ANEGHAKOT 1 (ARMENIA) AND THE IDENTIFICATION OF THE MOUSTERIAN CULTURAL FACIES OF « YEREVAN POINTS » TYPE IN THE SOUTHERN CAUCASUS

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Abstract: In 2003 a prehistoric site was discovered at an altitude of 1 800 m in the district of Angeghakot in the valley of the Vorotan (south-eastern Armenia) by an Armenian-French multidisciplinary team. This site provides evidence for the presence of hunter-gatherers in the region during the Middle Palaeolithic. The lithic industry collected on the surface, mainly obsidian, has been identified as belonging to the Mousterian facies typical of the “Zagros-Taurus”, consisting of numerous Mousterian points, “Yerevan points”, microlithic tools, and the presence of the “truncating-facetting” technique. These recent data raise questions about the variability of facies in the Lesser Caucasus and allow us to draw a much larger distribution map of the sites where microlithic industries and resharpened points are present. Angeghakot 1, located on a cultural crossroads between Asia Minor, the Near East and Europe, raises questions related to the existence of a real Caucasian cultural system; it represents a local economic variant in the exploitation of obsidian, strongly linked to the environmental constraints which existed in these mountain ranges at the end of the Pleistocene.


Key-Words : Southern Caucasus, Obsidian, “Yerevan points”, Truncated-facettted pieces.

The river Vorotan (fig. 1) takes its source in the high plateaus of Syunik (South-Eastern Armenia) near the large obsidian deposits of Sevkar-Satanakar groups, then crosses the region of Sisian cutting deep canyons in the basalt flows before penetrating into Azerbaijan where it joins the river Arax.

In 2001, surveys were carried out on the obsidian deposit of Sevkar and confirmed the exploitation of this raw material during very early periods; however the lack of archaeological...
research in the region has until now prevented the discovery of human occupation during the Palaeolithic.

In 2003, during a systematic campaign of surveys, a concentration of artefacts providing evidence for the presence of a Mousterian site was discovered on the left bank of the Vorotan River, at an altitude of 1,800 m in the district of the village of Angeghakot (fig. 2).

Original diagnostic pieces (nuclei/flakes/Levallois tools) as well as several Mousterian points enabling typological attribution of the archaeological material to an industry called “late microlithic Mousterian” of Armenia, were found on a steep slope of about 100 sq.m.

On the upper part of the slope were the remains of several eroded rock shelters (fig. 3) of which the entrance areas had collapsed.

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2. Within the framework of a Franco-Armenian program, led by the Institute of Archaeology and Ethnography (Academy of Sciences of Armenia), Armenian branch of the Gfoeller Foundation (dir. B. Gasparyan) and archaeological expedition “Caucasus” (dir. C. Chataigner), funded by French Ministry of Foreign Affairs. The project “Caucasus” endeavours to fill the gaps in the knowledge of the prehistory of Armenia, from the Lower Palaeolithic to the end of the Chalcolithic period, the archaeological research being associated with a study of the palaeoclimatic evolution.
It is probable that erosion removed all the sedimentary facies corresponding to the occupation periods of the rock shelters. The building of a chapel at the foot of the site during historical times and the digging of several tombs, lower down the slope, are probably the cause of the unearthing of the objects, which are in a good state of preservation.

Unfortunately it was impossible to dig trenches, because of the presence of tombs (of which some are very recent), and the heavy erosion, which affects the slopes.

ORIGIN AND ENVIRONMENTAL PALAEODYNAMIC OF THE SITE OF ANGEGHAKOT 1 IN THE CONTEXT OF Plio-Quaternary Development in the Middle Vorotan Valley

The various studies carried out between the upper and middle valley of the Vorotan\(^3\) have enabled the establishment of a preliminary outline of morphogenic development in the Plio-Quaternary period, based on several datings (K/Ar on basalts and U/Th on travertine) (table 1). The analysis of the origin and development of the site of Angeghakot 1 lies directly within this framework.

The geomorphological history of the site fits the local geodynamic and palaeoclimatic constraints. Three principal

\(^3\) OLLIVIER et al., 2004.
phases of volcanic activity occurred from the Miocene to the second half of the post-glacial period in Armenia. The zone of the principal fault, which follows the Pambak-Sevan-Syunik axis, a major tectonic event on the regional level, is the present-day direct evidence of a major tecto-orogenic development, which is still existent.

