic horizon is separated as Horizon 8. And seems to be the first with traces of the Chalcolithic users who entered the cave to provide themselves with a temporary home. Lower Levels 4 (US 15) and 5 (US 16) represent the geological sedimentation (categorized by the geomorphologist as fluvial and alluvial) They cover the horizon (Level 6, US 17, US 18), with the most interesting level marked by occupation traces from the Upper Palaeolithic, dating to 22,020-21,685 BC. A small pit was discovered during the excavations of 2014, along with an assemblage of microliths.



Fig. 1. Getahovit-2 cave location in Armenia.
Locația peșterii Getahovit-2 în Armenia.



Fig. 2. Getahovit-2 cave.
Peștera Getahovit-2.

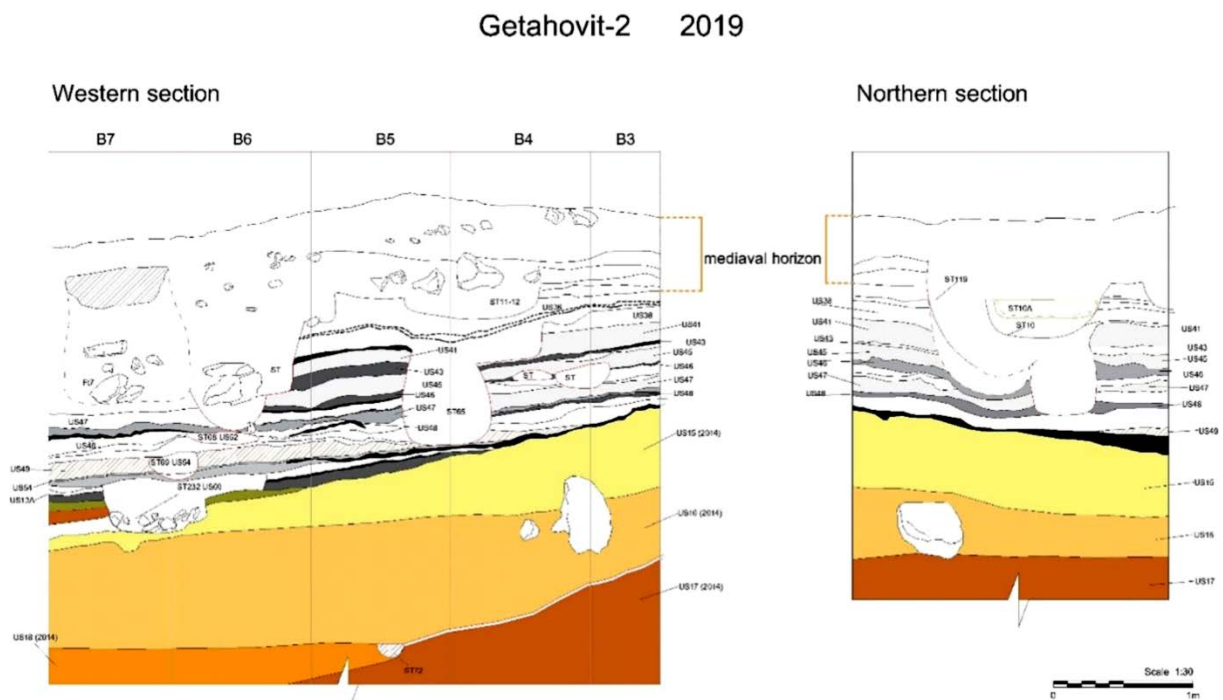


Fig. 3. Stratigraphy of the western and northern sectors of Getahovit-2 cave.
Stratigrafia profilelor de vest și de nord din peștera Getahovit-2.

Levels & horizons		Stratigraphic units	Dates
Level 1 Medieval			
	Horizon 1	US3 (TR2)	
	Horizon 2	Leyer 2 (2011)	1021-1206 AD
	Horizon 3	US19, 20	897-1024 AD
	Horizon 4	US21	
Level 2 Sterile			
	Sterile	US4=US8	
Level 3 Chalcolithic			
Middle Chalcolithic	Horizon 1	US31, 35	4341-4077 BC
	Horizon 2	US36, 37	4447-4258 BC
	Horizon 3		4541-4360 BC
	Horizon 4	US44, 45	
	Horizon 5	US46, 47	
	Subhorizon 5a Sterile	US48	
	Horizon 6	US52	4683-4463 BC
	Subhorizon 6a (mud layer (sterile))	US49	
	Horizon 7	US53, 54 (US57)	4703-4545 BC
Early Chalcolithic	Horizon 8	US14 (2014)	5289-4995 BC
Level 4 Geological fluvial sedimentation			
		Lower part of US15 (2014)	
Level 5 Geological co-luvial sedimentation			
		US16 (2014)	
Level 6			
Upper Paleolithic	Horizon 1	US18 (2014)	22020-21685 BC

Tab. 1. Chronological chart of Getahovit-2 cave based on radiometric dating.
 Diagrama cronologică a peșterii Getahovit-2 bazată pe datele radiometrice.

