Préhistoire Européenne, volumes 16 - 17 / 2000 - 2001, p. 231 à 254.

LANDSCAPE, ECONOMY AND COMPLEXITY IN LIGHT OF THE CRIMEAN FINAL PALEOLITHIC AND MESOLITHIC DATA (PRELIMINARY ANALYSES)

Vadim Cohen*

Abstract

The current state of hunter-gatherer research is specifically concerned with a multi-aspectual approach to archaeological data. Its particular contribution lies in developing a comprehensive definition of culture. The paper undertakes to discuss the Crimean Final Paleolithic and Mesolithic records from different points of view, namely ecology, technology, typology, subsistence strategy, mortuary practices and symbolism. The method points to the notion that landscape diversity and ungulate biology are useful to the definition of mobility. The particular evidence of the mutilated hands as part of special ritual activity, as well symbolic depictions on the pit grave ceiling, mark the mortuary practice. The model biases relations of the social and economic factors specific to this case.

Key words

Final Paleolithic, Mesolithic, subsistence, cultural diversity, landscape, ungulates behavior, mortuary practice and symbolism.

Introduction

The interaction between social and ecological systems is suggestive of definition of culture, which masks a particular variety of foraging economies and related social behavior. Hence, the landscape variety is well grasped with any local hunter-gatherer economy because it is one of the key tools of analysis. In this matter, the Crimean Final Paleolithic and Mesolithic data seem potentially conclusive to the point of subsistence strategy and all other related issues. Therefore, the very purpose of paper is to discuss the environmental and behavioral attributes of resource acquisition and cultural complexity, taking into account probable methodological aspects on the ways the available archaeological evidence should be considered.

The first systematic approaches to the Crimean Final Paleolithic and Mesolithic were carried out in the 20's and 30's. The excavations were undertaken on such important sites as Fat'ma-Koba, Kukrek, Shan-Koba, and Zamil-Koba I (Bonch-Osmolovski 1934; Bibikov 1936 and 1940; Krainov, 1938). The next step falls to the 50's, when Bibikov renewed the Fat'ma-Koba excavations and Vekilova did field research at Siuren II. Then Kolosov prospected several new sites through the Mountain area and excavated Vodopadniy grotto (1971). In the meantime, some results have been obtained at Buran-Kaya (grotto and rockshelter) and Alimovskiy rockshelter (Bader 1976; Stolyar 1961).

Some time later, at the beginning of 70's, the field focus moved out of the Mountain area, to the Kertch peninsula (Matskevoy 1977) as well as the coastal site Laspi VII (Telegin 1982) when several open-air sites came up.

Needless to say, the multi-layer sites of the Mountain area (Shan-Koba, Fat'ma-Koba and Murzak-Koba) remain of considerable importance to the Crimean Final Paleolithic, since they provided a most informative set to the stratigraphy. Unfortunately, many of the prior approaches are still undocked to the deeply stratified mountainous sites, since they have been published not so long ago (Bibikov *et al.* 1994). Starting in the 90's, the investigations have focused on the palynology and radiocarbon dates from the excavation at the Skalistiy (Cohen *et al.* 1996) and the Shan-Koba (Yanevich 1993) rockshelters, which were the earliest such evidence to furnish. Nevertheless, the basic concepts and chronology do not undergo important changes (Bibikov *et al.* 1994). Needless to say, the paleoenvironmental information available at this moment remains insufficient. For this reason, the investigations were basically addressed to cultural and typological considerations (Bibikov *et al.* 1994; Kozlowski 1990), which constitute a rather complex picture. The main structure to be considered challenges the following cultural phenomena: the Shankobian (Cohen 1994), the Siurenian (Cohen 1995b), the Shan-Koba, l. 4 (Cohen 1991; Yanevich 1993), the Murzakkobian (Cohen 1994a), and the Kukrekian (Telegin 1992). At the same time, not enough attention has as yet been paid to ecological and social aspects of the Crimean Final Paleolithic and Mesolithic that would allow one to develop this particular subject.

* *254655. Institute of Archaeology, Av. Hero of Stalingrad, Kiev, Ukraine (E-mail : ira@iarh.kiev.ua)*

I. The geographical features of the Crimean Peninsula

As has been suggested early, the Crimean landscape appeared to have been stable through the Late Pleistocene and Early Holocene (Bibikov 1971:11). Hence, the macro features of the modern landscape are compatible with ones.

The Crimea bears away over 27, 000 km², 207 km from North to South and 324 km from West to East. The Mountain part is the origin of 257 rivers that flow into both the Black Sea and the Azov Sea.

The structure of relief wraps the platform-plain and Mountain areas. The Scythian slab underlies the plain area (70% of peninsula), while its Crimean patch belongs to the huge Black Sea Lowland. The Mountain part (6000 km²) has to be referred to the Mediterranean moveable belt that is basically formed by karst relief. The Crimean Mountains consists of three sub-parallel zones, namely Main or First Mountain ridge, the Inner belt and the Outer belt. While the First Mountain belt (uplands) has a maximum altitude of around 1540 m., the inner or second Mountain ridge rises up to 730 m and, finally, the outer or third ridge goes up to 340 m above sea level. Besides, both the eastern parts (Kertch peninsula) and the southern coasts are also marked by very particular landscapes. Kertch peninsula represents a small range rising to 150 m (so-called flat Mountains) (Matskevoy and Pashkevich 1973:123), while the southern coast covers a long strip of 2000 km² between the sea and the First Mountain range.

Despite the general climate changes, each zone comes up with very special geographical terms and conditions. The Coast, being protected by Mountains, stays out of northern wind influences and constitutes a temperate climate. Usually, winter comes here later, and the snow cover is thinner than the other regions. The Uplands is deprived of forestation, prompted by extreme temperatures and powerful snow covers. In contrast the Inner Mountain range is richly forested. Its river valleys tend to be narrow and windy, while the rivers are more turbulent than elsewhere. The Outer Mountain range represents mostly favorable conditions, since its hydrological net is well developed, and its river valleys fit well with settling, fishing and hunting. The annual temperature is temperate, and the snow cover is immoderate. This range was formed by clay, marl and lime deposits eroded by wind activity, and overwhelms in rockshelters. The steppe area, by contrast, has arid climate conditions. The uniform landscape is poor in water and shelters, and humans and animals activities are slightly presented here.

Thus, six particulars constitute the Crimean landscape. That means distinct plants and animals also mark each. Given the above logical assumptions, it is warranted to corroborate a detailed description of each land use with a fusion upon subsistence strategy in whole region.

II. The cultural division

As stated from absolute chronology and comparative stratigraphy, the Crimean Final Paleolithic and Mesolithic lasted about 5.000 radiocarbon years on the background of ecological changes of the terminal Pleistocene - early Holocene. The very general view on this process points to the notion of ethnographic variability during the Crimean Mesolithic. In the process, one looks for answers to other regions with the mountain-plain landscape and one finds the same complex interaction of social, chronological, geographical and ecological factors as a convincing explanatory key (Bar-Yosef 1981; Gorring-Morris 1989:10).

Recent studies of the Crimean Final Paleolithic and Mesolithic development appear with issues of two distinctive cycles in cultural changes as well as suggested periods of cultural transformation between them. As will be suggested below, these transformations conform well to changes in population structures and subsistence strategy.

The first shift should be dated to the end of the Dryas II - beginning of the Alleröd, and concluded by the Shankobian origin. The second one is dated to the Preboreal and masked vanishing of the Shankobian and the simultaneous occurrence of new cultural phenomena - the Murzakkobian. The third transformation comes into being at the end of the Preboreal-beginning of the Atlantic, when the Murzakkobian population had started the process of Neolithization. Each culture phenomenon comes into focus with distinctive technological features whose description will be provided next.

Shankobian

The current knowledge of the Shankobian evolution is mainly derived from data of excavations at the rockshelter Skalistiy. This single site constitutes an uninterrupted Late Glacial sequence from Dryas I and to Dryas III (Cohen *et al.* 1996).

Skalistiy is located in southwest Crimea on the Right Bank of the Bodrak River. The raw material outcrops and associated workshops are one km from the site. The Bodrak crosses the Outer Mountain ranges and bridges the Inner Mountains and the wide steppe area. The site position reveals a classical hunter-gatherer's location within the narrowest patch of a valley and, therefore, constitutes a favorable place for resources and neighbors control.

The lithology and stratigraphy data document two units: Upper Paleolithic consisting of four cultural layers, and Final Paleolithic, containing occupations in three cultural layers. The lower Final Paleolithic layer (third) wraps three horizons with each correspondence to the real living floors. The chronological frames were tested and defined as a combination of both lithological and radiocarbon approaches - the Upper Paleolithic layers (L.VII - 14888±180 13C unc. BP (OxA 5168); L.VI - 15020±150 (OxA 5167); L.V - 15510±310 (Lv 2133); L. IV - 14510±140 (OxA 5166); the Shankobian layers (L.III/3 - 12820±170 (OxA 4888); 11750±120 (OxA 5165); L.III/2 11620±110 (OxA 5164) (Cohen *et al.* 1996).

Unfortunately, the fauna remains are extremely

Site/layer	Dates unc. BP	Dates unc. BC	Lab. index	Sources	Cultural references
Skalistiy, III/3	12820±170		OxA 4888	Cohen *et al.*, 1996	Shankobian
Skalistiy, III/3	11750±120		OxA 5165	- // -	Shankobian
Skalistiy, III/2	11620±110		OxA 5164	- // -	Shankobian
Buran-Kaya III, 6:8	11900±150		OxA 4126	Yanevich *et al.*, 1996	Shankobian
Buran-Kaya III, 6:9	11950±130		OxA 4127	- // -	Shankobian
Shan-Koba, l.l.	9150±150		GIN 6276	Yanevich, 1993	Shan-Koba, l.IV
Shan-Koba, up. l.	8240±150		GIN 6277	- // -	Murzakkobian
Laspi VII, A		5550±360	Ki 863	Telegin, 1989	Murzakkobian
Laspi VII, B		6920±120	Ki 952	- // -	Murzakkobian
Laspi VII, V		6970±100	Ki 953	- // -	Murzakkobian
Laspi VII, D1		7150±130	Ki 951	- // -	Murzakkobian
Laspi VII, D1		6730±250	Ki 876	- // -	Murzakkobian
Laspi VII, D1		6620±75	BLn 1795	- // -	Murzakkobian
Laspi VII, D1, 2		6810±70	BLn 1795	- // -	Murzakkobian
Laspi VII, D		5670±230	Ki 638	- // -	Murzakkobian
Laspi VII, D		6080±190	Ki 704	- // -	Murzakkobian
Laspi VII, D		7135±100	BLn 1921	- // -	Murzakkobian
Laspi VII, D		6130±210	Ki 637	- // -	Murzakkobian
Laspi VII		6390±250	Ki 957	- // -	Murzakkobian
Kukrek		7650+/-150	Ki 954	- // -	Kukrekian
		5370+/-65	BLn 1999	- // -	Kukrekian
		5335+/-70	BLn 1799	- // -	Kukrekian

Figure 1 : Radiocarbon evidence of the Crimea Final Paleolithic and Mesolithic.

limited to the number: L. IV (*Ovis* sp. or/and *Capra* sp., indeterminable predators, and avifauna). The Final Paleolithic levels yielded remains of *Ovis* sp. or/and *Capra* sp. (l. III/3-II, *Bison* sp. (l. III/3), *Cervus elaphus* (l. III/3) and *Saiga tatarica* (l. III/2). The fauna indicates a permanent prevalence of ovicaprines regardless of the different cultural contexts of these layers. This permits the assumption of an ovicaprine hunting specialization, which took place in the Crimea within the Late Glacial of the Siuren I (up. l.) and Middle Shankobian (Cohen 1996).

