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8 - THE WORKED BONE ARTIFACTS FROM THE SIUREN I ROCK-SHELTER (CRIMEA): THE 1990S EXCAVATION

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Introduction

During the new excavations at Siuren I during the 1990s, a joint Ukrainian-Belgian project directed by V.P. Chabai, a series of worked bone artifacts was recovered from the lower and middle deposition units. These units are geochronologically situated during between 31/30-28000 BP, a period that includes the Arcy and Maisières interstadials (Demidenko & Otte 2000-2001).

As has been shown (see Chapter 1), several different and often opposing interpretations of the geochronology and industrial attributions of the Siuren I deposits have been proposed. However, the worked bone artifacts were never studied, especially with respect to chronological and cultural comparisons, despite awareness of very efficient methods and analyses (e.g. Gvozdover 1953, 1995; Clark & Thompson 1953; Clark 1977; Hahn 1977; Olsen 1979; Knecht 1993; D´Errico *et al.* 2003; Khlopatchev 2000-2001). It is the aim of the present study to fill this information gap for the material recovered in the 1990s. This chapter presents descriptions of technological manufacture, morphology and use-wear traces for the Siuren I worked bone artifacts.

These analyses are based on samples of technological and use-wear traces obtained during many of my own experiments, applying methods from the Saint-Petersburg Use-Wear Lab (Institute of History of Material Culture, Russian Academy of Sciences) (Semenov 1957; Filippov 1983; Schelinsky 1983; Korobkova & Schelisky 1996; Korobkova & Sharovskaya 2001) and those used by French colleagues at the CNRS (mastered during "TEHNOS-2006", my probation in France under the direction of A. Averbuch and M. Kristensen). An MBS-2 binocular microscope (magnification to 84x) was used for the use-wear analyses and an "Epson Perfection 2480 PHOTO" scanner (resolution to 12800) for the macro photos.

Archeological context of the bone artifacts

The stratigraphic sequence of Siuren I has been described in detail in the present volume. Here we note only certain details relevant to analysis of the bone artifacts.

The 1990s excavations showed that Lower and Middle archeological layers of Bonch-Osmolowski's 1920s excavation (Bonch-Osmolowski 1934; Vekilova 1957) correspond to the 1990s units with several levels.

The 1920s Lower layer corresponds to the 1990s Unit G, which contains the following four levels from bottom to top: Gd, Gc1-Gc2, Gb1-Gb2 and Ga. The three lower levels (except level Ga) contain abundant Upper Paleolithic and a few Middle Paleolithic artifacts. Moreover, levels Gc1-Gc2 and Gb1-Gb2 are additionally respectively divided into three and two sub-levels. All three levels contain hearths/fireplaces and/or ashy lenses, showing intensive exploitation of the rock-shelter by its human visitors.

The 1920s Middle layer corresponds to 1990s Unit F, again with four levels from bottom to top: Fc, Fb1-Fb2, Fa3 and Fa1-Fa2. All Unit F finds are attributed to the Upper Paleolithic. Again, as for Unit G, two levels (Fb1-Fb2 and Fa1-Fa2) also have complex sub-level structures.

Thus, Units G and F contain different Paleolithic assemblages. Unit G is characterized by Archaic Aurignacian/Aurignacian 0 and Micoquian lithics, while Unit F contains only Upper Paleolithic, Late/Evolved Aurignacian lithics (see Demidenko *et al.* 1998; Demidenko & Otte 2000-2001). Critical review shows that these data are also in accordance with the 1920s excavation data.

The Units G and F sediments are mainly composed of very numerous limestone *éboulis* with sandy, silty-clay and/or clay components depending upon particular location in the rock-shelter.

The 1990s excavation revealed 13 pieces of worked bone, which came only from Units G and F. As these units are the most informative for the site, regarding their find contexts, analysis of these artifacts is of interest. Unit G contains eight artifacts, seven of which were found in different sub-levels of level Gc1-Gc2 and one in sub-level Gb1 of level Gb1-Gb2. Another 5 worked bone pieces come from two levels of Unit F: 4 from

different sub-levels of level Fb1-Fb2 and one from sub-level Fa2 of level Fa1-Fa2.

It is also important to point out the similarity in the hunted ungulate species fauna from both Units G and F (see López Bayón 1998), as ungulate bones were used for production and/or use of the worked bone artifacts. The fauna spectrum is dominated by saiga (*Saiga tatarica*), variable presence of horse (*Equus* sp.), bovids (*Bos* sp.), red deer (*Cervus elaphus*), deer (*Cervus* sp.) and giant deer (*Cervus megaceros*). The only noticeable difference is the occurrence of two identifiable wild boar bones (*Sus scrofa*) in level Fb1-Fb2 of Unit F. An arctic fox (*Alopex lagopus*) canine pendant (paleontological determination by M. Patou-Mathis in 2007) originates from sub-level Fb2 of level Fb1-Fb2. Other than this, no true cold-loving species have been found in the faunal, microfaunal and malacofaunal assemblages from Units G and F (see López Bayón 1998; see Massé & Patou-Mathis, Markova, Mikhailesku, this volume).

Description of worked bone artifacts from Unit G

Taphonomy

The eight bone items (2 retouchers, 5 points and an awl) (figs. 1-9C) have the following specific taphonomic features.

First, some taphonomic changes of bony tissue caused by biotic and abiotic factors have been observed. The biotic effect for bones was actually minimal for the artifacts studied. Some plant root damage is noted on a small point (fig. 5:A). Also, some microorganism effects can be seen on the surface of the awl (fig. 9). At the same time, the influence of abiotic factors is more variable. The surface of one of the retouchers (sub-level Gc2a, square 6-D) is weathered, clearly indicated by the presence of both small and large longitudinal cracks with uneven edges and some exfoliation of the upper surface of bone tissue (fig. 2). Some shiny spots 0.5 cm in diameter, of a chemical origin, can be seen on the surface of the second retoucher (fig. 1:B). The other bone artifacts from Unit G have some trowelled surfaces that create in some cases a shining dense crust; such damage is the result of prolonged presence of the artifacts within moist sediments. Some tiny dark-brownish and rarely black specks on light-brownish and whitish surfaces can be observed on these artifacts. Some are also mineralized, including a retoucher from sub-level Gc2 (square 7-C) (fig. 1), a shouldered awl with a long tip from sub-level Gc1 (square 9-C) (fig. 9) and a short point with a needle-shaped tip from sub-level Gc2a (square 9-D) (fig. 5). All are nearly completely covered with dark-brownish spots and their internal structure is denser with a brownish color. At the same time, the independence of the kind of taphonomic changes observed on the types of tools and the fact that bone artifacts have been found in the different archaeological substrata should be stressed.

Common techno-morphological and use-wear characteristics for the worked bone artifacts

Both retouchers are of the same type. Fragments of large ungulate tubular bones were deliberately selected for to ~~use~~ them. The bones were splintered for marrow extraction.

Measurements for the first retoucher (sub-level Gc2, square 7-C) are as follows: length 7.1 cm, width 2.8 cm, thickness of the bone side 1.8 cm (fig. 1). All breakage observed on the retoucher occurred during the Paleolithic and was fresh bone breakage. The bone fragment was perhaps selected for use as a retoucher because it had a natural pointed protuberance that could be used as a handle. Such a possible location of the bone held in a human hand is suggested by the direction of retoucher striking traces on its surface. A clear ovoid area (1.5 x 1.3 cm) with intensive retoucher wear traces including small depressions and incisions is clearly visible on the piece's external surface (fig. 1:A). These are traces of bone use during impact retouching actions that are evident by both the zone location of wear traces in the center of the bone and groove depths of different direction, forming the concave surface of the wear trace zone. Namely, some scars of pulled up bone tissue is typical because of impact retouching that differs, for example, from use as an anvil in which incisions are pressed into the bone surface. Another indication of use as a retoucher is the presence of long and curved scratches that go outside of the retouching zone.