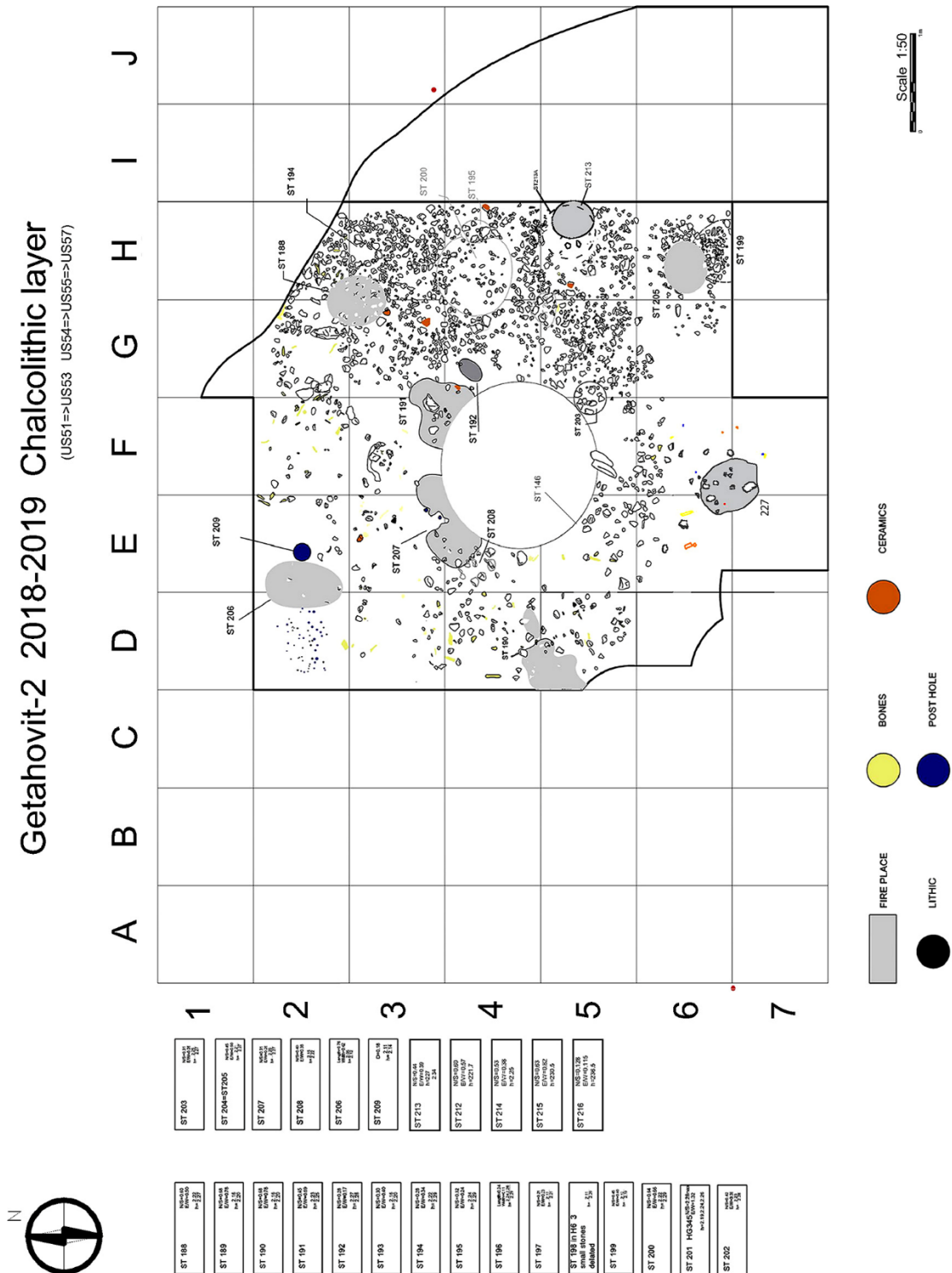


Fig. 4. Plan of the Chalcolithic layer.
Planul nivelului calcolitic.

