

## THE EUROPEAN EARLY AURIGNACIAN OF KREMS-DUFOUR TYPE INDUSTRIES : A VIEW FROM EASTERN EUROPE

Yu. E. Demidenko\*

### Introduction

Understanding of "an Aurignacian phenomenon" in the frames of Early Upper Paleolithic period of the Old World Prehistory has, without question, a crucial importance in modern Paleolithic archaeology. It is connected to the following main basic reasons: its "very true" Upper Paleolithic industrial characteristics with no archaeologically visible preceding them Middle Paleolithic traits, high likelihood of its anthropological association with *Homo sapiens* and, finally, occurrence of sites with Aurignacian archaeological levels in diverse places of Europe, Middle and Near East. In the context of European Early Upper Paleolithic, Aurignacian is the most intriguing by its two aspects. On one hand, Aurignacian complexes are known virtually all throughout Europe chronologically from the very beginning of Early Upper Paleolithic time period (ca. 37-36 000 - 30 000 BP) that means a very quick, in historical terms, spreading of their cultural traditions bearers through the Continent. On the other hand, there are different non-Aurignacian Early Upper Paleolithic industries literally in each European particular region co-existing in one and the same time with Aurignacian industries. Moreover, these non-Aurignacian complexes (e.g. Chatelperronian, Uluzzian, Szeletian) are assumed to be products of Neanderthal local European population, while Aurignacian *Homo sapiens* are mostly considered as representing non-European newcomers. Because of this anthropological situation, problems of an interaction between non-Aurignacian and Aurignacian populations and, what is more, a possible cultural influence of *Homo sapiens* on Neanderthals are highly debatable and still far from a final resolution. So, not all dots on "i" are not yet put for elucidation of the Aurignacian role during the Early Upper Paleolithic time in Europe and "*Bataille Aurignacienne*" still continues (see d'Errico *et al.* 1998; Zilhão, d'Errico 1999). While these issues are not discussed here, it is worth noting one of the basic biases for Pan-European analyses of the problems: the vast territories of Eastern Europe are not included in these encompassing studies and, therefore, they simply represent "a blank spot" on European maps in this

regard (e.g. Mellars 1989: fig. 3; 1996: fig. 13.10; Zilhão, d'Errico 1999: fig. 17; Straus 1995: fig. 1). The main reason of this situation is explained by basically not a good knowledge of the Eastern European Upper Paleolithic and particularly of the Eastern European Aurignacian among the Western archaeologists thoroughgoing even sometimes till claiming on a complete absence of Aurignacian *sensu stricto* industries in this part of Europe (e.g. Hoffecker 1988). Thus, none of the modern concepts on the European Early Aurignacian do not usually go beyond "an iron curtain" of the western border of the former Soviet Union. As a rule, the same is true for the whole Aurignacian of Eastern Europe.

But time goes on and it has become clear that Aurignacian industries are present in Eastern Europe. But for proving that, it is needed to use only very definite Aurignacian assemblages and not to confuse them either with non-Aurignacian complexes having just a few, mostly atypical Aurignacian tool types and/or Epi-Aurignacian assemblages then grouping them under the industrially uncertain term "Aurignacoid Route of Development" (e.g. Anikovich 1992) or with various Upper Paleolithic complexes named as "Aurignacian" only because of some "specialists" personal desires to define Aurignacian industries for some ill-founded speculations on the Middle-Upper Paleolithic transition period in Eastern Europe with not even actual knowledge of how real Aurignacian core and tool types look like (e.g. Cohen, Stepanchuk 1999; 2000).

Thus, we really need in etalon-like Aurignacian complexes from Eastern Europe with close comparisons in the West (Western and Central Europe) where industrial characteristics of Aurignacian assemblages are well-elaborated and defined. A good starting point for such the researches can serve materials of Siuren-I rock-shelter (Crimea). The rock-shelter was first investigated as long ago as in 1879 - 1880, then it is became well-known after researches of 1926 - 1929 (Bonch-Osmolowski 1934; Vekilova 1957), and last time was excavated very recently in 1994 - 1997 (Demidenko *et al.* 1998; Demidenko 1998; 1999; 2000; 2001; Demidenko, Otte this volume). According to their industrial and chronological indica-

\* Dr. Yu. E. Demidenko, Crimean Branch of Institute of Archaeology National Academy of Sciences of the Ukraine, Yaltinskaya St. 2, Simferopol 95007, Crimea, UKRAINE. E-mail: <demidenko@mail-in.net>

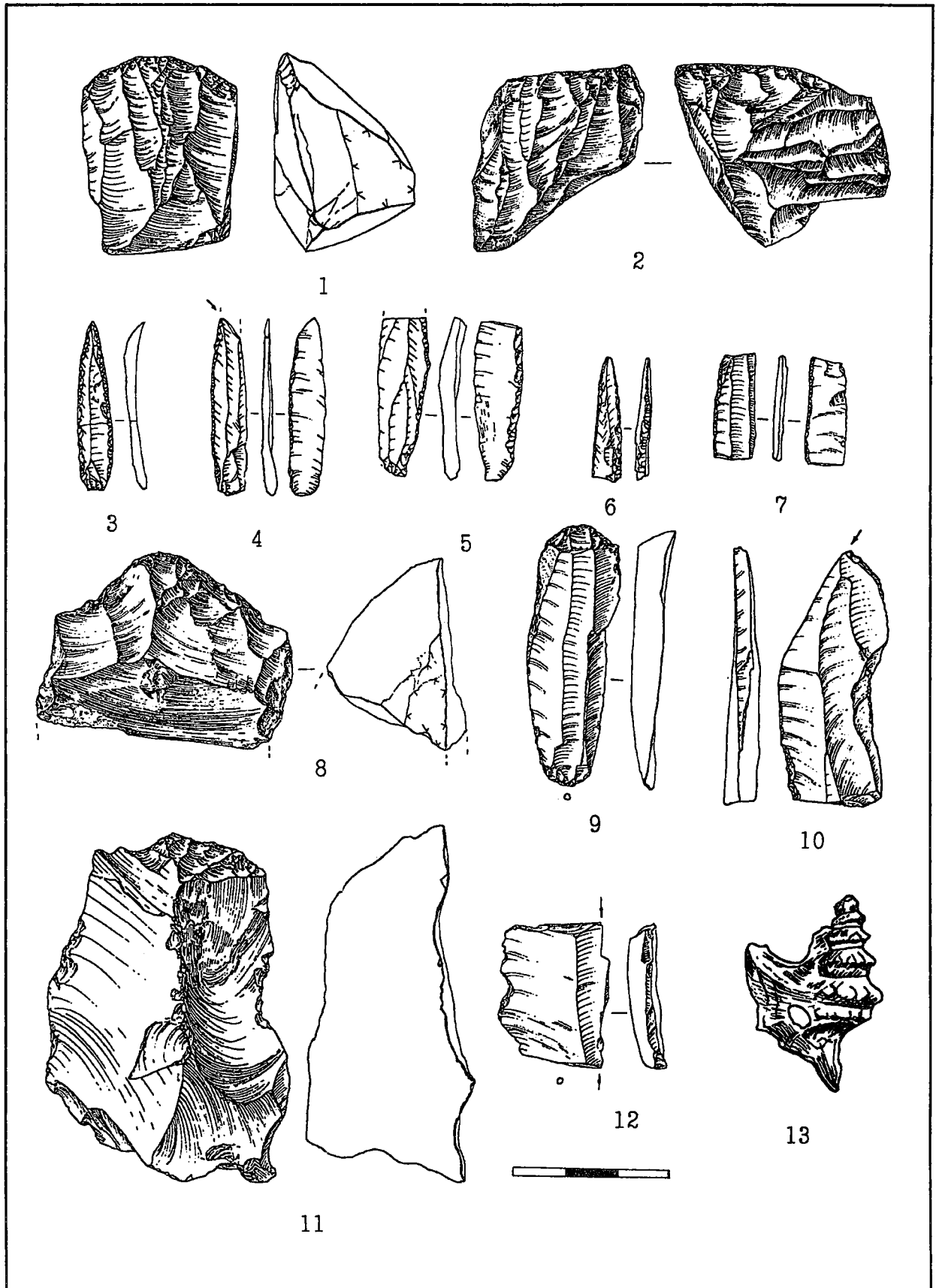


Figure 1 : Siuren-I (Crimea, Ukraine). 1 - 2 - bladelet "carinated" cores, 3 - 7 "non-geometric microliths", 8, 11 - thick shouldered end-scrapers, 9 - simple flat end-scrapers on blade, 10 - burin on truncation, 12 - angle burin, 13 - a shell bead of *Aporrhais pes-pelecani* marine mollusk (1, 3 - 5, 10 - 11 - 1990s Unit "H", 2, 6 - 7, 9 - 1990s level "Gc1-Gc2", 8, 12 - 1990s level "Gb1-Gb2", 13 - 1920s Lower layer).

tions, the Siuren-I finds complexes of the 1920s investigations Lower layer / the 1990s investigations Units "H" - "G" and the 1920s investigations Middle layer / the 1990s investigations Unit "F" do have undoubted straight industrial analogies among industries of European Early and Late Aurignacian of Krems-Dufour type. Moreover, by their artifacts number and composition, structures of "living floors" with hearth/ashy lenses of archaeological levels and AMS radiocarbon dates, these Siuren-I complexes are the most demonstrative Aurignacian industries in Eastern Europe through both their industrial characteristics and the supposed chronology. Many possible questions on Aurignacian problems connected to the Siuren-I materials are not addressed here; rather, just one Aurignacian finds complex of this Crimean site (the 1920s excavations Lower layer / the 1990s excavations Units "H" - "G" materials) is presented for analyses of Eastern European related industries and then their connection to the Western and Central European Early Aurignacian of Krems-Dufour type complexes for their integral Pan-European some analyses.

#### THE SIUREN-I FINDS COMPLEX OF THE 1920s LOWER LAYER / THE 1990s UNITS "H" - "G" AS A PIVOTAL ONE FOR EARLY AURIGNACIAN OF KREMS-DUFOUR TYPE INDUSTRIES IN EASTERN EUROPE

The main industrial and chronological data for this Siuren-I Early Aurignacian finds complex have already been represented in this volume (see the paper of Demidenko, Otte). Here, therefore, here they are simply summarized, with the addition of some notes mainly concerning determination of such techno-typological traits that can be used to a certain degree as "*fossiles directeurs*" for searching similar Aurignacian assemblages among Eastern European Upper Paleolithic industries.

