

The Upper Paleolithic of Crimea: some new data applications

Vadim COHEN

Abstract

This paper presents some new data applications relevant to the Crimean Upper Paleolithic. The sites included in this study are: Siuren I, Buran-Kaya III, Adzi-Koba, Zaskalnaya IX, Vishennoye and Skalistiy. The approach summarizes recent chronological, cultural and subsistence evidence.

Résumé

Cet article présente des données nouvelles relatives au Paléolithique supérieur de Crimée. Les sites repris dans cette étude sont : Siuren I, Buran-Kaya III, Adzi-Koba, Zaskalnaya IX, Vishennoye et Skalistiy. Les aspects chronologiques, culturels et économiques sont ici développés sur base des résultats les plus récents.

1. INTRODUCTION

Our knowledge about the Upper Paleolithic of Crimea is much better today than it was only a few years ago, thanks to the renewal of excavations in Siuren I (Otte *et al.*, 1996; and this volume), investigations in Vishennoye II (Kolosov *et al.*, 1990; Yanevich, 1992; Cohen, 1991, 1993), Buran-Kaya III (Yanevich & Stepanchuk, in press) and in the Skalistiy rockshelter (Cohen *et al.*, in press).

Supposedly, as represented in the literature, the stratigraphic sequence of Siuren I corresponds to the general structure of the regional Upper Paleolithic. This idea is based on the conviction that Siuren's sequence reflects either long-term evolution of the Aurignacian (Bonch-Osmolovski, 1934) or one cultural development during the entire Upper Paleolithic (Vekilova, 1957, 1971). It is quite reasonable to suppose that both of these points of view are contradicted by modern evidence.

In this paper, we shall try to argue the following: (1) the upper chronological boundary of Siuren's sequence is limited to the beginning of the Late Glacial, (2) the Upper Paleolithic of Crimea represents a continuous—but incomplete—sequence, where multi-cultural development must be taken into account, and (3) the Upper Paleolithic economy of this region reflects different hunting specializations which replaced each other through time.

The current state of Upper Paleolithic investigations in the Crimea can be described as the

“accumulation of data”. For this reason two additional remarks must be made. First, any current approaches must be viewed as working hypotheses only. Second, these hypotheses must be compared with the new data.

2. METHOD

Explanations of cultural change require combined analyses. Hence, despite the volume of available information, technological, chronological and economical features must be taken into consideration concurrently.

1. Cultural determination can be made at three different levels: (a) type of industry, (b) industry, and (c) technocomplex. Current available data do not allow interpretation on level “a”, where a broad spectrum of various information is usually required. The Shankobian findings are, however, a unique exception.

2. A chronological approach uses radiocarbon data with estimation of cultural stages and chronological horizons in terms of both duration and qualitative changes in cultural development.

3. An economic study may be conducted using natural resources data and spatial structure in technological context. However, only limited “presence/absence” studies (see Monks, 1981) can be undertaken at this time, with respect to the Crimean Upper Paleolithic.

3. DATA ANALYSES

The history of Crimean Upper Paleolithic research represents many attempts to locate new sites with little success (see Vekilova, 1971). It is worthy to note that the search strategy was extended to include open-air sites after 80 years (Vishennoye II, Skalistoye I, II, Biyuk-Karasu II, VI, XVI) [Kolosov *et al.*, 1990]. However, the majority of recognized open-air sites contain few materials: they are just "findspots". A list of sites where more substantial assemblages were found can be summarized as follows: Siuren I, Adzi-Koba, Buran-Kaya III, Zaskalnaya IX, Vishennoye II, Shan-Koba (which is not described below), and the Skalistiy rockshelter.

3.1. Siuren I

This is a multi-layer site in the Belbek valley (South-western Crimea) studied by K.S. Merezkovski (1879–1880), G.A. Bonch-Osmolovski (1926–1929), L.M. Tarasov (1982) and most recently, by a common Belgo-Crimean expedition (Bonch-Osmolovski 1934; Vekilova, 1957, 1971; Otte *et al.*, 1996; and this volume). A nine-meter profile records three stratigraphic units, each of them consisting of several cultural horizons. Unfortunately, old excavation results were published without microstratigraphical information. These units were formed during comparatively long-term chronological time spans. For this reason, features of different Paleolithic taxons were registered in lower, middle, and upper units. Excavation data yielded abundant organic material (Vekilova, 1971).

The assemblage of the lower layer (Lower Siuren) represents the prismatic knapping technique. Endscrapers predominate over burins. Among the latter, straight dihedral, multi-faceted and burins on retouched truncation must be noted. Blade endscrapers and core-shaped endscrapers predominate over other types. Additionally, numerous backed blades and bladelets with fine inverse retouch (Dufour type) are present. Middle Paleolithic sidescrapers and points also provide a comparatively numerous series.

The assemblage from the middle layer (Middle Siuren) retains a typological character of underlying unity with the lower layer (small size of pieces, developed Dufour technique). Nevertheless, structural changes in typological groups must be taken into account. The quantity of Middle Paleolithic tools is not significant. Core-shaped endscrapers are absent, at least according to old excavation data. The main changes in this

industry are the presence of both a slight backed component and an increase in the use of "Dufour" retouch.

The assemblage of the upper layer (Upper Siuren) reflects a new typological structure with respect to variability in the knapping technique, evidence by the occurrence of various cores with two striking platforms. Retouched Dufour blades are absent as well as any blades with a curved profile. The group of inserts represents a combination of non-geometric (numerous backed blades) and geometric types (few crescents and rectangles) [fig. 1].

3.2. Adzi-Koba

This cave site is located on the western slope of Karabi-Yaila. Upper Paleolithic remains are associated with a yellow clay (Trusova, 1940). The lithic industry is the same as that in the lower and middle layers of Siuren I, although more detailed identification of the lithic industry is not yet available. S. A. Trusova affiliates the lower layer of Adzi-Koba with the upper layer of Siuren I. E. A. Vekilova suggests an age of Middle Siuren (Vekilova, 1971). However, the data analyzed do not support either view. More than likely, the Upper Paleolithic layer of Adzi-Koba corresponds to the upper layer of Siuren I (l.l.). The presence of reindeer remains in both sites supports this alternate view (table 1).

3.3. Buran-Kaya III

This multi-layer site is located on the right bank of the Burul'cha River (Eastern Crimea), at the foot of a limestone outcrop. Findings are not yet published, except for general information (Yanevich & Stepanchuk, in press). A. A. Yanevich argues for the following stratigraphic sequence: two Middle Paleolithic assemblages (l. 9, 10, 7, where layer 7 is subdivided into three sub-units). Upper Paleolithic assemblages (l. 6) represent a sequence from three living floors. Layer 5 contains the Shankobian industry. And, finally, layer 4 is connected with "Swiderian" remains. The top of this sequence includes both Late Neolithic and Bronze Age layers.

The Early Upper Paleolithic layer of this site (6:10) provides a small collection: two endscrapers, an edge burin, some backed bladelets, two crescents and some bifacial worked points similar to those of the Streletskaya culture. The assemblage obviously has features of heterogeneity (Yanevich & Stepanchuk, in press); what is necessary is more detailed stratigraphic definition.

