Georgia on the Crossroad. Cultural Exchanges and Evidences for Different Distance Contacts in Middle and Upper Paleolithic

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Abstract: In our article we deal with three Upper Paleolithic cave sites, which are located in Upper Imereti region just in few km from each other (2–6 km). These are already well-known sites - Ortvala Klde, Dzudzuana Cave and newly discovered Bondi Cave. The landscapes, where these caves are situated, are the similar. All of them are located in parallel gorges. The distance between the gorges is 4–8 km. According to pollen analysis and obtained dating, the environment around these caves was the similar. The inhabitants of Dzudzuana and Bondi caves were hunting mostly on bisons and equses. At the same time the Neanderthals and the Modern humans of Ortvala Klde traditionally were extracting the Capra caucasuica (95 %). The industry of Bondi and Dzudzuana caves is more or less similar but there are differences as well-the microliths are dominated in the material of Dzudzuana. The blade and bladelet oriented technology are represented in both sites. The blade technology is represented in Ortvala Klde as well, but there are some Aurignacian features which are better represented in this cave than in other above-mentioned sites. Co-existence of Aurignacian and Gravettian features is one of the characters of Upper Paleolithic of Western Georgia. In Bondi and Dzudzuana caves there were discovered the most ancient flax and colored fibers dated from 35000–34000. Perhaps the differences between those contemporary sites can be explained by different economical activities of different groups, or by distribution of the habitat areas between them.

1 INTRODUCTION

The territories of Georgia belong to the space, which were important terrestrial bridges that connect the Middle East and Europe (Transcaucasia, Anatolia, Balkans) in Paleolithic age.

The frequency of Paleolithic sites on the territory of Georgia was determined by geographic and topographic position - the Main Caucasus Range protects Transcaucasus and in particular, Georgia, from the strong impact of glaciations (**figure 1**) and which prevented cold climate spread from the North. Due to specific topography, some endemic vegetal species and refuge zones have been preserved until present (**figure 2**).

The fact, that Northern cold climate did not have much affect South Caucasus, can be proved by existance of Upper Paleolithic sites on 1300 meters high in the Caucasus Southern front mountainous zone. Here we have to note, that in XX cc 800 meters above the sea level were considered to be the limit of Upper Paleolithic vertical spread, which could be explained by cold climate conditions [Тушабрамишвили 1991. 453].

The region was a geographic "deadlock" during the Paleolithic, where because of small area, different cultures were obliged to contact each other on the background and these cultures were each others' competitors in mastering and using living resources [Adler, Bar-Oz, Vekua, Tushabramishvili 2004. 52–55]. This should as well facilitate the study of such problem as relations between human being and natural environment. Local environment seem to have influenced the human behavior throughout the Paleolithic.

The main aim of our works is to research specific settlements of Neanderthals and Anatomically Modern Humans. We also try to identify, if there were any kinds of contacts between these culturally and biologically diverse populations in that critical age (37–34000 BP), when Neanderthals started to extinct and first contemporary people appeared.

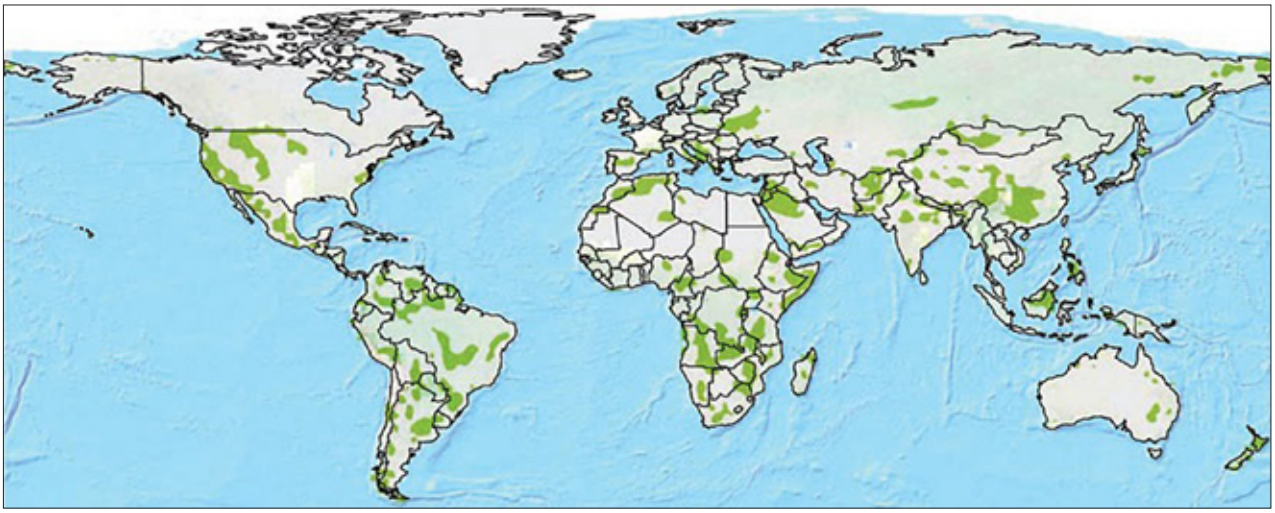
Western Georgia (particularly Upper Imereti region, **figure 3**), is one of the most significant regions, where it is possible to research relations of Neanderthals and AMH beings. (Adler, Tushabramishvili. 2004. 91–132).

In the current article we will consider LMP and Upper Paleolithic sites. Due to Geographic location three cave-sites – Ortvala Klde, Dzudzuana Cave and Bondi Cave, have been selected as those to be considered. They are separated from each other only by several kilometers (**figure 4**).

All three caves are located in the valley, canyon, which have a Plateau and more or less open spaces on top of them and which are bordered by a further canyonlike valley in about 2–4 kilometers (Distances between some MP, UP caves: Undo Klde-Ortvala Klde–2 km; Ortvala Klde-Bondi Cave–2 km; Bondi Cave Dzudzuana Cave–1,5 km; Dzudzuana-Djruchula Cave–6 km). These caves, of course have been worked out in one karst system. Curving of the plateau by rivers was also happening more or less simultaneously.

FIGURE 1 Caucasus region.

FIGURE 2 Map of refugia.



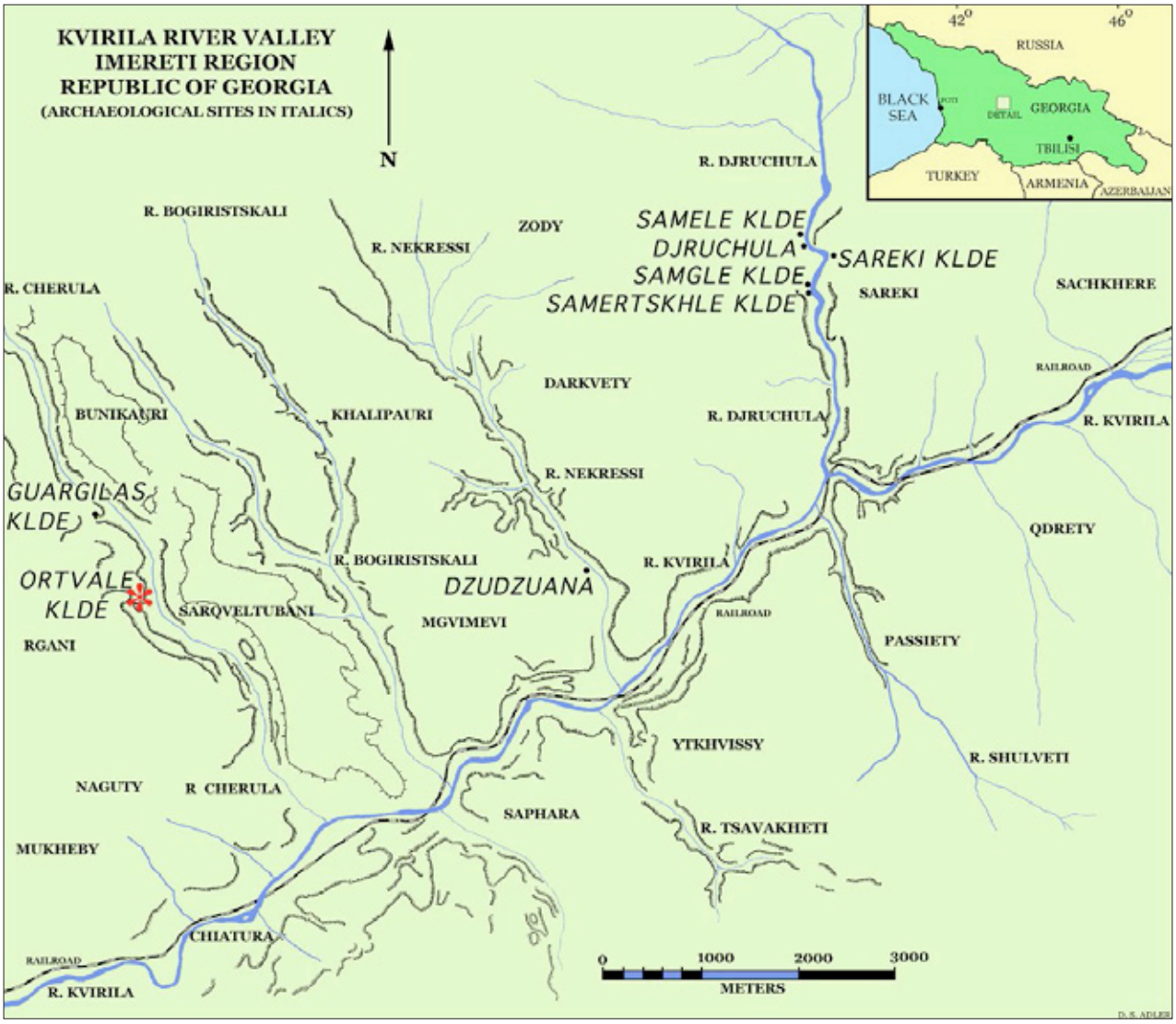


FIGURE 3 Spatial distribution of Paleolithic sites in Imereti.