Accordingly, such needed industrial "*fossiles directeurs*" for the Siuren-I discussing Early Aurignacian can be defined through the presence of the following techno-typological features. There are actually quite a few of them: bladelet "carinated" cores with mainly convex flaking surfaces (fig. 1: 1-2), carinated typical and/or thick shouldered/nosed end-scrapers (fig. 1: 8, 11), elongated "on-axis" and mainly flat / incurvate in general profile alternative "*lamelles Dufour of Dufour sub-type*" (on microblades and many bladelets) with micro-scalar and/or micro-stepped retouch (fig. 1: 4-5, 7), specific "*Krems / Font-Yves points*" (fig. 1: 3, 6). Furthermore, typological structure of burins, end-scrapers and retouched blades is also very indicative and important. Regarding burins, there is a dominance of angle (fig. 1: 12) and on truncation/lateral retouch types (fig. 1: 10) over dihedral one with, at the same time, a complete absence or a singleness of carinated type. There are either no flat shouldered/nosed end-scrapers or they are represented by a very few pieces. Any blades with so-called "Aurignacian-like heavy retouch" do compose very insignificant portion among retouched blades. The main technological aspect should be also mentioned - an abundance of bladelets and

microblades in debitage with quantitative prevalence of the former ones over the latter. It is noteworthy to note that terms "presence" - "absence" - "singleness" and others like that are used above specifically for underlying of general techno-typological tendencies with no precise numerical or ratio data because comparable materials from other sites may originate from old excavations with not systematically done screening / flotation of sediments, with no preservation through time all artifacts recovered during excavations and/or from sites with not *in situ* archaeological levels representing just collections from surface finds spots.

So, "an industrial instrument" with Early Aurignacian "*fossiles directeurs*" for observing of Upper Paleolithic assemblages of Eastern Europe is ready for a practical application. Moreover, it is added by some more typological indications that will help to cut off a great number of non-Aurignacian industries well before a usage of Aurignacian criteria. These typological indications are quite understandable and clear ones - presence of a serial bifacial or backed tools in any collection mean immediately non-Aurignacian traditions for such industries. Adding here a chronological criteria - not relation to Aurignacian of Upper Paleolithic industries with their chronological position after 27-25000 BP, a choice on the "hunting" of Early Aurignacian sites and their artifacts does become even more restricted.

#### EASTERN EUROPEAN EARLY AURIGNACIAN OF KREMS-DUFOUR TYPE INDUSTRIES TECHNO-TYOLOGICALLY SIMILAR TO THE SIUREN-I FINDS COMPLEXES OF THE 1920s LOWER LAYER / THE 1990s UNITS "H" - "G"

An analytical analysis of published Upper Paleolithic materials from Eastern European Plain and Northern Caucasus allowed us to determine a couple of such Early Aurignacian complexes (Demidenko 1998; 1999; 2000; 2001) - Chulek-I open-air site in Lower Don river area of northeastern Azov sea region (Gvozdover 1959; 1964) and Kamennomostskaya cave, lower layer in Kuban river area of Northwestern Caucasus (Formozov 1971; Amirkhanov 1986). After such recognition, in addition to published data from these sites, the present author personally studied lithic artifacts of these two sites in Moscow (Russia) in April of 2001 and my belief of their Early Aurignacian of Krems-Dufour type industries affiliation became much more certain with some additional peculiar techno-typological specifications. Analysis of these sites and their find complexes will be done through a traditional scheme of Paleolithic site description, but in a rather brief manner, with the main accent on their industrial features.

##### Chulek-I open-air site

##### The site's location and field investigations

The first surface Upper Paleolithic flint artifacts there were discovered by I.S. Kamenetskiy in 1956. Both sys-

tematic collection of surface finds and excavations of the recognized open-air site were undertaken by M.D. Gvozdover in 1957-1961. The site is located on one of Pleistocene terraces on a left bank of Donskoy Chulek river (a right tributary of Don river) less than 10 km from the Azov sea modern shore line. Stratigraphically, a series of sondages in different places of the terrace has shown that *"the site's cultural layer did not preserve in situ and finds are in a redeposited position"* (Gvozdover 1964: 37) basically just below Holocene humus sediments (Gvozdover personal communication 2001). In spite of such stratigraphical position of artifacts (only flints and no fauna), excavations (without screening) and surface finds collection were done by M.D. Gvozdover quite thoroughly with preservation of all discovered items, that is clearly seen through the presence of rather numerous bladelets and microblades in the assemblage. Let us also mention that such the site's materials preservation do not permit to make any guess on a geochronological position of the recovered artifacts.

### The flint assemblage

According to Gvozdover's published data, there are more than 900 flints. On the basis of such typological indications as the presence of 3 *"tools with ...alternate retouch"*, *"a group of tiny bladelets with ... rather flat ... mostly ventral retouch"*, an absence of true backed tools, M.D. Gvozdover (1964: 37) has concluded that *"as a whole, the implements do not allow us to specify the site's position within the Upper Paleolithic epoch"*. Therefore, since the early 1960s, the Chulek-I materials have been considering as a very distinct Upper Paleolithic find complex in the Lower Don area with no industrial similarity to any other Upper Paleolithic industries in the Northern Black sea - Azov sea region. But a closer look at published data and actual flints do allow us, however, to change this uncertain industrial position of the Chulek-I assemblage.

The actual flint assemblage stored at Anthropology Museum of Moscow State University (Moscow, Russia) is composed of 874 items and can be structurally subdivided into the following general artifact categories: core-like pieces - 7 items / 0.8%, core maintenance products - 48 items / 5.5%, debitage - 471 items / 53.9%, tools - 100 items / 11.4%, waste from production and rejuvenation of tools - 27 items / 3.1%, debris - 221 items / 25.3%.

#### Core-like pieces :

There is 1 peculiar item - either a pre-core or a double-platform orthogonal-alternate flake core (length - 6.8 cm), 2 core fragments (length - 3.3 and 3.9 cm) and 4 cores - 1 single-platform sub-cylindrical blade/bladelet piece (length - 4.7 cm) and 3 single-platform bladelet pieces: 1 "regular" sub-cylindrical core (length - 3.8 cm), 1 rather specific rectangular item (length - 3.0 cm) made on a blade fragment (fig. 2: 10) and, finally, one more piece (length - 4.6 cm) can be additionally defined as a "carinated" sub-cylindrical one (fig. 2: 9). The availability of

only 7 core-like pieces (1.1% of the assemblage, excluding debris), their all but one small and medium dimensions (less than 5 cm in length) and a specific presence of a bladelet core made on a blade fragment may testify to both difficult access to unknown outcrops with high quality flints (Gvozdover personal communication 2001) and a rather intensive flint exploitation by humans at the site.

#### Core Maintenance Products :

These 50 items are represented by 48 pieces with no secondary tool treatment and 2 burin blanks. This class of artifacts contains: primary and secondary 33 crested pieces (20 blades, 11 bladelets, 2 crested flakes) - 66%, 15 core tablets (13 flakes, 2 bladelets) - 30% and 2 core trimming elements (1 flake, 1 blade) - 4%. Numerous and various core maintenance products (7.7% of the assemblage, excluding debris, with their relation to cores number in proportion 7.1 to 1) do testify complex procedures on cores preparation and especially reparation in the course of primary flaking processes at the site. Moreover, presence of crested bladelets and core tablets on bladelets additionally point out intensive bladelet *sensu lato* (including microblades) production at the site.

#### Debitage:

All debitage and pieces with secondary tool treatment are presented below according to blank type (563 items).

#### Flakes :

The assemblage yielded a total of 151 flakes. Of these, 136 are unretouched and 15 are tools on flakes. Although non-cortical pieces dominate (62.6%), a quantity of both flakes with some cortex (23.2%) and completely cortical specimens (> 75% of cortex - 13.9%) is quite significant. The majority of flakes do not exceed 4 cm in length. Along with this, 13.2% of flakes are in metrical interval 4.0 - 4.9 cm and only 2.6% of the longest flakes are in metrical interval 5.0 - 5.9 cm.

#### Blades :

The blade number (194 items) consists of 156 unretouched pieces and 38 pieces with secondary treatment. About each 9 of 10 blades are non-cortical (89.2%), while partially cortical and completely cortical blades do compose only 9.8% and 1.0%, respectively. Just 12.9% of blades are complete items. Their mean length is 4.4 cm and, as a whole, examples more than 4 cm long compose 44% among all the complete blades with the longest item 8.7 cm long.

#### Bladelets (width - 0.7 - 1.1 cm) :

A total of 167 pieces are known for the analyzing assemblage - 145 items with no secondary treatment and 22 retouched ones. Only 10.2% of bladelets are partially cortical items. The rest (89.8%) are non-cortical items. Completely cortical bladelets are virtually absent. There are just 7.2% of complete pieces among all the bladelets. Their mean length is 2.9 cm, while the longest item is 3.9 cm and no one piece is less than 2.2 cm long. The bladelets mean width is 0.95 cm, although it is important to note here that 5 retouched bladelets ("non-geometric microliths") are 1.2 - 1.4 cm wide (fig. 2: 6-7) that is formally in the blades width range. Twisted general profile is

characteristic for 32.9% of all definable items and only 6.3% bladelets do have a combination of twisted and "off-axis" morphological features. All but one other definable bladelets are with flat / incurvate general profiles - 66.4%. *Microblades* (width - 0.2 - 0.6 cm).

There are 34 items with no secondary treatment and 17 retouched specimens, totalling 51 pieces. All micro-blades are non-cortical items. Two microblades only (3.9%) are complete - 1.7 and 2.1 cm long. The micro-blades mean width is 0.56 cm and a few most narrow examples are 0.4 cm wide. The distribution of identifiable general profile types is as follows: twisted - 39.5% and flat / incurvate - 60.5%. It is worth noting here that only single microblades (4.7%) are with a combination of twisted and "off-axis" morphological features.