Code Lab.	Year	Sequence	Level	Material	Date BP	Date AD (95%)	Period
1LTL12043A	2011	C7	decap. 03	Charcoal	933 ± 45	1021-1206 AD	Middle-Ages
Lyon-10370 (SacA-34117)	2012	D7	niv.3, F10, near the skull	Charcoal	1060 ± 30	897-1024 AD	
Lyon-13486 (SacA-47796)	2015	G3	str.81 (child tomb)	Charcoal	980 ± 30	993-1155 AD	
						Date cal BC (95%)	
BETA-306022	2011	C7	decap. 05	Charcoal	5490 ± 30	4445-4262	Chalcolithic
Lyon-10368 (SacA-34115)	2012	D6	niv. 4	burnt bone	5520 ± 30	4449-4331	
Lyon-10369 (SacA-34116)	2012	D6	niv. 5	Charcoal	5575 ± 30	4458-4353	
Lyon-11540 (SacA-38689)	2013	B5	US 5	Charcoal	5485 ± 40	4447-4258	
LTL-14985A	2014	B4/ B5	US 06 st.65	Charcoal	5626 ± 45	4541-4360	
LTL-14986A	2014	C7	US 12 st.69	Charcoal	5719 ± 40	4683-4463	
Lyon-13482 (SacA-47792)	2015	E3	US 32	Charcoal	5420 ± 35	4346-4179	
Lyon-13484 (SacA-47794)	2015	I6	str.97	Charcoal	5340 ± 35	4316-4051	
Lyon-13483 (SacA-47793)	2015	I6	US 30	Charcoal	5400 ± 35	4341-4077	
Lyon-13485 (SacA-47795)	2015	I4	st.127	Charcoal	5435 ± 35	4347-4050	
BETA-510630	2018		US 52 st.187	Charcoal	5640 ± 30	4542-4371	Late Neolithic
BETA-510631	2018		US 57, next to st.104	Charcoal	5770 ± 30	4703-4545	
LTL-14987A	2014	D7	US 14 st.71	Charcoal	6174 ± 45	5289-4995	
BETA-393561	2014	B6	US 18 st.73	Sediment	19750 ± 70	22020-21685	

Tab. 2. Getahovit-2 excavations and stratigraphy.
Getahovit-2 săpătura și stratigrafia.

◆ Materials and methods

The materials presented in this paper is originating from Getahovit-2 cave (US 49, 51, 52, 53, 54, 56, 60, structure 146, 222) excavated during 2018-2019 excavation seasons (tab. 3.). A comprehensive sampling strategy was adopted at the site. Dry sieving was used to recover the bones in addition to picking. The samples were sieved using 1 mm sieve. Of the sieved material in the >1mm fraction, all organic remains (plants, insects, micromammals), bones, pottery fragments, etc., were separated via hand-picking and labeled appropriately. The faunal remains were identified in the laboratory by the first author, according to N.K. Vereshchagin, 1967; V.G. Heptner *et alii* 1988; S. Hillson 2009 and M. Mashkour, F.A. Mohaseb 2015. Microscopic analysis is used to detect signs of wear on working edges. For this aim we used stereoscopic microscope mbc 9 with magnifications 8x or 14x.

The recorded bone tools are morphologically very diverse (awls, arrowhead, weaving tools etc.). Most of these tools were made from hard animal materials (bone and antler). A strong selectivity of raw material is set down for each tool type, with a preference for cervid antlers and long bones. Comparison of metric structures with material recorded in other papers took place too. Following Scheinsohn (2010), it is known that metric and geometrical properties are directly linked to mechanical ones.

Bone No.	Excavation date	US/structure	square	age ¹⁴ C BC	Identified tool
Bone No.	03.10.2018	US 56	D5	4703-4545	Arrowhead
0030/18	20.09.2018	US 52	G5	4683-4463	Weaving tool
0032/18	21.09.2018	US 52	G6	4683-4463	Awl
0030/18	30.09.2018	US 51	D5	4703-4545	Awl
	22.09.2018	US 53	D2	4703-4545	Weaving tool
0030/18	22.09.2018	US 53	D2	4703-4545	Ornamented bone fragment
0031/18	2018	US 49	F5	4542-4371	Ornamented bone fragment
	22.09.2018	US 52	H5	4683-4463	Weaving tool
	20.09.2018	US 52	F3	4683-4463	Beveled tool
	20.09.2018	US 52	G5	4683-4463	Beveled tool
0025/18	25.09.2018	US 51	F2	4703-4545	Awl
0026/18	22.09.2018	US 52	H6	4683-4463	Awl
0027/18	2018	US 51	E4	4703-4545	Awl
	2018	US 51	E4	4703-4545	Awl
0030/18	27.09.2018	US 54	E2	4703-4545	Awl
	30.09.2018	US 51	E2	4703-4545	Weaving tool
0030/18	29.09.2018	US 51	D2	4703-4545	Ornamented bone
0024/18	30.09.2019	US 60	E6	post 4703-4545	Awl
0039/19	22.09.2019	US 60	F6	post 4703-4545	Awl
0040/19	28.09.2019	US 60	D6	post 4703-4545	Stripes – beads
0041/19	2019	Str.222	F6-7	medieval	hook
0010/13	2013	US 0	I7	medieval	hook

Tab. 3. Bone tools from the Getahovit-2 cave site.

Unelte de os din peștera Getahovit-2.

◆ Results. Bone types

Pointed tools. Points (any tool with a sharp point and no perforation, including what are often referred as awls, pins, perforators) are the most significant group of bone tools in Getahovit-2 Cave layers. The majority of the points are made of Cervid's long bones and a few identified as a metapodial bone. Getahovit points fall into not elaborately worked group (fig. 5).