From the time of the Pliocene, in a particularly active volcanic context, large lacustrine or fluviolacustrine areas developed which occupied most of the valleys and depressions of the region of Syunik. Within this lake system, in the presence of high geothermic activity (hydrothermalism, etc.), an intense production of Diatomaceous algae developed. The siliceous skeletons of these algae were deposited over time to form white sediment called diatomite. These diatomaceous formations are as much a component of the Syunik landscape as the volcanoes and basalt flows.

Several generations of lacustrine systems succeeded each other from the Pliocene to the Pleistocene. The K/Ar datings made on the main basalt flows downstream from the basin, as well as the surveys and field studies, indicate that the diatomaceous lacustrine deposits in the sector of Shamb (fig. 4) are earlier than 935 ± 15 ka (dating of the contact between the basalt flow and the diatomite, table 1). The formations located in the sectors of Angeghakot 1 appear to be related to the same phase, while the profile of the principal hydrographic features in the zone of study, in the sector of Sisian, could have experienced later lacustrine systems, developed upstream from the basalt flows which cover the valley at the level of the village of Vaghatin.

The K/Ar datings carried out on these flows are related in origin to a series of eruptive episodes concerning the Bugdapatap volcano (north of the Arpatapa cone, at an altitude of 2057 m) centred on the period 126 ± 3 ka – 111 ± 4 ka. The development of lacustrine diatomaceous formations beyond 111 ± 4 ka seems improbable, as the portion of the local fluvioglacial and possibly glacial formations left behind concerning the top of the local basalt and fluvio-lacustrine formations became largely predominant as the diatomaceous deposits decreased and disappeared.

Volcanic activity, which was so influential and dynamic throughout the Pleistocene, is seen only in the eruption of a few slag cones during the post-glacial period (volcanic cone of Arpatapa dated by U/Th to the Holocene, table 1), a sign of the decreasing activity of the magmatic chamber.

The site of Angeghakot 1 corresponds to several superimposed cavities within the Neogene and Pleistocene basalt deposits along the banks of the Vorotan. A preliminary view (fig. 5) can be proposed based on relative chronology:

- in the first half of the Pleistocene, the Palaeo-Vorotan river probably circulated on the diatomaceous fills which had filled up the pre-existing valley, flooded by large lakes at the beginning of the period. The undermining of the banks by the river probably caused already then the formation of the first cavities, but the disintegration of the rock in a dry climate increased the size of these alveoli. The lateral migration of the main channel and the accumulation of alluvial nappes in terraces continued, to the detriment of the diatomaceous lacustrine deposits.

- in the second half of the Pleistocene, several shelters and levels of terraces were already formed, offering a relatively attractive environmental context, well-oriented (south/southwest) and near a water flow of regional importance. The diatomaceous formations were then progressively evacuated little by little from the steep-sided areas of the hydrographic network, reinforced by the phenomenon of antecedence which affects the zone of relief downstream from the site around Shamb.

- today the incision continues, attaining the Jurassic metamorphic substratum. Intensive colluvial deposition, mass movements and rotational see-saw motion of the blocks aff...
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The slopes that border the river. The shelters of the site of Angeghakot 1 were dismantled by the action of the processes of mechanical erosion (cryoclasty, thermoclasty, etc.) and alteration (dissolution, disintegration, etc.).

The U/Th dating to 4,14 ± 0,36 ka (table 1) of a hydrothermal travertine positioned at the bottom of the valley, near the small village of Tatev (30 km downstream from the site of Angeghakot 1), indicates that the steep slopes of the Vorotan forming a canyon are relatively late, situated in the interval 111 ± 4 ka (top of the basalt formations at the level of Vaghatin) / 4,14 ± 0,36 ka (bottom of the canyon at the level of Tatev).

All together these preliminary results show that the Quaternary landscapes of the middle Vorotan Valley experienced rapid changes as the result of endogenic polygenic (geodynamic) or exogenic (climate) factors. The end of the Pleistocene (around isotope stage 3) was probably the most attractive period for the site of Angeghakot 1 in regard to its configuration (shelters looking out over a terrace on the edge of a river).

The continuation and integration of new research will enable definition of the chronology and the rhythms of these environmental changes, a precious advantage for understanding the human / habitat relationship, because it enables comprehension of the way in which these prehistoric societies were able to adapt to and/or surmount the constraints imposed by a landscape subjected to constant change.