Summing up the above-represented data on debitage pieces, it is possible to make some conclusions. Flakes compose a little more than one quarter of all debitage - 26.8%. The flake quantitative data with such their other characteristics as mostly small metrical dimensions (84.2% - no more than 4 cm long), more than one third of them with cortex (37.1%) and about 1/7 are completely cortical, as well as the absence of true unequivocal flake cores and an insignificant portion of flakes among tool blanks (15%) allow us to consider flakes as mainly technological waste for preparation and, to a lesser extent, re-preparation of cores during blade/bladelet and bladelet *sensu lato* primary reduction. This suggestion is further confirmed by numerical data on pieces with "blady" proportions - 73.2%. The inner structure of these "blady" specimens is as follows: blades - 34.4%, bladelets - 29.7% and microblades - 9.1%. Respectively, bladelets and microblades together occupy a leading position within the debitage - 38.8%. Moreover, if we additionally keep in mind the circumstance on origin of artifacts from not an *in situ* cultural level for Chulek-I site, it is become more obvious that an amount of bladelets and especially microblades would be more numerous than it actually is. Rarity of items with cortex (9.2%) for taken together all blades, bladelets and microblades, as well as a high percentage of "blady" pieces among tool blanks (77%) are two more factors for demonstration that the "blady" debitage, as a whole, was the main purpose in cores flaking. It is also worth noting about a double predominance of pieces with flat / incurvate general profiles (ca. 65%) over specimens with twisted general profile (ca. 35%) for bladelets and microblades that is an important indication for technological analysis of the assemblage.

#### Tools :

These 100 pieces with secondary treatment are composed of 33 burins (33%), 7 end-scrapers (7%), 1 truncation (1%), 1 notched piece (1%), 19 retouched pieces (19%) and 39 "non-geometric microliths" (39%).

*Burins* are subdivided into the following types: on truncation / lateral retouch - 24 items (fig. 2: 1-4), angle - 4 items, dihedral - 3 items (1 symmetrical and 2 asymmetrical ones), 1 double mixed piece (on lateral retouch / dihedral asymmetrical) and 1 broken piece (damaged termination). Taking into account all 33 definable burin verges,

the burins typological structure is characteristic by a dominance of on truncation / lateral retouch type (25 verges / 75.8%) and an equal very subordinate position of angle and dihedral types (4 verges / 12.1% each) with a complete absence of any carinated type items. Most of the burins are manufactured on blades (24 pieces), while the rest blanks are 6 flakes, an uncharacteristic debitage piece, a crested blade and a core tablet (fig. 2 : 1).

*End-Scrapers* consist of 1 simple flat piece on a blade's fragment, 1 fragment of a simple flat end-scraper's front, 1 piece on a unilaterally retouched flake (longitudinally fragmented), 1 fan-shaped specimen on a flake (fig. 2: 5) and 3 small flat sub-circular items on flakes (fig. 2: 11) including one of them with a denticulate-like front (fig. 2: 12). Any carinated or thick shouldered/nosed end-scrapers are missing.

A *truncation* is a straight oblique obverse one on a complete blade.

A *notched* piece is a lateral dorsal one on a blade's fragment.

*Retouched pieces* with irregular and/or marginal retouch are subdivided into specimens on 11 blades (Gvozdover 1964: tabl. XIV, 28), 4 flakes and 4 uncharacteristic debitage pieces.

"Non-geometric microliths" are the most numerous tool class in the assemblage. The main part of them is represented by pieces with either a fine marginal retouch or a flat/semi-steep micro-scalar and/or micro-stepped retouch (37 items / 94.9%), while only 2 bladelets have thin backed laterals (5.1%). Among the former ones typologically the most indicative items can be structured into 10 alternative "*lamelles Dufour*" (5 bladelets, 5 microblades) (fig. 2: 6-7), 3 ventral lateral "*lamelles Dufour*" (1 bladelet, 2 microblades), 5 ventral bilateral "*lamelles Dufour*" (1 bladelet, 4 microblades) (fig. 2: 8), 2 "*Krems points*" (1 bladelet, 1 microblade) (fig. 2: 13-14) and 13 dorsal lateral and bilateral "*lamelles pseudo-Dufour*" (8 bladelets, 5 microblades). So, both different "*lamelles Dufour*" and "*lamelles pseudo-Dufour*" do constitute 46.1% and 33.3% of all "non-geometric microliths", respectively. One of the most characteristic secondary treatment features for the Chulek-I above-enumerated "non-geometric microliths" is a peculiar ventral thinning of their basal ends (fig. 2: 8; Gvozdover 1964: tabl. XIV: 18-20, 24) that is traced for 2 alternative "*lamelles Dufour*", 1 ventral lateral "*lamelle Dufour*", 4 ventral bilateral "*lamelles Dufour*" and 2 dorsal bilateral "*lamelles pseudo-Dufour*" (1 bladelet, 8 microblades). We suggest that the ventrally thinned "non-geometric microliths" be called the Chulek-I type. Although this ventral thinning is known for "non-geometric microliths" of some other Early Aurignacian of Krems-Dufour type assemblages, it is usually traced on single pieces only (e.g. Fumane rock-shelter, levels A2-A1, D6 from northern Italy - Bartolomei *et al.* 1994: fig.24, 22-23; fig. 26: 21, 27).

Waste from production and rejuvenation of tools :

This artifact category contains only *burin spalls* - 27 primary and secondary pieces. In accordance with a

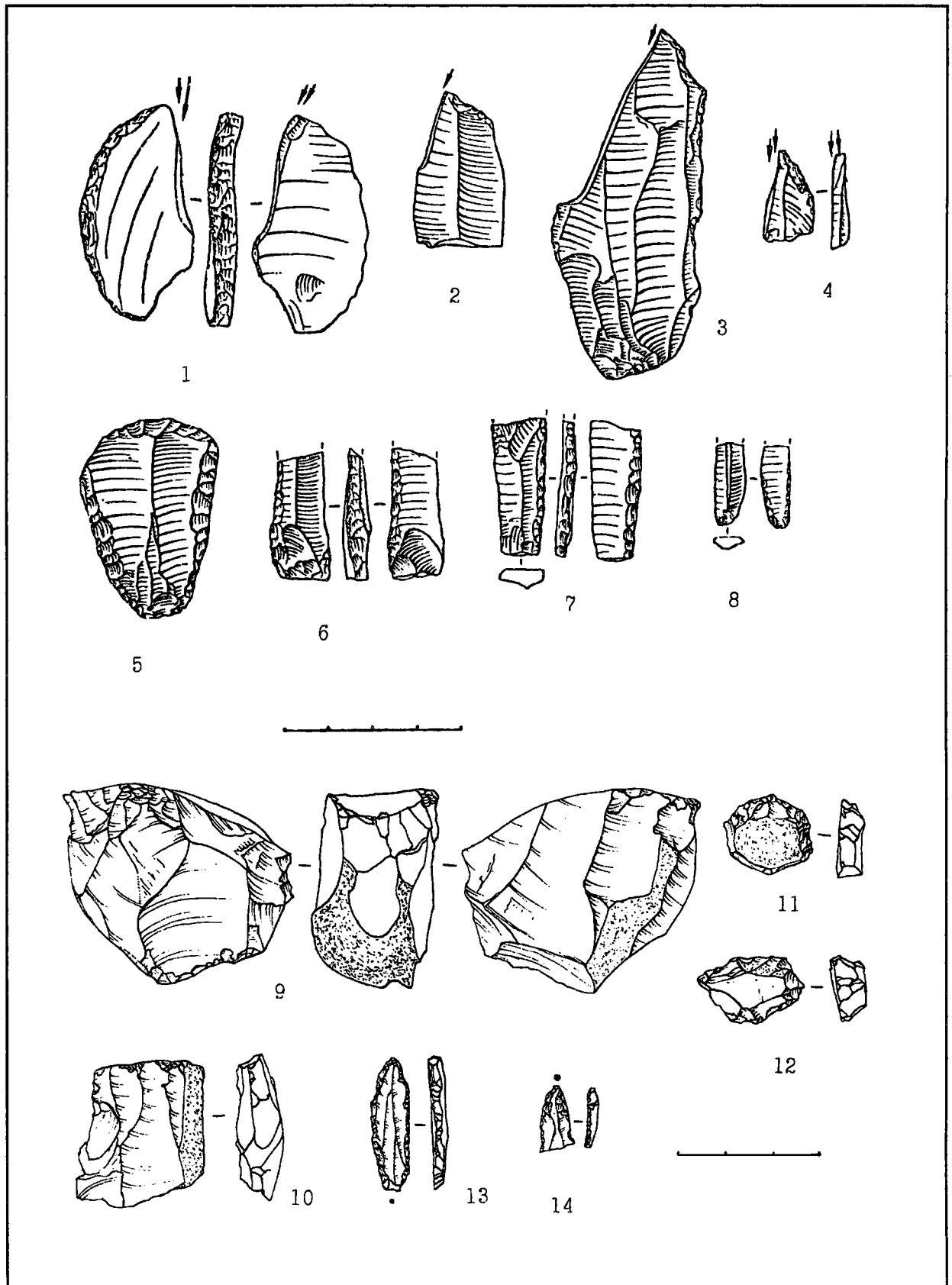


Figure 2 : Chulek-I (Lower Don river area, Russia). 1 - 4 burins on truncation / lateral retouch, 5 - fan-like end-scraper on flake, 6 - 7 - alternative "lamelles Dufour", 8 - ventral bilateral "lamelle Dufour" with Chulek-I type characteristic ventral thinning of its basal end, 9 - bladelet "carinated" core, 10 - bladelet single-platform rectangular core on blade's fragment, 11 - 12 - small flat sub-circular end-scrapers, 13 - 14 - "Krems points" (1 - 8 - according to Gvozdover 1964).

great dominance of burins on truncation / lateral retouch in burins typological structure, there is also a dominance of burin spalls struck from these burin types (4 items), while the rest of 3 burin spalls originate from angle (1 item) and dihedral (2 items) burins. Most of the other burin spalls are fragmented and, therefore, unidentifiable for recognition of burin types they were removed.

#### Debris :

These 221 artifacts are represented by the following categories: chips ( $\leq 1.5$  cm) - 148 items, *uncharacteristic debitage pieces* ( $\geq 1.5$ cm fragments) - 44 items, chunks - 11 items, *heavily burnt pieces* - 18 items.