Bone technology extraction techniques for these group of tools can be divided into two groups a) fractured: by direct or indirect cutting percussion and b) pressured: such as grooving, usually followed by fracturing, which leaved different types of marks on the bone material, such as: fractured faces with impact notches, deep groove marks, corroded and striated edges (fig. 6).

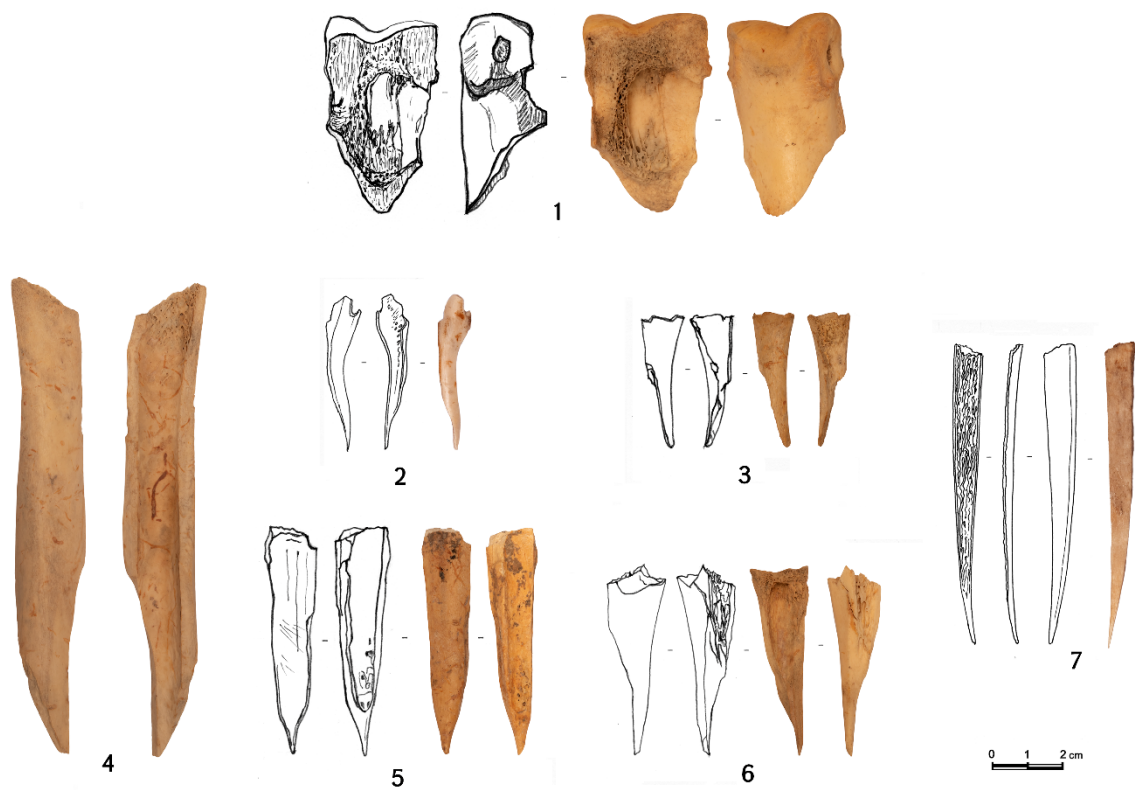


Fig. 5. Awls from Getahovit-2.
Împungătoare de la Getahovit-2.



Fig. 6. Awls use-wear marks.
Urme de uzură ale împungătoarelor.

Beveled tools. Beveled tools are made on flat part of long bones worked to have straight, smoothed edges. The ends can be blunt or rounded. The ends of most of this type of tools are not sharp enough to have been used as awls, nor are they sufficiently sturdy, and they typically taper to one edge instead of a central point. The two tools we recovered were not complete, missing two ends or at least one end. The first one (fig. 7) was only 2.5 cm long, made from large mammal long bones (tibia is the preferred skeletal element) and the second (fig. 8) was 5 cm but thin and probably part of sheep/goat rib. Beveled end made by direct percussion and by adzing, which must help to use these tools in animal leathers or furs workings.