2 ORTALVA KLDE

Ortalva Klde is situated near the Chiatura town, slightly to the North-West on the territory of Didi Rgani village, on the right bank of the Cherula or Rganis Tskali river (right inflow of the river Kvirila), 35 meters high from the river level, 530 meters high from the sea level.

Ortvala Klde is a rock-shelter, in which two chambers can be separated (**figure 5**). The name takes its origin from this fact. Joint width of both chambers is thirty-five meters, depth – 14,5 meters, height – in the center of the big chamber - 7 meters, at the entrance 2 meters. The cave has an eastern exposition. It is dry and full of light.

The cave was found in 1973 by the archaeological expedition (led by D. Tushabramishvili) of the Georgian National Museum, carried out in the Rioni-Kvirila basin (D. Tushabramishvili,1990).

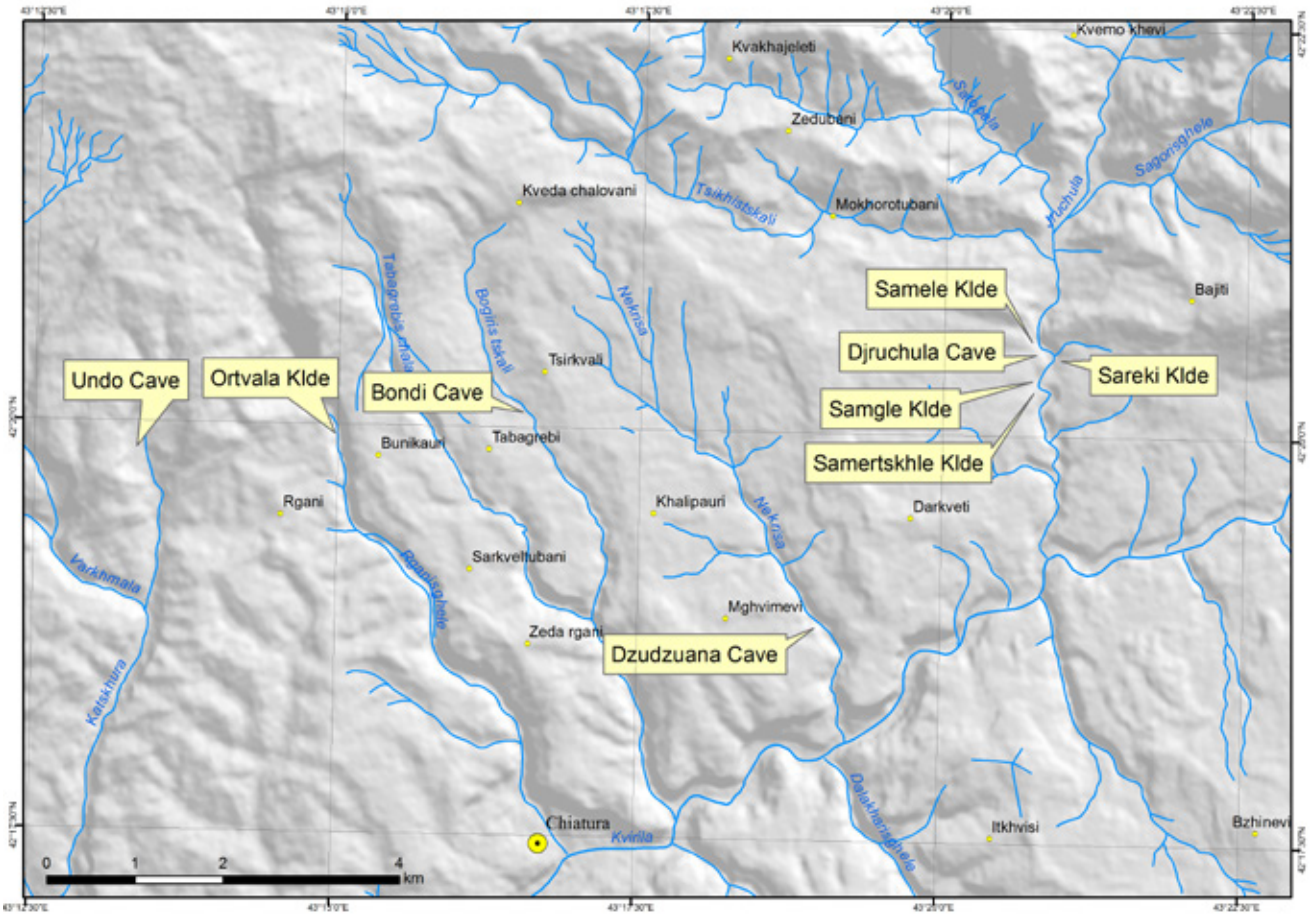
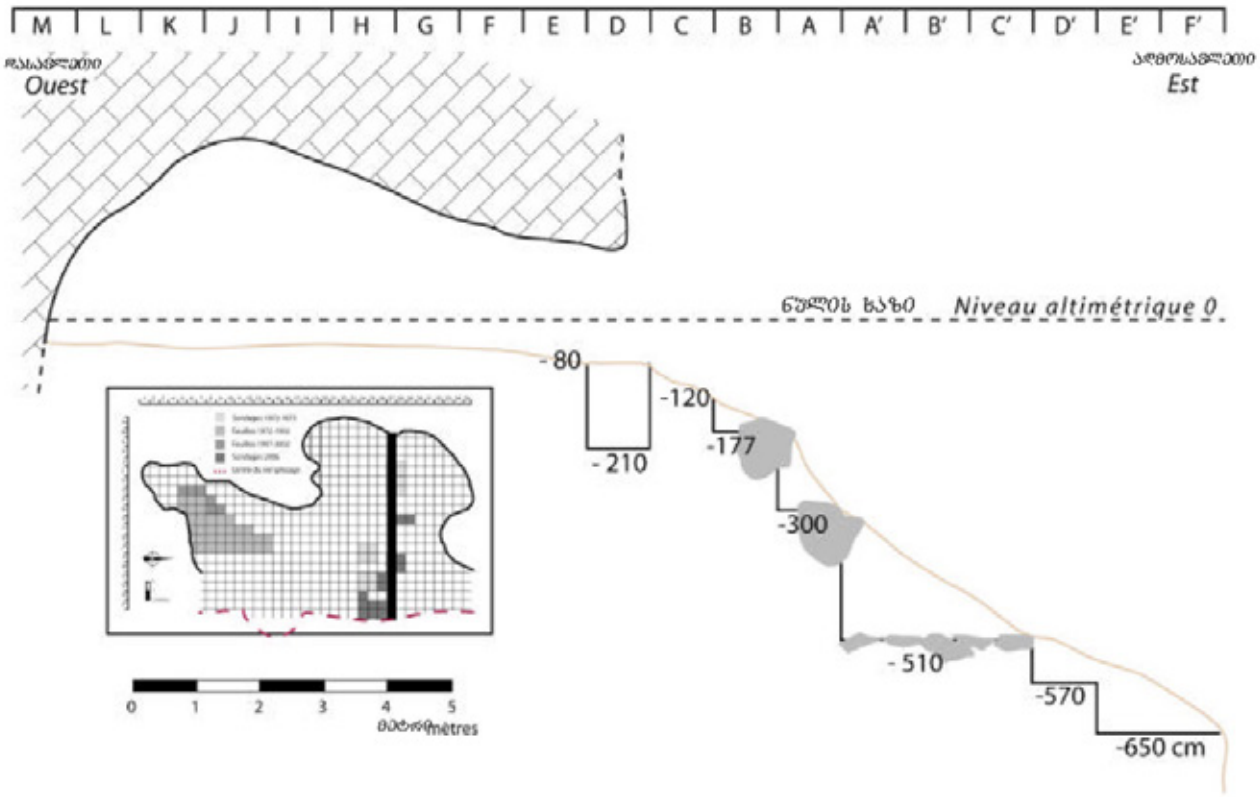


FIGURE 4 Location of the cave sites.