The second retoucher from sub-level Gc2a (square 6-D) is 6.8 cm long, 3.8 cm wide, and 0.8 cm thick. Most breakages of the piece are of fresh bone occurring in the past, but there is also modern breakage at the narrow ends of the piece. Rare battering depressions from retouching actions are present for a 1.3 x 0.6 cm area in the central part of the piece on its external surface (figs. 2).

The other six worked bone pieces from Unit G are five points and an awl, all produced from the sides of ungulate tubular bones (fig. 3).

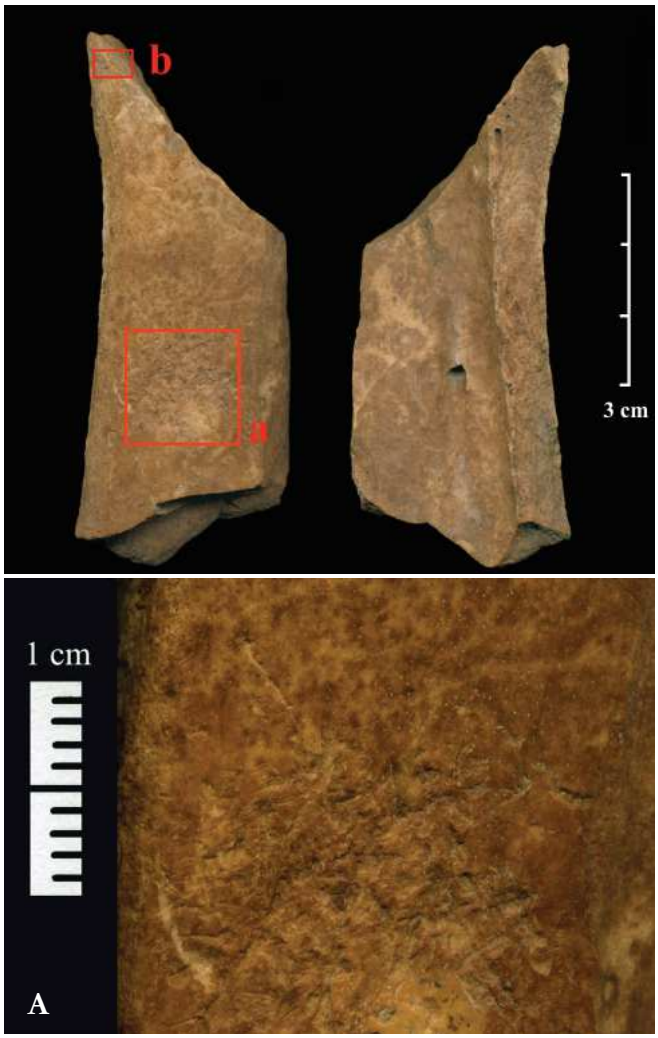
Four of the five points are flat.

Two points are short with a needle-shaped tip (fig. 3:2-3), one found in square 7-C in sub-level Gc2 and the other from square 9-D in sub-level Gc2a.

Technologically, both points were manufactured in the same way. Surface leveling traces can only be identified along one side edge in both cases and it therefore seems high likely that the points were produced by treatment of longitudinal bone fragments. Surfaces are not smoothed. Evidence of formation of the needle-shaped tips by scraping-slicing actions in the direction from base to tip is also observed.

The first point (sub-level Gc2, square 7-C) is 2.75 cm long, 0.5 cm wide and 0.13 cm thick (fig. 4). Its tip is smoothed as a result of point penetration into soft tissue (fig. 4:A). Polishing of the tip is a shiny, abrasive and surface. Technological traces in a contact zone are scratched and not visible. Because of significant taphonomic changes, it is not possible to precisely determine a contact tissue, but the wear traces on the point's tip are most similar to penetration traces into plant tissue.

The second point (sub-level Gc2a, square 9-D) is 2.6 cm long, 0.8 cm wide and 0.2 cm thick (fig. 5). The point's tip was broken recently and wear traces are not visible at all (fig. 5:A). The point's base was also recently fragmented.



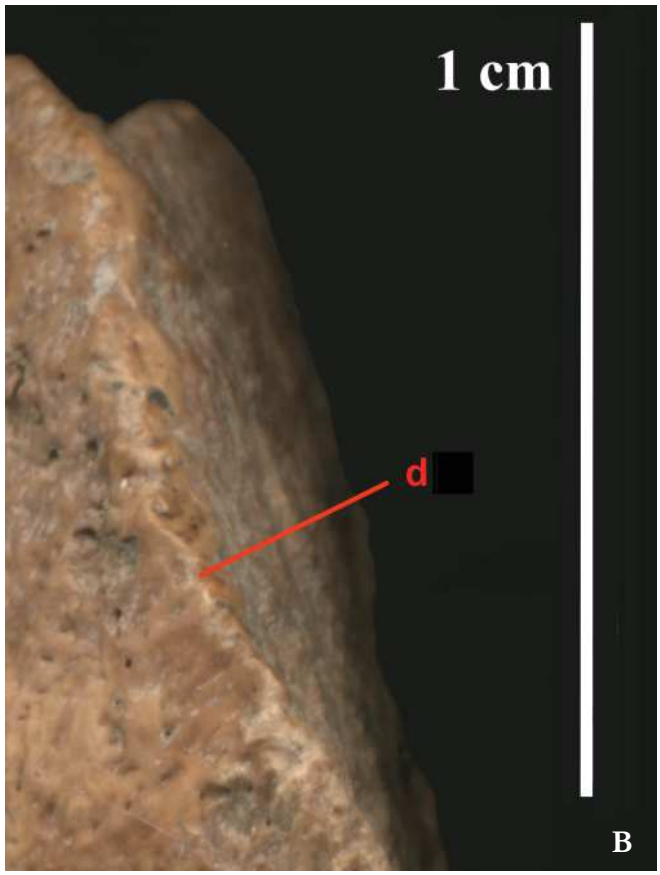


Figure 1 - Bone retoucher. Sub-level "Gc2", sq. 7-C. General view. A, macrophoto of use-wear traces on the retoucher; B, macrophoto: shiny spots of chemical origin on the retoucher.

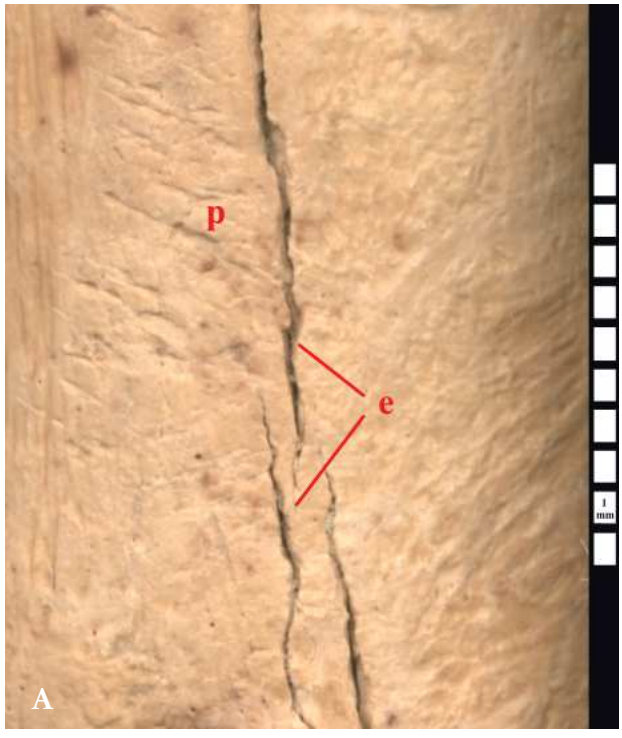


Figure 2 - Bone retoucher. Sub-level "Gc2a", sq. 6-D. General view. A, macrophoto: *p*-usewear-traces on the retoucher; *e*-weathering cracks on the retoucher.