The Shankobian development appears to be neither monotonous nor uniform. Lithic typology and site structure analysis points to the notion of the four-stage periodization. The first and third periods are well dated to Dryas 2 and early Alleröd - Dryas III, while the last stage is attributed to the first half of Preboreal (Fig. 1 and 2).

The technological and typological data of the lithic and bone assemblages of such multi-layer sites as Skalistiy, Shan-Koba, Fat'ma-Koba, Murzak-Koba, Zamil-Koba I and Buran-Kaya, as well several others, are very conclusive in stressing the changes in the tool kits and technology within the Shankobian development. The major tendency was a decrease of typological variety of both points and geometrical microliths as well as a general "simplification"of tool kit compositions; and a clearly seen bias to microlithisation. Therefore, the basic features of the Shankobian typology persist throughout the whole cultural sequence:

- The blade reduction makes up a wide spectrum of blank production, excluding bladelets. The thin and fine narrow microliths are very rare, and their production is consistent with desirable width blades, which have been shaped and thinned by means of intense retouch application. The knapping technologies come up with uni-polar and bipolar core reduction. Likewise, hard hammer application is solely to be responsible for the first and secondary reductions. The evidence of Dufour technology is missing here, except for the fine convergent points of El-Wad or Krems type.
- Retouched blades, endscrapers, and burins mainly represent the tools of a "general purpose group". The endscrapers have been made on different blanks, such as blades and flakes. Some special types as nail endscrapers must be taken into account. The core-shaped tools are not numerous. The burin blow technique is quite developed with the prevalence of Noailles, angle and flat burins.
- Both points and geometric microliths occupy a leading place in the Shankobian. It is warranted to characterize them as mostly diverse and distinct objects within, due to other evidence of the Northern Black Sea coast. With account of typological definitions accepted early (Bibikov *et al.* 1994; Cohen *et al.* 1996), there are two types of points: those are of non-geometrical shape and those are of various geometry. The latter group is dominant to a great extent. For better comparisons, it is possible to use such typological taxons as common (regular) and specific

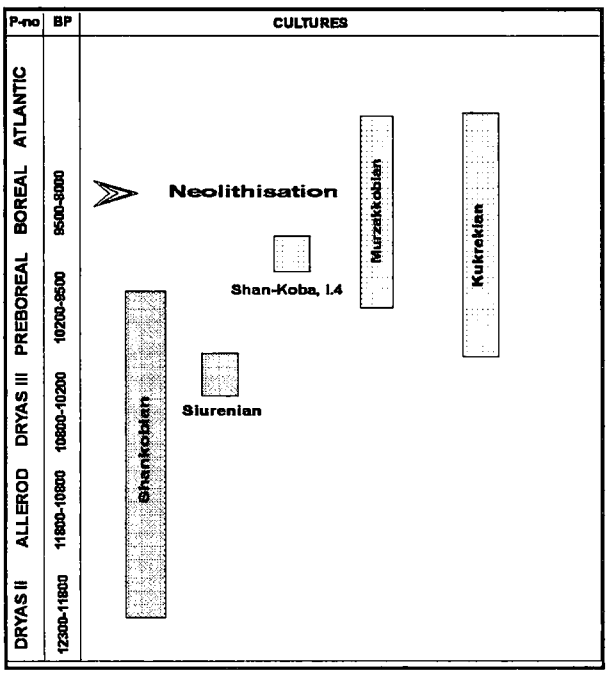

Figure 2 : Schematic view on the Crimean Final Paleolithic and Mesolithic cultural spread

(rare) types. So a most typical group of points comprises arched double points and double oblique truncated points with a tag on those specifically retouched: notches, complementary burin spells, truncated bases, tangs, etc.

The "specific" points are represented by straight-backed implements (micrograveltes, Tjongerian points, truncated base points), which are furnished with slight backed bladelets in some cases.

On a level with geometrical points, the Shankobian assemblages acquired a high rate of typical geometrical microliths, such as lunates, triangles and trapezes. The lunates appear in an overwhelming majority through out the Shankobian sequence, apart from the last stage that is characterized by numerous triangles in some cases.

Despite the fact that trapezes are not frequent, they present a notable typological variety (low elongated pieces, high narrow ones, laterally notched trapezes, symmetrical and asymmetrical, etc). The presence of high trapezes and Shankobian lunates should be especially emphasized. Such microliths contribute only to the earlier Shankobian, and have never been found elsewhere, except for some Caspian Mesolithic industries, such as Dam-Dam- Cheshme, and probably at Belt and Hotu (Cohen *et al.* 1996).

As can be stated from the data, the typological associations of the first, second and third stages are very similar to each other, even to the point of small details of reduction. At the same time, the fourth-stage assemblages contribute some new type of industries that are structurally and stylistically different from the mentioned above. Such assemblages as Skalistiy (up. l.), with a poor presence of geometrical microliths, Fat'ma-Koba (l. 5, 6) with massive triangles and Siuren II (up. l.) with micro-lunates and micro-triangles, are especially concern this notion.

The Shankobian development indicates a particular intra-cultural dynamic. But it is not only one case where such evolution does exist. So, Bar-Yosef pointed out that the lower layers in Early Natufian sites are indicated by greater technological and typological heterogeneity when compared to those in Late Natufian (1991:388). The conventional explanation is that the immediately proceeding Geometric Kebaran foragers came to live together and adjusted their semi-sedentary way of life (p. 388). In other words, early Natufian was a product of a certain social consolidation inside Late Kebaran as well of cultural transformation. It seems that the Shankobian, otherwise, indicates a vanishing of uniformity in due course. Social and economic consequences have to follow upon such technological tendencies. Since we shall deal later with how social and technological issues were related in this case, this is a good place to mention that the Shankobian technological and typological features have been included in the wide techno-territorial unity named the Eastern Azilian technocomplex (Cohen *et al.* 1996).

Siurenian

This is a particular cultural phenomenon, whose lithic industry is a combination of typological components pertaining to sharply different technocomplexes, namely "Blade arrowheads" (Swiderian points) and "Eastern Azilian"(arched double points and double oblique points). The first one bears away the central and eastern European Plain, while the second one is patchily distributed within the Northern Black Sea Coast, Caucasus and probably the Caspian southeast. The lithic reduction is prismatic and large blade oriented. It is definitively a non-microlithic industry. The endscrapers (26%) are produced on both blades and flakes. The Swiderian points constitute 22%, while other points are 7% extend. The Siurenian has been viewed as a comparatively short-time phenomenon of the second half of Dryas III stadial (Shild 1966; Cohen 1995b). It is worth noting the recurrence of Swiderian points within Mesolithic assemblages of both Murzakkobian and Shan-Koba, l. 4.

Shan-Koba, l. 4 culture

This knapping technology produces blades and bladelets based on prismatic core preparation. Burins (21%) are the leading tool category. As distinguished from the industry described above, the backed bladelets are very typical as well as Micrograveltes that place the industry apart from other Mesolithic records. The triangles are mostly numerous within geometrical microliths. The same combination of scalene triangles, Micrograveltes and backed bladelets had been found in lithic assemblages of the Dnieper cemeteries such as Vasilievka and Voloshskoye, and thereby suggested same cultural affiliation (Cohen 1991). Three radiocarbon dates from the ancient cemetery of this group (Vasilievka III) give an age at around 10000 BP (Jacobs 1993) and make correspondence to the date from the relevant layer of Shan-Koba (Fig. 1 and 2).

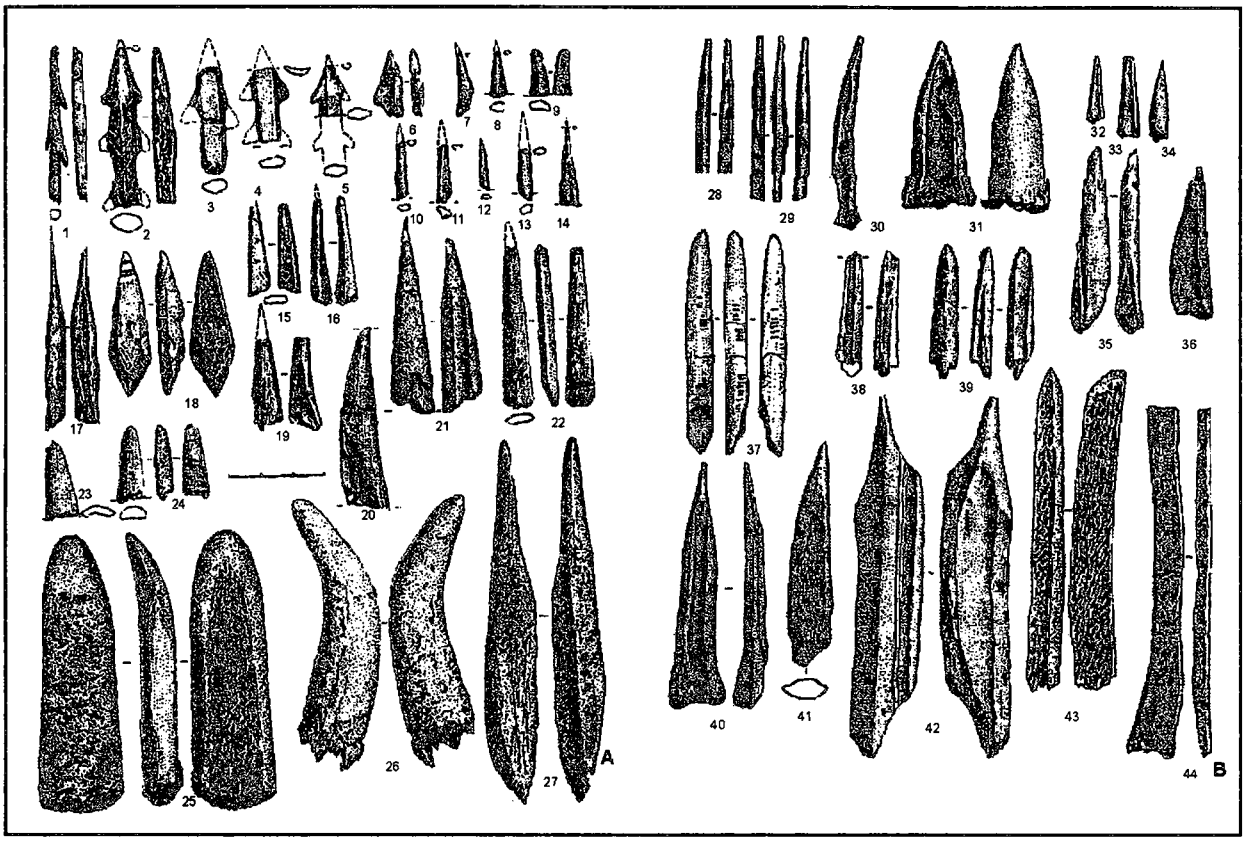

Figure 3 : The Murzakkobian bone industries (A - Murzak-Koba, B - Shan-Koba, I. 3).