#### The Chulek -I finds complex general industrial attribution

In spite of the not *in situ* position of artifacts at Chulek-I, there are no techno-typological indications on heterogeneous industrial character of this Upper Paleolithic find complex. Moreover, its basic techno-typological traits coincide in many details with those defined for the Siuren-I 1920s Lower layer / 1990s Units "H" - "G" materials especially taking into consideration the so-called Siuren-I Early Aurignacian technological and typological "*fossiles directeurs*". On the basis of such features of the assemblage as blade/bladelet and bladelet single-platform sub-cylindrical cores, including one of them of a "carinated" type, characteristic elongated and mainly flat / incurvate in general profile serial "*lamelles Dufour*" of "*Dufour sub-type*", a singleness of dihedral and an absence of carinated type burins, a structure and morphological peculiarities of debitage and particularly of bladelets and microblades, Chulek-I can be reasonably attributed to the Early Aurignacian of Krems-Dufour type industries. At the same time, some techno-typological elements within the Chulek-I finds complex are either missing or represented just a few pieces. First of all, it means the complete absence of any carinated and thick shouldered/nosed end-scrapers. Then, the core assemblage, as a whole, is not complete as there are just 7 core-like pieces for 563 debitage items (to high proportion 1 to 80.4) and it is in the absence of carinated and thick shouldered/nosed end-scrapers that could be regarded as one more "source" of bladelets and microblades. The revealed intensive primary flaking processes at the site, owing also to the noted high proportion of core maintenance products to core-like pieces (7.1 to 1), does not "safe the situation" with found a few cores at the site. In such the case, it seems reasonable to explain the shown discrepancy for the Chulek-I artifacts in the following way. Let us do remember that the site's flints do originate, aside from the surface finds collecting, only from a series of sondages dug in different places of a Pleistocene terrace. Respectively, the excavated areas are settlement's fragmented loci represent just not complete fractions of an Early Aurignacian

of Krems-Dufour type flint assemblage.

#### Kamennomostskay cave.

##### The site's location and field investigations

The cave as an archaeological site was discovered by A.A. Schepinskiy (a member of archaeological surveys headed by A.A. Formozov) in 1960. The cave itself is a southwest-facing cavity, 9 m wide, 24 m deep, and 1-3 m high with an elevation of 39 m above the current level of Meshoko river - one of rivers in the system of left tributaries of Kuban river in Northwestern Caucasus. The cave only excavations were realized by A.A. Formozov in 1961 (Formozov 1971). He carried out his investigations under the cave's modern drip line by an excavation block 6 x 4 m (24 sq. m) and recognized in more than 3 meters of Holocene and Pleistocene deposits four different cultural layers. These are from top to bottom Medieval, Chalcolithic, Neolithic and Upper Paleolithic finds. The Upper Paleolithic finds were stratigraphically related to the lowermost deposits of a Pleistocene yellow clay with some limestone boulders of a varying thickness from 1.0 to 1.9 m. Namely, these thick deposits were excavated with no screening or flotation as just one Upper Paleolithic cultural layer. Any indications on finds position within "living floors" or thin and distinct levels were not noted in the course of excavations. Recovered fauna remains are represented by a few bones of *Bison* sp., *Capra* or *Ovis*, *Artiodactyla* (Formozov 1971: 114-115; Amirkhanov 1986: 13-14).

##### The flint assemblage

According to Formozov's published data (Formozov 1971: 112-115), the whole collection of artifacts from the cave's lower layer is composed of about 1600 flints. On a typological basis, the presence in the flint assemblage of "*a discoidal core and Mousterian points, polyhedral burins ... rabots, a truncation*" and absence of "*pieces esquillees and backed pieces*" allowed A.A. Formozov (1971: 114) to connect the finds from Kamennomostskaya cave, lower layer with "*early group of Trans-Caucasian Upper Paleolithic sites*" do not having any other comparisons in Northern Caucasus and basically to consider them as Early Upper Paleolithic ones. Later, Kh.A. Amirkhanov (1986: 19, 22-30), basing on both the Formozov's published data and studies of actual flints from Kamennomostskaya cave, lower layer, much specified on the flint assemblage internal structure and some cores and tools typological definitions (e.g. presence of 14 denticulated tools, an alternative Dufour bladelet). He (1986: 29-30, 44-46, 96-97) also came to a general conclusion of an Early Upper Paleolithic age for these materials with some local Northern Caucasian Middle Paleolithic flint treatment tradition survival traits and on no a backed tools manufacture tradition, chronologically preceding of more late and industrially "*Aurignacian-Perigordian*" Northern Caucasian Upper Paleolithic complexes. Along with this, Kh.A. Amirkhanov (1986: 29) further noted that "cultural affiliation remains open" for this find complex and "*its*

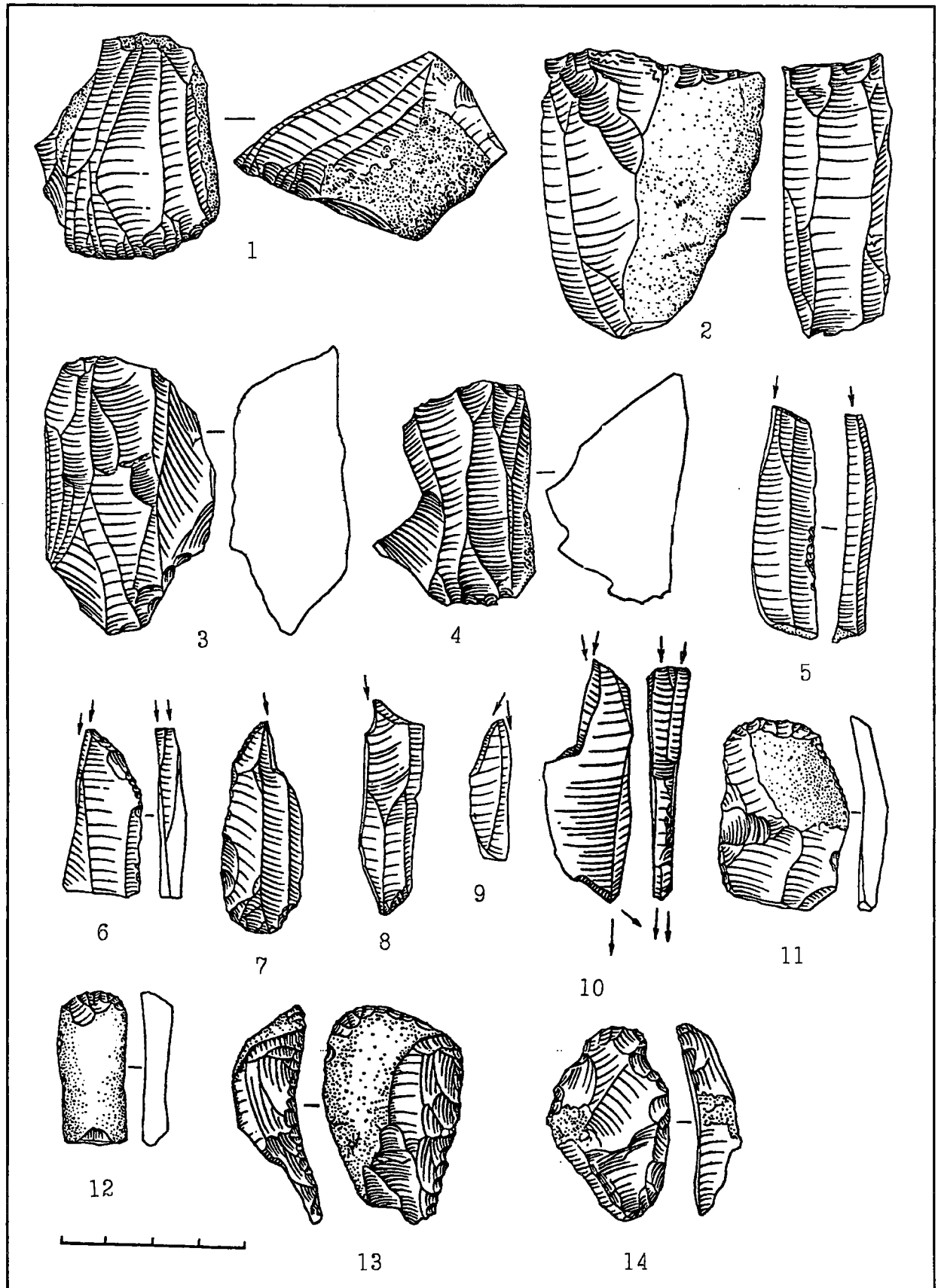


Figure 3 : Kamennomostskaya cave, lower layer (Northern Caucasus, Russia). 1 - 2 - blade/bladelet cores single-platform cores, 3 - 4 - bladelet double-platform bidirectional cores, 5 - 7 - burins on truncation / lateral retouch, 8 - angle burin, 9 - dihedral burin, 10 - double dihedral burin, 11 - 12 - simple flat end-scrapers, 13 - end-scrapers on unilaterally retouched flake, 14 - flat nosed end-scrapers (1 - 14 - according to Formozov 1971).

*inventory does not have any analogies both culturally and chronologically in Northern Caucasus".*

All in all, the above-represented points of view on the materials from Kamennomostskaya cave, lower layer indicated that this Upper Paleolithic finds complex has very likely an early age in the Upper Paleolithic chronological frames and a very distinct cultural position within the Upper Paleolithic of Northern Caucasus with not yet clear and unequivocal industrial attribution.

The personal analysis of the surviving flint collection from Kamennomostskaya cave, lower layer stored at Anthropology Museum of Moscow State University (Moscow, Russia) along with some published data of Formozov and Amirkhanov data permitted the present author to make his own description of the assemblage and to propose different archaeological and industrial interpretations.

So, now it is possible to subdivide structurally the recognized assemblage of 1080 flints into the following general artifact categories: core-like pieces - 60 items / 5.5%, core maintenance products - 61 items / 5.6%, debitage - 759 items / 70.3%, tools - 75 items / 6.9%, waste from production and rejuvenation of tools - 6 items / 0.5%, debris - 119 items / 11.1%. The represented above numerical data now deserve comments. It is obvious that in comparison to Formozov's published data - "about 1600 flint pieces" our number in almost 1100 pieces is at least 500 items less. The fate of these 500 flints is unknown. The only thing clear is that the collection was incomplete already in the late 1970s when Kh.A. Amirkhanov studied the assemblage (Amirkhanov personal communication 2001). Moreover, statistical data in the Formozov's publication (1971) were given only for cores and tools (some of them are also missing now and for the present description were used their illustrations in the Formozov's publication) and not for other artifact categories that makes impossible any clear statements on what really is absent. Keeping this in mind, let us now take a closer look at the assemblage artifacts and try to understand their main techno-typological characteristics and trends.