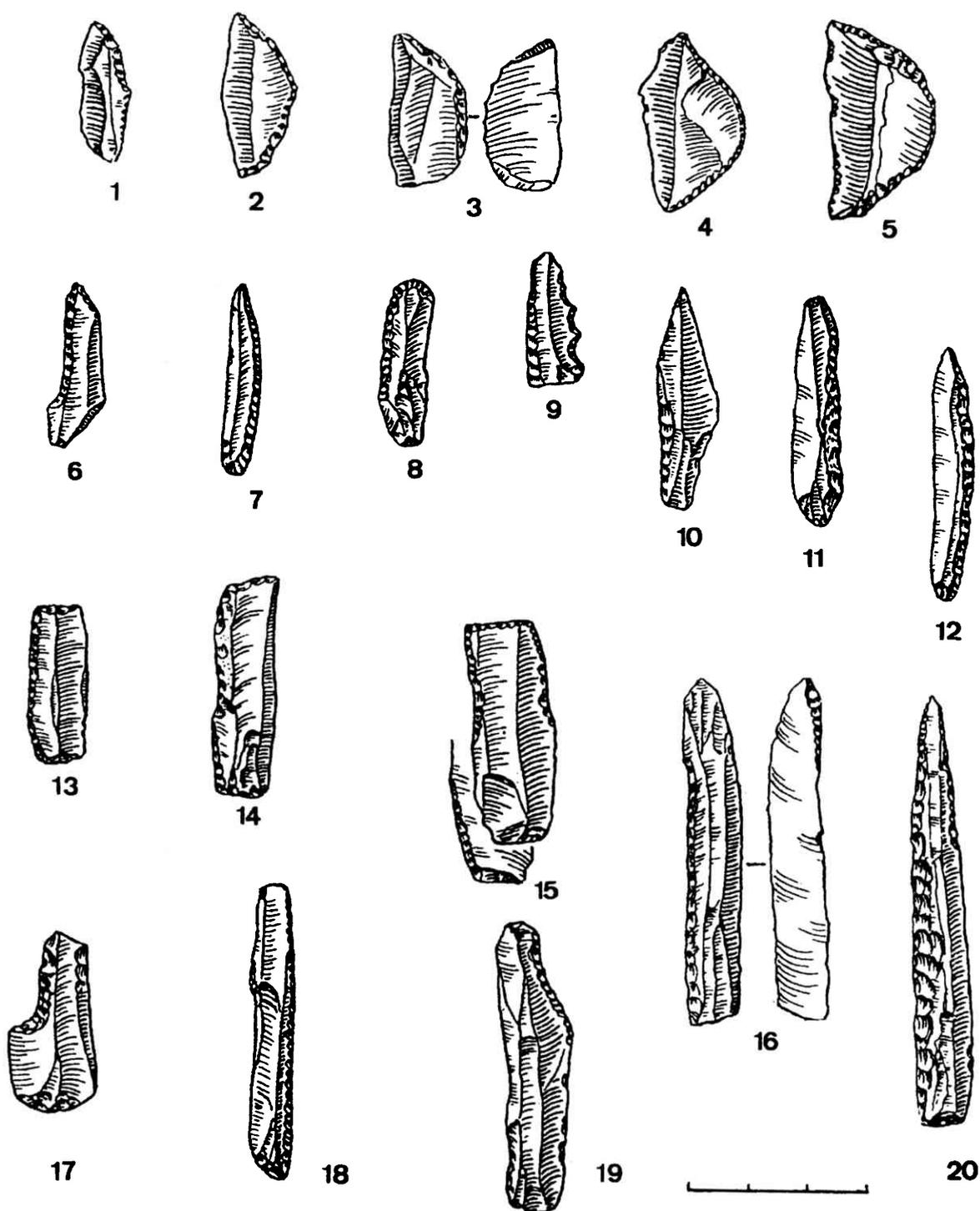


Fig. 1 — Flint assemblage from Upper Unite of Siuren I. 1-5. Arched backed points; 13-15. Rectangles; 8, 9, 17, 19. Retouched blades; 11, 16, 18. Backed blades; 7, 12. *Microgravettes*; 20. Gravettian point. (After Velikova, 1957).

Assemblages from levels I. 6:8 and 9 are typical Aurignacian industries, with small blades with fine edge retouch, flake-blade endscrapers, and dihedral burins. Since backed blades and core-shaped endscrapers were not found (Yanevich & Stepanchuk, in press), this layer is ascribed to the Middle Siuren horizon (table 2).

Assemblages from levels I. 6:6 and 7 depict industries with an evolved backed blade component. Layer 5 yields a Shankobian industry, according to the presence of heavy arched and trapezoidal bipoints. Layer 4 includes a heterogeneous industry with both Swiderian points and microliths of Shankobian-type present. This assemblage can

Sites	Siuren I I.I.	Siuren I m.I.	Adzi-K. II.	Zask. IX	Siuren I up.I.	Skal. I.VI	Skal. III/3-III2	Zamil-K. I I.I.	Siuren II up.I.	
Cultures	Lower Siuren			?	Upper Siuren			Shankobian Early		
Species										
Bovines (<i>Bos</i> sp.)	*	*	*	*	*		*	*	*	
Saiga (<i>Saiga tatarica</i>)	*	*	*	*	*		*	*	*	
Giant deer (<i>Megaloceros giganteus</i>)	*	*	*	*	*		*	*	*	
Red deer (<i>Cervus elaphus</i>)	*	*	*	*	*		*	*	*	
Reindeer (<i>Rangifer tarandus</i>)	*	*	*	*	*		*	*	*	
Elk (<i>Alces alces</i>)	*	*	*	*	*		*	*	*	
Wild boar (<i>Sus scrofa</i>)	*	*	*	*	*		*	*	*	
Horse (<i>Equus</i> sp.)	*	*	*	*	*		*	*	*	
Extinct horse (<i>Equus hydruntinus</i>)	*	*	*	*	*		*	*	*	
Wild sheep (<i>Ovis ammon</i>)	*	*	*	*	*		*	*	*	
Ovicapripines	*	*	*	*	*		*	*	*	
Wolf (<i>Canis lupus</i>)	*	*	*	*	*		*	*	*	
Corsac fox (<i>Vulpes corsac</i>)	*	*	*	*	*		*	*	*	
Brown bear (<i>Ursus arctos</i>)	*	*	*	*	*		*	*	*	
Cave hyena (<i>Crocuta spelaea</i>)	*	*	*	*	*		*	*	*	
Badger (<i>Meles meles</i>)	*	*	*	*	*		*	*	*	
Hare (<i>Lepus europaeus</i>)	*	*	*	*	*		*	*	*	
Beaver (<i>Castor fiber</i>)	*	*	*	*	*		*	*	*	
Cave lion (<i>Panthera spelaea</i>)	*	*	*	*	*		*	*	*	
Lynx (<i>Lynx lynx</i>)	*	*	*	*	*		*	*	*	
Arctic fox (<i>Vulpes lagopus</i>)	*	*	*	*	*		*	*	*	

Table 1 -- Fauna from Upper Paleolithic sites of Crimea (after Velikova, 1957, 1971; Kolosov *et al.*, 1990; Otte *et al.*, in press; Cohen, 1994; Cohen *et al.*, in press).

	unc. B.P.		Sites	Cultures	Stage	Technocomplex	Economy
Final stage	— 8						
	— 10		Siuren II (Up.L.) Skalistic (L.L.) Siuren II (L.L.)	SIUREN	IV/2 IV/1	?	forest / steppe herb. hunting
			Skalistic (L. II) Skalistic (L. III.2) Skalistic (L. III.3)	SHANKOBIEN	I-III	EASTERN AZILIAN	
Late stage	— 12						
	— 14		Skalistic (L. IV) Skalistic (L. VII) Vishennoye ?	TRANSITIONAL	?		ovicapra hunting specialis.
		?	Skalistic (L. VI) Skalistic (L. V)	VISHENNOYE	?	?	
	— 16	?	Siuren I (Up.L.) ?	UPPER SIUREN	?	EASTERN EPIGRAVET.	
Middle stage	— 18						
	— 20						
	— 22	?	Zaskalnaya IX ?	?	?	EASTERN GRAVETIAN	
Early stage	— 24						
	— 26						
	— 28	?	Buran-Kaya (L.6:8,9) Adzi-Koba (L.L.) Buran-Kaya (L.6:10)	LOWER SIUREN	II	AURIGNAC.	saiga hunting specialis.
	— 30		Siuren I (Mid.L.)				
	— 32	?	Siuren I (L.L.)	LOWER SIUREN	I		

Table 2 — Hypothetical schema of Crimean Upper Paleolithic development.

be seen as affiliated with the so-called "Crimean Swiderian" (Zaliznyak & Yanevich, 1987) or Siuren culture (Cohen, 1995).