TECHNO-ECONOMIC STUDY OF THE LITHIC INDUSTRY AT THE SITE OF ANGEGHAKOT 1

The lithic series collected on the surface at the site of Angeghakot 1 consists of 84 pieces of which 68 are in obsidian, 9 in basalt, 2 in jasper and 5 in limestone (table 2).

This collection is not exhaustive, because the artefacts were found in a secondary position, their stratigraphic

Fig. 4 : Location of sectors studied in the middle Vorotan Valley in correlation with the site of Angeghakot 1 (DAO Ollivier, 2005).
location unknown. During the survey, all the recognizable typological pieces were systematically selected.

Typological study and technological observation show that this industry is characteristic of the “late Mousterian of Armenia”; the points in particular enable the establishment of a precise parallel with the late levels of the cave of Yerevan 1, in the valley of the Hrazdan6.

The group of Levallois flakes consists of 10 pieces (3 obsidian, 2 basalt and 5 chalcedony). The basalt and chalcedony pieces are much bigger in size (as long as 7,2 cm) than the obsidian pieces.

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the obsidian material found at the surface of Angeghakot 1 (characterised by its “microlithic” character). The nearest primary deposits for the supply of obsidian are located about 40 km to the northwest, at the outcrops of Vorotan group (Pokr Sevkar, Satanakar, Ughtakunk, Bazenk, etc.) at an altitude of about 2,500-2,800 m. But they preferentially exploited raw material in secondary position in the form of small pebbles collected in the Vorotan, below the shelters. The reduced dimensions of the lithic artefacts are in part related to the small size of these pebbles.

The technique of Levallois flake debitage in basalt is direct percussion with hard stone, as shown by the dihedral or facetted butts with very distinct counter bulbs (fig. 6). Conversely, all those in obsidian possess smooth butts.

The group of tools on flakes is composed of 12 pieces in obsidian. In this rather heterogeneous group there are 5 fragments retouched as small side-scrapers or end-scrapers with no definite morphology. Their sizes are variable, but they are all micro-tools (length max. 2,5, width max. 1,5 cm). They are made on blade blanks or on undifferentiated flakes (suggesting exploitation in situ). The retouch carried out on the edges of the tools is identical to that of the points.

The group of tools on pebbles (“pebble culture”) consists of 3 pieces resulting from mono-facial detachment of flakes on obsidian pebbles. There are also 3 thick flakes with lateral scalariform retouch and smooth butts, as well as 4 pieces with invasive bifacial retouch (wide retouch, covering). One piece in particular held our attention, its perfect symmetry approaching what is commonly known as a biface, of a reduced size (4 x 3 cm) (fig. 7:1).

The group of nuclei consists of 9 obsidian pieces of which 3 are on thick flakes, one nucleus on a pebble and 3 on fragments of rolled blocks. The nuclei are very small in size, their length varying between 2,5 and 4,4 cm. The exploitation of these nuclei is mainly convergent unipolar. To be noted is the presence of a discoidal debitage. The nuclei on flakes were knapped on the upper face. The observation of negatives of these detachments indicates a production of small-sized flakes.

The group of side-scrapers consists of 4 broken obsidian pieces, of variable morphology and reduced size. To be noted is a lop-sided side-scraper with direct continuous retouch.

The group of tools on blades consists of 9 obsidian pieces. The blade blanks are very irregular and 5 of them have a deep lateral retouch (fig. 7:9). Two tools are retouched bladelets and one piece is a burin.

The group of points enabled attribution of the series to a late phase of the Middle Palaeolithic. It is composed of 21
Fig. 7: Obsidian industry at the site of Angeghakot 1 (photo Gasparyan, 2005) : 1) biface ; 2-4 and 10) Mousterian points ; 5-8) « Yerevan points » ; 9) tools on blade ; 11-12) distal fragments.
pieces of which there are 10 “Yerevan points”, 6 “classic Mousterian” points and 5 points on Levallois flakes. The points made on Levallois flakes have a scalariform Quina retouch which is more or less deep and regular. The pieces are also thick and small in size, and never longer than 4 cm.

The classic Mousterian points are retouched mainly in the distal part. The retouch is scalariform and often irregular. All these points are fractured; their thickness varies between 1.3 and 2.2 cm. The concept of “microlithics” definitely applies here (fig. 7:2-4 and 10).