#### Core-like pieces :

There are defined 8 pre-cores, 30 cores and 22 core fragments.

#### *Pre-cores (6 nodules, 2 flakes):*

Are basically so-called "tested pieces" with a few negatives of flake hinged removals, while only for 2 pre-cores could be observed very initial unsuccessful attempts on bladelet reduction. The pre-cores greatest dimensions vary from 4.3 to 8.9 cm with a mean value in 6.5 cm.

#### *Cores :*

Are typologically subdivided as follows:

- 1 Blade core - single-platform sub-pyramidal (length - 4.8 cm).
- 8 Blade/Bladelet cores:
  - 3 single-platform sub-cylindrical (length - 3.9-4.3-4.8 cm) (fig. 3: 1),
  - 1 single-platform pyramidal (length - 3.5 cm),
  - 1 single-platform narrow-flaked (length - 6.3 cm) (fig. 3: 2),

- 1 double-platform bidirectional sub-cylindrical (length - 5.0 cm),
- 1 double-platform bidirectional-adjacent sub-cylindrical (length - 3.2 cm),
- 1 double-platform bidirectional-alternate sub-cylindrical (length - 6.7 cm).

#### 7 Bladelet "regular" cores:

- 2 single-platform sub-cylindrical (length - 2.1-3.7 cm) (Amirkhanov 1986: fig. 4, 4),
- 1 single-platform pyramidal (length - 3.2 cm),
- 2 double-platform bidirectional sub-cylindrical (length - 4.7-5.8 cm) (fig. 3: 3-4),
- 2 double-platform bidirectional-adjacent sub-cylindrical (length - 3.1-3.7 cm).

#### 3 Bladelet "carinated" cores:

- single-platform sub-cylindrical (length - 3.3-3.8-3.9 cm) (Amirkhanov 1986: fig. 2, 5-6).
- 1 Bladelet multiplatform exhausted core (length - 3.5 cm).

#### 4 Bladelet unidentifiable fragmented cores.

- 1 Flake/Bladelet core - single-platform sub-cylindrical (length - 4.6 cm).
- 2 Parallel unidentifiable cores (Formozov 1971: fig. 12, 3).
- 3 Unidentifiable multiplatform exhausted cores.

The core-like pieces typological structure can be summarized and explained in the following way. First, it is worth noting a proportional representation of the core-like pieces - 13.3% of pre-cores, 50% of cores and 36.7% of core fragments. Taking this into consideration, along with the fact of a situation of flint sources for inhabitants of the Upper Paleolithic occupation at Kamennomostskaya cave just near the cave and of poor flaking quality flints taken from there, it is reasonable to conclude "a high wasted" character of primary flaking processes performed inside the cave with no great care on well-controlled and economic flint nodules exploitation. The cores' internal typological structure also testifies an intensive blade/bladelet and bladelet reduction - practically all identifiable cores. One of the typological peculiarities of the blade/bladelet - bladelet cores is presence of 3 double-platform bidirectional cores with seemed "true" opposite reduction from one flaking surface and, on the other hand, availability of just 3 bladelet "carinated" cores among generally numerous bladelet single-platform and double-platform bidirectional-alternate and -adjacent (actual two single-platform reductions for one flaking object) cores. It seems that these cores features are again connected to flint nodules with not good flaking characteristics that did not allow Paleolithic flintknappers to conduct intensive and careful single-platform reduction. This explanation for double-platform bidirectional cores is also supported by an almost actual absence of blades and bladelets/microblades with bidirectional scar pattern in the assemblage - just very pieces in total (3.4%). Also, the recognized 2 Parallel unidentifiable cores are notable as one of them (Formozov 1971: fig. 12, 3) was classified by A.A. Formozov as a Mousterian discoidal core. In fact, this one and one more such a core are principally unidentifiable because the last struck off removal/s were heavily overpassed making any objective clues on previously performed reduction impossible. Thus, any typologically

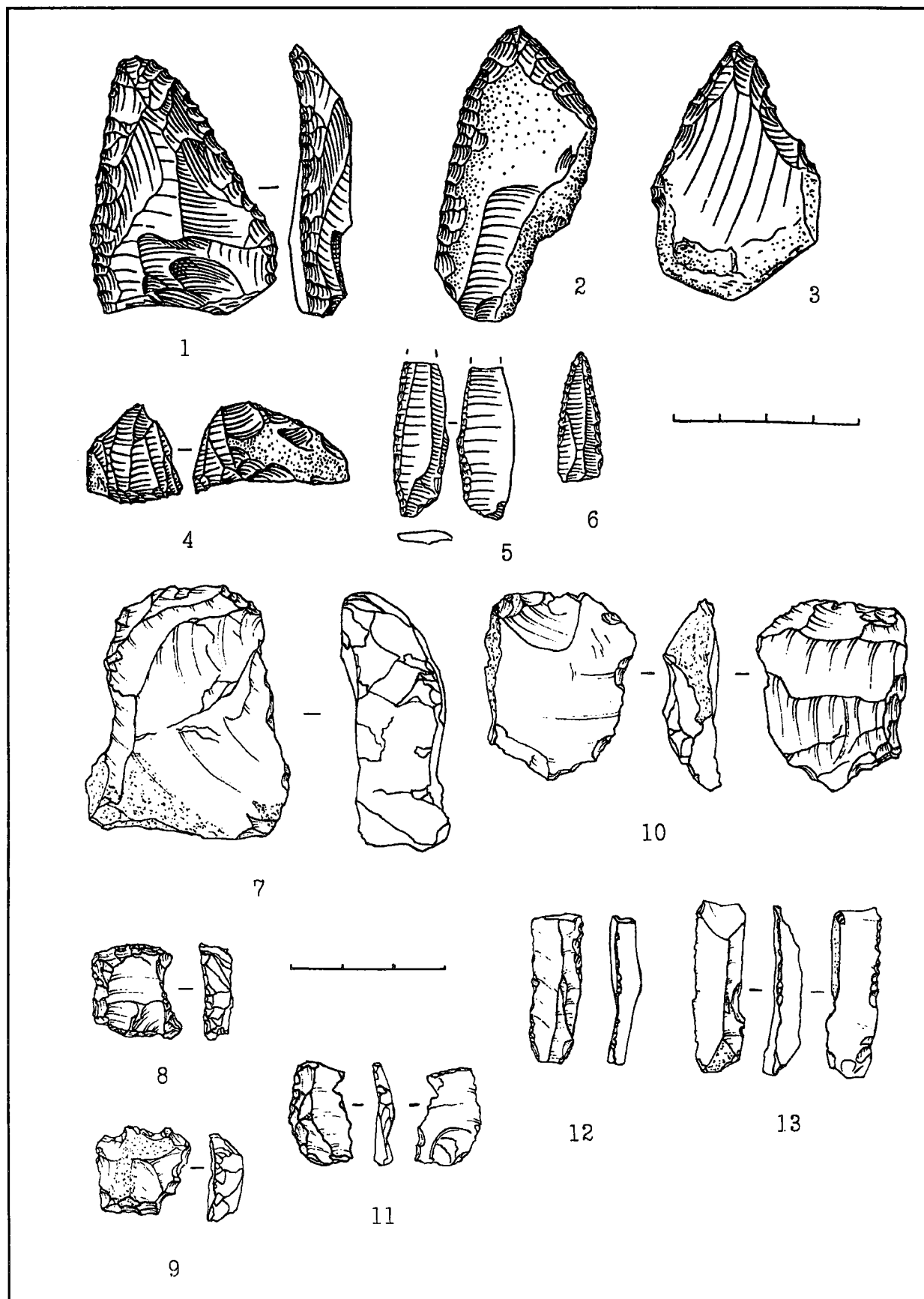


Figure 4 : Kamennomostskaya cave, lower layer (Northern Caucasus, Russia). 1 - 3 - Middle Paleolithic types convergent scrapers, 4, 7 - carinated end-scraper, 5 - alternative "lamelle Dufour", 6 - "Krems point", 8 - 9 - small flat sub-circular end-scrapers, 11 - 13 - different partially retouched "non-geometric microliths" (1 - 6 - according to Formozov 1971).

clear Middle Paleolithic core types are absent in the assemblage, although for a couple of multiplatform exhausted cores and/or core fragments such the possibility cannot be excluded because of the present distinct Middle Paleolithic convergent scrapers in the assemblage (see below).

#### Core Maintenance Products :

65 pieces is composed of 61 unretouched items and 4 items with secondary treatment. There are distinguished among them: 54 primary and secondary crested pieces (35 blades, 12 bladelets, 7 flakes) and 11 core tablets (10 flakes, 1 blade). Presence of 12 crested bladelets (more than each fifth of all the crested pieces) and a core tablet on blade certainly further strengthen a generally intensive bladelet reduction processes at the site. Overall proportion of core maintenance products to both core-like pieces (about 1 to 1) and just cores (2.17 to 1) also confirm not long reduction and reparation for each core in general.

#### Debitage :

A total number of unretouched debitage and debitage pieces with secondary tool treatment is 828 items (including uncharacteristic debitage pieces).

#### Flakes :

There are accounted in total 614 flakes in the assemblage. Of these, 581 are unretouched and 33 with secondary modification. The present author did not make either separation of flakes and uncharacteristic debitage pieces for this now happen conventionally called "flake collection" or of their any detailed analysis. The only real thing for them was done, it is a calculation of completely cortical items (with 100% of cortex) - 50 pieces. On the other hand, it is possible to say almost for sure that more than a half of all flakes do bear some cortex. All in all, the flakes technological role in primary flaking processes seems to be mainly connected to testing and preparation (a decortification of flint nodules) of core-like pieces for subsequent their true "blady" reduction.

#### Blades :

The blade assemblage (123 items) consists of 102 unretouched pieces and 21 pieces with secondary treatment. Non-cortical items do compose about three fourth of all blades - 76.5%. There are also 20.3% of partially cortical and 3.2% of completely cortical blades. A little bit more than a quarter of all blades (27.6%) are complete. Their mean length is 4.3 cm and the longest piece is 7.5 cm. In total, blades with length more than 4 cm prevail - 55.9%.