3.4. Zaskalnaya IX

This small closed cave is located in Southeastern Crimea in the upper part of Red Valley. A very small area of this cave was excavated by Yu.G. Kolosov. However, the limited collection includes typical Gravettian points (fig. 2).

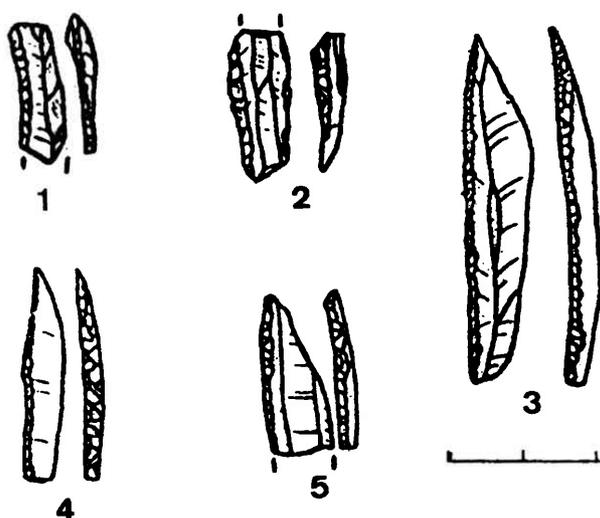


Fig. 2 — Flint assemblages from Zaskalnaya IX (up.l.). 1, 2, 5. Backed blades; 3. Gravettian point; 4. *Microgravette*. (After Kolosov *et al.*, 1990).

3.5. Vishennoye II

This open-air site is located in Eastern Crimea. The site probably occupied a large area on the first terrace of the Biyuk-Karasu River. Cultural remains were found in middle-size concentrations. Such a small structure was excavated by A.A. Yanevich in 1987 (1992). Excavation data registers three cultural layers (A, B, V), each subdivided into several horizons. The assemblage of layer B is quite distinctive, where backed pieces predominate among the tools. This group consists of backed blades, rectangles and diverse geometric points, including points with truncated base (Falita), points with oblique truncated base (elongated triangles) and narrow arched bipoints (Cohen, 1991, 1993). The assemblage is very special with respect to a lithic technique which includes both primary and secondary retouches (fig. 3).

3.6. Skalistiy rockshelter

This is a multi-layer site located in Southwestern Crimea within the small village of Skalistoye. The rockshelter is a part of an old cuesta in the most narrow fraction of Bodrak Valley. Excavations were conducted by Yu. G. Kolosov (1988–89) and subsequently by V. Yu. Cohen (1992–94). The stratigraphic sequence was studied on the basis of a multi-aspectual approach, using radiocarbon, palynological and faunal/microfaunal methods (Cohen *et al.*, in press).

A six meter profile shows the succession of nine lithological horizons (A–I) and seven cultural layers (I–VII). From multi-disciplinary data, the profile of Skalistiy reflects a Late Glacial succession (Dryas I–III). Three chronological groups must be taken into account: (1) Upper Paleolithic (l. VII–IV) – Dryas I; (2) Final Paleolithic (l. III/3–I), and (3) Mesolithic (l. 0).

Flint assemblages responsible for these units include three single cultural events: Upper Siuren (l. VII–V), Shankobian (l. III/3–I) and Kukrek (l. 0). Based on chronological and typological evidence, a preliminary interpretation of layer IV is that it reflects an Upper/Final Paleolithic transitional episode.

Assemblages from layers VII–V produced flake-blade industries with non-volumetric core reduction on prismatic cores with one striking platform. Endscrapers include flake, blade, and core-shaped endscrapers. Both the increase of endscrapers and the decrease of burins reflect the Upper Paleolithic sequence. Backed blades are associated with a small quantity of geometric points and microliths (fig. 4). Backed blades become rarer in layer IV and the occurrence of typical Shankobian pieces must be noted, although the general background of this industry is similar to that in preceding layers (fig. 5).

The early Shankobian assemblage (l. III/3) is a blade industry characterized by the use of large blanks and a diverse geometric composition (arched and trapeze-like bipoints, lunettes, Cheddar-Creswell points, curved backed points, Proto-Soviterre, pseudo-Zarzi and others) [fig. 6]. In addition to Shankobian development, some important typological biases can be registered: standardization and microlithization, decrease in the typological spectrum of points and increase in the geometric microlith group. Inserts corresponding to the Final Epigravettian (rectangles, backed blades and microgravettes), as well as any points with special hafting accommodation (tanged and shouldered points), do not quite correspond to the Shankobian.