Murzakkobian

At the present time, the Murzakkobian chronology has been defined on the basis of chronostratigraphy, fauna, and radiocarbon readings (Telegin 1982; Kozlowski 1989; Cohen 1991) and still requires further evidence.

An interpretation model offered four-stage development, from the middle of the Preboreal and to the beginning of the Atlantic (Bibikov *et al.* 1994) (Fig. 1 and 2). The Murzakkobian constitutes two distinctive industries: a type of Shan-Koba or "typical Tardenoisian" and a type of Fat'ma-Koba or "Tardenoisian with points". Judging from basic profiles, the development does appear as a stratigraphically alternated phenomenon. The basic evidence indicates the following make up: 1st stage - early Fat'ma-Koba industry, 2nd stage - early Shan-Koba industry, 3rd stage - late Fat'ma-Koba industry and 4th stage - late Shan-Koba industry. The typological differences are well marked by a quantitative fluctuation of trapezes as well as the presence/absence of some particular points. On the whole, the Murzakkobian represents a peculiar variant of a blade microlithic industry of the Mediterranean mode, which focuses on the production of geometric composites. The blank types have slight common to compare with Shankobian. Fine regular blades and bladelets of the Montbani type mark new case. At the same time, new technology indicates the growth of geometrical microliths of great variety, and its clear tendency toward microlithisation. In point of fact, the late Murzakkobian assemblages give every indication of both industrial variants.

Now, if we rely on typology, stratigraphic and chronological evidence, an ethnographic and/or economic variation within Murzakkobian should be hypothesized since an identifiable variability occurs in lithic and bone industries as well as in mortuary practices. The comparisons between the bone industries of Shan-Koba, l. 3 and Murzak-Koba, l. 3 give every indication to support the conclusion (Fig. 3). While a group of "general purpose" bone tools (points, awls, and punctures) is very common, the hunting tools are obviously different. Thus the Shan-Koba contains points made of antler with one or two lateral chinks, while Murzak-Koba has harpoons with two rows barbs, produced from red deer horn. These tools undoubtedly point to fish hunting that is well known in the Magdalenian series (see: Julien 1992). Hence, this variability suggests that different economic specialization appeared within the same archaeological unite.

Kukrekian

Sites showing these materials are widespread in south-eastern Europe (the western Black Sea Coast, Dnieper valley, Poles'ye and the Crimea). It is probable that the Crimean Kukrekian is a particular cultural phenomenon within this unity (Cohen 1991).

The Kukrekian technology appears to be based on fine, often fully volumetric conical core preparation. The very particular tool kits are distinguished by flake burins and specific armatures with inverse flat oncoming retouching (lateral truncated facetting). Geometrical microliths are extremely rare (Vekilova 1966). The Kukrekian origin remains an enigma. The suggestions of

roots of this culture in the Anetovka industry, dated to the maximum of Pleniglacial B (Yanevich 1987), are very interesting but not to the point. The possible forerunners of the Kukrekian should be found among those industries which esquire both developed flake Aurignacian and truncated facetting components. These are well known in the late Zarzian Aurignacian (Olszewski and Dibble 1993) and somehow could be suggestive of the Kukrekian. But, it is as yet merely a hypothesis.

The Crimean Kukrekian has been dated by means of radiocarbon series from coastal site Laspi VII and stratigraphical study of Vishennoye site (Telegin 1982; Yanevich 1987). While the conventional dates fall to the VII-th mil. BC, Vishennoye (l. l.) bears witness of the early stage (Fig. 1). There is a three-stage periodization of Kukrekian - early Mesolithic stage, Late Mesolithic stage and Neolithic stage (Yanevich 1987). However, the last Kukrekian stage requests much better evidence to support (Cohen 1996b). The Vishennoye lower layer industry looks more like archaic than classical Kukrekian; however, the Late Pleistocene age hypothesized for this assemblage is not sufficiently grounded as well. Needless to say, that *sensu stricto* Kukrekian occupation is found on the open-air sites and suggests special considerations.

That such different industries as Kukrekian and Murzakkobian might have long coexisted on the same territory is an exceptional case over the Mesolithic records. The variability faced with such valuable criteria as technology, typology, and important of the key indicator of the Mesolithic - the presence/absence of geometrical microliths. Looking for warrant explanations, some workers pointed out the functional biases between flint and Kukrekian bone tools, which are supposed to be focused on bison hunting (Nuzniy and Yanevich 1989). However, the fauna evidence seems to argue this point. For example, the Kukrek site fauna shows no differences from that of contemporaneous Murzakkobian (red deer, roe deer and wild boar). Therefore, the lithic differences among them are not to be referred to an economic factor. Beyond that, the similar bone points with lateral chinks had been found in Murzakkobian. The micro-wear study of Kukrekian armatures attributes them to the composite tools responsible for wood treatment (Sapoznikov and Sapoznikova 1993). Since we find appealing suggestions to explain the Kukrekian interface from the economic viewpoint, all other comments should be addressed to an ethnographical factor as much indicative to this case.

In spite of the cultural schema of the Crimean Final Paleolithic and Mesolithic, some controversial issues in the point of absolute chronology remain. First of all, there is all-basic to believe that five cultural phenomena somehow mask the true prehistoric realities. The basic typological components of these different traditions survived until the end of the Neolithic (Cohen 1996) that would be a determinant as to what refer conservative aspects of cultural development. On the other hand, the cultural process offers a certain degree of heterogeneity (Siurenian and Murzakkobian), as well as a possible evidence of interactions (Murzakkobian and Kukrekian). Another assumption is that each phenomenon was an integral part of the more spatially common entities which have been also subjected to variability (Cohen 1997).

III. The Paleoecological situation and site distribution

It has been a long time since the origin of the Crimean Final Paleolithic and Mesolithic was first explained as having been caused by drastic changes in wide environmental factors (Gromova and Gromov 1937:90-91). The Upper Paleolithic fauna is usually associated with the so-called saiga-cervidae grouping (Bibikova and Belan 1979:13). The recent reconsideration of all related materials indicates that the saiga hunting specialization is to be dated before the Dryas I and that it was replaced by ovicaprine hunting activity (Cohen 1996). The animals of "protected" and, so to say, "semi-protected" areas increased during the middle stage of Shankobian (red deer, roe deer, and wild boar being up to 83% of total hunting prey). There is nothing new to add to the faunal set during the Murzakkobian development in the Mountain area, besides the above mentioned group exceeds 96% here (Bibikova 1985:19).

Thus, the available data do not confirm a hypothesized crucial shift in fauna or climate at the time of traditionally defined Pleistocene/Holocene transition at about 10000 BP.

Final Pleistocene and Early Holocene ecology of the Crimea is affected by the Black Sea fluctuations. At the beginning of Dryas I, the paleoecological situation underwent substantial changes with the beginning of the transgression (16 - 14 Kyr). Then, at about 9 kyr, sea level reached stability (Scherbakov 1977:52-57). The modern Black Sea shelf was represented to the alluvium plain dissected by paleo-river valleys, namely Don, Dniester, Sarata and others (Scherbakov 1977:58). As the paleogeography was characterized by a decreasing of the landmass, it caused the redistribution of ungulate populations. This does not necessarily mean a vanishing of any species whatever, but surely structural changes in the relations between nomadic and settled hoofed animals.

It seems that there is little to say about the distribution of the Final Paleolithic or Mesolithic site within the Crimean steppe (Fig. 4), except for some seasonal Neolithic occupations on the northern steppe part. The sites gravitated to the rare water resources. The Crimean steppe being an outlying area of the huge lowland was probably a transitional zone in the seasonal migrations of nomadic ungulates, such as horses, bison, saiga, and donkeys.

The Kertch peninsula yielded both Mesolithic and Neolithic sites of Murzakkobian and Kukrekian traditions (Fig. 4). All of them are found within similar locations offered in the narrow patches of valleys and hillock's brakes near the water resources (Matzkevoy 1977). All places are open-air sites, albeit both grotto and rockshelter are well known at this area. The fauna is rather stable and consists of ungulate migrants, mainly the horse, donkey and dzeiranic (Fig. 5).