From 1993 the expedition has been working under the leadership of N. Tushabramishvili. Further works (1997–2001) by the Georgian/American team (Adler, 2002, Adler and Tushabramishvili, 2004, Adler *et al.*, 2006), mainly focused on the MP/UP transition in the south chamber, have shown that the subsistence behaviors of Neanderthalians and modern humans were largely identical (Bar-Oz *et al.*, 2002, Bar-Oz and Adler, 2005; Adler *et al.*, 2006). Several dates, by ^{14}C, thermo-luminescence and electron spin resonance documented the stratigraphic depositional history. It appeared that the UP/MP transition occurs at 34 ± 1 ka (Adler *et al.*, 2008. 817–833). In 2006, four new test pits were open by our team in 2006–07 (Moncel *et al.*, 2007). Three of those, open in the same location as the earlier ones, on the slope outside the porch), reached again MP levels while the fourth one, below the porch, unearthed UP levels.

The animal species most represented are *Capra caucasica*, *Cervus elaphus* and *Bison priscus* and rodents indicate "mountainous" forested areas around the site. (Tushabramishvili, N., Lorkipanidze, D., Vekua, A., Tvalcherlidze, M., Muskhelishvili, A., Adler, D. S.,1999, 65–77;).

The palinological sequence has been correlated to OIS 4, and is similar to the one observed in levels 3a and 4 of Koudaro I (U/Th age of 44.15 ka and 60 ka, respectively, *cf.* Liubine, 1989; Lorkipanidze, 1992). The lithic industry was principally knapped from local flints of a very good quality. It includes mainly unilateral and bilateral unifacial points, close to Djruchula MP tradition (Meignen et Tushabramishvili, 2006, Pleurdeau *et al.*, 2007. In the UP levels, blade-bladelet cores and retouched tools are frequent (**figure 6**).



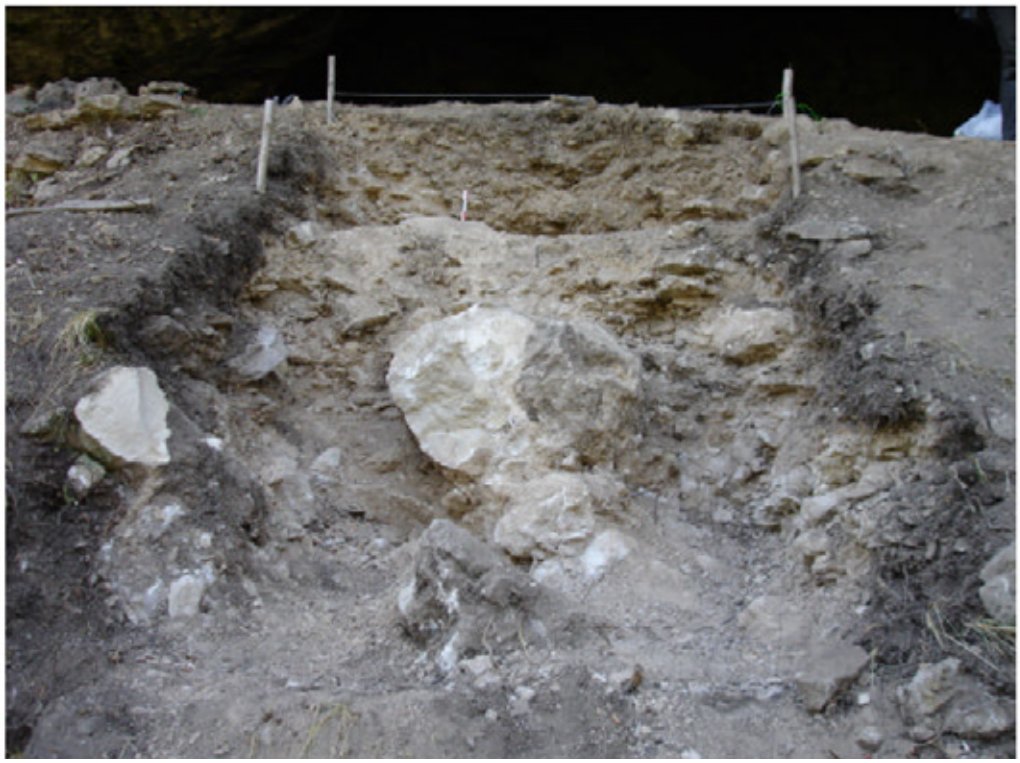


FIGURE 5 Small chamber section.

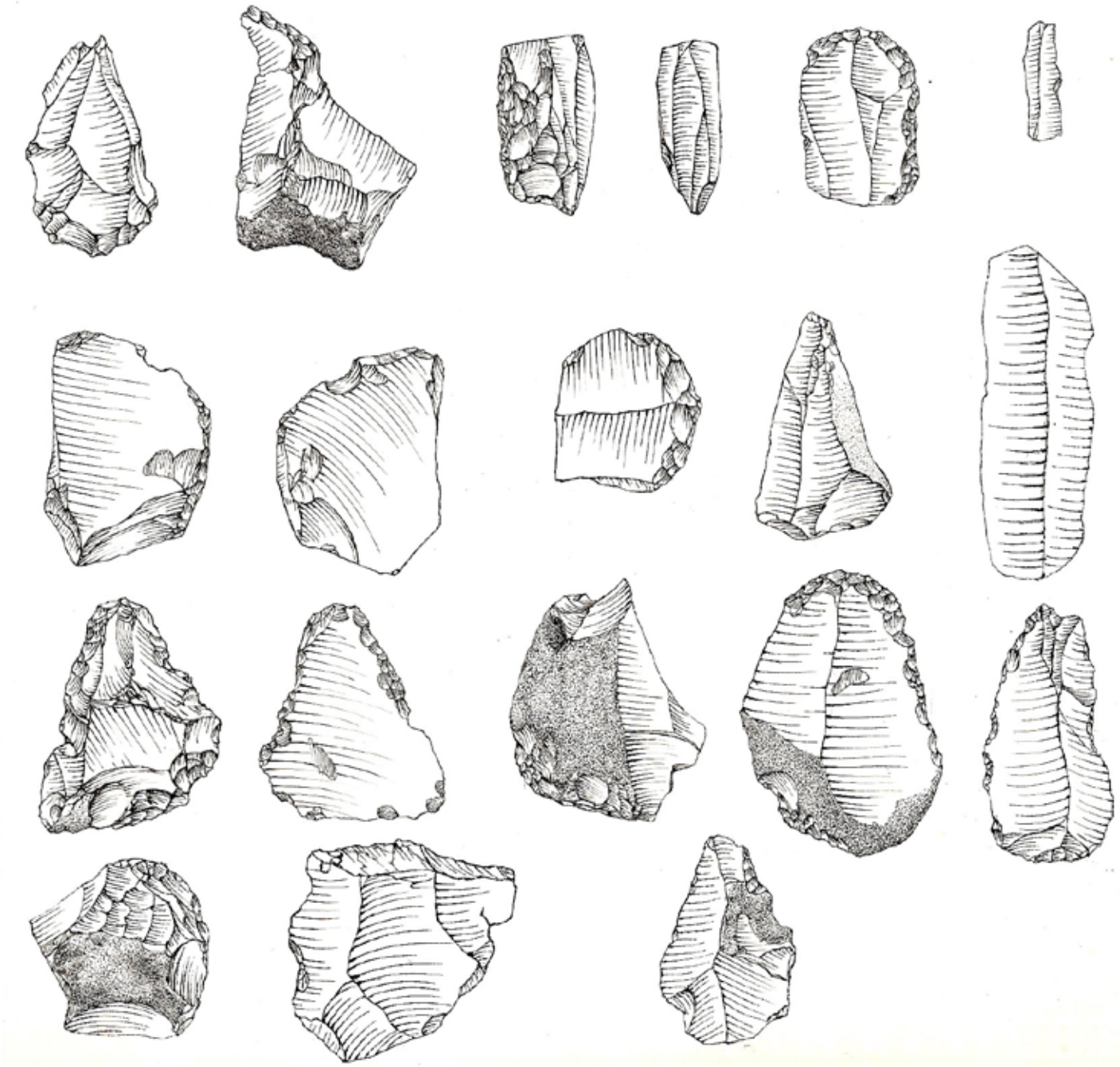


FIGURE 6 Stone artefacts from Ortvala Klde.