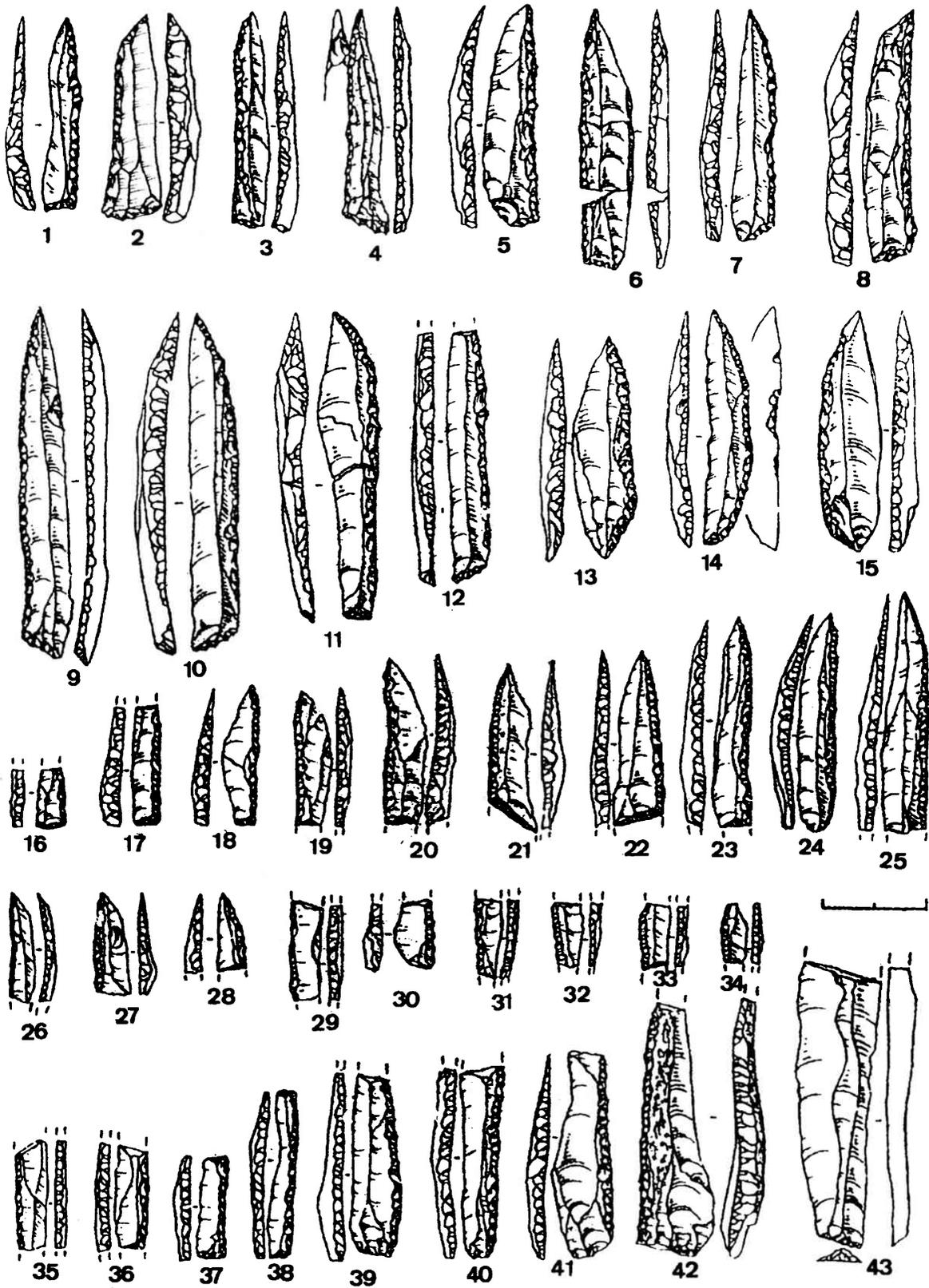


Fig. 3 — Flint assemblage from Vishennoye (I. "B"). 1-3, 5-8, 11, 12. Backed points with truncated base; 13-15. Arched backed points; 19-22, 26-28. Broken backed points; 37-38. Rectangles; 43. Truncated blade; 35, 36, 39-42. Backed blades. (After Yanevich, 1992).

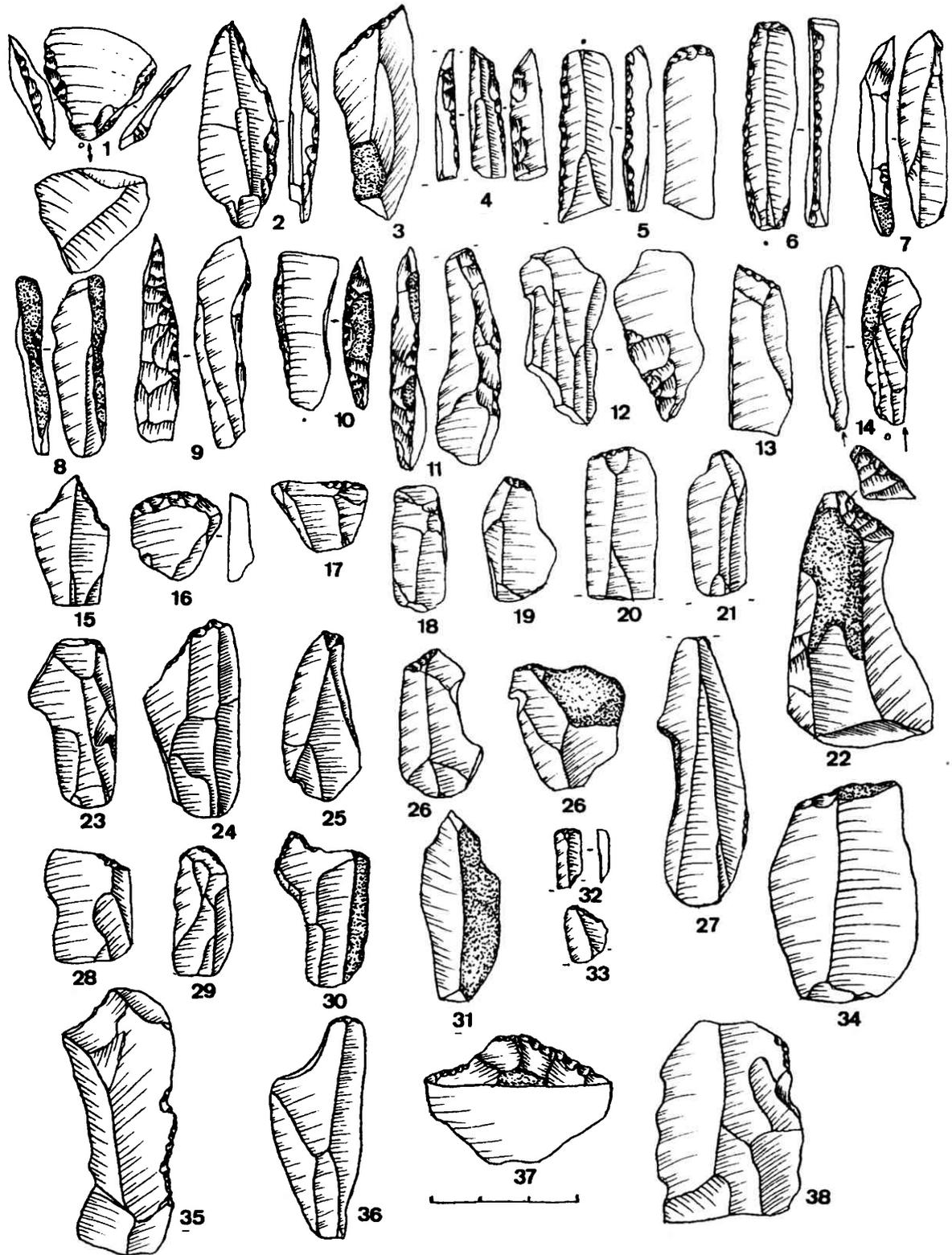


Fig. 4 — Flint assemblage from I.V of Skalistiy. 1. Triangle; 2. Curved backed point; 3, 13. Oblique truncated blades; 4–11. Backed blades; 16. "Nail" endscrapers and retouched pieces.