The “Yerevan points” have a perfect symmetry, a covering scalariform retouch and very strongly retouched butts. Four of them are whole, with sizes varying between 2.5 cm and 3.6 cm in length and from 1.5 to 2.9 cm in width, with a thickness never more than 1 cm. The six others are proximal fragments (fig. 7:5-8).

A large group of point resharpening pieces was found (19% of the objects). It includes 7 pieces from the thinning down of points, all left lateral and corresponding to a detachment of the proximal part of the points. Their width varies between 2.6 cm and 3.4 cm, their thickness between 0.7 and 1.1 cm, which correspond perfectly with the dimensional standards of retouched whole points found on the site. Six other pieces concern, however, a lateral maintenance of these points. The detachment of slivers-flakes on the lower face of the points is also a feature characteristic of this industry (fig. 7:8).

A last group of 3 tools made on fragments of reused points was also identified and throws light on the method of exploitation of lithic resources and the techno-economic strategy of the raw material by the hunters who frequented the site of Angeghakot 1. These are 3 proximal fragments of “Yerevan points”, transformed into a microlithic “beak” at the place of the butt. These pieces are no longer than 2.3 cm by 3.6 cm wide.

COMPARATIVE STUDY OF “CAUCASIAN MICRO-MOUSTERIAN”. A TRUE LOCAL CULTURAL FACIES OR AN EXPLOITATION STRATEGY OF THE RAW MATERIAL RELATED TO AN ECONOMIC CONSTRAINT

A comparative analysis concerning all the Lesser Caucasus has led to understanding of the parallels between technologies and typologies of the lithic industries belonging to several Mousterian deposits in shelters or caves (fig. 8) : the Yerevan cave (Hrazdan valley, Armenia, excavated by B.G. Yeritsian, 1967-1970); the shelters of Lusakert 1 and Lusakert 2 (Hrazdan valley, Armenia, excavated by B.G. Yeritsian, 1970-1975; excavations of C. Fourloubey, D. Colonge and C. Beauval, 2001), the cave of Gazma (Nakhijavan, excavated by A.K. Dzhafaroff, 1987-1990); the cave of Tsar or Zar (Karabakh, excavated by M.M. Mansurov in the end of 1980s); Taghlar (Karabakh, excavated by M.M. Guseynov, 1966-1967, 1973, A.K. Dzhafaroff, 1977-1978) and finally the shelters of Angeghakot 1 (Vorotan Valley, Armenia, surveys 2003).

The typological characteristics of the tools (particularly the points) are similar to those of pieces found in the upper layers of the cave of Yerevan 1, which relates them to the “Late Mousterian” culture, characterised mainly by the presence of “Yerevan points” with thinned-down bases. A particular facies of “Caucasian micro-Mousterian” could thus be determined.

The origin and characterisation of these industries are sources of discussion. A preliminary theory consists of placing these industries in the large ensemble of the “Zagros-Taurus Mousterian” defined as :

“The latest assemblages of the middle Palaeolithic in the region situated in the Southern Caucasus are at the present time dated to 45-35 000 years (non cal.). Remarkably, they do not include bifacial or foliated points, which are classic in the Micoquian (that is, the Middle Palaeolithic) of the sites located in the North-

7. The term “Yerevan point” was created by B.G. Eritsyan (1970 : 27); these artefacts are retouched triangular points with truncated-faceted bases ; GOLOVANOVA and DORONICHEV, 2003 : 126.

8. ERTSYAN and SEMENOV, 1971.
ern Caucasus, from the Crimea to Western Europe. Typologically and technologically, they are comparable to tools found in a wide region extending from the Zagros/Taurus to the Caucasus.\textsuperscript{10}

In fact, concerning the period in which these industries with microlithic tendencies developed in the Southern Caucasus, according to the 2001 data produced by the Armenian-French team, the industries found in the shelters of Lusakert 1 and Lusakert 2 have enabled the identification, on a typotechnological level, of cultures dating to the end of the Middle Palaeolithic: “In a general manner, the top of the Lusakert 2 shelter appears to provide very late, even final, evidence for Armenian Mousterian. These industries are to be compared with the evidence found at Lusakert 1 and in the Yerevan 1 cave; they lie chronologically at the end of isotope stage 3, even at the beginning of stage 2, according to the radiocarbon dates obtained for these sites.”\textsuperscript{11}

Although the “Lesser Caucasus” mountain range, with many summits higher than 3000 m, could have been a ge

\textsuperscript{10} Bar-Yosef \textit{et al.}, 2004.