There are 11 lythological layers in the cave (**figure 7**). The second and the third layers belong to the Upper Paleolithic Age, the fourth layer was considered to be the transitional layer from Middle to Upper Paleolithic [Tushabramishvili 1994]. According to the research of 1997–2001s, the fourth layer was also considered as of Upper Paleolithic Age and its certain sections were considered as a mixed. In these sections Middle and Upper-paleolithic material is mixed [Adler, Bar-Oz, Belfer-Cohen, Bar-Yosef 2006.]. After investigation of the material again, revision samples of other Upper Paleolithic sites in the region, discovery of upper paleolithic sites, the questions of existance of the transitional (from Middle to Upper Paleolithic) step in the sites of South Caucasus become still actual.

The data from Ortvale Klde indicate that Layers 2 and 3 date to ~21 ka BP (**figure 8**) and can be correlated with OIS 2, during which much of Eurasia experienced severe climatic conditions. Layers 4a and 4b are dated to ~27 Ka B.P. and are probably associated with an increasingly colder period prior to the LGM. Layer 4c is dated to 34–30 Ka B.P., and may be separated from Layer 4b by Heinrich 3; this layer contains the densest local EUP occupation with a high frequency of burning. Layer 4d represents the first EUP occupation at Ortvale Klde and contains a stone-lined hearth dated to ~38/35 Ka B.P. (2008. O. Bar-Yosef et. JHE 55, 817–833)

The terminal LMP occupations represented in Layer 5 are dated to ~38/35 Ka B.P. Stratigraphically and archaeologically Layer 5 reflects an ephemeral Mousterian occupation. Layers 6 and 7, dated to 43–42 Ka B.P. by three independent radiometric techniques comprise high-density LMP occupations, thick accumulations of anthropogenic sediment, and a high frequency of burning. Layer 8 is a sterile deposit of undated roof-fall, and Layers 9 and 10 are dated to ~50 Ka B.P. (2004. D. Adler, G. Bar-Oz, A.Vekua, N.Tushabramishvili. Paleolithic Hunting Practices. Caucasus Environment, 2(7), 52–55)

So, Middle Paleolithic layers of Ortvala Klde are dated 50000–35000, as for Upper Paleolithic layers, they are dated 35–34000~20–19000. In fact the rock-shelter represents approximately maximum 2000 years interval (36000 – 34000) between these two ages. Although, it should be noted, that interpretation of dates by different methods can be done in a different way. If we take into consideration the fact, that certain dates properly fill the above mentioned time interval, it is possible to think of continuous life of the cave in this period. [Adler D. *et al.* 2008.8]

Both elongated blady forms (similar to the near east Ahmarian and Western Europe Gravetian) as well as Aurignacian signs: Carinated type, big size end-scrapper made of blades, Busque type burins, several aurignacian bone points, ornamented bones are existed in Ortvala Klde Upper Paleolithic (**figures 9** and **10**).

It is very important that in every cultural layer of the Ortvala Klde, including the oldest layer, after which the human being has left this site, remains of Capra Caucasica prevail in composition of faunistic material (**figure 11**).

In one of the publications we have mentioned that the cave had been mainly used on a seasonal basis – from late autumn till early spring [Adler, Bar-Oz, Belfer-Cohen, Bar-Yosef 2006]. This decision was made by the archaeo-zoologyst Guy Bar-Oz, who investigated faunistic material. He supposes that, mainly mid age animals were hunted, which he connected with the cycle of their breeding [Bar-Oz, Adler 2005].

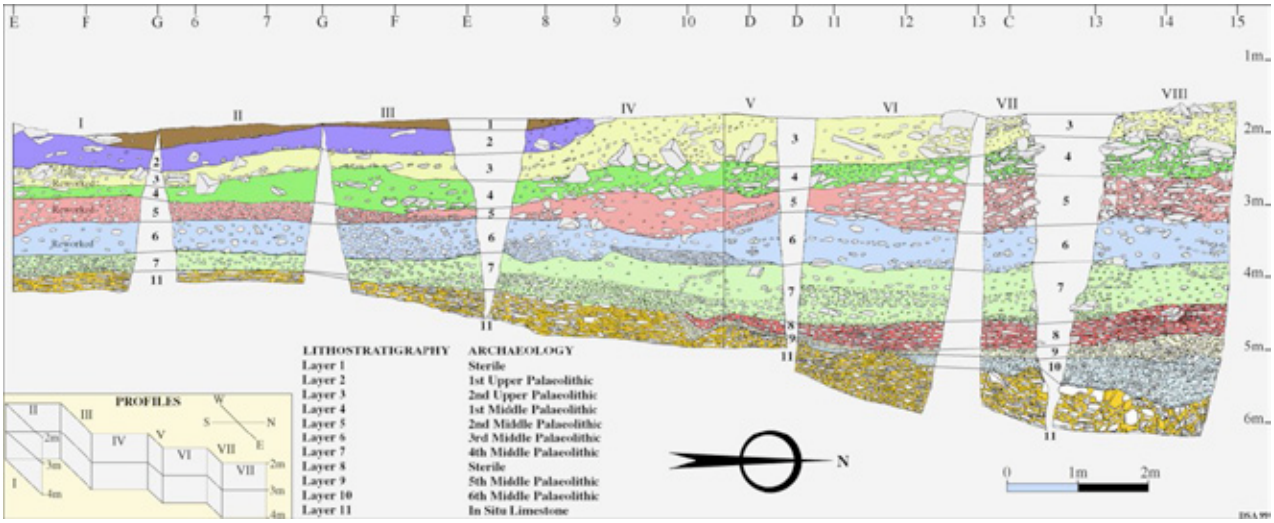


FIGURE 7 Section of Ortvala Klde.

FIGURE 8 The section of the small chamber.

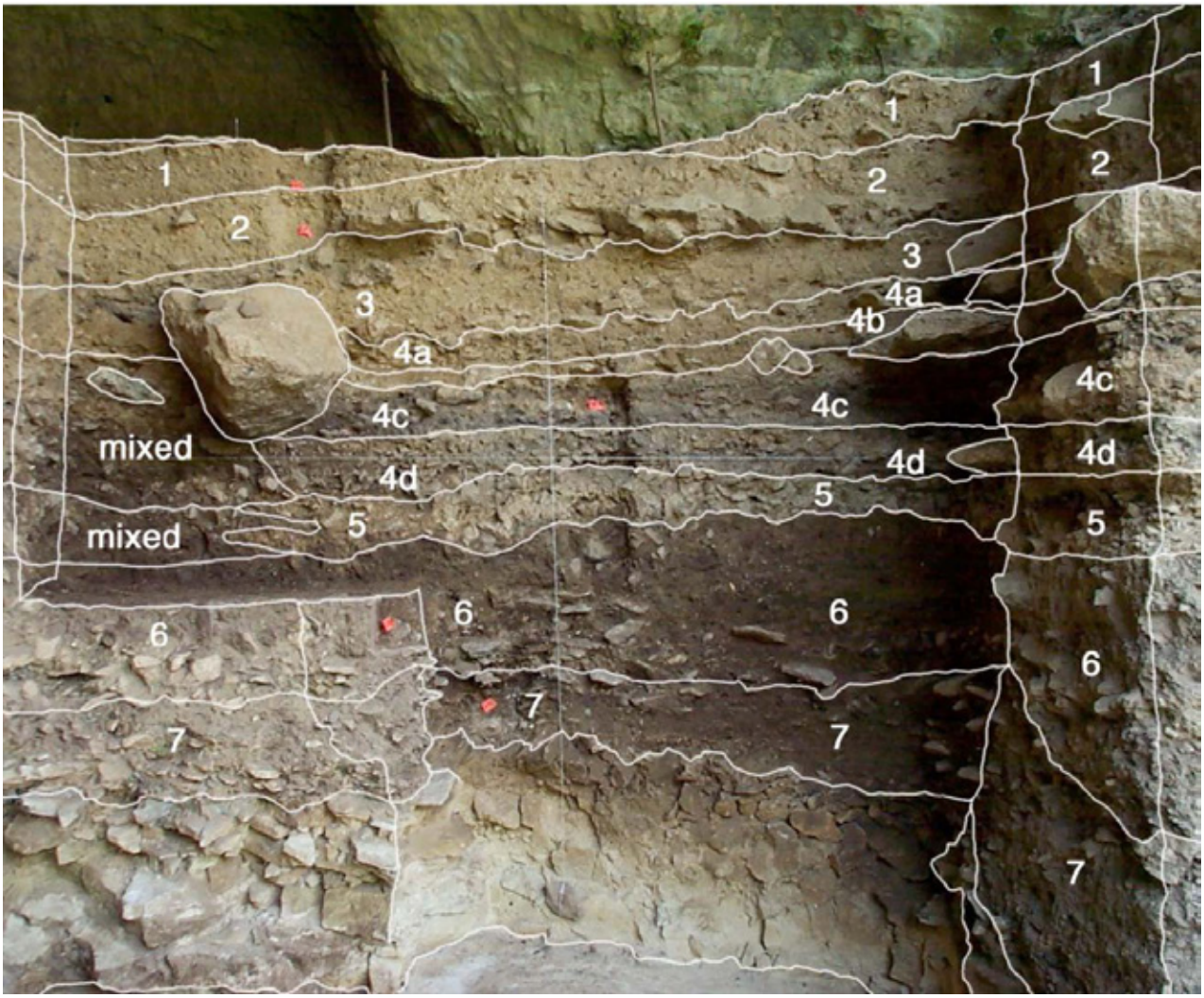


FIGURE 9 Ortvala Klde bone point (Upper Paleolithic Layer 2).