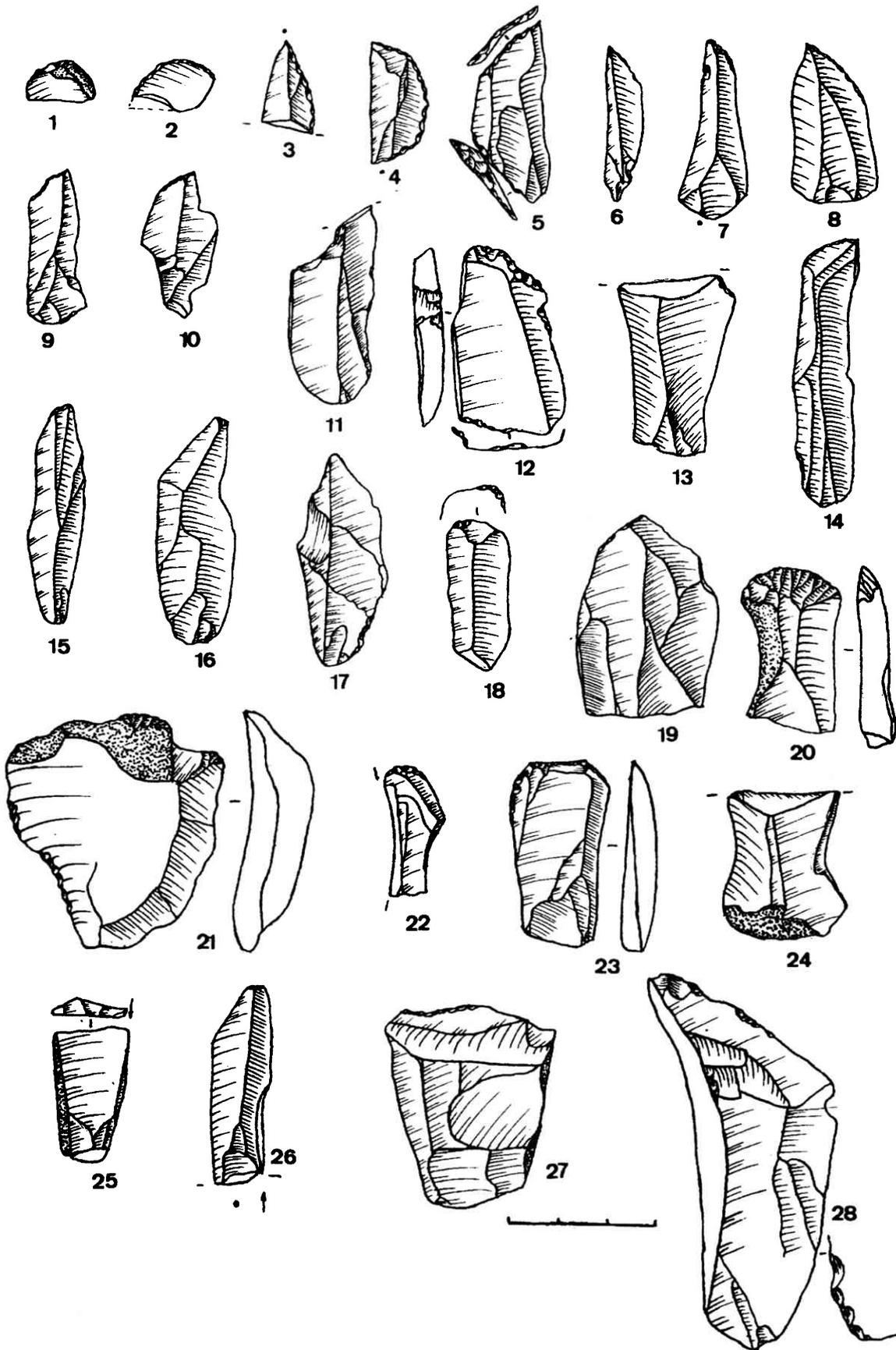


Fig. 5 — Flint assemblage from I.IV of Skalistiy. 1, 2. Crescents; 3, 4. Arched bipoints; 5. Bitruncated points; 15, 16. Truncated blades and retouched pieces.

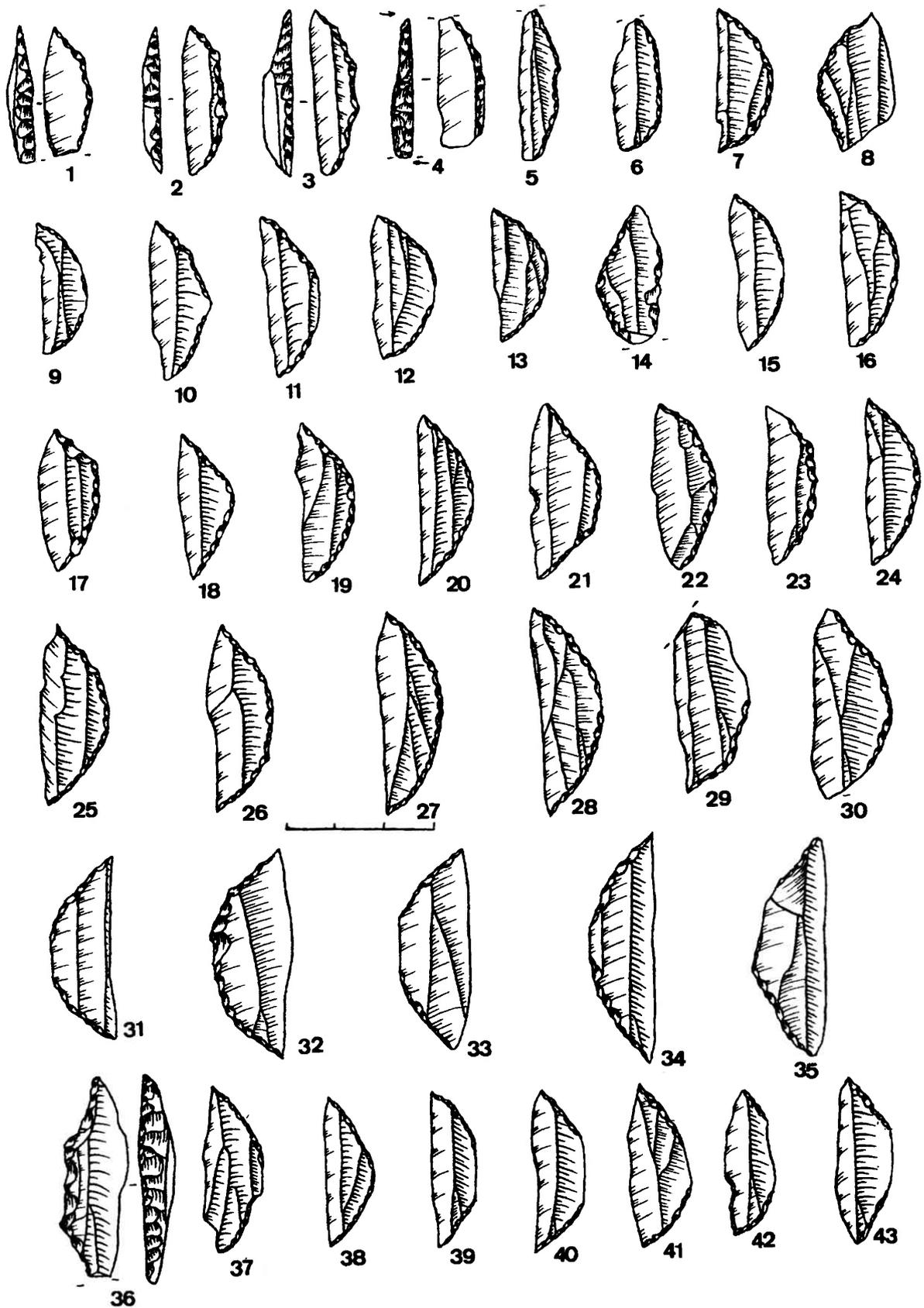


Fig. 6 — Flint assemblage from I.III/3 of Skalistiy. 1-5. Narrow arched bipoints; 6-33. Arched bipoints; 34-36. Cheddar-Creswell points; 37-43. "Pseudo-Zarzi" point and arched bipoints.

4. CHRONOLOGY

It is commonly accepted that any advances in Upper Paleolithic regional chronology are affected by the quantity and quality of radiocarbon data. However, research programs devoted to the Crimean Upper Paleolithic assigned importance to this method only recently. Initial results demonstrate a real need to rethink both regional chronology (Otte *et al.*, 1996; Cohen *et al.*, in press) and inter-regional data, with respect to Steppe/ Crimea Upper Paleolithic connections (Cohen & Otte, in press).

Presently available radiocarbon dates are summarized in fig. 7, with the exclusion of several unreliable dates from Buran-Kaya III and the Skalistiy rockshelter.

The middle layer of Siuren I yields two dates: 28450 ± 600 B.P. (OxA-5151) and 29950 ± 700 B.P. (OxA-5155) [Otte *et al.*, 1996]. Both fall within the Stillfried B interstadial, and not within a younger

stadial as claimed by previous researchers (see Anikovich, 1992). Layer 6:10 of Buran-Kaya III belongs to the same horizon, according to radiocarbon data: 28700 ± 620 B.P. (OxA-4128). Vishennoye II (I. B) yields a paleomagnetic estimate: 11700–11800 (Yanevich 1992: 30). However, this method requires caution and, actually, the age of this site appears too young.

Chronological findings from Skalistiy can be summarized as follows:

layer VII	14880 ± 180 B.P.	(OxA-5161),
layer VI	15020 ± 150 B.P.	(OxA-5167),
layer V	15510 ± 310 B.P.	(Lv-2133),
layer IV	14570 ± 140 B.P.	(OxA- 5163),
layer III/3	11750 ± 120 B.P.	(OxA-5165),
layer III/2	11620 ± 110 B.P.	(OxA-5164).