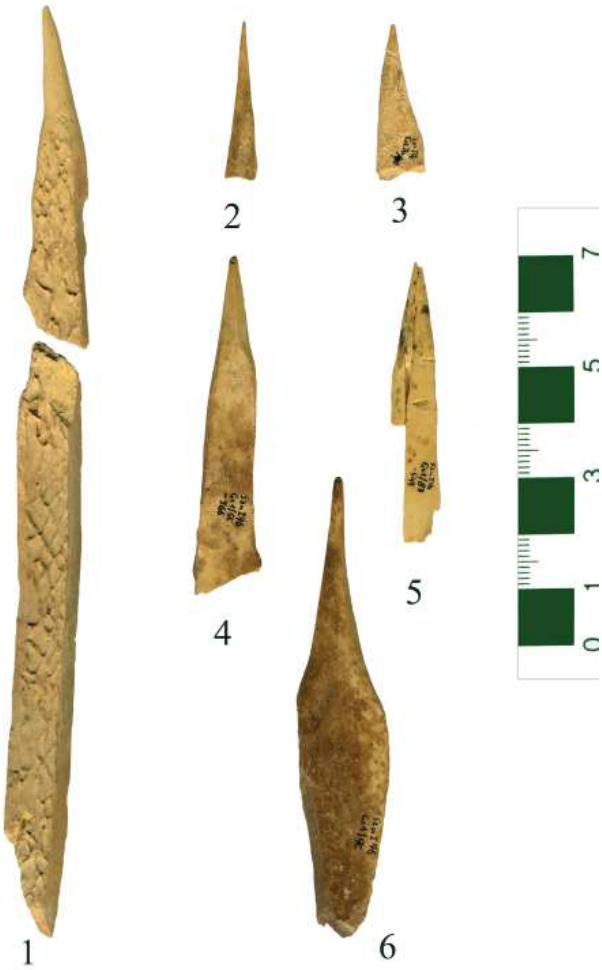


Figure 3 - Bone points (1-5) and an awl (6) of Unit G.

Two other flat points were made in the same manner as these points, but are larger and identified as long points (fig. 3:1, 4).

One of these long and flat points (sub-level Gc1, square 6-C) is 6.0 cm long, 1.15 cm wide and 0.4 cm thick (fig. 6). The point's tip was shaped through definite slicing actions, but was broken during the Paleolithic (fig. 6:A).

Another long and flat point is the longest (16.2 cm) and is also 1.0 cm wide and 0.5 cm thick (fig. 7), discovered in square 8-E of sub-level Gb1. The point is composed of two fragments. The point's tip was made by scraping and slicing methods and its very end has a modern break (fig. 7:A). No wear traces were identified on it. The point, however, has an area with some polished surface on its wide sided lateral break (fig. 7:B). This is exactly the case when it is possible to say for certain that the longitudinal cutting technique was applied here, but instead irregularities of the lateral breakage were simply cut off. Some tiny ochre pieces in micropits are preserved in the point's wide sided lateral break.

Finally, the last point from Unit G (sub-level Gc1, square 8-D) is characterized by very poor preservation. It is 5.0 cm long, 0.8 cm wide and 0.3 cm thick (fig. 8). The piece was sliced from the side of a tubular bone. Recently broken due to bone tissue fragility, the several fragments have been refitted and glued. It is not possible to record the point's section data, but there is a complete piece with the same morphological characteristics discovered in the 1920s Lower layer which is ovoid in section. It should also be mentioned that the point from sub-level Gc1 was also both longitudinally fragmented and laminated during the Paleolithic (during its fossilization?). Some slicing manufac-

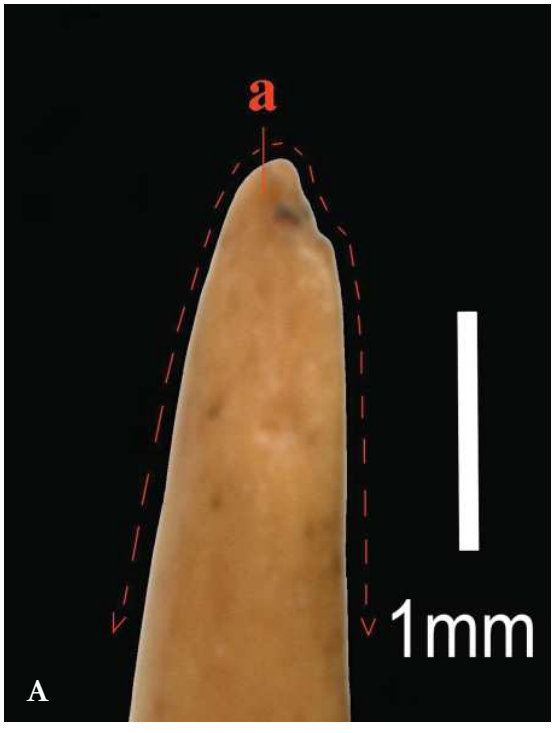
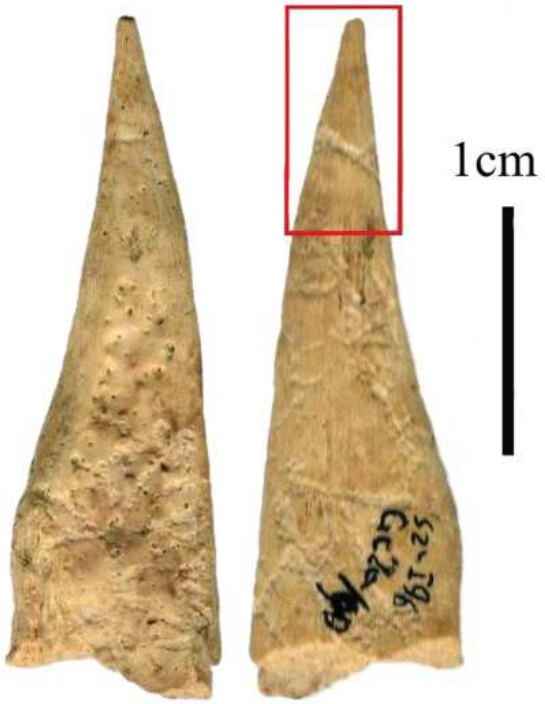


Figure 4 - Bone short flat point. Sub-level "Gc2", sq. 7-C. General view. A, macrophoto: a-puncturing polishing on the point's working zone.