FIGURE 10 Ortvala Klde bone tools (Layer 4).

SPECIES	10	9	7	6	5	4	3	2
Capra caucasica	x	x	x	x	x	x	x	x
Capreolus capreolus				x	x	x	x	
Cervus elaphus	x	x	x	x	x	x	x	x
Bison priscus	x	x	x	x	x	x	x	x
Bos primigenius				x		x		
Sus scrofa	x			x	x			
Ursus spelaeus		x	x	x	x	x		
Ursus arctos							x	x
Canis lupus							x	
Vulpes vulpes					x		x	
Lepus sp.				x				x

FIGURE 11 Faunal representation by layer at Ortvale Klde.

The fact that the habitats of the Ortvala Klde, both Neanderthal and contemporary human being hunt Capra Caucasica the same way, had been and is explained by equal level knowledges about Capra Caucasica living area and behaviour and similar hunting methods of both species. We have noted in earlier works, that a human being, of course, is hunting the animal which is more accessible. Relevantly, this is facilitated by multitude of a certain kind of animals on the given territory, in this case, Capra Caucasica. This viewpoint, based on other scientists, as well as our observations, we explaned not only by seasonal, but also day and night migrations of Capras. Migrations on approx. hight of 2000 metres during one day and night is typical for this species (e.g. Khuro Range, Nakerala Range) [Maruashvili 1981]. This information has not been taken into consideration by our collegues Prof.Bar-Oz and Prof. D.Adler. They make conclusions basing on data of some of the scientists (Macharashvili) [Adler *et al.* Tushabramishvili 2004] and doesn't use other information except the one, that seasonal migrations are typical for Capras.

The fact, that during the Paleolithic Age, especially in its cold sections, vertical zones were lowered, in some cases even by 800–1000 metres, should be considered [Tushabramishvili, 1991]. This means that, Capra Caucasica always existed on those territories, where the Ortvala Klde is located and consequently, this creature had always been accessible for all kinds of human beings. Information obtained through investigation of different sites stipulates to bear in mind other versions as well and work in this direction in future.

It has to be mentioned, that existance of the Upper Paleolithic layers, also, the same age and period are proved in the caves, located only in several kilometers from the Ortvala Klde – Dzudzuana and Bondi Caves. These sites have certain similar characteristics, although the main hunting animal for the Upper Paleolithic human beings, habitats of these caves, are other animals. Despite this, it is possible that there were certain connections between the habitats of the above mentioned caves.

3 THE BONDI CAVE SEQUENCE

Bondi Cave is found in 2007 by Prof. N. Tushabramishvili. The cave is located in 6 kilometers on the North-West from town Chiatura, on the territory of Tsirkvali village, on the right bank of Tabagrebis River, 30 meters high from the river. The altitude of the cave is 477 meters. The site opens to the south onto the slope of a small valley (**figure 12**).

The whole area of the Bondi Cave is 101 sq. metres The known sequence consists of eight lithological very distinct layers with bone and lithic remains (**figures 13** and **14**), with phases of blocks representing major collapses of the porch of the cave. The first layer is mixed and belongs to later ages. In other layers numerous and diverse material of Upper Paleolithic and Middle Paleolithic has been discovered. It has to be mentioned, that the expedition has not reached the dead-rock yet. It is possible that in the lower layer more earlier, including Middle Paleolithic Age, material is also represented, the signs of which have been observed (N.Tushabramishvili *et al.* 2009. 8–21).

The archaeological material is especially abundant on the upper two-thirds of the sequence (the most intensive layers were the IV and the V layers), which corresponds to the UP layers (layers I to VI). All layers contain bone and lithic material but the layer VII has yielded a different lithic industry (MP) to the one identified from the overlying layers (layers VI to II).

FIGURE 12 Bondi Cave.

Evidence of fire has been recovered through all the stratigraphic layers (burned bones and flint, micro-charcoal fragments).

Bones and lithic artifacts are present in all archaeological layers. They are especially abundant in the UP layers (layers VI to I), deposited less than ca 30,000 cal BP (**figures 15** and **16**). Some ornaments-herringbone were found in layer III, one human tooth, assigned to *Homo* sp. in layer V and a small pierced disc of cockle-shell 3 mm wide and 1 mm thick. The lithic industry of layers VII and VIII, dated between ca 40,000–43,000 cal BP, presents MP affinities. The Bondi Cave fauna is typical of that found in most Georgian sites of the region, and in particular to those attributed to the Middle Paleolithic and/or the Early Upper Paleolithic (Ortvale Klde, Dzudzuana) (Adler *et al.*, 2006,; Bar-Oz *et al.*, 2002, 2004, 2008; Bar-Oz and Adler, 2005; Bar-Yosef *et al.*, 2006, Meshveliani *et al.*, 2004; Tushabramishvili *et al.*, 2007).

FIGURE 13 Bondi Cave section.

The main raw material is flint; only 63 items are made of obsidian, twenty-two - of andesite-basalt. The lithic implement was realized almost uniquely from various local flints. The later represents 98.8 % of the artifacts of the UP levels (layers I-VI), where it is mainly composed of blades and bladelets (**figure 17**), laminar cores testify (**figure 18**) of *in situ* debitage. Obsidians were found only in the three UP layers II, IV and V, where they represent ≈1 % of the lithic remains. Sixty-one obsidian artifacts were doscovered during the 2007–2008 campaigns. They are mainly composed of unretouched pieces, blades (n = 13), bladelets (12), and small flakes (21).

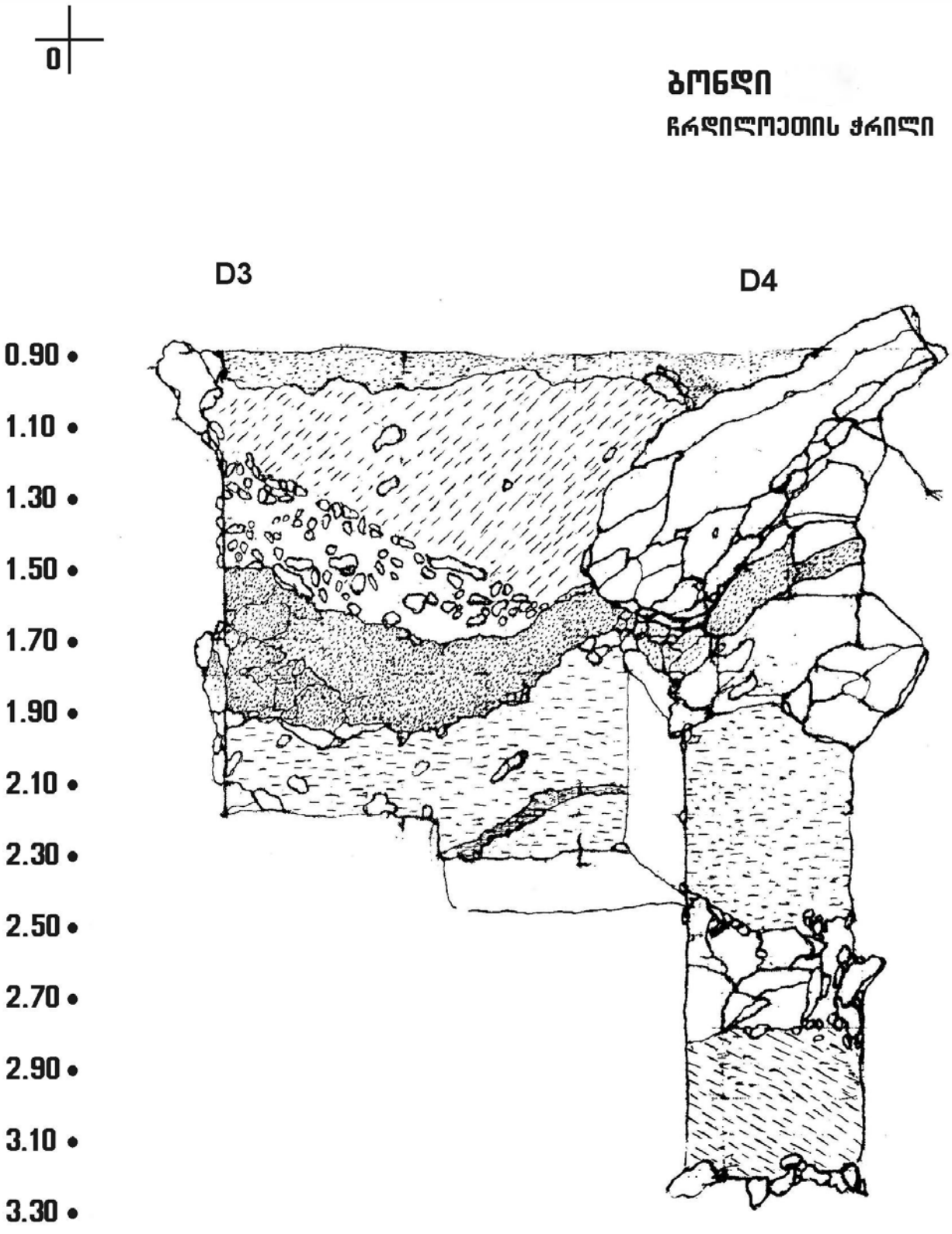


FIGURE 14 Bondi Cave section.