Upper Paleolithic layers are firmly linked with the well-defined Dryas I chronological period. Palynological data indicates that the Skalistiy rockshelter was not occupied during the coldest part of initial Dryas I (16000 B.P.). Pollen spectra

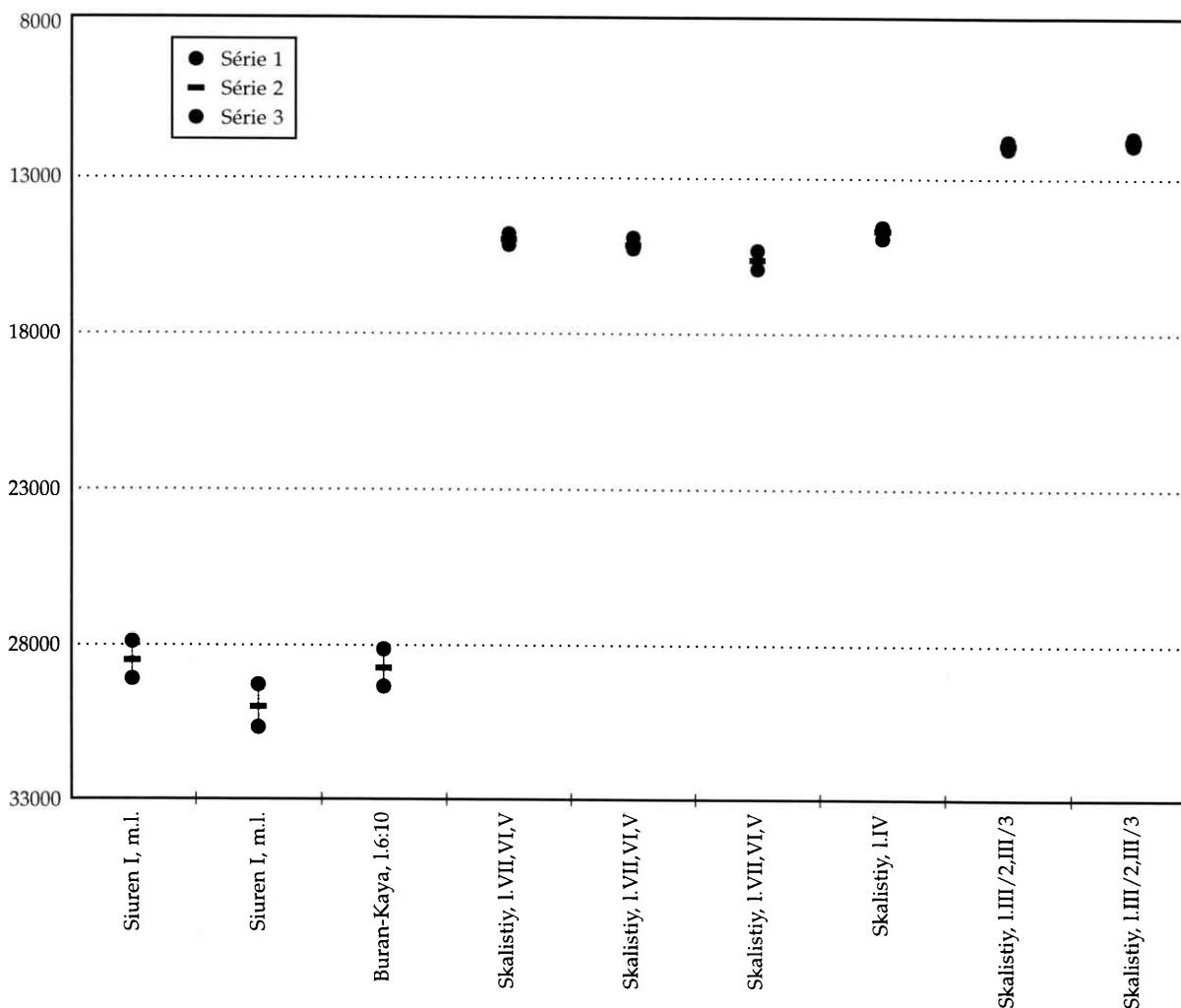


Fig. 7 — Radiocarbon data from Upper Paleolithic sites of Crimea (after Otte *et al.*, in press; Yanevich & Stepanchuk, in press; Cohen *et al.*, in press).

register a rise in temperature during Dryas I, which could probably be assigned to the Pre-Bölling stage. The Shankobian dates fall near the end of Dryas II–Early Alleröd. The chronological discontinuity between the transitional assemblage of layer IV and early Shankobian (l. III/3) corresponds to the Bölling interstadial. This sediment is associated with a rockfall horizon.

5. CULTURAL DIVISION

We cannot escape the conclusion that understanding of the Crimean Upper Paleolithic is as yet incomplete, except for the Final Paleolithic stage (see Bibikov *et al.*, 1994). Other periods present contradictory data.

Investigators of Siuren I assigned great importance to typological continuity in three stages of the Aurignacian (Bonch-Osmolowski, 1934) or as long-term evolution of one culture (Vekilova, 1957: 317). However, typological data reflect the existence of at least two cultural traditions. The lower and middle layers combined represent an Aurignacian technocomplex (Bonch-Osmolowski, 1934; Otte *et al.*, 1996). The assemblage of the middle layer shows some changes in this typological structure. First of all, a decrease of in the quantity of microtools (15 %) must be noted. Retouched Dufour bladelets predominate in this group. Core-shaped endscrapers, straight and multiple burins are also common. Nevertheless, the slight quantity of backed blades registers a distinct chronological shift. This even represents a particular tendency during a comparatively long-term chronological time-span. Thus, both lower and middle assemblages of Siuren I can be seen as being affiliated into one “Lower Siuren culture” in the framework of the Aurignacian technocomplex. At least a two-stage periodization of this culture can be supported: Stage 1, represented by Siuren I (l.l.) and Adzi-Koba (l.l.) and Stage 2, represented by Siuren I (m.l.) [fig. 2].

The Lower Siuren culture does not have any chronological or typological connections with the incipient Aurignacian of the Balkan area (see Kozłowski, 1993). It comes from the developed Aurignacian industries of the Prut-Dniester region, because there are no links with the Crimean Middle Paleolithic (Otte *et al.*, 1996). It seems, meanwhile, that the idea by M. V. Anikovich of the same chronological horizon for both the early Crimean Aurignacian and late Mousterian can be accepted, based on radiocarbon data

from the terminal Mousterian of Buran-Kaya III (33210 ± 900 OxA-4129). Buran-Kaya III contains mixed Middle/Upper Paleolithic typological features. Abundant Middle Paleolithic tools from Siuren I must be also emphasized in this connection (Vekilova, 1957). Several different ideas result:

- 1) One offers the existence of Middle to Upper Paleolithic transitional assemblages in the Crimea (V. N. Stepanchuk). It is a clear hypothesis, although the author is aware that the problem of the origin of the Upper Paleolithic is more complex than simple typological succession.
- 2) The fact that Middle and Upper Paleolithic tools were found together in the lower layer of Siuren I calls into question whether genetic continuity or interstratification accounts for this occurrence (M. V. Anikovich).
- 3) These data may be treated in the light of cultural contacts between indigenous and external populations.

From a typological standpoint, the industry of Siuren I (up.l.) can be ascribed to an “Eastern Epigravettian” connection. The knapping technique is oriented to the production of small blanks. Backed blades predominate among inserts, in association with geometric pieces. Assemblages from Skalistiy (l. VII–V) show some degree of similarity with Siuren I (up.l.): a notable lack of the Dufour technique, predominance of short endscrapers, the slight quantity of Aurignacian high endscrapers, and the combination of backed blades and rare geometric microliths. These data allows to place Siuren I (up.l.) and Skalistiy (l. VII–V) within the same group, as part of the same cultural phenomenon—“Upper Siuren culture” (table 2).

Unfortunately, Siuren I (up.l.) has no radiocarbon data. However, remains of Arctic fox and megaceros assign this layer to a colder climate span comparable to Lower Skalistiy, probably to the Last Glacial Maximum or to the beginning of Dryas I.