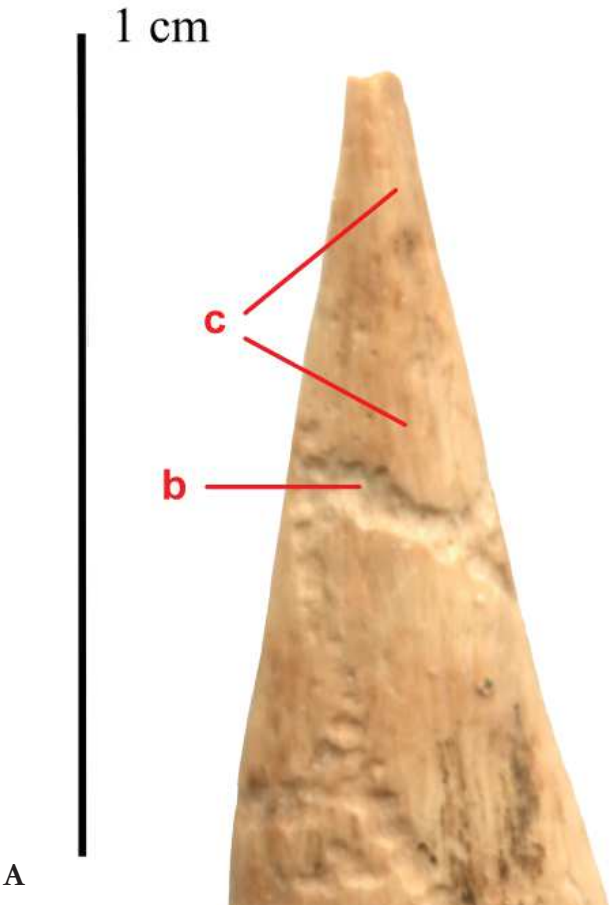
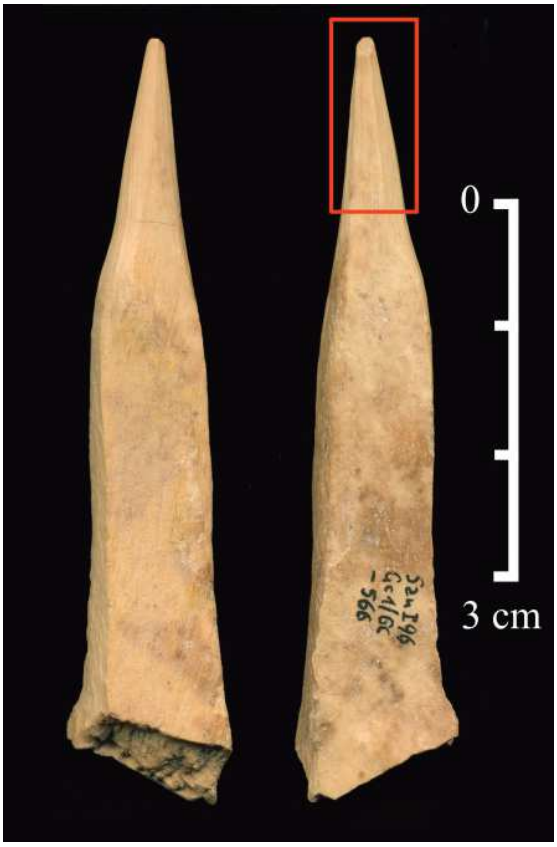


Figure 5 - Bone short flat point. Sub-level "Gc2a", sq. 9-D. General view. A, macrophoto of the point's tip: c-scraping-slicing treatment traces; b-plant root traces.



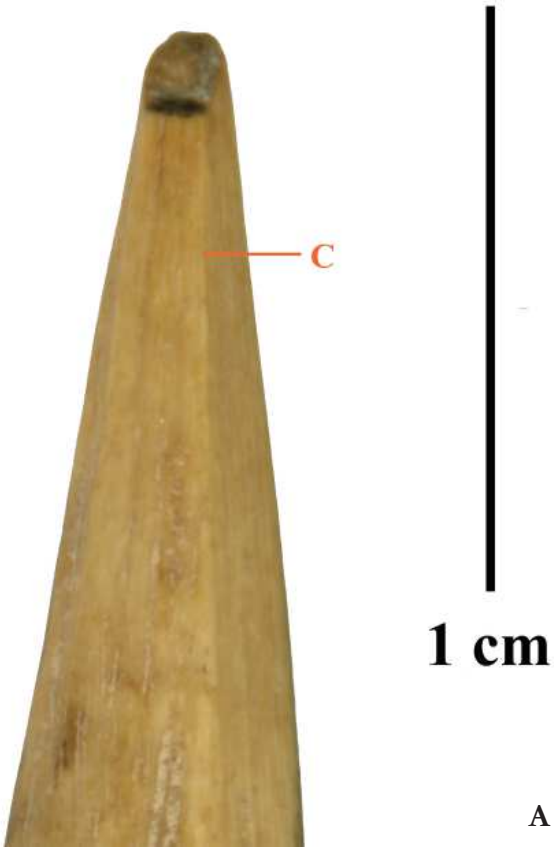


Figure 6 - Bone long flat point. Sub-level "Gc1", sq. 6-C. General view. A, macrophoto of the point's tip: c-slicing treatment traces.

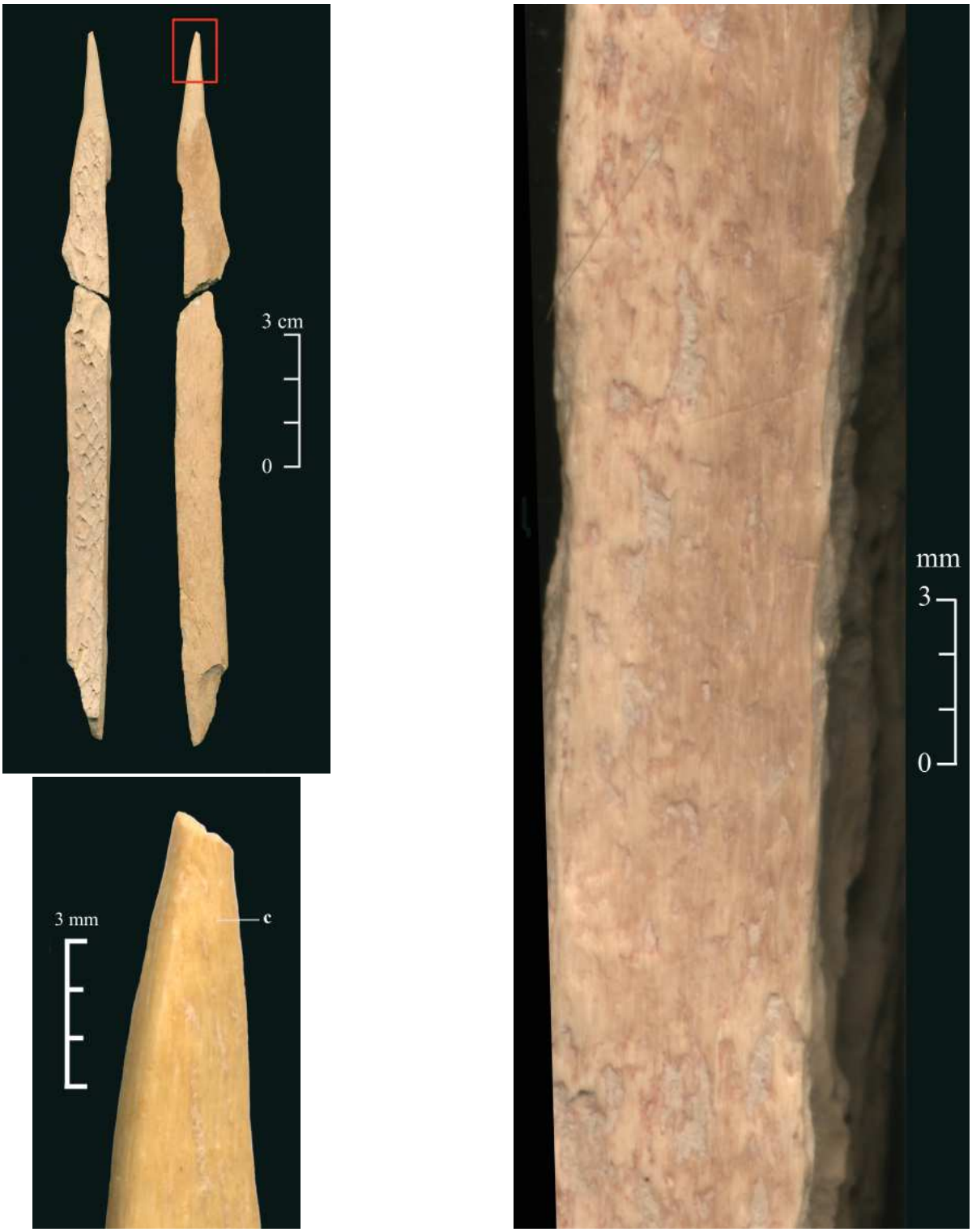


Figure 7 - Bone long flat point. Sub-level "Gb1", sq. 8-E. General view. A, macrophoto of the point's tip: c-scraping-slicing treatment traces; B, macrophoto of the point's side edge with shaping traces.

turing traces are preserved on its surface, but use-wear traces are absent.