#### Bladelets (width - 0.7 - 1.1 cm) :

As a whole, 80 bladelets are present in the assemblage - 70 items with no secondary treatment and 10 retouched ones. Each eighth piece (12.5%) is a partially cortical one. The others (87.5%) are non-cortical specimens, while completely cortical bladelets do not occur at all. Complete in condition items compose 28.7% of all bladelets. Their mean length is 2.9 cm. The longest piece is 3.9 cm long and a single specimen only (4.3%) is in length less than 2cm - 1.8 cm. The bladelets mean width is impressive - 0.98 cm. Flat / incurvate general profiles (59.7%) prevail over twisted bladelets (40.3%) among all identifiable

through this feature pieces, while twisted bladelets with peculiar "off-axis" orientation do compose 16.9% of all bladelets.

#### Microblades (width - 0.2 - 0.6 cm) :

There are only 7 microblades in the analyzing collection - 6 unretouched pieces and 1 "non-geometric microlith". There is just a single piece (14.3%) with some cortex among the rest non-cortical microblades. Three microblades (42.8%) are complete - 1.6-2.4-2.4 cm. A mean width for all microblades is high (0.58 cm) that is explained by presence of just a single piece 0.6 cm wide while all other 6 items are 0.6 cm wide each. According to general profile types, there are 4 twisted pieces (only 1 with "off-axis" orientation) and 3 incurvate specimens - 57.2% and 42.8%, respectively.

Now let us try to express some thoughts regarding the above-represented data on debitage with "blady" metrical proportions. Data on length and cortex for blades allow us to suggest both primary removal of blades during initial reduction of different bladelet cores and their systematical flaking in the course of blade/bladelet cores exploitation. Bladelets and microblades are rather poorly represented numerically. It is the most certainly seen through internal structure of all "blady" pieces taken together (210 specimens): 123 blades (58.6%), 80 bladelets (38.1%) and 7 microblades (3.3%). The structure is in obvious contradiction with the cores representation that shows a clear dominance of bladelet reduction. There are two most probable explanations of this collision. First, we should remember a manner of excavations at Kamennomostskaya cave conducted by A.A. Formozov in 1961. It means that a recovering of artifacts as from a single archaeological layer in deposits thickness from 1.0 to 1.9 m with no screening had to lead to a significant numerical loss of small sized pieces, namely, bladelets, microblades, chips. Second, we also should not forget the absence of ca. 500 artifacts in the Anthropology Museum (Moscow) collection from the cave's lower layer - some bladelets and microblades could be in an unknown place, no matter where it is now. Although the latter possibility does not seem to be the very likely one for the discussing paucity of bladelets *sensu lato* keeping in mind the former explanation on excavation methods. Thus, we have an unbalanced sample of bladelets *sensu lato* here and all our clues on their role in the assemblage are of general and suggestive character, unfortunately. All in all, in spite of all the problems, we can insist on a leading role of bladelet production at primary flaking processes performed at the cave - 24 cores with bladelet *sensu lato* negatives could not be "a source" of just 87 bladelets and microblades (proportion - 1 to 3.6). About each eleventh of them was with some cortex (12.6%). Also, as an important generator for technological data can serve data on general profile types for bladelets and microblades - a prevalence of flat / incurvate pieces (ca. 60%) over twisted pieces (ca. 40%). On the other hand, twisted bladelets with "off-axis" orientation account 16.9% of all bladelets and, respectively, we may suppose primary removing of some bladelets *sensu lato* not only from typological cores in general, but also from "carinated tools" as well. This suggestion finds some

further support in the tool types representation (see below).

Tools:

There are 75 pieces with secondary treatment and some usage traces in the assemblage. These are 24 burins (32%), 12 end-scrapers (16%), 3 truncations (4%), 8 "inverse truncations" (10.7%), 1 scaled tool (1.3%), 2 denticulated / notched pieces (2.7%), 8 retouched pieces (10.7%), 4 Middle Paleolithic tool types (5.3%), 11 "non-geometric microliths" (14.6%) and 2 hammerstones / retouchers on river pebbles (2.7%).

*Burins* :

Are represented by the following types: on truncation / lateral retouch - 8 items (fig. 3: 5-7), angle - 5 items (fig. 3: 8; Amirkhanov 1986: fig. 4, 13), double angle - 2 items, dihedral - 3 items ( 1 symmetrical and 2 asymmetrical ones) (fig. 3: 9), double dihedral symmetrical - 1 item (fig. 3: 10), carinated - 4 items (fig. 5: 1-2; Amirkhanov 1986: fig. 4, 7) and 1 broken piece (missing termination). According to all 26 definable burin verges, the burins typological structure can be summarized as follows: on truncation /lateral retouch types - 8 verges / 30.8%, angle type - 9 verges / 34.6%, dihedral type - 5 verges / 19.2%, carinated type - 4 verges / 15.4%. Thus, burins on truncation / lateral retouch and angle burins are dominant burin types in the tool-kit (together 65.4%). On the other hand, dihedral burins compose almost one fifth portion of all burins and a quite notable is presence of carinated burins here - the mentioned above possible objects for micro-blade production as well. Burins were mainly manufactured on blades (14 pieces) with also some other blank types used: 3 crested blades, 2 uncharacteristic debitage pieces, 5 flakes.

*End-Scrapers* :

There are defined the following their types: 3 simple flat items on flakes (fig. 3: 11-12; Formozov 1971: fig. 13, 6), 1 simple flat atypical item on flake, 1 item on a unilaterally retouched flake (fig. 3: 13), 3 small flat sub-circular items on flakes (fig. 4: 8) including 2 of them with a denticulate-like front (fig. 4: 9), 2 carinated items on chunks (fig. 4: 4, 7), 2 flat nosed items on flakes (fig. 3: 14).

*Truncations* :

Two of them (Amirkhanov 1986: fig. 4, 14) are obliquely retouched obverse truncations on a flake and a blade. One more obverse truncation (Formozov 1971: fig. 14, 8) is a straight obverse one on a blade.

*"Inverse Truncations"* :

Are quite peculiar typologically pieces with an inverse semi-steep treatment of a proximal or a distal end. Four of them can be recognized as initially elaborated items with a few inverse retouch scars (fig. 5: 4; Amirkhanov 1986: fig. 2, 1). Four other items are with regular inverse either a scalar (fig. 5: 3) or a sub-parallel / lamellar retouch (fig. 5: 5-6). All, but 1 chunk, these tools are made on different flakes including one core tablet (fig. 5: 5) with a mean length 3.4 cm ranging from 2.5 to 4.2 cm.

*A scaled tool* :

Is a flake with two opposite characteristic poles of use scars (fig. 4: 10).

*Denticulated and Notched pieces*:

Are represented by only a single piece each. Both these item are lateral dorsal ones made on flakes.

*Retouched pieces* :

With irregular and/or marginal retouch are subdivided into specimens on 5 blades, 2 flakes and 1 uncharacteristic debitage piece.

*Middle Paleolithic tool types* :

Consist of 3 convergent unifacial dorsal scrapers (fig. 4: 1-3) and an alternatively retouched item (Amirkhanov 1986: fig. 4, 10). All these pieces are made on flakes.

*"Non-geometric microliths"* :

Are represented by the following main types: 3 alternative "*lamelles Dufour*" on bladelets, 1 ventral lateral "*lamelle Dufour*" on a bladelet, 1 "*Krems point*" on a bladelet, 5 dorsal lateral and bilateral "*lamelles pseudo-Dufour*" (4 bladelets, 1 microblade). They are basically characteristic by a flat/semi-steep micro-scalar partial retouch (fig. 4: 11-13), although there are a few very typical pieces (an alternative "*lamelle Dufour*" and a dorsal bilateral "*Krems point*") with a regular micro-scalar retouch (fig. 4: 5-6).

*Hammerstones /Retouchers* :

These are 2 river pebbles 12.0 and 7.1 cm long with a clear series of specific striations from tools retouching processes as well as a hammerstone signs for the smaller-sized piece as well (Formozov 1971: fig. 16).

Waste from production and rejuvenation of tools :

These pieces occur only in a view of 4 primary and 2 secondary burin spalls. Their association with any burin types was not established.

Debris :

There are defined 69 chips (<= 1.5 cm), 49 chunks, 1 heavily burnt piece.

#### The Kamennomostskaya Cave, Lower finds complex general industrial attribution

In contrast to the Chulek-I not *in situ* but surely homogeneous industrially Early Aurignacian of Krems-Dufour type finds complex, the above-described Kamennomostskaya cave artifacts do not leave an impression on their homogeneous industrial characteristics although they were recovered from the cave's Pleistocene deposits. What reasons do we have for an industrial heterogeneous suggestion ? And is this suggestion really substantiated by any reasonable data ? Let us look at typological composition of the assemblage under the discussion.

The basic techno-typological component of the Kamennomostskaya cave, lower layer flints is composed of Early Aurignacian of Krems-Dufour type industry pieces. To this industrial component can be confidently related multiple blade/bladelet and bladelet reduction on production of elongated and mostly flat / incurvate and non-twisted bladelets, technologically, and, from typological point of view, it is seen through presence of carinated end-scrapers and "*lamelles Dufour*" of "*Dufour sub-type*",