SAMPLE	SQUARE	ELEVATION (z)	LAYER	X	Y	TYPE	LAB CODE	DATE	+/-	$\delta^{13}C$
BON02	C4a/D4c section	152	IV	50	100	bone	OxA–23902	27120	240	–18,494
BON06	C3b/D3d section	243	Vc	80	100	bone	OxA–23903	35300	650	–18,705
BON06	C3b/D3d section	243	Vc	80	100	bone	OxA–23904	34950	600	–18,55
BON07	B3b/C3d section	255–265	Vb		100	bone				
BON09	B4a	305–315	VI			bone	OxA–23905	47500	2900	–17,694
BON14	B4a	365–375	VII			bone	OxA–23906	> 47700		–19,131
BON20	B4c	390–395	VIII			bone	OxA–23908	> 48400		–19,369
BON21	B4c	365–375	VIII			bone	OxA–23909	> 48100		–17,263
BON25	B4a	375–380	VIII			bone	OxA–23907	> 48600		–18,904

FIGURE 15 Dating chart.

LAB#	SQUARE	PERIOD	LAYER	DEPTH (CM)	CONVENTIONAL RADIOCARBON AGE BP	AGE CAL BP – 1 σ
SacA–12064	C3	UP	III	130–150	14330 +/– 90	17504 +/– 257
SacA–12065	C3	UP	III	150–160	14050 +/– 90	17295 +/– 225
Beta 2392225	B4	UP	IV	110–140	19360 +/– 120	23124 +/– 286
SacA–12066	C3	UP	IV	170–190	20080 +/– 170	24005 +/– 349
Beta 270160	C3	UP	IV	178	26020 +/– 170	30978 +/– 348
Beta 239226	A4	UP	V	145–165	10920 +/– 40	12860 +/– 81
SacA–12067	C3	UP	V	200–210	18010 +/– 140	21726 +/– 395
Beta 270161	A4	UP	V	185–205	21550 +/– 120	25668 +/– 405
SacA–12068	C3	UP	V	203–230	24620 +/– 300	29462 +/– 580
SacA–12069	C3	UP	VI	240–250	31270 +/– 640	35438 +/– 683
Beta 2392227	B4	MP	VII	270–280	35070 +/– 340	40082 +/– 867
Beta 270162	A4	MP	VIII	315–325	38750 +/– 480	43123 +/– 632

FIGURE 16 ^{14}C dates at Bondi Cave (Cal. HULU http://www.calpal-online.de/).

The sourcing of the Bondi and Ortvale Klde Caves obsidians was tentatively determined from their elemental compositions. In order to fulfill a local authority requierement of non-destructive analysis, all the artefacts compositions were determined by PIXE (particle induced X-ray emission). Five of those were analyzed at *Centre d'Etude Nucléaire de Bordeaux* (CENBG, Gradignan, France) using the nuclear microprobe line of the AIFIRA facility, where the samples are exposed to the particle beam inside a chamber maintained in the accelerator high vacuum (Llabador *et al.*, 1990).

The remaining six artefacts and five geological samples were treated at *Centre de Recherche et de Restauration des Musées de France* (C2RMF, Paris) where the external particle beam of AGLAE facility is particularly adapted to the analysis of large samples, as shown for obsidians in other circumstances (Calligaro *et al.*, 2005, Fig. 1; Le Bourdonnec *et al.*, 2011, Fig. 4). Due to their 'large' sizes, the geological samples and artifact C26d had to be treated at AGLAE. In both PIXE facilities, which were shown to provide concordant element contents (Le Bourdonnec *et al.*, 2005) we used an 3 MeV proton beam. Analytical procedures and data treatments are detailed elsewhere (Lugliè *et al.*, 2007; Bellot-Gurlet *et al.*, 2008; Poupeau *et al.*, 2010).

FIGURE 17 Stone artefacts (blades and bladeleds) from Bondi Cave.

FIGURE 18 Stone artefacts from Bondi Cave.

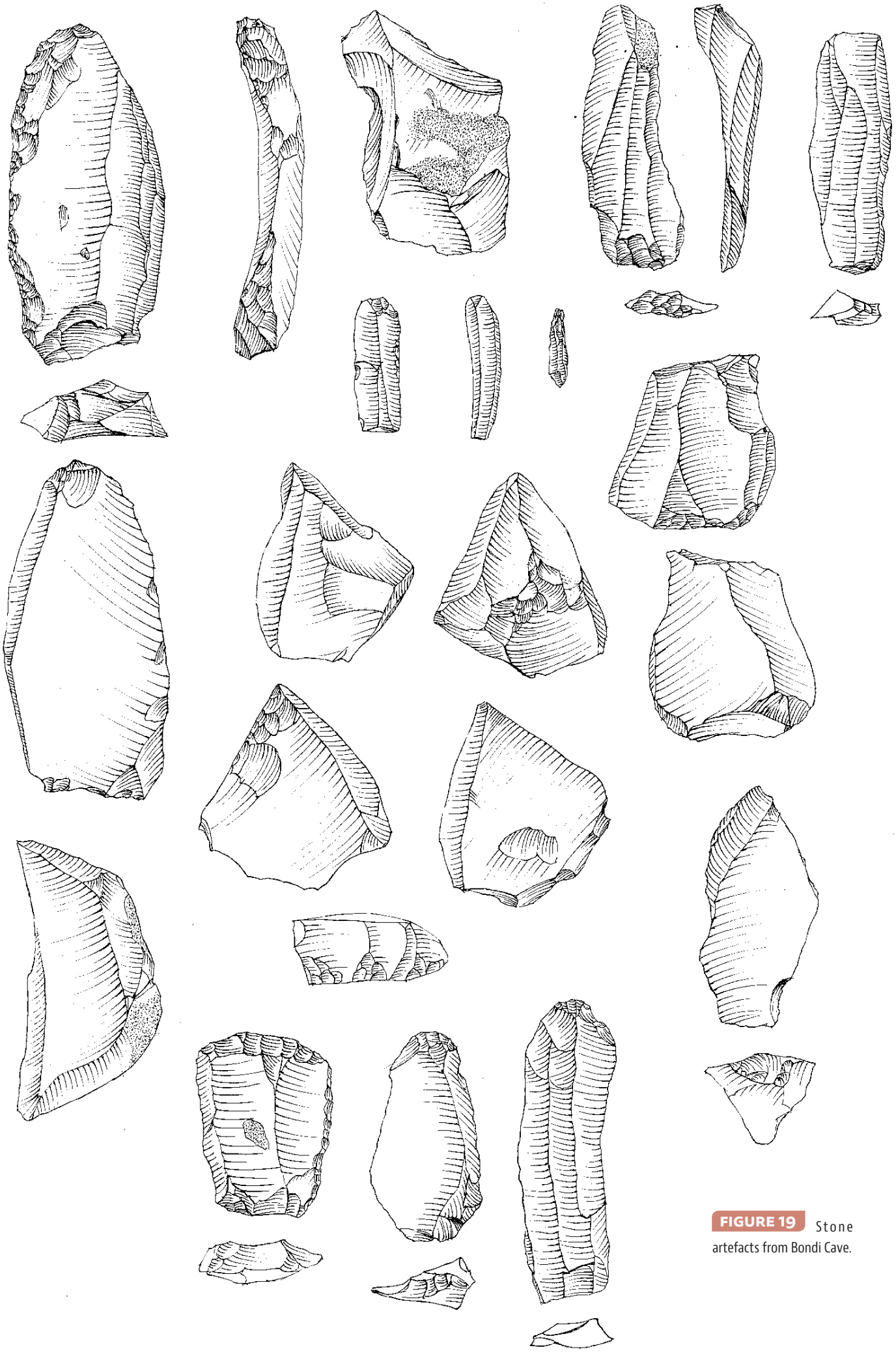


FIGURE 19 Stone artefacts from Bondi Cave.