The only awl in the Unit G collection is a shouldered one with long tip from square 9-C in sub-level Gc1. It is 8.0 cm long, 1.7 cm wide and 0.9 cm thick (fig. 9). Like the points, the awl was made from the side of an ungulate tubular bone. The edges of the awl's base are not shaped. Although the awl was manufactured similar to the points, a scraping with pressure technique from base to tip was also used during production (fig. 9:A). The awl's shoulders are plain and very definite. Scraping traces on the shoulders' surfaces are clearly observed. The tip's length is about 3.5 cm. It is heavily polished due to taphonomic changes, making it impossible to discuss possible use-wear traces, despite the "chamfered" breakage's edges (fig. 9:B). The awl's very tip has technological scratches and scraping traces were also preserved. Taking into consideration all of the problems with the piece, puncturing by the awl of a rather soft material cannot

Figure 8 - Bone point. Sub-level "Gc1", sq. 8-D. General view.

be excluded. The awl's basal fragmentation is modern and is crescent in section.

Description of worked bone artifacts from Unit F

Taphonomy

As noted above, four artifacts were found in level Fb1-Fb2 and only one in sub-level Fa2 of level Fa1-Fa2 (fig. 10). They are all light-brownish in color with some small brown spots. The following specific taphonomic features have been observed.

1. Bone weathering is easily identified by the lighter, whitish shade for the bone tissue. Varying degrees of weathering are shown by the presence of smaller and bigger longitudinal cracks with uneven edges and lamination of the upper layer of the bone tissue. Different degrees of weathering have been recorded for all of the Unit F bone artifacts, except for the heavily burnt point from sub-level Fb1, square 8-E (fig. 10:2).

2. Surface erosion was also observed on the pieces as a result of natural chemical processes. This has been identified on items with the least amount of secondary treatment - the actual waste products from production of the pieces (sub-level Fb1, square 8-E and sub-level Fa2, square 8-E) (fig. 10:4-5).

3. Damage caused by plant roots and microorganisms is present on the only pendant in the collection, from sub-level Fb2, square 7-E (fig. 10:3).

Some of these pieces are transversally fragmented on their edges or were damaged during excavations, again caused by bone tissue fragility. The most altered pieces were found in and around the hearth in square 8-E of sub-level Fb1.

Common techno-morphological and use-wear characteristics for the bone worked pieces

The Unit F worked bone artifacts are represented by two debitage items/waste products from artifact production, two points and a pendant.

The two debitage items are very poorly preserved. They are heavily weathered, damaged by plant roots and eroded. Such items are possibly underrepresented in the collection but, at the same time, the flaking technique for the creation of a bone tool is very hard to identify. Along with this, these debitage items differ from the usual bone "kitchen waste" by different blow direction, morphological parameters or the presence of intentional breaks on bones not conducive to marrow extraction. Characteristics of the debitage items are as follows.

One is a fragment of longitudinally splintered tubular bone of a medium ungulate with part of one epiphysis preserved (fig. 10:4). It is 6.5 cm long, 1.7 cm wide and 0.4 cm thick and was discovered in square 8-E of sub-level Fa2. Characteristics of the splintered epiphysis surface and their directions suggest that longitudinal splintering of the bone may have been specifically aimed at the creation of a blank for a bone tool.

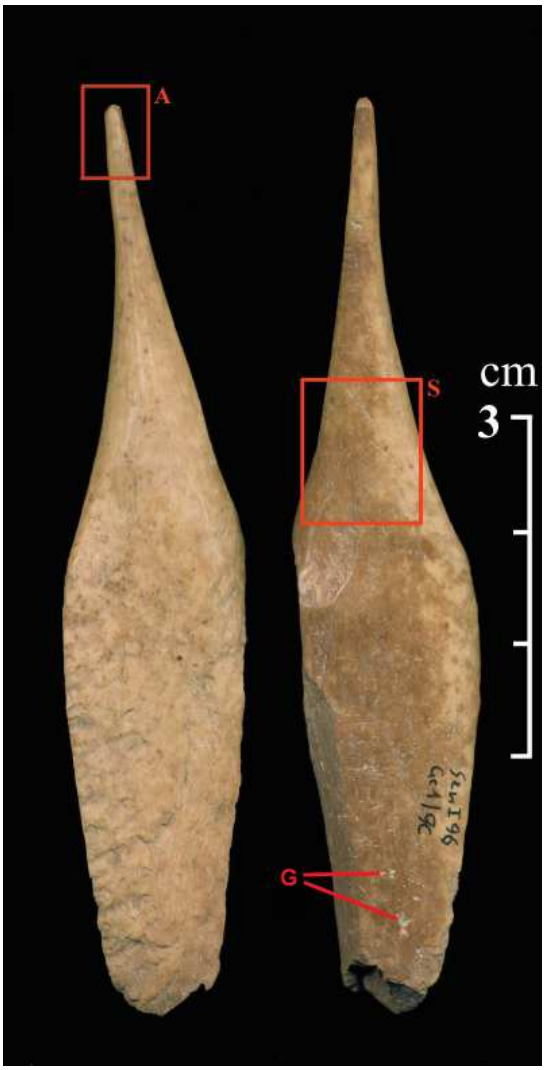
The second is a pointed fragment of a large ungulate tubular bone (sub-level Fb1, square 8-E) 8.5 cm long, 1.8 cm wide and 0.6 cm thick (fig. 10:5, fig. 11).

The only finished bone tools in Unit F are two points and both belong to the same type - ovoid in section points (fig. 10:1-2).

The first point (sub-level Fb2, square 7-E) was made from an antler and is 5.5 cm long with a maximal diameter of 1.0 cm (fig. 10:1, fig. 12). Manufacturing traces were removed during surface treatment by a hard abrasive material (a stone?) (fig. 12:A). The tool's base was broken during the Paleolithic. Surface and breakage edges of the point are similar to traces of "projectile damage" on known bone points.

The second point is 2.8 cm long with a maximal diameter of 0.65 cm (fig. 10:2). The piece is composed of two fragments found in the square 8-E hearth of sub-level Fb1. Its preservation state is very poor as it is heavily burnt, making it impossible to identify kind of bone used.

The only non-utilitarian bone object is a pendant made of an arctic fox canine with a perforation in its root, found in square 7-E of sub-level Fb2 (fig. 13). The perforation was first drilled by circular motions for half of its diameter from both sides (transversally in relation to the tooth's axis), then the hole was completed by chiseling of the remaining dental tissue. Some barely visible longitudinal scratches can be seen on one side of the canine around the perforation; these are actually preliminary markings and/or initial scraping of the future perforation (fig.