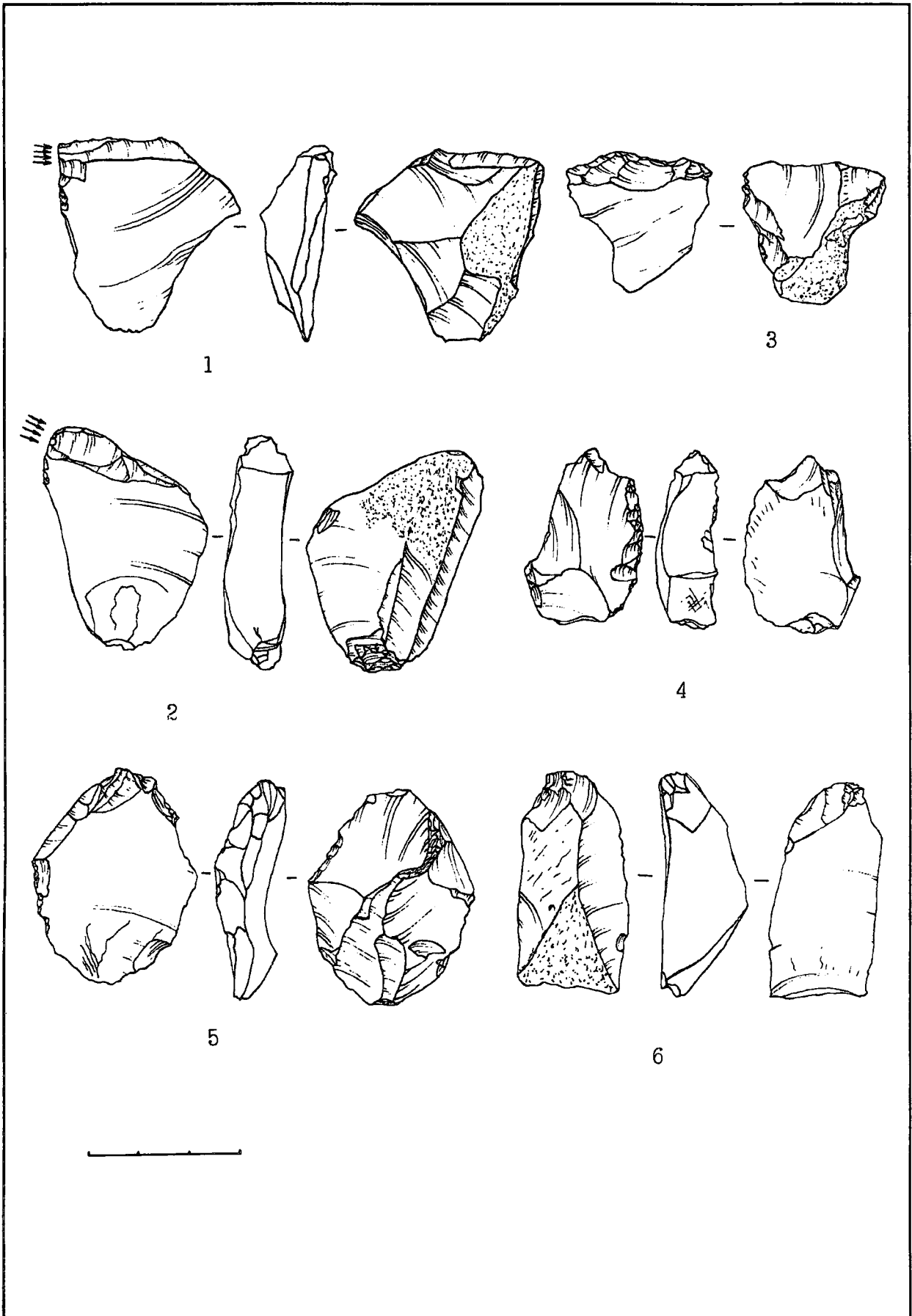


Figure 5 : Kamennomostskaya cave, lower layer (Northern Caucasus, Russia). 1 - 2 - carinated burins, 3 - 6 - "inverse truncations".

and a dominance among burins of angle and on truncation / lateral retouch types. Some truncations and a scaled tool can be also connected to this Early Aurignacian tool-kit. Thus, the Early Aurignacian "*fossiles directeurs*" are present in the assemblage and it is possible to state on this industry's dominant position there.

Another industrial component of the Kamennomostskaya cave, lower layer artifacts is a Middle Paleolithic one. A series of 3 convergent unifacial dorsal scrapers (fig. 4 : 1-3) is a good illustration of it. In no circumstances, these tools cannot be interpreted as just simply retouched flakes morphologically looking as Middle Paleolithic scrapers. Indeed, these items are Middle Paleolithic scrapers and, moreover, they have straight typological analogies in Northwestern Caucasian Micoquian assemblages of Barakaevskaya, Monasheskaya, Mezmaiskaya and Matuzka caves, Gubski-I rock-shelter. To these scrapers, we also can likely add a few core-like pieces (multiplatform exhausted cores and/or core fragments), some unretouched flakes and 2 hammerstones / retouchers on pebbles. Rarity of the Middle Paleolithic pieces among the Kamennomostskaya cave, lower layer flints is not surprising because the Northwestern Caucasian Micoquian occupations were with either ephemeral or short-term camps characteristics. Thus, we should separate the named Middle Paleolithic flints from the Early Aurignacian ones and connect them to a very ephemeral occupation of the cave by some bearers (high likely, Neanderthals) of Middle Paleolithic Micoquian flint treatment traditions. Mentioned by A.A. Formozov (1971: 114) his field observation that Middle Paleolithic "*points are found in the same layer and at the same elevation marks as Upper Paleolithic tools occur*" does not contradict to the above-made conclusion because, as we remember, all the cave's Paleolithic finds were excavated as originated from one archaeological layer in sediments of varying thickness from 1.0 to 1.9 meter with no signs on any occupational floor(s) there.

Then, the Kamennomostskaya cave Aurignacian implements are also characteristic by some typological elements that are not quite typical for Early Aurignacian of Krems-Dufour type industries. Here we mean the presence of carinated burins (15.4% of all burin verges), a rather significant total number of carinated and dihedral burin types (34.6% of all burin verges), an occurrence of a serial "inverse truncations" and 2 flat nosed end-scrapers. All these tool types are well known from lower Upper Paleolithic layer of Gubski-I rock-shelter that is presumably related to Paudorf Interstadial and considered to be more late geochronologically in comparison to the Kamennomostskaya cave materials (Amirkhanov 1986). Accordingly, arises a question on a Late Aurignacian occupation within the Kamennomostskaya cave, lower layer, too. Do we have enough data for such the suggestion? The answer is rather "no". The negative answer is explained by both a very different numerical representation of the enumerated tool types and other typological peculiarities in the collection of Gubski-I rock-shelter. Therefore, Amirkhanov's suggestion (Amirkhanov personal communication 2001) of some generic connections

between finds complexes of Kamennomostskaya cave, lower layer and Gubski-I rock-shelter, lower Upper Paleolithic layer seems to be the more likely one. It is worth noting here that aside from similar Aurignacian tool types (carinated burins and flat nosed end-scrapers), there is one more peculiar typological "connecting-link" - a presence of specific "inverse truncations" in both assemblages. This tool type is, by the way, seems to be completely unknown in Upper Paleolithic of Eastern European Plain and Northern Caucasus occurring only in these two Northwestern Caucasus finds complexes. Kh.A. Amirkhanov (1986: 43-44) has found for these "inverse truncations" only typologically similar pieces in publication of A. Bohmers on Early Magdalenian of Mauern cave (Bavaria, Germany). The present author, who among some other typological elements recognized these "inverse truncations" in the Kamennomostskaya cave, lower layer assemblage for the first time, also found this tool type in Early Magdalenian context but on French materials called there as "*Piece de la Bertonne*" (Lenoir 1987; Demars, Laurent 1989: 88-89), as well as in Moravian Late Aurignacian / Epi-Aurignacian context - some "*Aurignacian burins of Kohoutovice type*" (Oliva 1987: 24-25; 1993: 42, 50). All in all, there are indeed a series of Aurignacian typological elements connecting the two finds complexes under discussion. We admit their relation to the Kamennomostskaya cave, lower layer Early Aurignacian assemblage and their possible "industrial importance" will be discussed once again during some common considerations on Chulek-I open-air site and Kamennomostskaya cave Early Aurignacian industries.

Finally, there is the last "foreign" artifact in the Early Aurignacian assemblage here. It is an alternately retouched item included in the group of Middle Paleolithic tool types above only because of its seeming a Middle Paleolithic treatment at first sight. But this isolated item, as was supposed by Kh.A. Amirkhanov (1986: 29), "*is possibly appeared in the Upper Paleolithic layer through a krotovina from overlying Neolithic or Chalcolithic level*". The present author is completely agree with the Amirkhanov's suggestion and, moreover, this much late piece has actually a double patina - retouch facets are "more fresh" than the blank's surface.

Thus, the Kamennomostskaya cave, lower layer flint assemblage should be regarded as not a homogeneous one but in reality having no less than three heterogeneous industrial components - Upper Paleolithic Early Aurignacian of Krems-Dufour type, Middle Paleolithic Micoquian and Neolithic / Chalcolithic ones. It is also clear that the Early Aurignacian component is the most informative one from which some serious data for comparisons with other Early Aurignacian finds complexes is possible to gain.

**Some thoughts on Chulek-I open-air site and Kamennomostskaya cave Aurignacian assemblages position against general techno-typological characteristics of Early Aurignacian of Krems-Dufour type industries**

Taking into consideration all the so-called "*fossiles*

*directeurs*" of Early Aurignacian of Krems-Dufour type industries, there is no question that the above-described Aurignacian assemblages of Chulek-I open-air site and Kamennomostskaya cave belong to this Aurignacian type. Any other industrial interpretation of these materials is impossible to make. At the same time, these Eastern European Aurignacian assemblages have some "industrial deviations" within general flint treatment frameworks of the European Early Aurignacian of Krems-Dufour type finds complexes which deserve a closer look at them.

First of all, the "industrial deviations" are actually typological ones while, from a technological point of view, the Chulek-I and Kamennomostskaya materials are quite within main technological data for the Early Aurignacian of Krems-Dufour type, as was shown before. It is even needed to mention here that the present author, while classifying blades, bladelets and micro-blades of these two sites, has an impression of doing "blady" debitage classification of Siuren-I Units "H" - "G" from the 1990s excavations - so similar they look like. The only technological aspect deserves to be mentioned does relate to the Kamennomostskaya materials where 16.9% of bladelets are characteristic by twisted general profile and "off-axis" removal direction, while there are only 6.3% of such bladelets in the Chulek-I assemblage. Although these bladelet data do not change much in the bladelets general characteristics, as there are also some bladelets morphology characteristics variability for the Siuren-I Units "H" - "G", they help "to lay a bridge" to some "typological deviations" of the Northwestern Caucasus site's assemblage and then to compare them with the Lower Don site's assemblage typological features. So, typological peculiarities of the Kamennomostskaya cave Aurignacian tool-kit consist on an occurrence there of carinated burins, "inverse truncations", flat nosed and sub-circular flat end-scrapers that are much more characteristic for Late Aurignacian industries either of Krems-Dufour type or with no "non-geometric microliths". Moreover, these very indicative tool types of the Kamennomostskaya Aurignacian assemblage do have partial comparisons with the Chulek-I Aurignacian tool-kit - a presence of exactly the same small flat sub-circular end-scrapers. "Non-geometric microliths" of these two finds complexes are also peculiar by some usage of a fine marginal abrasive retouch for their secondary treatment that is again the most characteristic for the Late Aurignacian of Krems-Dufour type industries.