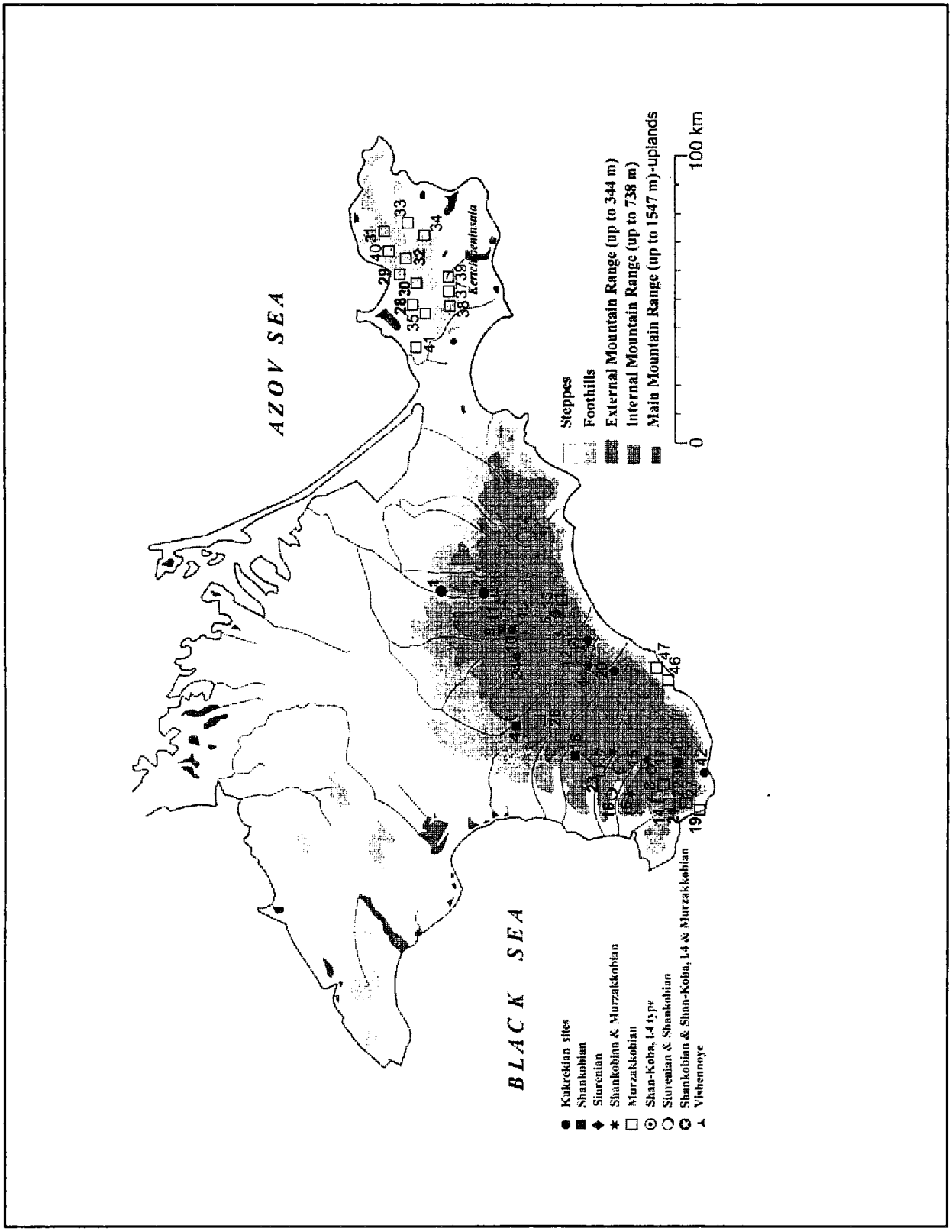

Figure 4 : The Crimea : landscapes and sites distribution.List of Final Paleolithic and Mesolithic sites 1. Ivanovka, 2. Vishennoye 1, 3. Grot Vodopadniy, 4. Simferopolskaya, 5. Su-At III, 6. Zamil-Koba I, 7. Alimovskiy naves, 8. Kara0Koba, 9. Buran-Kaya (grot), 10. Buran-Kaya (naves), 11. Kilse-Koba, 12. Shpan-Koba, 13. Adzi-Koba, 14. Murzak-Koba, 15. Fatma-Koba, 16. Siuren II, 17. Shan-Koba, 18. Grot Skalistiy, 19. Laspi VII, 20. Alabach, 21. Kara-Kush-Koba, 22. Merdven-Tubu, 23. Tash-Air I, 24. Kukrek, 25. Aj-Dimitri, 26. Konstantinovka, 27. Yusuf-Koba, 28. Frontovoye 1, 29. Leninskoye, 30. Lugovoye I, 31. Alekseevka I, 32. Lugovoye II, 33. Gornostaevka I, 34. Gornostaevka II, 35. Frontovoe III, 36. Vishennoye II, Biyuk-Karasu I-IV, 37. Chernaya balka II, 38. Chernaya balka III, 39. Chernaya balka IV, 40. Narimanovka, 41. Shubino, 42. Mis-Troitsi II, 43. Kalam-Bair I, 44. Domchi-Kaya, 45. Buran-Kaya III, 46. Koreiz III, 47. Artek

Species/Territories	Outer mountain range			Kerch peninsula	
Cultures	Shankobian	Siurenian	Murzakkobian	Kukrekian	*Murzakkobian*
(bos and bison)	*		*		*
Saiga (saiga tatarica)	*	⊛	*		*
Horse (equus)	*		*		[*]
Dunkey (asinus)	*		*		[*]
Auroche (bos primigenius)					*
Dzeiranic (gazella subguttorica)					[*]
Red deer (cervus elaphus)	⊛	*	*	*	*
Wild board (sus scrofa)	⊛	⊛	⊛	*	
Roy deer (capreolus capreolus)	⊛	⊛	⊛		
capra-ovis	⊛				
ovis cf. argoloides	*		*		
Bear (ursus arctos)	*	*	*		
Cave lyon (felis spelaea)	*	*			
Trot (linx linx)	*	*	*		
Forest cat (felis sylvestris)	*		*		
Badger (meles meles)	*	*	*		
Fox (vulpes vupes)	*	*	*		
Dog (canis familiaris)	*	*	*		
Wolf (canis lupus)	*	*			
Hare (lepus europeus)	*	*	*		

* presence/absence
⊛ predominance

Figure 5 : Hunting prey of the Crimean Final Paleolithic and Mesolithic

The palynological evidence shows an overwhelming majority of grassy vegetation (78-93 %). Slight pollens of spruce, pine, birch and linden are definitely allied from the neighboring Caucasus Mountains. The pollen list includes twenty species of grassy plants with a high quota of Chenopodiaceae (Matzkevoy and Pashkevich 1973:128).

Viewed from faunal and palynological records, the Kertch peninsula should be characterized as an area of seasonal grazing that was an optimal spread of intensive nutrition and mating activities of nomadic ungulates. As has been many times documented, such regions are full of nourishment and water for the special pasture season (Baskin 1976:11). Likewise, the topography of sites is well consistent with a seasonal pattern (Matzkevoy and Pashkevich 1973:128).

In term of Crimean landscape variability, the greatest resource availability and diversity (Fig. 4) refers the Outer Mountain. A simple suggestion that the more types of resources are consumed than less energy is required may be useful figuring out the predictive model of this area. The patterns that grew in such areas could lead towards a complex subsistence strategy and was undoubtedly consistent with most successful hunter-gatherer economies. The Outer Mountains, being transitional between steppes and uplands, was destined to offer wintering to settled ungulates and refuge to nomads. This point makes sense for a four-season economy within the same area at least theoretically.

The majority of the Crimean Final Paleolithic sites were found within the Outer Mountains (Fig. 4). Most of them are multi-layer rockshelters stretched over the small ravines of the river systems or the patches of the river valleys near to water. The cases are always in terms of basic principles of hunter-gatherer place selection such as resource availability, protection from the cold and control over the game and neighbors (Jochim 1976:60).

The Outer Mountains paleoecology is referred to data derived from excavations at rockshelter Skalistiy (Cohen *et al.* 1996) with account of some charcoal samples from other sites (Gaammerman 1934:63-73). The early Shankobian layers III/3 and III/2 show evidence of a much coldest climate than associated with the late Allerödian episode (l. II), since little arboreous pollen is found. The pine pollens appear with high frequency to the contrary with hazel and buckhorn quota. The various data together lead one to attribute layers II and III/2 to the optima and layer III/1 to the cold phase of the Alleröd, while layer III/3 is well consistent with Dryas 2/Alleröd transition. Layers II and I show forest-meadow vegetation, while the Alleröd assemblages reveal a more diverse combination of arboreous pollen than those in layer I (Dryas 3-?). As a whole, the terminal Pleistocene vegetation cover of the Outer Mountain provides forest-steppe landscape in the beginning (Dryas 2 - Alleröd), forest-meadow vegetation at the Alleröd optima, and forest-steppe environment at the end of Alleröd and Dryas III periods. The charcoal cuts show the prevalence of forested ground. Juniper, birch, aspen and buckhorn characterize the late Pleistocene phase, while oak, maple, ashberry, birch and

Species	Environment	Ethological structure	Spatial distribution and movement	Season of migration	Mating season	Birth season
Horses	steppe, forest-steppe	family, company, herb	seasonal pastures*	Autumn	Springtime - beginning of Summer	Autumn
Donkeys	steppe, forest-steppe	family, company, herb	seasonal pastures	Springtime - autumn	Autumn	Springtime
Bos/Bison	forest-steppe or light forests	labial	Steppe bison-(seasonal pastures) - migrants European bison-(vertical migrations, seasonal pastures, aggregation time (winter, springtime, summer)	Winter	December	Springtime
Ovicaprines	opened area and forests	family, company, herb	Vertical migration, season's grazing (winter, springtime, summer)	Sedentary	Springtime	Autumn
Wild boars	forests, thickets	Individual, family, herb	Spatial pastures with no explicit seasonal borders	Sedentary	Autumn-winter	Springtime
Roy deer	Forest, forest-steppe, lake and river banks	Individual, family	Home lots and spatial pastures	Sedentary	Summer-Autumn	Springtime
Red deer	Forest, forest-steep	Individual, family, company	Home lots and spatial pastures	Sedentary	Autumn	Springtime

*As many as five different seasonal pastures on a geographic location

Figure 6 : The main ungulates prey of the Crimean Final Paleolithic and Mesolithic (behavioral evidence)

aspen pertained to the early Holocene episode. Whereas the light oak forests usually acquire rich fruits and fruit-bush formations, it is quite reasonable to assume high seasonal availability of such resources as nuts, berries and fruits.

From the archaeological evidence, fish appears to be an important nutritional component for the Crimean Mesolithic population. Salmon, zander, silurus, roach and a few other less representative species present this recourse (Vekilova 1971:132). Such a structure indicates that Crimean rivers have been more full flowing, deeper and faster to flow than now (Lebedev 1952:48-50). It draws the conclusion that the hydrological conditions were very favorable for both human and animal occupations.

Another resource, the terrestrial shells *Helix*, is found in abundance at the Outer Mountains sites. The late Pleistocene sites are almost missing *Helix*, while every Holocene occupation is rife with these shells. Both Murzakkobian and Kukrekian cultural layers were represented by the strong aggregations of these shells as well as special objects for baking them (Bibikov 1941:140-141). Nevertheless, the terrestrial mollusks are not a valuable food for the low rate of protein, and conspicuous studies in prehistoric diet report the irreplaceable value of the meat nutrition (Bailey 1978; Rozoy 1978:1039).

The Crimean Final Paleolithic and Mesolithic hunters procured more than twenty species of mammals. Twelve of them were consistently hunted. The available data indicate that only the Outer Mountain area supplied a whole list of fauna (Fig. 5) apart from dzeiranic, which never moved through broken and forested landscape. It is worth noting that the game of the Outer belt is very varied as to behavior and combines features of migrant and sedentary species living on either open or protected landscapes. It can be accepted that the Outer Mountain area was used diversely by different game. The area might be a part of pasture space for red deer, roe deer and wild boar, whose populations could reside here annually, while bison, horse and saiga only temporarily entered this range, searching for seasonal grazing and shelter. Figuring out the functional capabilities of the described system, the main biological features of the relevant species should be kept in mind (Fig. 6).