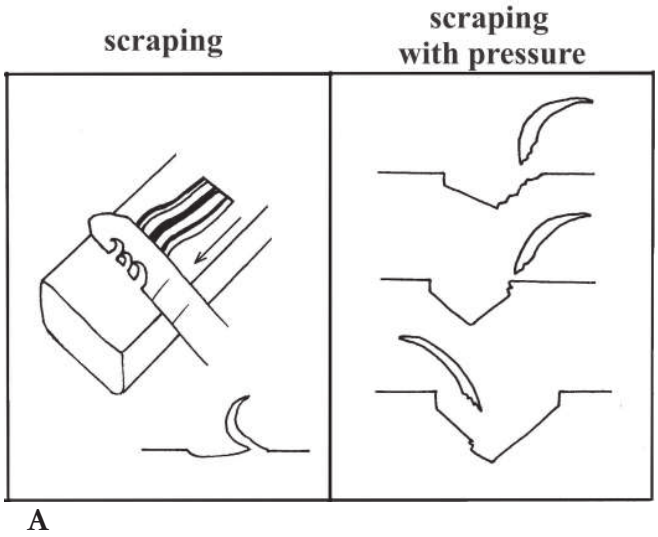
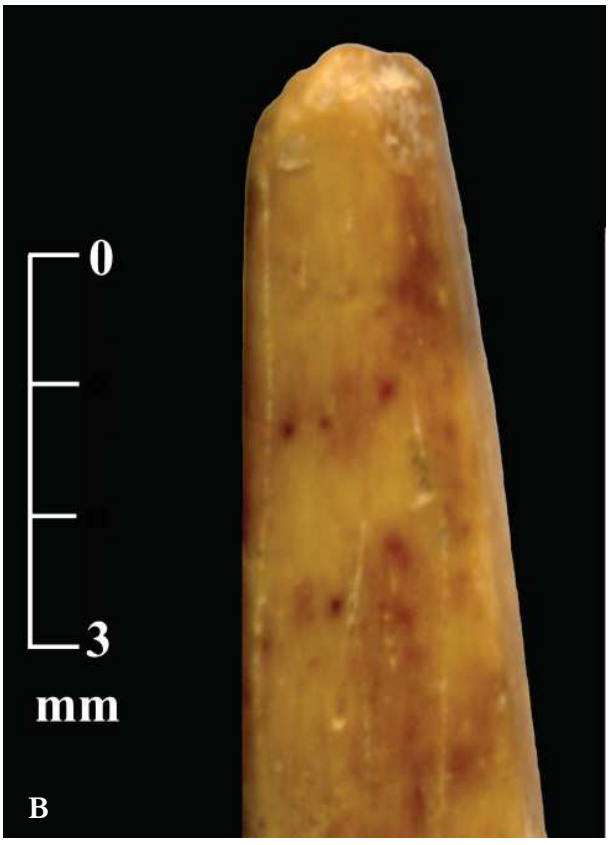
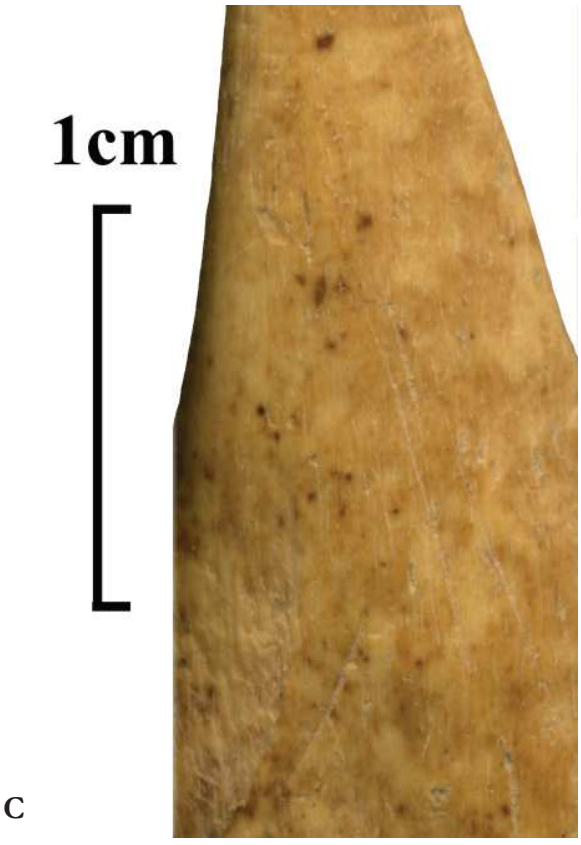


Figure 9 - Bone shouldered awl with a long sting. Sub-level "Gc1", sq. 9-C. General view. A, technological methods of a shouldered awl's treatment; B, macrophoto of the awl's tip; C, macrophoto of the awl's polished surface-taphonomy damage.





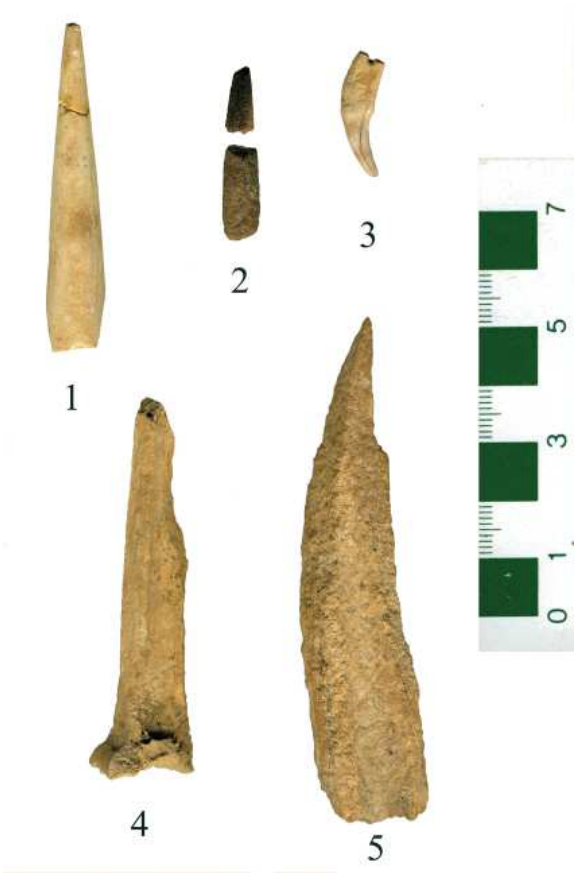


Figure 10 - Bone worked pieces of Unit F. 1-2-points, 3-arctic fox canine pendant, 4-5-debitage pieces.

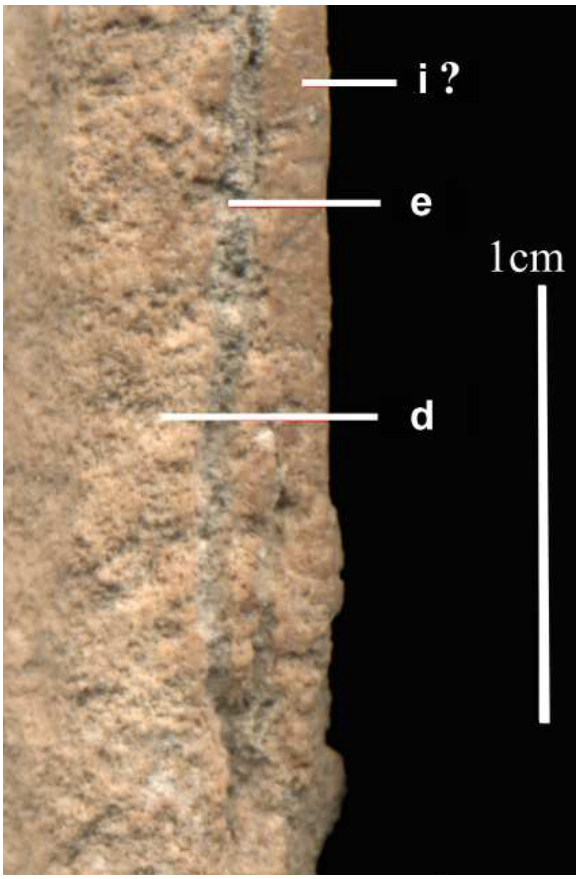
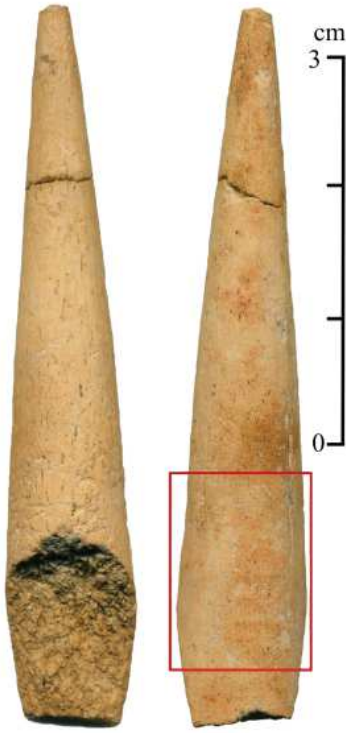


Figure 11 - Bone debitage item. Sub-level "Fb1", sq. 8-E. Macrophoto of the piece's side edge (fig. 10:5): i-secondary treatment traces (?), e-weathering, d-erosion.