The small assemblage from Zaskalnaya IX is clearly Gravettian. It likely falls within the chronological time-span between the Lower Siuren and Upper Siuren cultures. However, detailed estimation of this assemblage is not currently possible.

There is no doubt that the assemblages of Vishennoye depict particular features in the cadre of the Crimean Upper Paleolithic which qualify it as a separate cultural phenomenon—the Vishennoye culture (Cohen, 1991, 1993). Another point of view is presented by A. A. Yanevich, who ascribes the Vishennoye site to the Upper Molodova culture of the Dniester area (1992). A common

point of this discussion is the supposed migratory character of the Vishennoye culture. The main typological features of this culture belong to distinct chronological and cultural contexts. Points with truncated base predominate in the toolkit of the Pushkarevskaya culture in association with shouldered points (16755 ± 605 B.P.: QC-899, 19010 ± 220 B.P.: AA-1389) [Rogachev & Anikovich, 1984; Svezhentsev, 1993; table 2]. Within the Upper Paleolithic of the steppe area, these points occur in assemblages of the Kamennaya Balka culture (14670 ± 105) [Leonova, 1994] and the Leont'evka site (Final Paleolithic – ?) [Olenkovski, 1983]. In the Magdalenian context of western Europe, similar points are found at the Gare de Couze site (Bordes & Fitte, 1964). These points are firmly connected with the Imeretian culture from the Caucasus which existed during the middle stage of the Upper Paleolithic—Sakaziya (Bader, 1984). Finally, long-backed points with truncated base from Vishennoye are similar to those in the Falitian industry of the Geometrical Kebaran. This may be due to several factors. Neither of the cultural groups defined above can be completely identified with Vishennoye. The “Dufour” technique and various micropoints usually associated with the Aurignacian—Eastern Gravettian of the Black Sea coast are not represented in the Vishennoye assemblage. Hence this migratory culture probably originated from the Near East—Caucasus area.

The diverse geometric industries in the Upper Paleolithic of the Eastern Mediterranean fall within the Dryas I period: the Final Epigravettian of Italy; assemblages such as I. IX–VIII of Crvena Stena in the Balkans; the beginning of the Geometrical Kebaran sequence and unit VI of Öküzini cave in Anatolia (Bietti, 1990; Yalcinkaya *et al.*, 1995). It is quite reasonable to suppose that Vishennoye culture also belongs to this chronological horizon (table 2).

The Shankobian and Siuren cultures close the Crimean Upper Paleolithic sequence. Shankobian assemblages are comparatively homogeneous during three stages of development (Bibikov *et al.*, 1994). Typological divergence coincides with the beginning of the Holocene when changes in both spatial structure and subsistence strategy took place. Some different types of industries can be seen within this culture affiliation (Shan-Koba, Fat'ma-Koba, Siuren II).

The investigations in the Skalistiy rockshelter permit the suggestion of a local origin for the Shankobian with influence from Upper Siuren and, probably, Vishennoye cultures as the result

of social interactions between them. Chronostratigraphical data register the beginning of the “transitional episode”, which underlies the early Shankobian during Bölling—beginning of Dryas II (Cohen *et al.*, in press).

In accordance with tradition, the Shankobian seems to be affiliated with the so-called Azilian-Romanellian circle of southern Europe (Bibikov *et al.*, 1994). However, comparative analyses show that the Shankobian of Crimea, the steppic site of Beloles'e, the Sosruco culture in the Caucasus and, probably, the Pribalhansraya culture in the East Caspian coastal region form a separate unit which could be called the “Eastern Azilian” (Cohen *et al.*, in press).

Thus, the Upper Paleolithic of the Crimea is a multicultural prehistoric phenomenon. Typologically, the Early Upper Paleolithic belongs to the Central European Aurignacian, while the Late Upper Paleolithic, after the Last Glacial Maximum, appears firmly connected with Mediterranean cultural traditions.

6. SUBSISTENCE STRATEGY

Yu. G. Kolosov argues that the low number of Upper Paleolithic sites in the Crimea relative to numerous Middle Paleolithic ones reflects changes in settlement pattern (Kolosov *et al.*, 1990). Recently, it has become clear that subsistence strategies of Middle Paleolithic groups in the Crimea result in diverse settlement patterns (Chabai *et al.*, 1995) and the Final Paleolithic offers variability in economic behaviour (Cohen, in press). Therefore, some data concerning both settlement patterns and hunting specialization can be considered within this frame of reference.

6.1. Flint procurement and settlement pattern

Within the Crimean landscape structure, outcrops of raw materials are located in the External Mountain belt and partly in both the foothill and internal regions. The distribution of the Upper Paleolithic is connected with these areas. As a rule, each site catchment area includes outcrops. Nevertheless, methods of flint procurement and site functions differ between sites. For example, assemblages from Skalistiy contain three different types of raw materials: nodules from outcrops, nodules originating from valley slopes, and pieces

gathered on old site locations. As distinguished from Upper Siuren cultural layers, the Shankobian primarily used good quality flint from outcrops (95 %). Some Shankobian workshops, such as Skalistoye, are located directly on outcrops. Shankobian layers regularly contain ashy lenses with a large quantity of both debitage products and tools, where domestic tools generally predominate over armatures. The data analysed permit the identification of early and middle Shankobian sites as reoccupied base camps (Cohen *et al.*, in press).

Another site function is observable at Skalistsiy (l. VII–IV) and Vishennoye. These sites yield different types of workshops, looking at site structure and the relationship between debitage products and tools. The quantity of retouched pieces in all horizons of Vishennoye fluctuates between 0.1–6 % with a constant insignificant quantity of domestic tools (table 1; Yanevich, 1992). In this moment, the quantity of backed pieces (points and microliths) correspond to 91 % of all tools in layer “B”. This indicates that the function of these workshops was not uniform. Both Vishennoye and Skalistsiy (l.l.) contain slight faunal remains. Consequently, these sites are interpreted as having a relatively limited site function, with butchering and meat consumption occurring apart from these sites proper.

The Shankobian layers of Skalistsiy yield rare faunal remains as well as “kitchen refuse”. Therefore, butchering activity took place either on satellite sites or hunting kill sites. Siuren I data permits another interpretation. Here, E. A. Vekilova recorded special grounds which enclose semi-complete skeletons of saiga and instruments responsible for butchering operations (Vekilova, 1957: 306–311). From both knapping technique and site structure data, the cultural layers of Siuren I may be interpreted as base camps.

To summarize, current data analyses identify different types of base camps (with/without butchering activities) and various functions of workshops.

6.2. Hunting specialization

Supposedly, the economy of the Crimean Upper Paleolithic provides an example of saiga hunting specialization (Bibikova & Belan, 1979). This idea is primarily based on the prevalence of saiga bones among hunting game remains in the Siuren I rockshelter. It is noteworthy that

bones of saiga adult males predominate over other fauna (table 1). In fact, the faunal data indicates hunting activity during the cold season of the year, in accordance to behaviour of this migratory ungulate (Barishnikov *et al.*, 1994).

The Shankobian assemblages yield a mixed forest-steppe fauna that allows a restricted annual territory of this culture within the External Mountainous belt (Cohen, in press).

Investigations in Skalistsiy testify to the existence of an ovicaprine hunting specialization during Dryas I – middle Alleröd, where this activity takes a transitional place between both saiga and forest–steppe fauna hunting (table 2). We cannot escape the conclusion that ecological factors affected hunting strategies, since the same activities were registered in relevance to different cultural events.

Certainly, a complete study can be done to determine seasonality, in addition to what has already been done with available data.

Thus, the Upper Paleolithic of the Crimea has broad potential which can be used in future applications relevant to European prehistory.

Acknowledgements

This article has been prepared during the presence of the author in Belgium in the frames of a grant from the Belgian Ministry of Scientific Policy. Radiocarbon datings for Siuren I and Skalistsiy were obtained in the frames of research programs funded by the Belgian Federal Office for Scientific, Technical and Cultural Affairs (contract SC-004) and the INTAS Foundation (contract 93-203).