Ungulate behavior and their method of site selection are prompted by three basic reasons. Such a territory has to meet the requirements of ungulate activities, namely nutritional, maternal, defensive, sexual, and those of comfort. Likewise, the area selection always goes with such important parameters as thickness and density of snow cover, availability of young green plants rich in protein, vitamins and mineral salts (Nasimovich 1955; Baskin 1966:153). So the ungulate way of life is very strong ly dependent on the landscape. Such key behavioral features as single-families or large gregarious groups come into being in relation to the landscape available. The spatial structure of some species terms a couple of different landscapes that let them find the optimal conditions for different purposes, and they are moveable for this reason. To guarantee a successful hunter-gatherers economy required knowledge about pasture distribution, seasonal pasture location, rout of migrations and animal behavior.

The red deer and other sedentary ungulates (cattle, sheep, goat, roe deer, and elk) shuttled through places annually (Darling 1937; Jewell 1966). The summer places spread through the uplands, while winter locations ("home lands") were scattered as patches foothills. Red deer never make a single-moment migration, but move gradually immediately after the snow line.

Roe deer tend to avoid thickets; hence the Inner

Mountain range was not favorable to them. Basically, these species reaches a maximum density in the light forests (Vereschagin and Rusakov 1979:160). Roe deer prefer open areas. The winter season is characterized by aggregations, which biologists usually call "companies", and by searching for natural refuge. Roe deer do change seasonal pastures very quickly and form big aggregations at that time, in contrast to red deer. That allowed assuming that the Outer Mountain belt served as a year-round pasture area for roe deer.

The wild boar otherwise prefers thicket areas in deep and narrow ravines. This kind of landscape is explicitly found within the Inner Mountains and far less easily elsewhere. Hence, the wild boar had a much more extensive biological base than roe deer. For this comes grew extremely during the Mesolithic period (Bibikova 1959:124).

It is common knowledge that saiga and dzeiranic fully exemplify nomadic behavior. They use two types of seasonal pastures - winter and summer. The distance between them could exceed several hundred miles. The saiga winter pastures traced within the Outer Mountain belt (Rakov 1963:140). Lower snow cover and natural refuge are well disposed to saiga biological activities, centering on hierarchy and mating. When the mating season is at its highest in December, these animals become particularly vulnerable; the males are absolutely defenseless, which explains the saiga male preponderance through out Crimean Paleolithic records (Barishnikov *et al.* 1994).

It is quite possible that both horses and donkeys spread through the Outer Mountains on a seasonal cycle. This is a plausible assumption based on the flexible character of these animals. They may have several seasonal pastures. So, it is usually complicated to identify each of them with a season. The Outer Mountains might be used during the winter, while the mating season (springtime and beginning of summer) might be in Kertch peninsula, whose landscape is fully consistent with horse activities (hierarchy and aggregation).

The mapping data shows that the Inner Mountain range reveals no Final Paleolithic and Mesolithic sites (fig 6). At the present time this area is rich in forest. The rivers flow rapidly there. So the wild boar population could find good feeding there, while red deer crossed this zone only during local moves, and hunting activities might be limited.

The Crimean uplands contain mainly Kukrekian and Murzakkobian sites , except for the Su-At III location from which the Siurenian assemblage is reported with no clear stratigraphical context (Yanevich 1987) (Fig. 4).

All open-air sites were found in the same topographical conditions - within small ravines close to water-springs. The site pattern shows a bunch-like distribution beside the dissipated springs. These are multilayer sites as a rule. The cultural deposits were formed as multi-visited occupations. The palynology indicates an open landscape with a meadow and meadow-steppe cover, which spread over the area in the early Holocene just at the beginning of the occupation of these sites. It is worth noting that the Crimean uplands do not provide any sources of raw materials pertaining to lithic production. Unfortunately, the open-air upland locations have no well-preserved organic materials; hence, the hunting game pattern is just hypothetical.

The Crimean Paleolithic and Mesolithic records provide nothing similar to be referred to a classical coastal zone exploration, which is well known by the example of Romanelly grotto (Jarman 1972:716-720). The Crimean coastal sites were studied by means of excavations (Laspi VII, Mis Troitsy) (Telegin 1982; Yanevich) as well as surface prospecting (Koreiz 3 and Artek) (Zuk and Cohen 1996) (Fig. 4). The Mesolithic materials of the Kukrekian and Murzakkobian explicitly limit the data. As a rule, sites appear in bunch concentrations. Its cultural deposits represented by *Helix* concentrations include lithic materials and very fragmented bones that are well associated with so-called "shell middens". The multi-layer sites constitute several thin horizons sometimes separated by sterile levels. Such a pattern obviously indicates repeated seasonal occupations. There is nothing to tell about an aquatic resource acquisition that is important to this study. Observation points not to exotic products, but to the seasonal fluctuations and distribution of the traditional terrestrial resources, on which the coastal zone economy appears to be based. The remains of aquatic resources, such as shellfish, mollusks and crawfish, as well the origin of fairly long-term settlements were getting a start in the coastal areas with terminal Neolithic, while semi-settled occupation started in the foothills earlier (Cohen 1996a). These observations seem to agree with the general picture to the beginning of the worldwide aquatic resource exploration at about 5000 BP (Yesner 1980, in Henry 1991:361). It is necessary to point out the no matter raw materials available through Crimean coast.

Starting with the basic assumption that the hunter-gatherer way of life mainly depended on resource availability, their structure and distribution (Harpending and Davis 1977:275), this section should be concluded as follows. While the Crimean Final Paleolithic groups consumed the Outer Mountains resources, the Mesolithic people were unable to do so since the resources were obviously scattered.

IV. Subsistence strategy

The basic trends in the study of foraging economies were formed at the end of the 1960's (Lee and De Vore 1968). The concepts and methods were critically analyzed and even refocused. For example, a three-part model of the "controlled resources exploitation" was defined, replacing traditional two-part division into "farmer" and "hunter-gatherer" economies (Bailey 1981:12). It has become clear that the same-level societies could indicate a notable variability due to economic behavior. Moreover, it seems to be true that some past cultures were endowed with more developed social and economic strategies than some present ethnographic societies.

As to the diversity of paleoeconomic models currently in use, three basic concepts must be taken into

account: "the subsistence strategy", "the site catchment exploitation" and "the land's carrying capacity". The goal is to reconstruct the different forms of social behavior - economy, sociology, ideology in order to specify a given way of life.

The subsistence approach usually challenges an acquisition strategy, which is consistent with many natural aspects of the foraging societies (Dennell 1979:271). But a conclusive model is still difficult. For example, the economic studies of such well-excavated site as Star Carr have yielded four different interpretations at least (Andersen *et al.* 1981:31-46).

The technology and resources come together in making "the site catchment area" exploration (Higgs *et al.* 1967; Vita-Finzi and Higgs 1970; Jarman 1972; Roper 1979). The main idea is to focus on the value and functionality of the territory in relation to aspects of cultural transformation, such as economy and sociality.

The "carrying capacity" concept offers an ability for demographic reconstruction counting all possible fluctuations in the distribution of the traditional terrestrial resources (Hassan 1978). Unfortunately, our data do not lend themselves easily to this approach, since any tentative calculations immediately raise questions of judgment. The biological density was definitely not uniform here, and the spatial and ethological features cannot be calculated simply on an annual basis. In other words, we are dealing here with seasonal fluctuation of resources and not with simple density (Glassow 1978:340-348).

It is necessary to compound the basic taxonomy (Soffer 1989:719): (1) foragers and collectors (Binford 1980), (2) those who use food storage and who do not (Testart 1982), (3) those who procure and consume resources in an "immediate return system" or a "delayed return system" (Woodburn 1982). The different classifications presuppose the same internal regularities in the different hunter-gatherer economies. Thus, the settled and semi-settled societies have to use the same food storage practices, and mobility is usually characterized by simple adaptations. Thus, the landscape is responsible for both biological and related social systems as different parts of the foraging case.

Archaeological research is dealing with more or less stable social-cultural systems. Otherwise they could never be marked in evidence. Therefore the stability has to be supported by the same principles of human behavior, while the ways to realize them were not necessarily the same. The principles were consistently stressed as the tendency to minimize energy for food procurement (Vita-Finzi and Higgs 1970) and to develop as much predictable and reliable resources as possible (Hayden 1981:523). Since the reproduction of both wild animals and plants fully agree with a cyclical mode, seasonally is a basic feature of hunter-gatherer economy.

The indicative seasonal resources of the Crimean Final Paleolithic and Mesolithic are fish and terrestrial shells. The fish remains are only found in the sites of the Outer Mountain belt (Murzak-Koba, Kara-Koba, Shan-Koba, Siuren II, Alimovskiy rockshelter), while *Helix* shells were practically everywhere. "Fish hunting" was provided by means of a spear headed with a harpoon. Such harpoon heads were found at the sites of the Black River's canyon (Murzak-Koba, Kara-Koba) as well as the coastal site Laspi VII. The fish composition (Black Sea salmon, roach, chub, silurus, and zander) definitively corroborates a seasonal acquisition. All of them are migratory species, except for silurus. So they might be available for a limited period in the springtime, when fish form big aggregations (Lebedev 1952:49).It seems that the fish were consistently "hunted"and selected in accordance with nutritional value and size. For example, the site of Kara-Koba yielded salmon remains only (255 bones), while the Murzak-Koba was rich in big samples, such as zander (up to 0.9 m), silurus (1.72 m) (Gromov 1953:46). As is well known, fish food is more valuable than any plant food and is hunter-gatherers' favorite for it contains high-quality protein. As to the Crimean data, fish 'hunting' appears to be a very local phenomenon that is marked by the limited area of Murzakkobian spread within the Outer Mountains.

The *Helix* hole up for six months. The most suitable period to gather them is April / May (Rozoy 1978:1039). With the beginning of the warm and humid second half of the Preboreal, the *Helix* population increasingly spreads over the Crimea. The site structures became more and more related to new nutritional components. The cultural layers contain abundant *Helix* and associated objects, such as "baking peat" which was placed close to the central fireplaces. The simple method of cooking them has been found and tested both archaeologically and experimentally (Bibikov *et al.* 1994). Needless to say, the terrestrial shells have a very low protein value and therefore cannot be relied on for extended periods. They were rather a resource for winter storage and consumption. Likewise, when the Murzakkobian population started to experiment with wild boar taming, the *Helix* consumption was sharply reduced. The Murzakkobian layer of the Shan-Koba rockshelter (l. 3) yielded the special chamber for shell storage in the rear bedrock (1.1 x 0.35 m). The stone blocks of its entrance, and shoulder bone of big bustard were found inside. This was clearly used to take *Helix* out. Therefore this is a very simple indication of storage practice and has a little social definition. The fish and terrestrial-shells consumption was motivated by the fact that both are high reproductive resources (see: Hayden 1981).