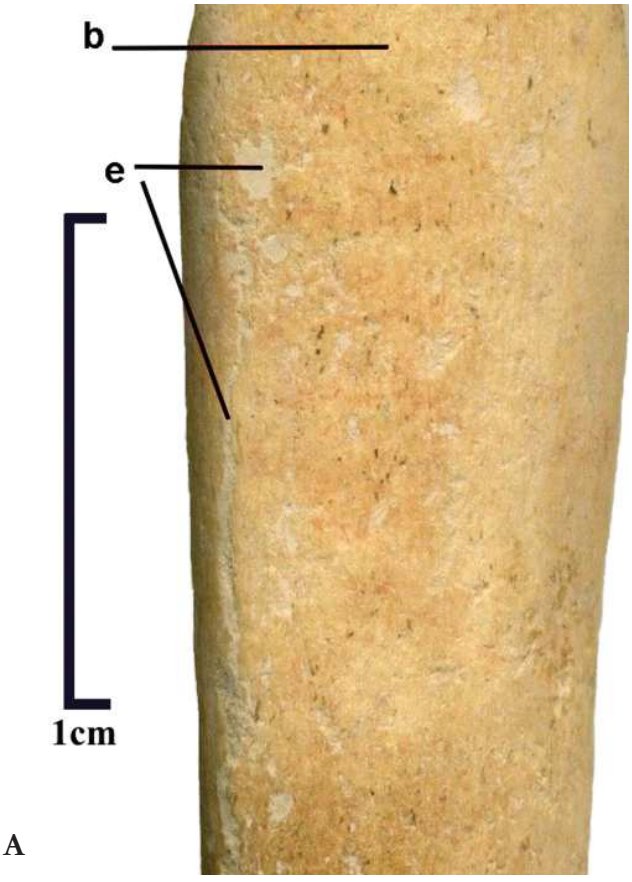


Figure 12 - Bone ovoid in section point. Sub-level "Fb2", sq. 7-E. General view. A, macrophoto of the point's part: b-abrasion secondary treatment, e-effect done by microorganisms.

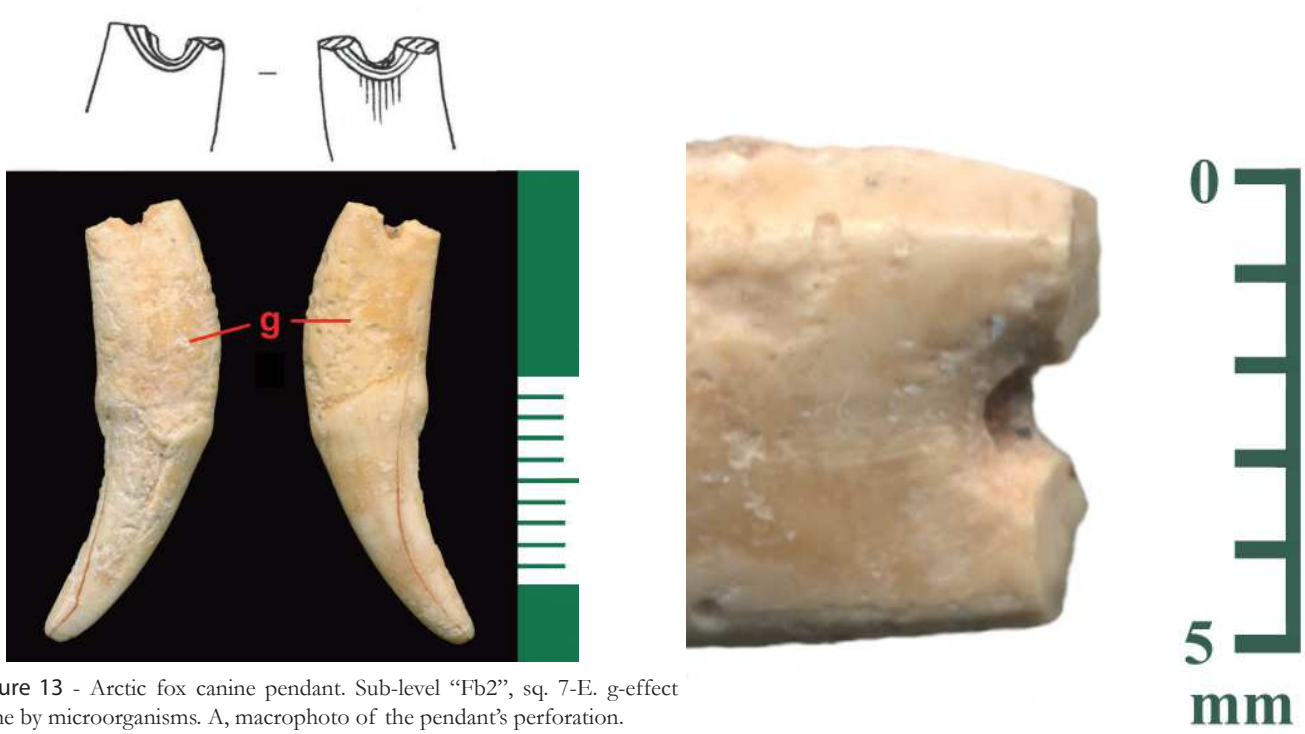


Figure 13 - Arctic fox canine pendant. Sub-level "Fb2", sq. 7-E. g-effect done by microorganisms. A, macrophoto of the pendant's perforation.

13:A). The perforation on the pendant is located very close to the end of the canine's root, which probably led to the pendant's breaking during use. Using 24x binocular magnification, some specks of red ochre and a black pigment within micro pits of the perforation can be seen.

Comparative analysis between worked bone artifacts from Units G and F

It should first be noted that the worked bone artifacts from Units G and F are quite rare and strictly speaking do not constitute an absolutely objective database for unambiguous cultural and chronological conclusions. Nevertheless, it is still possible to make the following observations.

Different point types for Units G and F were identified. It is also possible that the range of methods used for primary bone treatment differed.

Humans responsible for the Unit G occupations used natural bone fragments that were suitable for Aurignacian bone tool production, according to their shape. Then, if necessary, the bones were shaped and reshaped to create the form needed for the future tool. The basic technological techniques for bone treatment were slicing-scraping. There were no clear tendencies for the creation of any strict symmetrical form for points or for complete modification of a bone blank. The Unit G flat points and shouldered awl made from the side of tubular bones are known in many Upper Paleolithic assemblages. At the same time, it should be noted that the Unit G bone tools and their technological indications are well known in the Aurignacian, for example in the geochronologically and industrially similar Aurignacian find complex with Dufour bladelets of Dufour sub-type in layer VII of Arcy-sur-Cure in France (d´Errico *et al.* 2003). Retouchers on the sides of tubular bones, not specially shaped, are also well-known in the European Paleolithic, but mainly in Middle Plaleolithic assemblages (Bonch-Osmolowski 1934, 1940; Taute 1965; Schelinskiy 1983; Chase 1990; Filippov & Lyubin 1994; Chabai 2004a). Also, retouchers are sometimes present in different Early Upper Paleolithic assemblages, including Aurignacian ones (see Tartar 2003).