\textsuperscript{11} Fourloube\textit{y et al.}, 2001.
graphic barrier, its high mountain valleys (such as that of the Vorotan) could on the contrary have been routes which were used over and over again by prehistoric humans – under certain palaeoclimatic and environmental conditions – from Asia Minor to the Near East and Iran and/or vice versa.

“The Mousterian industries of the Transcaucasian upland, bordering on Iran and Turkey, also suggest probable relations with the south. In the karstic caves of the eastern part of the Little Caucasus, there is a group of industries mainly made of flint and schist (Taghlar, Gazma) which seem to be sufficiently close to those of the Zagros”12.

“In the early 1980s, Lyubin (1984) and Djafarov (1983) first recognized the similarity of the Mousterian from Taghlar and Yerevan caves to the Zagros Mousterian”13.

A second theory holds that, within this Zagros-Mousterian of the Caucasus; “more variability is visible in the southernmost cultural area”14. The late Mousterian industries of the Lesser Caucasus would constitute a regional cultural group (“Yerevan-type industry”) of which the development towards microlithics would have been related to the resources of raw material and to the environmental constraints present in these mountain ranges at the end of the Pleistocene.

“A specific feature of the “Yerevan-type industry” is the wide use of various methods of thinning for tool production, including the truncated-faceted technique. The diagnostic tool types, which are related to these methods of trimming, especially the truncated-faceted technique, are retouched triangular points with truncated-faceted bases (“Yerevan-type” points), and side-scrapers with two or three truncated-faceted sides (“side-scraper with thinned body”)15.

According to the excavations carried out in 1967-1968 in the cave of Yerevan 1, the tools present in layers 3 and 4 constitute a Mousterian industry represented by the Levallois technique, but with a “local” originality (fig. 9). According to the excavator, one of the important typological characteristics of these tools is that the artefacts were “nearly always worked twice”16. This author has classified the “reSharpening” of the tools into 6 distinct categories of which one interests us: “an original method of thinning and finishing the bases of points, side-scrapers, knives, etc.” thus creating specific forms within the industry studied. Consequently, the invention of these new types of tools and the presence of new methods of fabrication enabled intensive use of the raw material. At Lusakert 1 (level B) large, thick Levallois points were found, having mixed retouch (unifacial and scalariform covering retouch on the distal part) (fig. 9). The comparison carried out between the series of Angeghakot 1 and the material found in the cave of Lusakert 1 has enabled observation of the identical presence of small prismatic nuclei with accentuated exhaustion of the knapping surfaces.

To be noted however are the similarities in technological and typological characteristics in the series of obsidian tools found at the open-air site of Rya-Taza 1, discovered in 2003 in the region of Aparan in Armenia. Rya-Taza 1 is one of the highest sites in the valley of the Kasakh, at 2 090 m.

“This sample fits well with what we know of the Mousterian in Armenia, and generally in the Caucasus: Levallois production dominant, tools dominated by the group of side-scrapers with convergent retouched edges, points, tools for thinning”17.

On another site in the region of Aparan, Mirak 1 (Handapaki-Kar), it was possible to reveal the reoccupation of the site and the reuse of the raw material.

“As for all the series of the Kasakh Valley, there are several fresh pieces, not patinated, or with a double patina which indicates a reuse of the site, of the deposit and a recycling of the raw material (beak disengaged by large Clactonian notches on cortical flake)”.

The same observation could be made of the lithic series from the site of Angeghakot 1.

The discovery of a Mousterian site in the high valley of the Vorotan (Lesser Caucasus) is the first evidence of the presence of Middle Palaeolithic human groups in this region of Armenia, in a key area between the plain of Ararat, the mountains and steppes of Karabakh, and northwest Iran. Consisting of shelters situated at an altitude of 1 800 m in the Vorotan Valley, this site confirms the occupation of the high plateaus.

15. Ibid. : 126-127.
Fig. 9: Comparative plate of « late micro-Mousterian » in the lithic industries of the Southern Caucasus: Angeghakot 1 (drawings LIAGRE, mission 2005); Gazma (after GUSEJNOV and DZHAFAROV, 1990); Tsar (after MANSUROV, 1990); Taghlar (after DZHAFAROV, 1983); Lusakert 1 (after ERTSYAN, 1975); Yerevan 1 (after ERTSYAN, 1971, 1972).
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