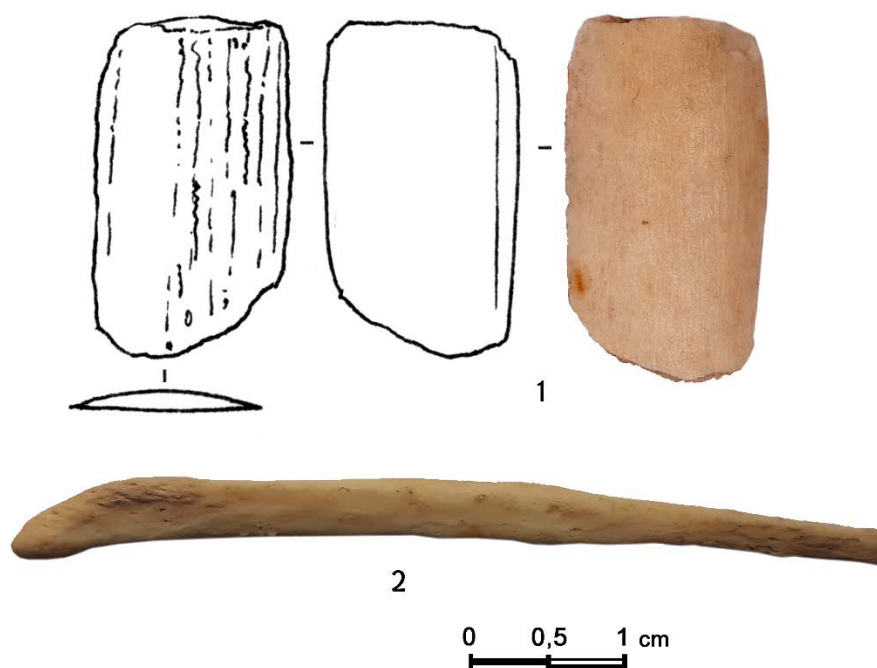


Fig. 7. Beveled tool from Getahovit-2 cave.
Unelte teșite din peștera Getahovit-2.

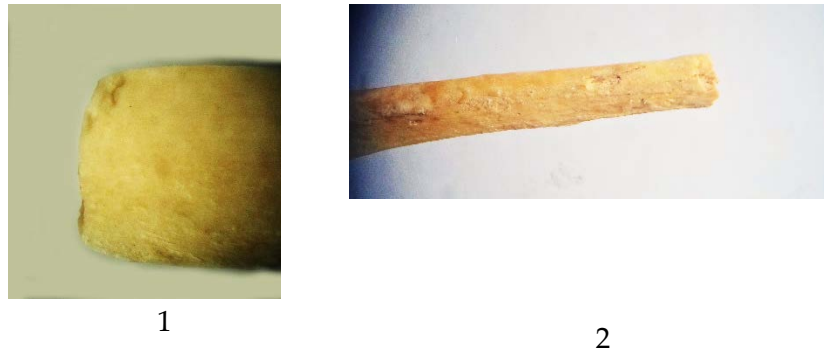


Fig. 8. Beveled tools use-wear marks.
Urme de uzură ale dălților.

Hooks. Hooks are straight tools with a pointed tip and a hole for stringing at the end. They are in general well formed, smoothened, most often oval, cylindrical or even have a flatter profile. represent flat bars of 5-5.5 cm of length widened from the pointed tip to the blunt end which has a semicircular eye at the lateral side. These hooks were being common from the Neolithic period up to modern times and had multifarious usage in different handicrafts (knitting, crocheting) and especially for knitting of fishing nets (B. Peters 1986). The finds of such tools at Getahovit-2 are unique as they are unknown from the excavations of the medieval sites of Armenia. A similar item is known only in Garni which is considered to be a fragment of a bow (H. Petrosyan 1988). These elements are almost exclusively crafted from long bones (ulna, tibia etc.) or from horns by grinding, tempering, polishing (fig. 9). Use-wear traces, including flattening, fractions and rounding of the surfaces and transversal grooves are obvious on each hook.

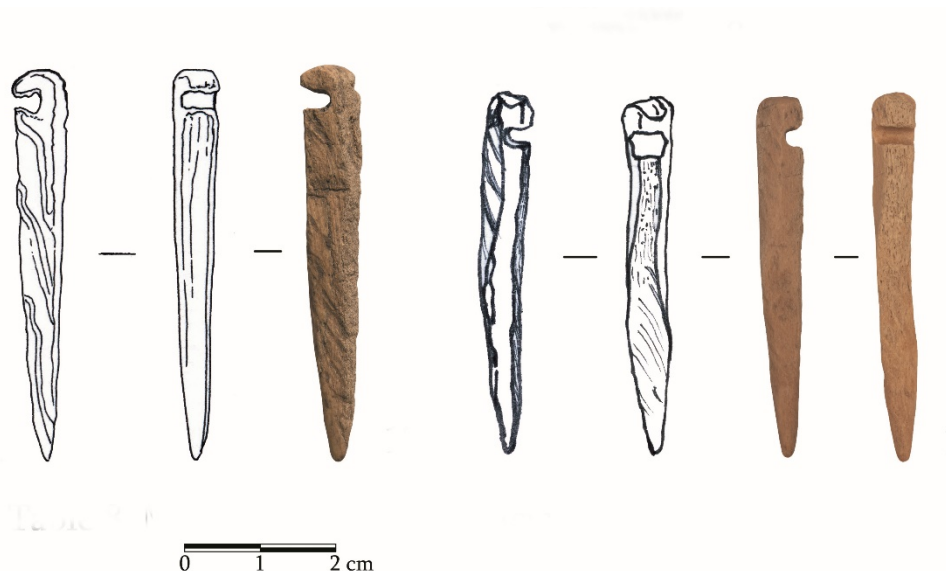


Fig. 9. Hooks from Getahovit-2 cave.
Cârlige din peștera Getahovit-2.