How might be interpreted these Aurignacian "industrial deviations" of the two discussing Eastern European Early Aurignacian assemblages? The most probable explanation seems to lie in an evolutionary way. There is no other way than to consider them as some changing trends toward formation of a new typological structure being then characteristic for the Late Aurignacian of Krems-Dufour type industries. By the way, the Siuren-I (Crimea) materials with appearance of dihedral burins only in upper levels of Units "H" - "G" archaeological sequence also may point toward some changing typological fluctuations into a direction on establishing of new Late Aurignacian tool-kits charac-

teristics that are now under the analyses.

In light of this suggestion, the Eastern European materials might be very important not only as "representatives" of the Early Aurignacian of Krems-Dufour type industries at the east edge of Europe, but also as showing a typological way for possible tracing of changing industrial trends from Early Aurignacian of Krems-Dufour type industries to the Late Aurignacian ones.

## Conclusions

The observation of Eastern European Upper Paleolithic assemblages on the basis of Early Aurignacian of Krems-Dufour type industries techno-typological "*fossiles directeurs*" allowed us to isolate two Early Aurignacian of Krems-Dufour type assemblages for Chulek-I open-air site and Kamennomostskaya cave, lower layer materials. These two sites together with Siuren-I finds complexes of the 1920s excavations Lower layer / the 1990s excavations Units "H" - "G" without doubt now do testify the extension of the European Early Aurignacian of Krems-Dufour type industries further to the East in Europe - into the Crimea, Lower Don area of northeastern Azov sea region and Northwestern Caucasus. The interesting paleogeographical aspect for the Eastern European sites is that these sites were principally situated in one and the same geographical region. Here we mean that Crimea during Last Glacial time period from Lower Pleniglacial (*ca.* 73 000 BP) to Second Pleniglacial (*ca.* 18-17 000 BP) was not the peninsula as now, but it was situated at the southernmost edge of vast continuous territories of Eastern Europe from Eastern Balkans in the west to Northern Caucasus in the east when the Azov sea did not separate Crimea from Lower Don area and Northwestern Caucasus, the Don river flowed into the Black sea and rivers of the eastern Crimea flowed into the Don river. So, the new data testify that the claimed Pan-European status for the discussing Early Aurignacian type industries receives its actual Pan-European status. Taking into consideration location of the three Eastern European sites, now we also can more specify territorial extension of these industries in Europe - from Pyrenean peninsula in the West to Northwestern Caucasus in the East.

Let us try to suppose a way for explanation of the striking archaeological similarity of all European Early Aurignacian of Krems-Dufour type finds complexes through the aspect of their distribution at the southern geographical belt throughout the Europe. Probably, we should explain a quite uniform flint inventory and accompanying it bone tools with personal adornment pieces of this Early Aurignacian type by a special adaptation system of *Homo sapiens* groups (bearers of this Aurignacian cultural tradition) to forest-steppe foothill landscapes and environments in between 40° and 46-48° N latitude at the south of Europe with a wide range of hunting possibilities on ungulates there through a usage of projectile hunting weapons with Aurignacian flint "non-geometric microliths". Moreover, the supposed adaptation system favored a quick spreading of Early Aurignacian *Homo sapiens* throughout the Europe during a very short in histori-

cal terms time period in between *ca.* 36 500 - *ca.* 30 000 years ago. Therefore, our primary task is to define this adaptation system through a detailed analysis of the most informative *in situ* sites like Siuren-I in the East and Fumane, Riparo Mochi, La Laouza, l'Esquicho-Grapaou in the West.

On the other hand, the seeming some changing typological trends from Early to Late Aurignacian of Krems-Dufour type industries traced on the Eastern European materials of Kamennomostskaya cave and Chulek-I open-air site deserve a further checking and application for the Western European materials.

So, our expanding of the European Early Aurignacian of Krems-Dufour type into Eastern Europe puts more questions than gives answers. A usual situation - when more work is done, more work is needed to be done.

### Acknowledgments

I would like to express my sincere gratitude to M.D. Gvozdover and Eu.V. Bulochnikova for their kind permission to study the lithic collections of Chulek-I site and Kamennomostskaya cave in April 2001, stored at Anthropology Museum of Moscow State University (Moscow, Russia). The paper is prepared in the frames of project "Funktionale Variabilitat im Spaten Mittelpalaolithikum auf der Halbinsel Krim, Ukraine" of Fund "Deutsche Forschungsgemeinschaft".

### References

Amirkhanov, Kh.A. 1986. *Upper Paleolithic of Kuban area*. - Moscow, - 113 p. (In Russian).

Anikovich, M.V. 1992. Early Upper Paleolithic industries of Eastern Europe. *Journal of World Prehistory*, vol. 6, N 2, p. 205-245.

Bartolomei, G. et al. 1994. La Grotte de Fumane. Un site aurignacien au pied des Alpes. *Preistoria Alpina*, vol. 28, p. 131-179.

Bonch-Osmolowski, G.A. 1934. The results of the investigations in the Crimean Paleolithic. *The Proceedings of the Second International Congress of the Association for the Quaternary Investigations in Europe*, vol. 5, p. 114-183, (In Russian).

Cohen, V.Yu., Stepanchuk, V.N. 1999. Late Middle and Early Upper Paleolithic evidence from the East European Plain and Caucasus : a new look at variability, interactions, and transitions. *Journal of World Prehistory*, vol. 13, N 3, p. 265-319.

Cohen, V.Yu., Stepanchuk, V.N. 2000. Variability of a transition from Middle to Upper Paleolithic: new data from Eastern Europe. *Stratum plus "Time of Last Neanderthals" (St.-Petersburg-Kishinev-Odessa-Bucuresti)*, N 1, p. 31-53. (In Russian).

Demars, P.-Y., Laurent P. 1989. Types d'outils lithiques du Paleolithique superieur en Europe. In *Cahiers du Quaternaire*. N 14. - 178 p. Paris.

Demidenko, Yu.E. 1998. The Aurignacian of Siuren-I (Crimea): new data on 1990s excavations. In *Thesis of papers represented at Conference "Problems of Archaeology in South-Eastern Europe"*, Rostov-na-Donu, p. 16-17, (In Russian).

Demidenko, Yu.E. 1999. The Siuren-I (Crimea) Aurignacian of Krems-Dufour type: its variability and place in the European Aurignacian. In *Thesis of papers represented at International Conference "Local differ-*

*ences in Stone Age"*, p. 113-115. St.-Petersburg. (In Russian).

Demidenko, Yu.E. 2000. "The Crimean Enigma" - Middle Paleolithic artifacts within Early Aurignacian of Krems-Dufour type at Siuren-I: alternative hypothesis for solution of the problem. *Stratum plus "Time of Last Neanderthals" (St.-Petersburg-Kishinev-Odessa-Bucuresti)*, N 1, p. 97-114. (In Russian).

Demidenko, Yu.E. 2001. Aurignacian problems and Siuren-I (Crimea) as a pivotal site of Aurignacian of Krems-Dufour type industries in Eastern Europe. In *Thesis of papers represented at Conference "Problems of history and archaeology in the Ukraine"*, p. 17-18. Kharkov. (In Russian).

Demidenko, Yu.E., Chabai, V.P., Otte, M., Yevtushenko, A.I., Tatartsev, S.V. 1998. Siuren-I, an Aurignacian Site in the Crimea (the Investigations of the 1994-1996 Field Seasons). In M. Otte (ed.). *Anatolian Prehistory. At the Crossroads of Two Worlds*. vol. 1, Liege: ERAUL N 85, p. 367-413.

d'Errico, F., Zilhao, J., Baffier, D., Julien, M., and J. Pelegrin. 1998. Neandertal acculturation in Western Europe? A critical review of the evidence and its interpretation. *Current Anthropology*, vol. 39 (Supplement), p. 1-44.

Formozov, A.A. 1971. Kemennomostskaya cave - multi-layer site in Kuban area. *Materials and Investigations of the Archaeology of the USSR (Leningrad)*, vol. 173, p. 100-116. (In Russian).

Gvozdover, M.D. 1959. Paleolithic surveys in Lower Don area in 1957-1958 *Newsletter of Rostov museum of local lore*, N 1 (3), Rostov, p. 5-12. (In Russian).

Gvozdover, M.D. 1964. Upper Paleolithic sites in Lower Don area. In P.I. Boriskowski and N.D. Praslov. *Paleolithic of Dnieper river basin and Azov sea area*. Moscow-Leningrad, p. 37-41. (In Russian).

Hoffecker, J.F. 1988. Early Upper Paleolithic sites of the European USSR. In J.F. Hoffecker and C.A. Wolf (eds.). *The Early Upper Paleolithic. Evidence from Europe and the Near East*. British Archaeological Reports International Series 437, p. 237-272.

Lenoir, M. 1987. La piece de la Bertonne, "fossile directeur" du Magdalenien ancien? *BSPF (Paris)*, vol. 84, N 6, p. 167-171.

Mellars, P. 1989. Major issues in the emergence of modern humans. *Current Anthropology*, vol. 30, N 3, p. 349-385.

Mellars, P. 1996. *The Neandertal Legacy*. Princeton: Princeton University Press.

Oliva, M. 1987. Aurignacien na Morave. *Studie Muzea Kromerizska* 87. 128 p. Kromeriz.

Oliva, M. 1993. The Aurignacian in Moravia. In H. Knecht, A. Pike-Tay, and R. White (eds.). *Before Lascaux: the complex record of the Early Upper Paleolithic*, p. 37-55. New York: CRC Press.

Straus, L.G. 1995. The Upper Paleolithic of Europe: an overview. *Evolutionary Anthropology*, vol. 4, N 1, p. 4-16.

Vekilova, E.A. 1957. Siuren-I site and its place among Paleolithic sites of the Crimea and neighboring territories. *Materials and Investigations of the Archaeology of the USSR (Moscow)*, vol. 59, p. 235-323. (In Russian).

Zilhao, J., d'Errico, F. 1999. The chronology and taphonomy of the Earliest Aurignacian and its implications for the understanding of Neandertal extinction. *Journal of World Prehistory*, vol. 13, N 1, p. 1-68.