FIGURE 20 Ornamented bone artefact from Bondi Cave.

It has been possible to clearly identify some obsidian sources of Bondi Cave and Ortvale Klde. It is the Chikiani source of the Lesser Caucasus northern flank. This is one of the nearest sources which lie at linear distances of more than 100 km. (François-Xavier Le Bourdonnec *et al.*).

Bondi stone industry has a common appearance with the Dzudzuana material. Although industry in the Bondi Cave is non-microlythic. There is a huge number of flakes represented. Most of the tools are made of flakes, although blades and microblades are not less in number. Similar to Dzudzuana and Ortvala Klde certain Aurignatian features can be observed, namely, Carinated type forms (cores, burins, planers), also, several end-scrapers made of big size oval items and bladelets, backed blades and microblades (**figure 19**), also, bone tools. It has to be noted, that there are some items made of basalt pebble stones. Items like these are not discovered in the Ortvala Klde, but a small number in different forms can be found in Dzudzuana.

Bones were recovered from all layers (**figures 20** and **21**), and for three of the excavated squares (A4-B4-C3), bone was sampled for radiocarbon ^{14}C dating by Beta Analytic Radiocarbon Dating Laboratory (Miami, USA) and the Centre of radiocarbon dating at the University of Lyon (France).

There are bone items in the cave on which scratches (when processing the bone) can be observed. Apart from this, one bone tool (polished point or burin) and one ornamented fragment of burnt bone have been found in the second layer. Fish bone ornament is made on threefaceted smooth bone rib. The ornaments (scratches) are separated by equal distances in eight rows. The type and function of these symbols are vague yet.

A bead found in the fifth layer, which might have occured here from the upper layers, has to be also noted.

3.1 Paleontological and non-paleontological material

Faunistic remains in Bondi Cave have been found during excavations belong to only eleven species. Bison remains prevail among them. There is Capra caucasica observed as well. [Nikoloz Tushabramishvili *et al.* 2009].

As we see, unlike Ortvala Klde where Capra Caucasica dominates, bison prevails in Bondi cave. Situation is similar in Dzudzuana cave too (G. Bar-Oz *et al.* 2007).

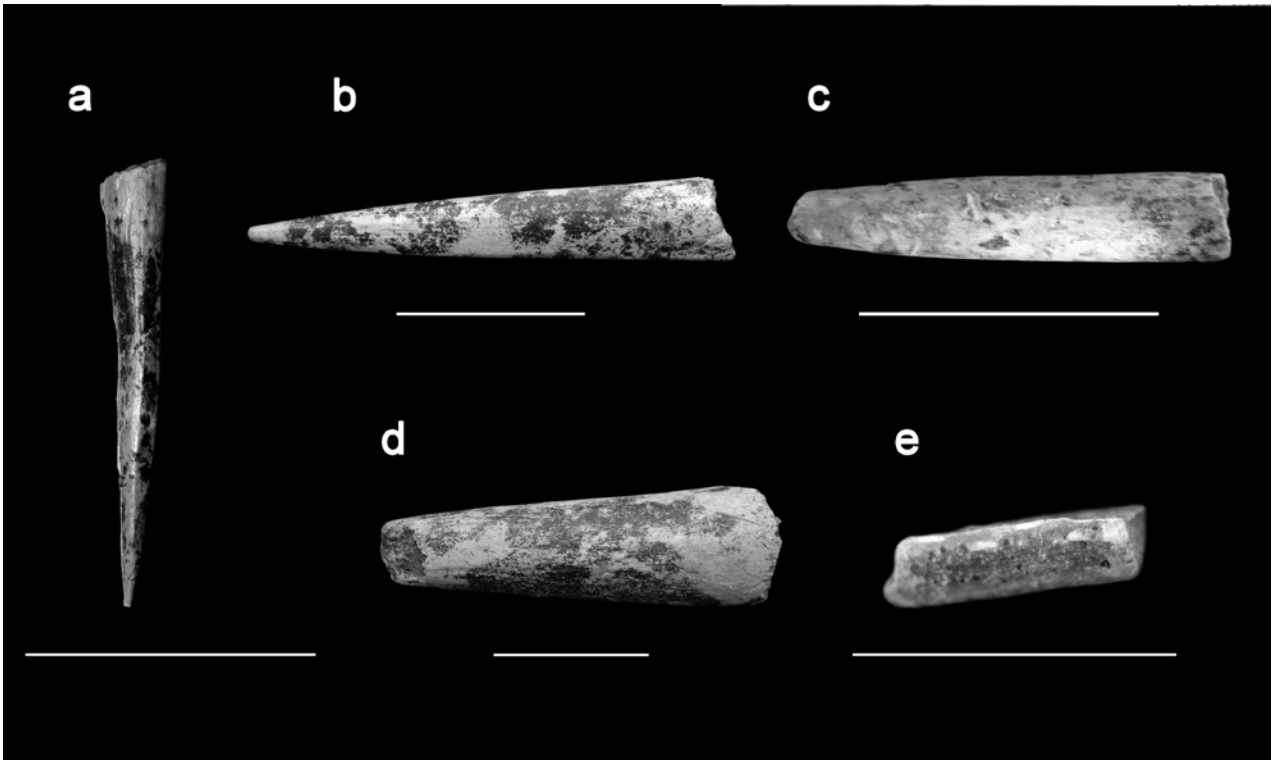


FIGURE 21 Bone tools from Bondi Cave.

Microfaune 3.2

Microfaune has been studied by Doc. Alexsandre Muskhelishvili.

The remains are 9 micromammal species of the site: Microtus arvalis, Chionomys ex. gr. gud-roberti, Prometheomys schaposchnikovi, Pitimys sp., Arvicola terrestris, Mesocricetus sp. Ochotona sp., Clethrionomys glareolus, Cricetulus sp.

Upper Paleolithic fauna of Bondi comprises the species which can have significance for the climat and vegetation at the time.

The first evidence of earliest wool and flax remains was determined in Bondi Cave in 2007 (Э.В. КВАВАДЗЕ, Н.Д. ТУШАБРАМИШВИЛИ. 2008) (**figures 22** and **23**). This kind of discovery was done also in Dzudzuana Cave in 2008.

Both in the Dzudzuana Cave and the Bondi Cave dyed twisted Capra Caucasica wool and flax remains were found in every layer. This is the earliest ever such discovery (35000 BP Bondi cave, 34000 – 32000 BP – Dzudzuana Cave). It should be stressed that their prevailance is confirmed in the layers, where according to Paleoantological and Microfaunistic data rather cold periods were considered. These are IV-VI layers. In colder periods the cave was more intensively mastered. The proof for this is existance of lots of micro remains of burnt pine trees. Also, number of weeds is growing on the sites trampled by people. Number of fibres of Capra Caucasica wool and flax is increasing, including twisted and colored (**figure 24**).

FIGURE 22 Flax from Bondi Cave.

FIGURE 23 Wool and flax remains from Bondi Cave.