Weaving tools. Primitive spinning, weaving and may be polishing tools recorded from Getahovit-2 cave. Four tools of different widths and different design, made of horn phalanges and long bone of Cervids supposed to be used in weaving stuff from leather, wicker, bark and

thick threads (fig. 10). The first bone is small cervid horn cut straight successfully and the anterior bone tissue wear shows the usage of this bone as weaving tool. The second and third bones have clear incisions on the outer part as use-wear evidences. On the last bone except the straight cut we can notice the mechanical traces of force application in the form of cracks (fig. 11).

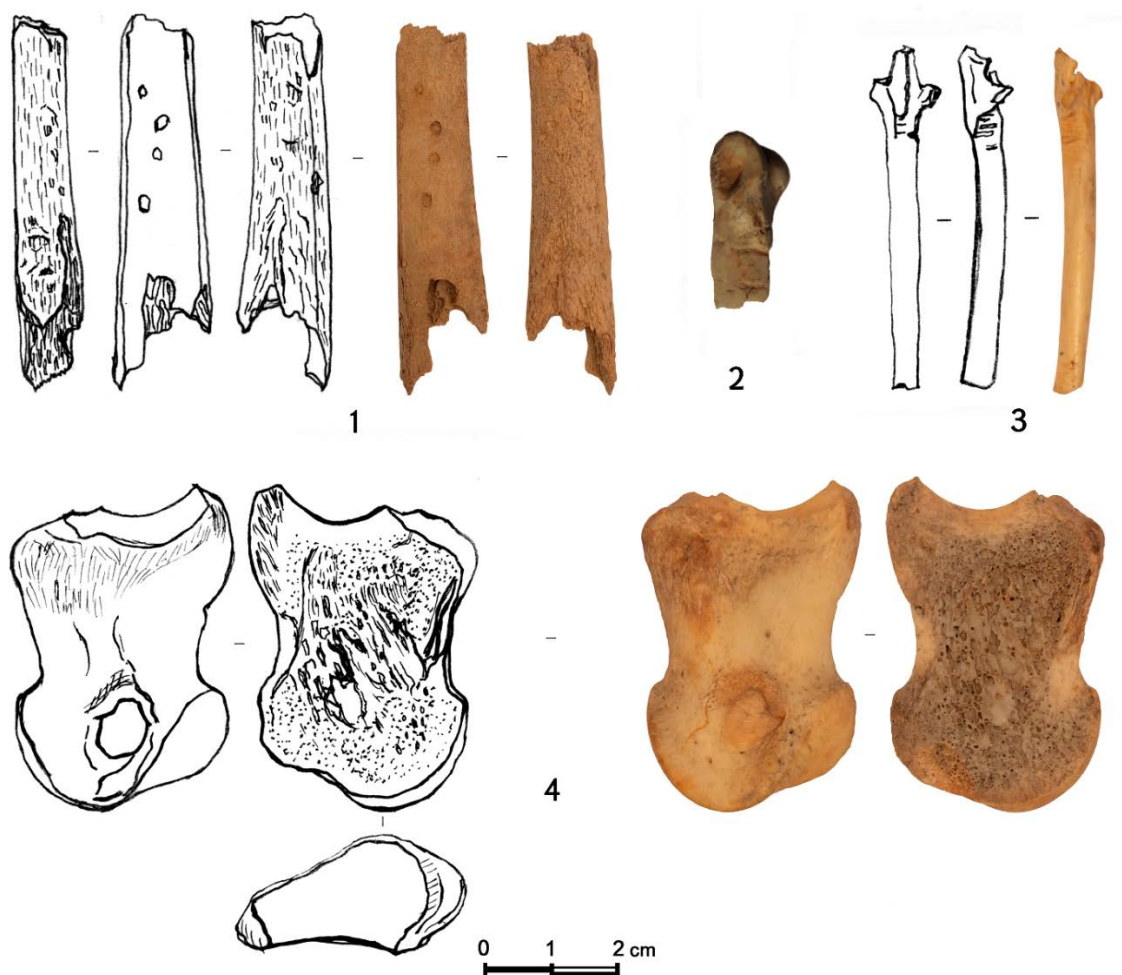


Fig. 10. Weaving tools from Getahovit-2 cave.
Unelte de țesut din peștera Getahovit-2.