References

- ANIKOVICH M. V., 1992. Early Upper Paleolithic industries of Eastern Europe. *Journal of World Prehistory*, 6 (2): 205–245.
- BADER N. O., 1984. Pozdnyy paleolit Kavkaza. In: P. I. Boriskovski (ed.), *Paleolit SSSR*. Moskva, Nauka: 272–301.
- BARISNIKOV G., KASPAROV A. & TIHONOV A., 1994. Les chasseurs paléolithiques à la saiga en Crimée. *L'Anthropologie*, 8 (2–3): 3–13.
- BIBIKOV S. N. & STANKO V. N. & COHEN V. Yu., 1994. *Final'niy paleolit i mezolit Gornogo Krima*. Odessa, Vest': 273 p.

- BIBIKOVA V.I. & BELAN N.G., 1979. Lokal'niye varianti i gruppirovki pozdnepaleoliticheskogo teriokompleksa Vostochnoy Evropy. *Bulletin Moskovskogo obschestva ispitatelye prirody*, 84/3: 3–13.
- BIETTY A., 1990. The Late Upper Paleolithic in Italy: An Overview. *Journal of World Prehistory*, 4 (1): 95–155.
- BONCH-OSMOLOWSKI G. A., 1934. Itogi izucheniya Krimskogo paleolita. *Trudi mezhdunarodnoy assotsiatsii po izucheniyu Chetvertichnogo perioda Evropy*, 5: 114–183.
- BORDES F. & FITTE P., 1964. Microlithes du Magdalénien supérieur de la Gare de Couze. In: *Miscelanea on homepage al abate H. Breuil*. Barcelona, Ed. Instituto de Prehistoria y Arqueologia: 259–267.
- CHABAI V., MARKS A.E. & YEVTUSHENKO A., 1995. Views on the Crimean Middle Paleolithic: past and present. *Préhistoire Européenne*, 7: 59–80.
- CHERNISH A.P., 1987. Etalonnaya mnogoslainaya stoyanka Molodova V. In: I.K. Ivanova (ed.), *Ludi kamennogo veka i okruzayuschaya sreda*. Moskva, Nauka: 7–93.
- COHEN V. Yu., 1991. *Finalniy Paleolit Gornogo Krimea*. Kiev, Avtor.: 21 p.
- COHEN V. Yu., 1993. The Genesis of Late Palaeolithic cultures: Crimea Peninsula. *Archeologické rozhledy*, XLV: 3–9.
- COHEN V. Yu., 1995. Siurenskaya Finalnopaleoliticheskaya kultura. In: A.A. Kolesnik (ed.), *Arheologicheskiy almanah*, 5, Donetsk: 112–122.
- COHEN V. Yu., 1994. Shankobinskaya kultura. In: A.A. Kolesnik (ed.), *Arheologicheskiy almanah*, 3, Donetsk: 245–260.
- COHEN V. Yu., in press. Landscapes, ecology and economy in Final Paleolithic of the Crimea.
- COHEN V., GERASIMENKO N., REKOVETZ L. & STARKIN A., in press. Chronostratigraphy of rockshelter Skalistiy: Implications for the Late Glacial of the Crimea.
- COHEN V. & OTTE M., in press. Some Actual Problems of Upper Paleolithic Azov-Pontic Area in the light of New Radiocarbon Data from Siuren I and Skalistiy (chronological approach).
- KOLOSOV Yu.G., STEPANCHUK V.N. & CHABAY V.P., 1990. *Pozdniy Paleolit Krimea*. Kiev, Preprint II, 48 p.
- KOZŁOWSKI J. K., 1993. L'Aurignacien en Europe et au Proche-Orient. In: *Aurignacien en Europe et au Proche-Orient, Actes du colloque de la commission 8 de l'U.I.S.P.P. (Bratislava, 1991), XII^e Congrès International UISPP*. Bratislava: 283–291.
- LEONOVA N.B., 1994. The Upper Paleolithic of the Russian Steppe Zone. *Journal of World Prehistory*, 2 (8): 169–210.
- MONKS G. G., 1981. Seasonality Studies. In: B. Shiffer (ed.), *Archaeological method and theory*, 4. New York, Ac. Press: 177–240.
- OLENKOVSKIY N.P., 1983. Stoyanka Leont'evka na Niznem Dnepre. In: V.N. Stanko (ed.), *Materiali po arheologii Severnogo Prichernomor'ya*. Kiev, Naukova dumka: 77–87.
- OTTE M., NOIRET P., TATARTSEV S. & LÓPEZ-BAYÓN I., 1996. L'Aurignacien de Siuren I (Crimée) : fouilles 1994 et 1995. In: A. Palma di Cesnola, A. Montet-White & K. Valoch (ed.), *The Upper Palaeolithic. Colloquium XI: The Late Aurignacian. Actes du colloque de la commission 8 du XIII^e congrès de l'U.I.S.P.P. (Forli, septembre 1996)*. Forli: 123–137.
- ROGACHEV A.N. & ANIKOVICH M.V., 1984. Pozniy Paleolit Russkoy Ravnini i Krimea. In: P.I. Boriskovski (ed.), *Paleolit SSSR*. Moskva, Nauka: 163–236.
- SVEZHENTSEV Yu.S., 1993. Radiocarbon Chronology for the Upper Paleolithic Sites on the East European Plain. In: O. Soffer & N. Praslov (eds.), *From Kostenki to Clovis*. London – New York, Plenum Press: 23–30.
- TARASOV L.M., 1982. Izucheniye stoyanok kamennogo veka na r. Belbek. *Arheologicheskiye otkritiya*: 333.
- TRUSOVA S.A., 1940. Raskopki v peschere Adzi-Koba v 1933 g. *Sovetskaya arheologiya*, 5: 272–274.
- VEKILOVA E. A., 1971. Kamenniy vek Krimea. Nekotoriye itogi i problemi. In: P.I. Boriskovski (ed.), *Materiali i issledovaniya po arheologii SSSR*, 6, Moskva, Nauka: 117–161.
- VEKILOVA E. A., 1957. Stoyanka Siuren I i ee mesto sredi paleoliticheskikh mestonahozdeniy Krimea i Blizaishin territoriy. In: P.I. Boriskovski (ed.), *Materiali i issledovaniya po arheologii SSSR*, 59, Moskva, Nauka: 235–323.
- YALCINKAYA I., LÉOTARD J.-M., KARTAL M., OTTE M., BAR-YOSEF O., CARMÍ I., GAUTIER A., GILOT E., GOLDBERG P., KOZŁOWSKI J. K., LIEBERMAN D., LÓPEZ-BAYÓN I., PAWLIKOWSKI M., THIEBAULT St.,

- ANCION V., PATOU M., EMERY-BARBIER A. & BONJEAN D., 1995. Les occupations Tardiglaciaires du site d'Öküzini (sud-ouest de la Turquie). Résultats préliminaires. *L'Anthropologie*, **99** (4): 562–583.
- YANEVICH A. A., 1992. Novaya finalnopaleoliticheskaya stoyanka Vishennoya II v Crimu. In: N. P. Alenkovskiy (ed.), *Piznopaleolitichni pam'yatki tsentru Pivnichnogo Prichornomor'ya*. Herson, preprint: 20–31.
- YANEVICH A. A. & STEPANCHUK V. N., in press. A new multi-layered site with superposed Middle and Upper Paleolithic in the Crimea.
- ZALIZNYAK L. V. & YANEVICH A. A., 1987. Swiders'ki mislivtsi Girs'kogo Krimu. *Arheologiya*, **60**: 1–15.

Author's address:

V. Yu. COHEN
The Institute of Archaeology
Vidubetskaya, 40
RU–252014 Kiev (Ukraine)