Regarding the Siuren I retouchers, it should be acknowledged that, by all morphological and metric parameters, they are identical to the numerous and well-known bone retouchers from various Crimean Middle Paleolithic Micoquian assemblages, because there is a good technological correlation between bone retouchers and bifacial tools and various unifacial convergent tools with stepped retouch (see Bonch-Osmolowski 1934; Yevtushenko 1998; Chabai 2004a, 2004b; Veselskiy 2008). Demidenko concludes that the Siuren I bone retouchers belong to occupations at the rock-shelter attributed to the Kiik-Koba industry type of the Crimean Micoquian Tradition, along with some Micoquian lithic artifacts from levels Gd, Gc1-Gc2 and Gb1-Gb2 (Demidenko 2000). At the same time, some bone retouchers occur only in those industrially variable European Early Upper Paleolithic assemblages in which very intensive lithic tool treatment and retreatment processes were used and many tools have stepped retouch (Demidenko, pers. comm.). Turning back to the presence of bone retouchers in Aurignacian assemblages in Western Europe, he again points out their occurrence just in those assemblages containing serial Aurignacian blades with heavy stepped retouch. This is a serious argument as there are no such Aurignacian blades in Unit G at Siuren I and, at the same time, serial Micoquian bifacial tools and unifacial convergent tools with stepped retouch are present. Recently, my own experiments on lithic artifact retouching with bone retouchers have repeatedly shown the high productivity of bone retouchers for blade shaping and reshaping with stepped retouch. All in all, it is now quite logical to attribute the studied two Siuren I,

level Gc1-Gc2 bone retouchers to the Crimean Micoquian find complex, together with the associated Micoquian lithics.

Thus, the Unit G worked bone artifacts confirm the twofold industrial component for the rock-shelter's lower cultural bearing sediments as put forward by Demidenko in 2000.

At the same time, Unit F, containing only Upper Paleolithic material and, namely, Aurignacian worked bone artifacts, is very different from the Aurignacian ones from Unit G. First, they are characterized by a broader spectrum of technological methods for their manufacture and, possibly, even by the presence of a special initial treatment stage for splintering bones for the creation of tool blanks. The most culturally and chronologically indicative pieces are Aurignacian bone points for this Siuren I find complex. Points with ovoid section and abrasive treatments are well-known in the Western European Late/Evolved "Aurignacian IV", still following the Peyrony classification (Peyrony 1933, 1936). At the same time, the specific abrasive treatments for the Unit F bone points occur very rarely in later Upper Paleolithic assemblages in Eastern Europe.

The only non-utilitarian bone artifact from Unit F (an arctic fox canine pendant), with chiseling technology to finish the perforation in small carnivore canines/teeth after initial drilling is very characteristic for the Early Upper Paleolithic and particularly in Aurignacian assemblages (see White 2002; Goutas 2004). Some cases of the joint occurrence of ovoid in section bone points and the same pendants on small carnivore canines/teeth very similar to the Unit F artifacts, are also known, such as at the Late/Evolved Aurignacian find complex with Dufour bladelets of Roc de Combe sub-type from Beneito Cave, levels B9-B8 in Spain (Iturbe *et al.* 1993). The latter distant, but striking, parallel once again points out the special Late/Evolved Aurignacian status for the Siuren I, Unit F artifacts.

The comparative data for worked bone artifacts from Units G and F, excavated in the 1990s at Siuren I, can also be compared with data from the Lower and Middle layer bone artifacts, excavated in the 1920s.

After the 1920s excavations at the rock-shelter, all of the Siuren I fauna and bone artifact data were published as together one complex for the three defined archeological layers (Bonch-Osmolowski 1934:153). Regarding the worked bone artifacts, Bonch-Osmolowski noted that the total collection numbered several points and 50 awls. In the early 1950s, Vekilova initiated "a detailed restudy of fauna remains with precise counting of both number of remains and individuals for each particular layer," conducted by N.K. Vereschagin and I.M. Gromov (Vekilova 1957:252). As a result of this faunal analysis, Vekilova published detailed fauna data and morphological descriptions of worked bone artifacts for the collections from each archeological layer (Vekilova 1957:253-257, 293-303).

Four bone tools and 18 bone fragments with cut marks were identified from the 1920s Middle layer (stratigraphic analog of the 1990s Unit F) but, unfortunately, none of these pieces was illustrated in her article (Vekilova 1957:301). 11 retouchers, 5 points, 45 awls and more than 200 bones with cut marks from the 1920s Lower layer were also identified (stratigraphic analog of the 1990s Unit G) (Vekilova 1957:293-301). Of all of these bone artifacts, only two retouchers, seven flat points and two awls on horse accessory metapodia were illustrated (Vekilova 1957: fig. 26 on p. 295).

The present author conducted a brief examination of the 1920s worked bone artifacts at Kunstkamera Museum (St.-Petersburg, Russia) with the aim of comparing them with the 1990s bone artifact data.

It was possible to identify three bone fragments with short transversal cuts in the Middle layer collection. There is also an ovoid in section point, but with a heavily eroded surface. By morphological and metric data, this point is identical to the 1990s Unit F ovoid points. The worked bone artifacts from the Lower layer turned out to be more representative and informative. A series of bones with cut marks related to ungulate dismembering and fragments of tubular bones with spiral-bayonet fractures was identified. There are also no less than 10 long bone fragments with nearly parallel edges that might be the result of additional special blows on epiphyses of unsplintered bones for marrow extraction or longitudinal bone splinting with a wedge application, when a blow direction goes from the center of an epiphysis articulation surface longitudinal to the bone axis. This technique for initial tool blank production is also known for bone pieces from Unit F. D'Errico and colleagues have recognized wide usage of this particular bone treatment technique for Chatelperronian and Aurignacian levels at Arcy-sur-Cure (d'Errico *et al.* 2003), again confirming a rather early geochronological and industrial status for the Siuren I Aurignacian materials in the Upper Paleolithic period. About 10 small fragments of tubular bones and ribs with cut marks might be a result of their use as stands. There is no data on the longitudinal bone cutting technique for tool blank production. The technique of bone blank production using the slicing-scraping treatment method along the bone side edges, noted for Unit G, had a broad distribution, as a basic technique, again during the Early Upper Paleolithic.

Thus, the 1920s bone artifacts from the Lower and Middle layers have clear analogies with the worked bone artifacts from the 1990s Units G and F. It is also worth noting that no new artifact types and treatment methods were noted for the 1920s materials.

Concluding Remarks

The techno-morphological and use-wear data for the worked bone artifacts from Units G and F presented here allow us to make the following conclusions.

The artifacts from Units G and F belong to different typological and technological complexes. At the same time, while the Unit F materials are clearly homogeneous, the Unit G artifacts represent two different cultural complexes.

The data on the worked bone artifacts also definitely correspond well to the proposals previously made by Demidenko

concerning from lithic material analyses: that the Unit G artifacts represent two different complexes - one Upper Paleolithic Early Aurignacian with Dufour bladelets of Dufour sub-type and one Middle Paleolithic Micoquian, while the Unit F artifacts represent only the Upper Paleolithic, but a different Late/Evolved Aurignacian complex with Dufour bladelets of Roc de Combe sub-type.

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