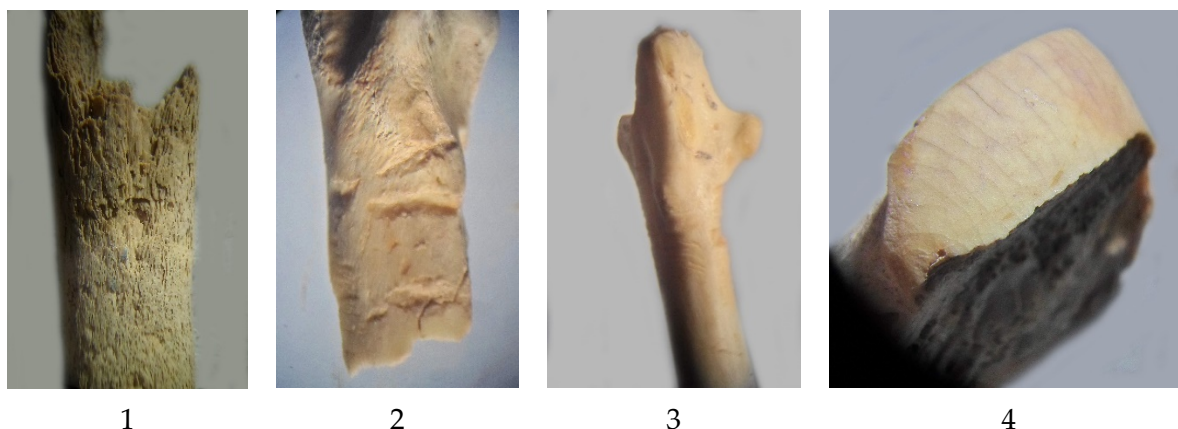


Fig. 11. Weaving tools use-wear marks.
Urme de uzură ale uneltelor de țesut.

Arrowhead. One arrowhead recorded from Getahovit-2 cave (fig. 12). This arrowhead is made of the diaphysis of long bone. Bone and species cannot be identified, as a rule, but most likely tibial bone of cattle or horse or deer were used, their bones occur also among faunal remains of these sites. The size of this arrowhead tells the possibility to use it in fishing practices rather than hunting big mammals. Figure 13 shows the use-wear marks of the arrowhead, short scratches near the working edge. Similar evidence used for a comparison the recorded arrowhead by N. Skakun from Russia (N. Skakun *et alii* 2014).



Fig. 12. Arrowhead from Getahovit-2 cave
Vărfuri de săgeată din peștera Getahovit-2.



Fig. 13. Arrowhead use-wear marks.
Urme de uzură ale vârfurilor de săgeți.

Ornamented bones and beads. Most of the bone ornaments at Getahovit-2 sites are tubular beads (fig. 14). Several polished tubes appear to be blanks for making tubular beads. Bird long bones were the preferred taxa and skeletal elements for making tubular beads, which generally had highly polished surfaces and abraded ends. One bead made from vertebrae body part, which could not be identified to taxa. These beads may have been made and used as ritual paraphernalia by the ceremonial or simply as a necklace. Directional scars result of drilling on the outer surface, and polish (fig. 15).