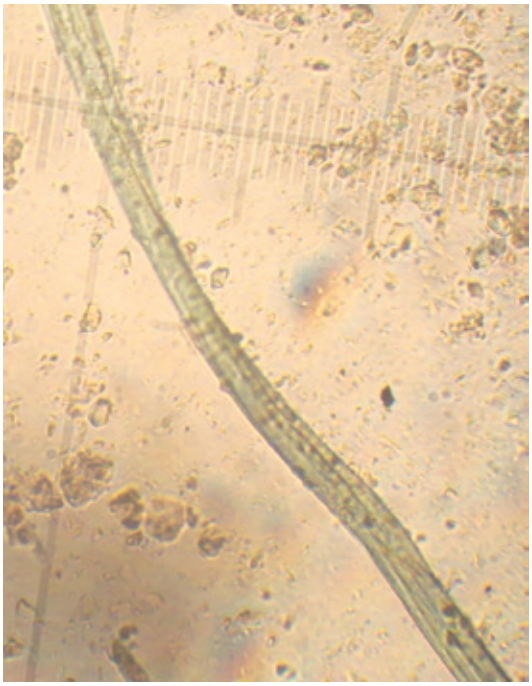
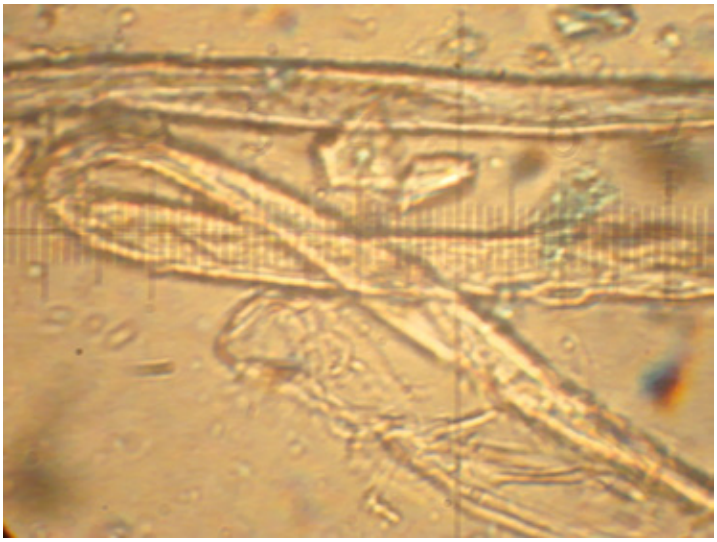
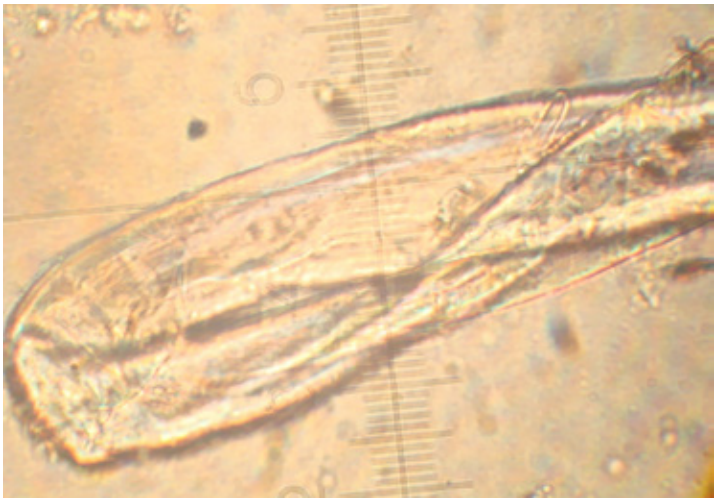


FIGURE 24 Bondi Cave Iwisted and colored fibers.





LAYER	SAMPLE	DEPTH	EDIFICATORS		FIBERS LINUM
			MICRO	MACRO	
I	N12	0,90 m	*Asteraceae, Cerealia, Poaceae, Chenopodiaceae, Plantago, Rumex*	*Fabaceae, Cerealia, Poaceae,*	-
II	N11	1,00 m	*Carpinus, Quercus,Fagus, Juglans, Dryopteridaxeae*	*Fabaceae, Poaceae, Polygonum Cladium maritimum*	10
III	N10	1,40 m	*Quercus, Ulmus Betula, Ephedra, Poaceae Asteraceae, Chenopodiaceae*	*Pinus, Poaceae Fabaceae*	8
IV	N9	1,65 m	*Pterocarya pterocarpa Acer Carpinus, Ulmus Quercus, Fagus, Juglans, Aspleniaceae Dryopteridaxeae*		4
Va	N8	1,90 m	*Quercus, Juglans, Carpinus, Polypodiaceae Dryopteridaxea*		6
Vb	N7	2,00 m	*Betula Ephedra Polypodiaceae, Lycopodium*	*Fabaceae Poaceae*	6
Vc	N6	2,10 m	*Ephedra Lycopodium*	*Pinus-macro-*	8
Vd	N5	2,30 m	*Betula Ephedra Polypodiaceae, Lycopodium*	*Fabaceae unnidentif*	
VI	N4 = 5D	2,70 m	*Zelkova Ephedra, Polypodiaceae, Lycopodium*	*Pinus-Asperula Galium*	10
VI	N3	3,085 m	*Fagus,,Quercu Acer Pterocarya pterocarpa Juglans,Ulmus Corylus Dryopteris Aspleniaceae*	*Fabaceae Rosaceae Chenopodium*	4
VII	N2	3,50 m	*Fagus, Quercus Acer Juglans, Ulmus Corylus Pterocarya, Polypodiaceae*	*Fabaceae, Poaceae*	
VII	N1	3,98 m	*Pinus,Pterocarya, Juglans, Fagus, Taxodiaceae Acer Dryopteridaceae*	*Pinus, Hedera helix Apiaceae*	

FIGURE 25 Paleobotanical samples.

This enables us to presume, that at that period thread not only already existed and was used, but the humans could already knit as well. This viewpoint was expressed by scientists earlier (Soffer *et al.* 2000). According to it Upper Paleolithic Venuses wore hats made of flax. Our material prooves this sensational theory.

According to discovered Palinological material during Upper Paleolithic period (**figure 25**) cold periods were longer, than warm ones in the Kolkhis fore-mountainous zone (Э.В. КВАВАДЗЕ, Н.Д. ТУШАБРАМИШВИЛИ. 2008). More or less the same results got Prof. M.Bokeria (Manuscript). According to her: "According to paleobotanical data, during the last Glacial maximum, the plants, which had exist in most parts of western Euro-Asia, in the Colchian refugium, with warm, humid climate so-called Arcto-Terterian relict plants appeared.

4 DZUDZUANA CAVE

Dzudzuana cave is located in 3–4 kilemeters from Bondi, on the territoy of Mgvimevi village, Nikrisi gorge. The cave discovered by Prof. D.Tushabramishvili and studied in 1966. The Cave was studied by him from 1966 to 1975. Since 1983 Dzudzuana Cave is investigated by the Georgian-American-Israel team led by Doc. T. Meshveliani and Prof. O.Bar-Yosef.

Dzudzuana cave upper paleolith can be characterised by the following way: Layer A: ~ 5,000–6,300 BP; layer B: ~ 11,000–13,000 BP: blades flaked from bipolar cores and small size lamells; layer C: ~ 19,000–23,000BP: prevail lamells small size lamells and microliths, endscrapers on flakes Karene type cores; layer D: ~26, 000–32,000BP: microliths, endscrapers on flakes, double and nail shaped endscrapers. Some bone tools have been found as well (**figure 26**).

FIGURE 25 Dzudzuana bone tools.

We would like to note that the excavators date this layer as of 34000. From faunistic material, bison is prevailing. In the Dzudzuana Cave, like in Bondi a horse is represented.

layer D: ~26,000–32,000BP: microliths, endscrapers on flakes, double and nail shaped endscrapers. Some bone tools have been found as well We would like to note that the excavators date this layer as of 34000. From faunistic material, bison is prevailing. In the Dzudzuana Cave, like in Bondi a horse is represented.

As we can see, the periods of mastering of the Dzudzuana and Bondi Caves are nearly the same. Bondi dates somehow fill Dzudzuana hiatuses, although - not fully yet.

5 CONCLUSION

Thus, in one region and in the same paleo-environment, where climatic conditions and landscape are similar, in the caves separated from each other by several kilometers, inhabited by people at the same time, several different situations have been represented: In the Ortvala Klde early Upper Paleolithic human beings hunted mainly on Capra Caucasica. The inhabitants of the Dzudzuana and Bondi Caves are mainly hunting bisons and, unlike the Ortvala Klde hunters, they also hunted horses. The inhabitants of Dzudzuana and Bondi caves could use Capra Caucasica wool and flax, as well as primitive knitting and coloring.

Nothing similar has been observed in the Ortvala Klde. From the standpoint of material culture Bondi and Dzudzuana are closer to each other, than the Ortvala Klde, although there is still difference between them too (material is more microlithic in the Dzudzuana Cave, than in the Ortvala Klde). It should be also noted, that all these monuments have one thing in common – coexistance of Aurignacian and Gravettian features. It seems, this is typical for Upper Paleolithic of Georgia.

In the cave-sites existing in the region of Upper Imereti existance of slightly, but still diverse stone industry, living and hunting strategies and traditions might be connected with coexistance, adaptation and distribution of natural resources and living areas of the groups of primitives. Although, it is possible that better dating of theis sites could show us chronological differences between them, which, probably will be proving, that the human beings of the same culture in different gorges lived on seasonal basis or at different times, or these groups of human beings used different economy or hunting strategies.

In Undo Cave located in the same region (Upper Imeretian Plateau) in 2 km from Ortvala Klde recent season was determined by Upper Paleolithic layer with Ortvala type lithic material. This layer overlied the Middle Paleolithic layer. So, for the present time we have 4 cave-sites where the Upper Paleolithic Layers are just in contact with the Middle Paleolithic layers. These evidences need and explaining and future investigations.

ACKNOWLEDGEMENTS

The authors wish to thank the archaeologists and our collegues from the Institute of Human Paleontology of Paris Marie-Helene Moncel, D. Pleurdeau who are working together with us in Imereti region. This work was made possible through research projects supported by the French Ministère des Affaires Etrangères.

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