The Crimean Final Paleolithic and Mesolithic subsistence strategy mainly focuses on ungulate acquisition. One needs to define the different expression of this strategy between the Final Paleolithic and the Mesolithic and to construct appropriate but very different models for each. Thus, the Shankobian population used the Outer Mountains on an annual basis and did not settle or even hunt anywhere else. The presence of well-organized structures, such as fireplaces and dwellings (?) indirectly indicates more or less long-term occupations, usually interpreted as base camps or residences. The Shankobian settlement pattern, seen in terms of site

catchment analysis, indicates the presence of Plato and depressions as basic topographical components within each catchment area. The settlement structure makes up therefore very capacious pasture as well short distances between site and different resource locations. Current observation conforms with the idea that limited places with resources were consistent with the growth of a settled way of life as well as to the effects of high population density (Hamperding and Davis 1977:275).

Viewed from the site distribution data, the Shankobian pattern indicates "latitudinal" moves within the Outer Mountains that is different from the vertical moves known from other cases. Any multiple-repeated occupation suggests to one that it is due to exhaustion of natural resources, but it is as likely due to general tendencies. The practical reasons of why one or other site was settled, left and resettled, might be irrelevant. For example, the micro-stratigraphy data from the excavations at the Skalistiy is marked by evidence of successive reducing of the living floors, which were affected by the growth of the rock-fall activity and by climate change (Cohen 1995a).

It is no longer a matter of debate that the fully settled model has no analogies in the ethnographic record (Price and Brown 1985:4). However, structures associated with complex land use basically seem to be more settled or semi-settled. Whether or not high resource capacity led to the growth the settled way of life, the larger part of the population took the same location on the annual basis.

The nomads and settled ungulates associated with the Shankobian had to have used the different pastures within the Outer belt and had to have understood the local annual circle. Therefore, these animals could never be in a position of strong competition, and the hunting was rather reliable and predictable. The Crimean Late Glacial forest-meadow vegetation does not argue this conclusion.

The last stage of Shankobian development is characterized by an occurrence of full-scale internal differences. The cultural layers become very thin. The dwelling structures are missing. The quantity of artifacts and its density to the layers decreases. The living floors are weakly structured. Some Shankobian sites (Vodopadnij grotto) went up (800 m) the Mountains area, while Siurenian started with upland exploitation. It might be that the decrease of biological carrying capacity within the Outer belt is the most probable explanation for this. The archaeological data raise the question of the population response to the new strategy of greater mobility, which, in turn, exercised influences on technology and on general cultural transformation.

How does this relate to Murzakkobian origins? The changes in the settlement pattern seem to have been responses to redistribution and to the growth in mobility, since new areas were involved in the annual economy. The Kertch peninsula became available to nomadic ungulate hunting (*Bos/Bison*, horse, and dzeiranic). Based on behavioral evidence, these nomads would occupy such landscapes in springtime and early summer.

The Outer Mountains still served as seasonal grazing for saiga; and where site catchment areas overlap the saiga aggregation places, the high rate of this species becoming the hunting game continue until the Neolithic (Alimovski rockshelter). However, both wild boar and roe deer are fully dominated there. There is the question of why the red deer is so rare in the Murzakkobian records of the Outer Mountains? Hunters live where food is available (see: Delpech 1989:67). Every Murzakkobian site is focused in Inner belt, which, as we know, rises up to 500-600 m above sea level. Hence, the site catchment areas pertained to the annual territory of these ungulates. The winter camps were in the valleys, and winter hunting in such landscape should focus on red deer (Dennell 1985:67). Since the rise in temperature usually precedes the changes in vegetation cycles, the summer pastures move to the uplands, and winter homelands go to the slopes and/or coasts. The Boreal rise in temperature was probably marked by this effect and the red deer homelands might be reestablished close to the Main Mountain ridge. This hypothesis agrees with red deer behavior, and the same regularities are reported from different regions (see: Baskin 1976:217-220).

The wide exploitation of the flat and deforested uplands started from the second part of the Preboreal and it could focus on summer red deer hunting. The Murzakkobian settlement pattern has no long-term occupied sites. The annual cycle embraced four landscape areas, which were explored on a seasonal basis. The coastal zone was available during late summer, autumn and early winter; the uplands were in use during the summer, the Outer Mountains - at the winter and spring, and the Kertch peninsula in the late spring and the summer.

By and large, the hunting is the focus of reconstruction of any insights of the regional palaeoeconomy. The general reason that one or another strategy suits to ecology, landscape, animal behavior is a state of hunting equipment. One assumes that hunting requires from humans a deep knowledge of the environment and animal behavior. The dual classification of hunting as "planned" and "opportunistic" activities makes much sense in this matter (Higgs 1975; Cohen *et al.* 1986). The local biological interface of the settlement patterns within the Outer Mountains wraps the pastures of both migratory and settled ungulates. The data do not permit to speak about some majority of one or another species, except in very early Shankobian assemblages. One may, however, assume that limited hunting activities occur in periods when the migratory animals form big aggregations in the course of seasonal moves. One of the widely distributed hunting methods, taking control of herbs was probably out of local repertoire. The biological data coupled with available taphonomy, let us assume that so-called "companies", i.e. groups of animals of 5-20 that spent much the year together were mainly hunted. Basically, the companies graze separately to one another, and the distance between individual animals of a "company" is so slight as to make sense of combining different hunting methods, such as disadvantage,

ambush, approach, pursuit, encounter, though the pursuit method is undoubtedly much less effective (Rozoy 1978:1044). The site distribution within the uplands and the Kertch peninsula clearly indicates gravitation to the springs, which, in turn, are an integral part of each ungulate locus; this points to ambush archery hunting as an effective and consistent tactic. Furthermore, archery hunters afford the consistent hunting of all sizes game wiof th a variety of hunting techniques (Churchill 1995:21). Archery is a very indicative feature by the presence of geometrical microliths in the archaeological record. As we have seen, the Crimean Final Paleolithic and Mesolithic industries are clearly oriented this way.

Thus, it is reasonable to conclude that subsistence strategies of the Crimean Final Paleolithic and the Mesolithic were organized differently. The first one appears to be based on sufficient resources, stable occupation and exploitation of the same landscape. By contrast, the Mesolithic economy started with the expansion of annual territory over several landscapes, as well as an increase in mobility and seasonal food procurement. This picture is quite different from one that sees a uniform system with two seasonal cycles (see: Bader 1940; Bibikov 1950; Yanevich 1990).

From the point of view of Binford's schema (1982), the Shankobian subsistence is a variant of the "logistic" model, while Murzakkobian one maintains the "point to point" foraging strategy.

Over forty years ago, the Crimean Final Paleolithic and Mesolithic data were used in the development of the "crisis paradigm" in prehistory, the "crises of the hunter-gatherer economy" (Bibikov 1981). The basic ideas are still valuable for many workers, especially in Eastern Europe. Hence, it is not possible to avoid further discussion of this matter. Bibikov stressed the point that extinction of big mammals was brought about by a reduction of land carrying capacity, while the population responded to the scarcity of natural resources by a rise in mobility. Non-meat products become basic food resources. Insufficient meat food value is also indicated by high fragmentation of hunting prey in the Mesolithic layers. Nutrition declined almost to starvation. In other words, the basic issue for the economy was to mind a "survive strategy" for a large population in conditions of resource scarcity. Let try to examine this subject from another angle. Every ecological system of the past has a higher carrying capacity than the modern compatibility as a rule (Mellars 1986). Likewise, the Mountain's deciduous forest offered a very productive ecological system (Baskin 1976, Tabl. 1a). Hence, the Crimean environment had potentially much more capacity than that been assumed by the crisis concept. The poor structure of the Mesolithic sites show the effect of high mobility, since none was used more than a couple of months per year. The fragmented bones are indicative of a high degree of hunting game utilization as well and not necessarily of starvation. Moreover, the real structure of hunter-gatherer nutrition is in many cases quite different than that found among site remains (see: Dennell 1979:129-130).

Bibikov found similar evidence to support his suggestions about the origin of agriculture. One should mention the other developments of the crisis paradigm, which concern environmental changes, a misbalance between population growth, resources availability, and social environment (see: Shnirelman 1992:26; Bender 1978; Cohen 1977; Stanko 1982:86). It is reasonable, however, to stress the difference between general tendencies and regional reconstruction, which are often tempted to appeal to general forces. For example, the Crimean Neolithic was never concerned with real complex agriculture and stockbreeding. The hunter-gatherer economy had long been Neolithic (Cohen 1996). Thus, the crisis paradigm may be irrelevant to the sociological periodizations of prehistory as well to universal explanations of culture changes. Each reality is marked by a crisis stage, but the "causes" and "effects" are not necessarily the same and have to be defined in each separate case.

While the Crimea had no real system of agricultural production, it did take new steps to animal control, such as dog domestication in the Final Paleolithic and wild boar taming in the last stage of Murzakkobian development. Thus, the Shankobian crisis prompted cultural transformations and increase in mobility while the Murzakkobian response was to turn to domestication.

The expanding of annual territory, the increase in mobility, technological innovations, the procurement of new resources, and the reduction in groups' size - these are caused by population increase (Smith 1972:5-18). Should the demographic shifts be found everywhere, then, when subsistence changes and "culture making" processes are going on? But there is no basis for believing in a single demographic tendency through out the Crimean Final Paleolithic and Mesolithic for that reason.

Economic behavior is deeply enmeshed in the social sphere (Bailey 1981:3). Any area of long-term economical activity has been a subject to human emotional, mythological and creative factors. The prehistoric societies engaged in a remarkable variety of ritual and mythological actions, which maintain a land as a part of the socium. The fact that the Outer Mountains were involved in different subsistence systems appears to be very relevant to the sociological explanations of the particular social status of this area.

As a matter of fact, it has been suggested that the hunter-gatherers have two categories of territorial relations, namely economic and religions. Kin (lineage) is a matter of ideological relationships, but band (local group) is tied to economic functions (Kabo 1986:66). While Shankobian fully related to the Outer Mountains, the Murzakkobian has much less economic dependence on this area. Hence, the fact that all Murzakkobian burials were found there, suggest that a very particular ideological value.

IV. Mortuary practices and symbolism

The study of both burials and portable art faces problems of ideological and spiritual aspects of social life and they are often puzzling for this reason. Moreover, the entire

subject is surrounded with controversy and is very indirectly related to material culture; what people "think" is rather more complicate than what they "do".