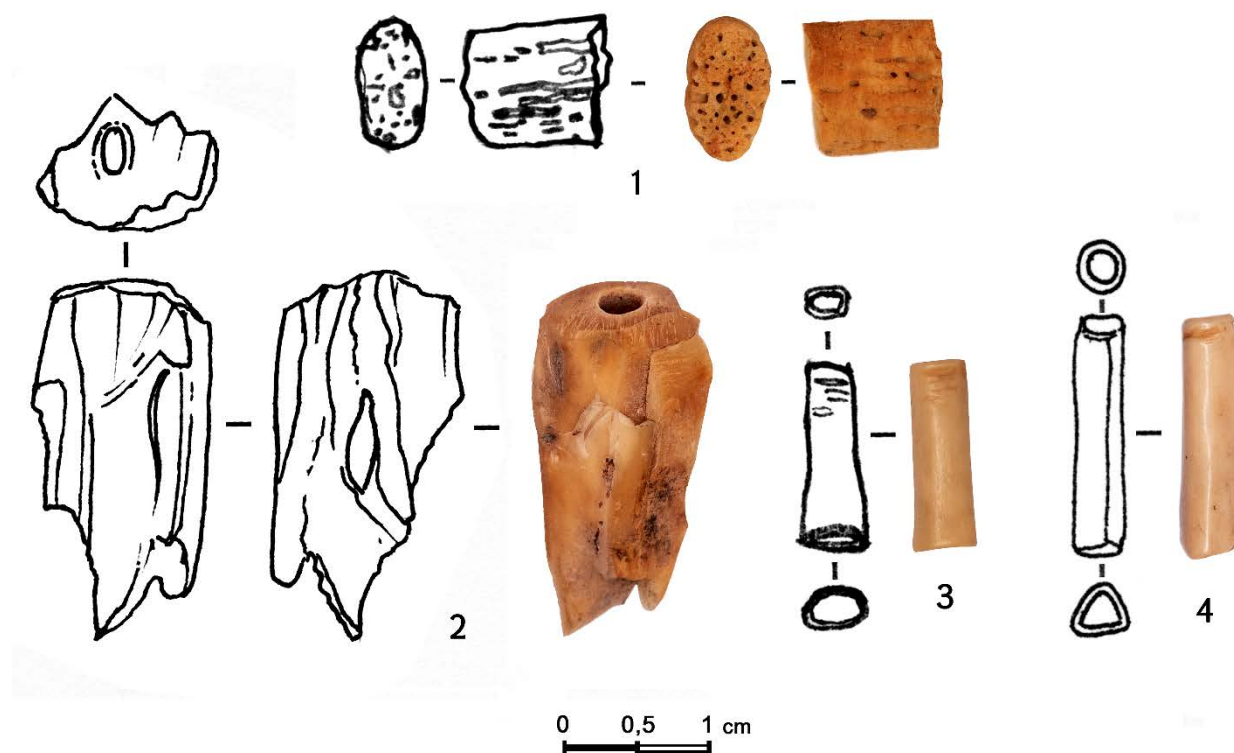


Fig. 14. Ornamented bones from Getahovit-2 cave.
Podoabe de os din peștera Getahovit-2.

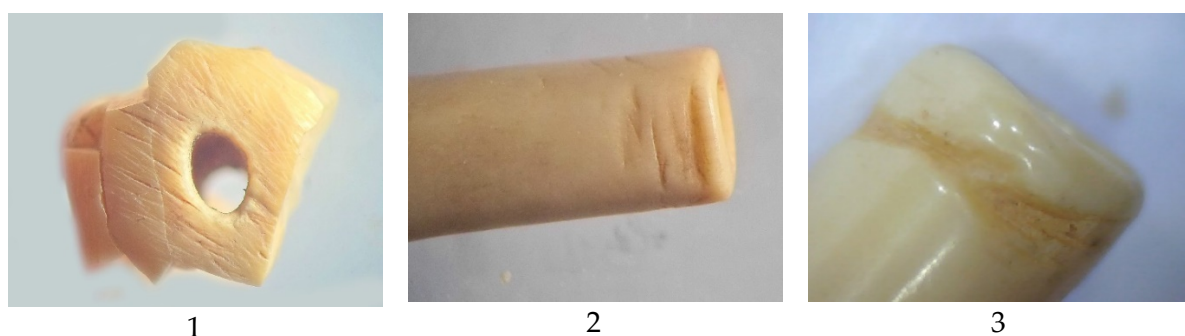


Fig. 15. Use-wear of bone beads.
Urme de uzură ale podoabelor.

◆ Conclusions

The industry of tools made of stone as those made of bones during the life in the caves had special singularities. If during the life in the seasonal sites of the Chalcolithic period such

as Godedzor (Syunik Marz) in the south of Armenia (C. Chataigner *et alii* 2010) it is possible to see the clear evidence of the workshops for bone or obsidian tools producing (G. Palumbi *et alii* 2021), in the cave such as Getahovit-2, where the habitat was subservient to cattle breeding (herding), with the vital activities like hunting and gathering all the processes were shorter and simplified. There were no finds of the perfectly processed bone tools, the same was in the case of obsidian, where only broken and fragmented parts or the flakes were found mostly. Of course, it was clear that for the cave occupants sensible way was to take the best tool products with them. During the season 2018-2019 there was the first time when the traces of the preparation of the future tools were found, which means that the occupants of the cave were settled for a comparably long time and produced more. The first time at the site, especially from the Chalcolithic layers, there were the finds of decorations. Except for the awls, which usually present the largest group of the tool industry, other bone tools appeared also at the discussed layers of the Getahovit-2 site. Based on experimental results, we identified the extraction techniques in the archaeological assemblages of Getahovit-2. Most of tools (awls and arrowhead) were made from long bones. We high spot the importance of bone as a resource for tools and ornaments in the Getahovit-2 cave. By coordinating the analysis of bone implements from Eneolithic period site and by comparing bone tools across specific backgrounds (Y. Zaidner, M. Weinstein-Evron 2012), the disparity in the specific set of tasks associated with each inhabitation has been seen.

The presence of these tools in conjunction with other instruments, underline the importance of filament working in this period. Some bone tools, especially awls clearly had a range of uses, beveled tools can be tied more closely to specific spinning and weaving tasks, while the hooks from Medieval layers presents a short period of human activity near rivers (knitting fishing nets).

Overall, we aim to analyze and find way for the identification of bone objects. Through the systematic discussion of bone tools as part of larger archaeological composite, we see that basic classes of bone execute were broadly shared. Here, these findings are as introduction to the irregular economic practices, task profession, and likely interactions between this period inhabitants in the cave.

The results suggest that the hunter-gatherer societies in Getahovit-2 cave the bone technology required a careful selection of raw materials and the fracturing would have been the most common and economic option.

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