The study of animistic imagination is art and mortuary practices may turn to ethnographic analogies. But this meets with at least two obstacles. First, the ethnography is often about societies whose social structures are basically distorted and whose kinship organizations may be close to extinction. Second, the prehistoric worldview is dualistic in its nature and the same dualistic forms of mentality still characterize modern humanity. Thus, one of the main functions of culture - to reconcile in our consciousness such contradictions as those between space and chaos, private and public, real and unreal, living and dead - have not significantly changed and are therefore difficult to relate to changing conditions in prehistory.

The dualistic manifestations and variability in Late Prehistory is impressive (see: Tylor 1988; Frazer 1990; Levi-Straus 1965; Tokarev 1990, and others). Likewise, where the kingroup is a basic unit of society (as in early band ideology), death signifies merely a simple move to the ancestral band or totemic center (Bromley 1986:442). Hence the culture under consideration in early societies relies on the animistic imagination as an important resource in building kinship relationships, laws and moral norms, as well systems of orientation to time and space.

When we are talking about cultural diversity, it immediately raises the question of symbolism, its understanding and recognition. Many authors have noted that all modern cultures share an underlying similarity of nature, in that cultural behavior is largely symbolic, and that individual cultures are identified and transmitted through learning of those symbols (Chase and Dibble 1987). This conclusion challenges some others relevant issues. For example, the more prehistoric cultural variability we are dealing with, the more complex symbolic underlies is anticipated to the case.

The mortuary practices in the Crimean Mesolithic were found in the site of Fat'ma-Koba, l. 4 and Murzak-Koba, l. 3, which being to the first and second chronological groups of the Murzakkobian (Bibikov *et al.* 1994).

The multi-layer site Fat'ma-Koba is located in the southwest Crimea, in the cliff of the Kubalar-Dere ravine. The asymmetrical rockshelter is 25 m long and 5 m high. The burial was excavated in 1927. Later excavations were made in 1956-1959 (Bibikov *et al.* 1994:70-102). The excavations took had no special care to relate the burial to stratigraphy, although a review of all available materials was made still later to establish cultural and chronological affiliations (Bibikov *et al.* 1994).

The stratigraphy refers this interment to the end of fourth cultural layer accumulation, with association to the early Fat'ma-Koba industry of the Murzakkobian. The subject was buried in the southeast oriented pit-grave. The skeleton lay on the right side in strong flexed position that suggests that the dead man was tied. The oval and stretched pit grave (1.25 m long, 0.6-m wide and 0.4 m deep) was fully consonant with body size and position. The pit's walls were almost vertical. A more or less dense stone ceiling covered the skeleton. A thin burned-clay spot was found immediately above the pit grave. Thus, the pit-grave was clearly made in accordance with to a ritual (direct correspondence between pit size and body position), and then the tied body was put into the pit and covered by the stony ceiling and soil. The uppermost surface was covered by clay and burned. There are no data on any burial goods in the pit-grave.

The fossil was studied by Debetz (1936, p.144-157) and subsequently by Gerasimov (1955:250-252). The skull and teeth gauged the sex. It was a man 40 years old and 68 inches tall. The skull was rather big but not massive one. Eyebrow arches were slightly developed for a male. The face was rather small, although bigger than those throughout regular European groups. The eye-sockets were oval, and the teeth are very effaced. The physical anthropologists unanimously pointed out that the Fat'ma-Koba subject was genetically consistent with "Europeoid" groups, although Cro-Magnon features are less expressed in this case than in the Murzak-Koba specimens.

Mukzak-Koba grotto

The site is located in the southwestern Crimea, on the left bank of Chernaya River at the small ravine named Boklu-Dere. This last belongs to the lime massive formation running from the Baidar valley. Bibikov dug this grotto in 1936 and 1938 years. The very limited area of cultural remains exceeded 14 m2, while the available space was at about 43 m2. The trial excavations found the presence of a double burial (Bibikov *et al.* 1994:103-127). The grotto has been considered as a three-level object; the lower cavity comprised the Upper Paleolithic deposits, the middle cavity - the Final Paleolithic and Mesolithic, and the uppermost level was a product of relatively recent wind erosion.

The double burial is found in layer 3, immediately close to the shell midden structure. The latter included a fireplace, the baking pit and strong *Helix* concentration. A stony ceiling of around 0.4 m thick covered the skeletons. Some limestone blocks were laid directly on the human remains. The comparison between the lower and upper horizons of this ceiling indicates that the big stones were put on the bodies at the beginning, while small pieces were added at the end of the mortuary procedure. Both bodies were buried directly on the living surface and covered by a stony ceiling.

The ruined blocks of bedrock, which had fallen down before, frame the burial place. The natural bedrock propped out the skeleton feet.

Layer 3 was subdivided into three sub-horizons, namely III/3 (under the burial), III/2 (burials level) and III/1 (above the burial).

All available data come up with the evidence of that the bodies were buried simultaneously and preclude an argument for consecutive burial (see: Hlobistina 1993).

Skeleton 1 (female)
It was buried on the back and in a north-south position. Basically, all the remains appear to be carefully arranged, although some of them had been damaged by carnivore activity. Clavicle, shoulder bone and the edges had been placed in anatomical order. The slight bends in the cubital joint right hand is laid along the trunk. The left hand bends at the elbow. The metacarpal lies by the rearmost part of the sacrum and bosom connection. Two phalanges of both little fingers were found missing for a non-taphonomic reason.

Skeleton 2 (male)
It was slightly displaced from the primary position - straight on the back. The skull's location is different from the female's. So the female face was turned up and her head lay on a stone, while the male's face was turned to the female.

Six lithic specimens (three retouched blades, a burin, an endscraper and a fragmented geometrical microlith) cannot be securely regarded as grave goods. At the same time, the fragment of an ungulate rib, rich in traces of use, that is found near the female's hand had, more than probably, been placed together with dead person.

The anthropological conclusions by the different workers are very similar to each other (Zirov 1940; Gerasimov 1955:244-249). Skeleton 1 is that of a female, 20-23 years old and 66 inches tall, while skeleton 2 is of a male, 45 years old and 70.8-72.8 inches tall. Both are consistent with the Cro-Magnon populations. Some differences are mentioned nevertheless, having nothing to do with sexual dimorphism: the female skull is prognathic, while the male one is orthognathic. Bone thickness, eye sockets, cheekbones, and jawbones appear to be different as well.

There is some difference between Murzak-Koba and Fat'ma-Koba skeletons. The latter have smaller body size, longer shank, smaller facial index and narrower eye-sockets, i. e. they have less expressed Cro-Magnon features (Zirov 1940:183; see also a conventional reconstruction: Fig. 7).

The cause of death of Murzak-Koba peoples is debatable and problematic. Bibikov had explained the death cause of the female in terms of some sort of violence, given the small cavity (of 12 mm diameter) reported on her sinciput (1981:53). Beyond that, physical anthropologist Zirov saw the cavity as being of "undoubtedly pathological" origin (1940:181). At the same time, the field notebook mentioned an arrowhead fragment in the male's sinciput. Unfortunately, there is nothing more to say in this subject.

The data analysis points to the following fact relevant to the symbolic issues:
- The Murzak-Koba double burial appears to be the result of simultaneous action;
- Both middle and upper phalanges on two little fingers of the female were chopped off for some years before she died, presumably as the consequence of some sort of ritual practice (Zirov 1940:181; Gerasimov 1955:249).

IV. Considerations

The theoretical issues regarding the mortuary practices in Prehistory touch on at least six basic cognitive aspects (Alekshin 1981:19). (1) An evaluation of the mentality and early religious imagination about death and disease. (2) The social ranking of different sex and age groups in prehistoric societies. (3) The social inequality. (4) The family's institutional evolution and presence of outsiders. (5) All aspects of cultural genesis. (6) The demographic tendencies. Since the basic cognitive area is only derived from burial data, let one try to proceed to the binomial structure of mortuary prac-

Figure 7 : Reconstructions of the Murzak-Koba interments (after Gerasimov, 1953)

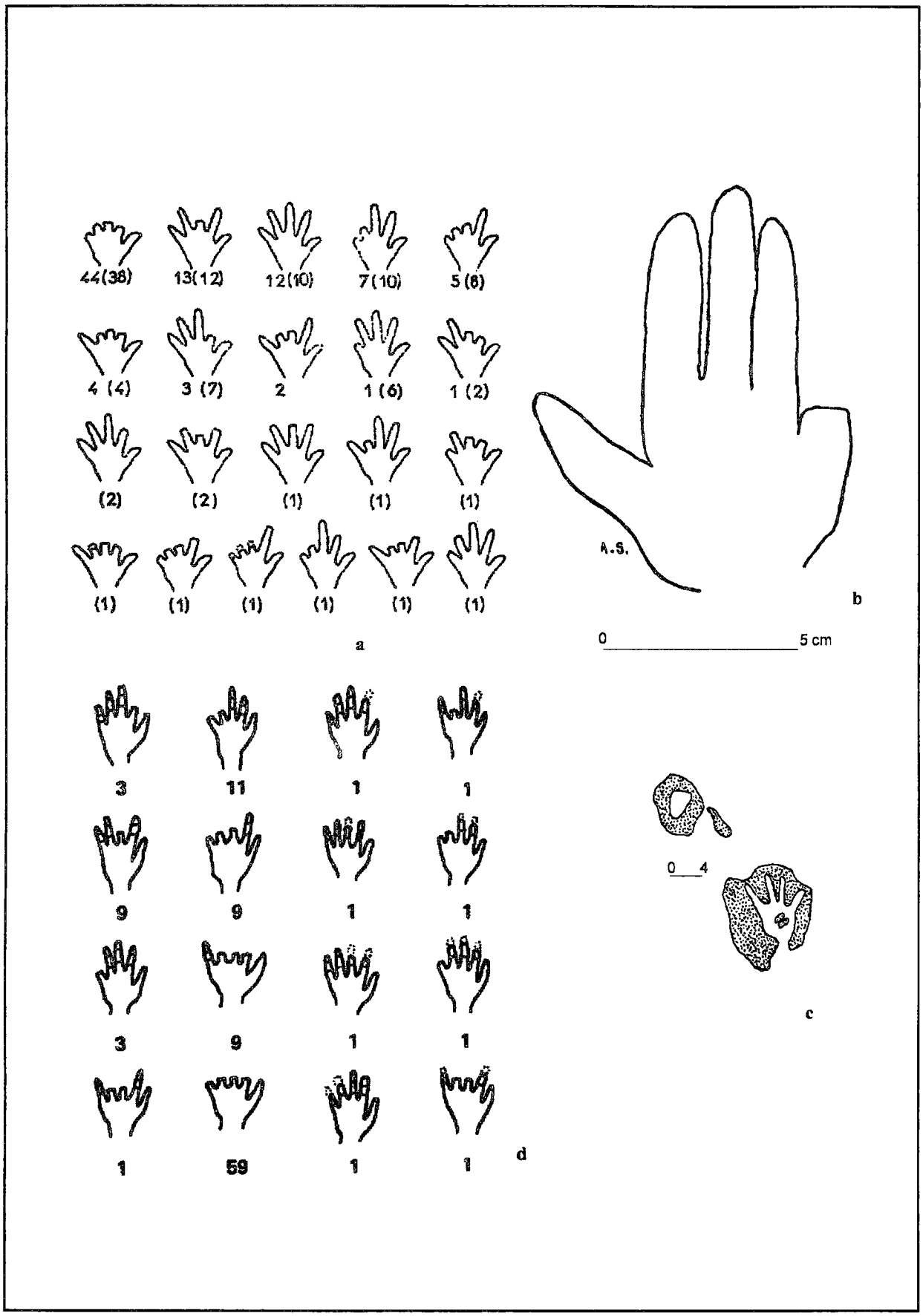

Figure 8 : Hand mutilations appearing on the walls of the cave of Gargas (a, b, c - after Clot, 1973 ; d - after Price et Feinman, 1997)

tice, i.e. its material and ritual components.

The Murzak-Koba double interment raises the question of possible biological or social kinship between buried persons. The burial groups in the European Upper Paleolithic and Mesolithic furnished evidence of biological and social kinship. First are burials dominated by "compositions", such as the mothers-children, brothers, and father-daughter. Judging by skull measurements, the high degrees of similarity or/and even identity appear to exist (Ullrich 1995:763-794). As mentioned above, Murzak-Koba crania are very different from each other (Zirov 1940; Gerasimov 1955) and, therefore, one has to dismiss possible suggestions of the biological kinship between them. Then, one may turn to the possible social relationship grasped with marital relations. If we well accept this suggestion, then the subjects might be affiliated to the same band but to different kin groups. Presumably, the basic ideological function of this burial was to maintain the particular social connections between these peoples as well between kin groups after death.

The mortuary practices in early Prehistory reflected issues of collective concern first of all, and not issues of personal concerns and emotions. Therefore, these practices undertook to preserve a social linkage between different kingroups after death, to reinforce the social norms within a group.

As mentioned above, a female from the Murzak-Koba burial had several knuckles missing. The physical anthropological conclusion was that this was unrelated to either death or her mortuary ritual. There are no analogies to this case in other burials and we must turn to ethnographic data, which indeed appears to offer some suggestions.

Pre-puberty amputation practices are well known among Dani people of New Guinea, where amputation tip fingers appears to be a part of a second-day mortuary ceremony. One or two fingers of girls who are close relatives of the deceased are chopped off (Heider 1970:155). Given the extraordinarily character of this fact in the paleoanthropological context, it is reasonable to examine closely this description by Karl G. Heider (1972:15): "Before a girl has reached puberty, several of her fingers are chopped off. This is a special ritual act, which is supposed to placate the ghosts, and is performed at the funeral of a person who has been killed in war. Two or three girls who are closely related to the dead person are brought to the funeral site early in the morning after the cremation. A man who is a specialist in this numbs the arm and with a sharp blow of a stone adz chops off two fingers. The wound is bandaged, and after a few weeks has completely healed. The fingers, which have been removed, are wrapped and hung where the ghosts will see them, and then eventually they are simply burned. Nearly every normal Dani woman has lost two to six fingers in this way." The idea of this rite consistent with some general concepts of aborigines of Australia and New Guinea - something should be destroyed for it to come it into being after death revival. Pyrenees cave art also yields some positive suggestions to the case. The single human hands are outlined on some of the cave walls, and, as is perfectly visible in the case of Gargas cave, these hands have several knuckles or even fingers missing (Clot 1973; Price and Freimann 1993:109) (Fig. 8). We may perhaps project these prehistoric mutilations up to a certain point, even while keeping mind differences in cultural or chronological contexts.

Kinship and lineage connections are to some extent anchored in nature, while wider social connections are more variably created by society (Kabo 1986:11). Some of the main functions of kin group are to enforce exogamy, to regulate family and marriage. These last regulate the relations between bands and optimize land use and subsistence practices. The hunter-gatherer ethnography gives indications of a relationship among increases in population density, exhaustion of resources and increases of ritual activity. High mobility and cultural diversity marked the Crimean Mesolithic. Such social and economic processes should have been subject to normative regulations and this is consistent with Murzak-Koba burial data.

As we discussed above, the stone ceiling of Fat'ma-Koba burial yielded a painted stone (Fig. 9). That is very rare within Paleolithic and Mesolithic records in itself. Some relevant analogies can be found in the archaeological data of the Epi-Gravettian layers at both Tagliente and Villabruna A rockshelters in the Venice region (Italy) (Lejeune 1998). The assemblages were recently excavated by Broglio and furnish more documented evidence than Crimean the case.

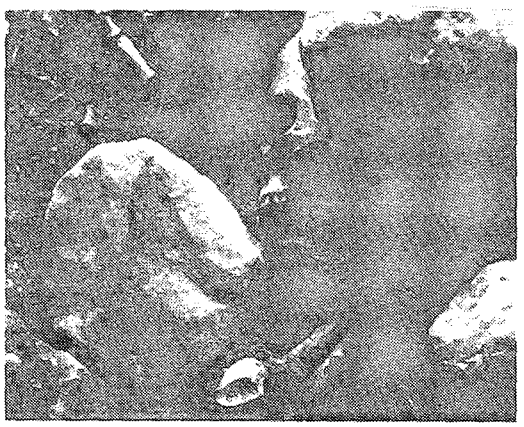

Figure 9 : Fat'ma-Koba internment

A Tagliente subject was buried in a pit-grave in the center of a rockshelter (60 x 60 x 60 cm). The male skeleton lay stretched on his back. The presumed age is about 22 - 24 years old. A stone ceiling overlay the body. The two biggest stones overlay the hips and appear to be engraved. One of them represents animalistic images, feline and bovine (horns, front, neck and withers). Funeral goods accompany the burial. The radiocarbon age falls to the Bölling interstadial (Broglio 1995).

The Villabruna specimen was buried in a sub-rectangular pit-grave stretched on his back. The skeleton was a male 25 year old and 68 inches tall. The assemblage yield-

ed an impressive set of funeral goods, which were probably enclosed in sort of a bag attached to the man's belt. The stone ceiling that overlaid the pit grave was covered by soil. Two ceiling stones appear to be four and two sides painted correspondingly (Broglio 1995). Judging from Broglio's presentation, the object concerns a hyper-anthropicals schema of a buried hunter and is fully consistent with death symbolism. The radiocarbon dates fall to the Dryas II stadial.

Broglio reasonably began with the assumption that these depictions report non-decorative meanings and similar images are well known from the later periods. The semantic character of the objects appears to be more complicated, however, and its interpretation depends on chosen methodological concepts.

Viewed from the basic assumption that each graphic and plastic depiction is a sign (Reformatorskiy 1989:27), the considered images have to be defined as sign-related objects. That may be subdivided into three categories, namely icons, index and symbol (I. Pers, see: Parmentier 1990:30-31). The Villabruna depictions provide then the evidence to the last group case, since its have nothing like icons or real objects.

There are probably two basic cognitive aspects in sign symbolism interpretation. The first appears to deal with such as "does this sign mean?" and the second tends answer "what does it depict?"(Bart 1989:247). The first question demands a wide body of data much more subjective as a rule. For example, a sign from Villabruna A burial could be interpreted as a schematic indication of a dead person (A. Broglio) and as a "tree of life" as well. The rich and synthetic fantasy allows to consider a Fat'ma-Koba depiction as being related to the solar symbol, etc. The second question obviously stresses the social nature of one or another society and its intrinsic cultural concepts. So the contribution of a semantic inquiry has more issues to social context then to the others.

The "early kingroup" appears to be a widely distributed aspect of the social organization in Prehistory (Pershitz and Traide 1986:122). The ideological, not economic, norms were managed by the kinship institution, which functionally is characterized by the idea of the "common ancestor" and internal marital prohibition (Kabo 1986). The lineage connections, therefore, were permanently strengthened and supported by means of blood relations, mutual aid, rites, cults, and the "ancestor cult" undoubtedly occupied a leading place. By the same token, the mythological tradition is an inalienable part of the cult and has come into being only from ritual activity (initiations and mortuary practices) as well as creativity.

Thus the marked stones from the burial ceilings described above could be defined as symbolic expressions of those kin groups to which the buried persons were affiliated. My personal view attributes the Azilian painted and engraved pebbles to the same sort of materialized myth-symbols. Since the kingroup is not responsible for the economic sphere at all, the changes appear to touch on human awareness rather than material activity. So the disappearance of realistic themes throughout Azilian depictions is very possibly an indication of changes in mythological traditions.

The next stage of "kingroup" development concerns the Late Mesolithic - Early Neolithic societies, since the real cemeteries start there (Moita do Sebastiano, Cabeco da Arruda, Cabeco da Amoreira, Hoedic, Teviec, Vedback-Boldbaner, Skateholm, Zvejnieki, Vlasac, Oleniy ostrov). Meanwhile, the wide spreading of the single inhumation practice [Murzak-Koba, Fat'ma-Koba (Crimea), Vata di Zambana (Italy), Cuzoul de Gramat (France), Birsmatten-Basisgrotte (Switzerland)] shares about the same chronological horizon (see: S. Kozlowski 1990:439). Almost 25% of buried individuals were found in the collective graves (Grunberg 1995:899). Most of them were probably blood relations, while the mortuary assemblages were formed in consequence of successive burial actions (Hlobistina 1993). The distinguished social feature of cemeteries themselves is their presumed affiliation with the whole kingroup. The mortuary practice however is still concerned to maintain the real or virtual (mythological) kinship after death, as well as to provide a "reunion with ancestors" and to consolidate legal and social rules. The sacral territories obviously appear at this time, with an imagery described by Stolyar: "The Dead unite the living Lives" (1994).

The growth of social complexity, related in the evolution of mortuary practices is detectable in different instances. How is the social nature of the Mesolithic apparent through this? There are well known Mesolithic burials that include red deer antlers, namely Teviec (Pequart *et al.* 1937), Bogenbakken and Skateholm II (Larson 1990). Basically, antlers underlay the skeletons either by surrounding them, being placed close to legs or heads of subjects. The particular status of these burials is seen in the unusual position within the cemetery structure (Höedic) or in pit grave, as the "sitting person" at the (Skateholm II-XV). In some cases, antlers were drilled and, for this reason, were consistent with a headgear or mask. The relevant interpretations assume two basic points. The first one does the offer about hunter-attracters buried and seems to be less objective than an attempt to explain the Prehistoric mortuary practices by means of an economic determinism and motivation. The other suggestion presumably concerns a particular social rank, such as "shaman"or "chief" (Otte 1993:80; Mikhailova 1994). However if we accept this hypothesis, we have to hypothesize a particular structure, such as a "chiefdom" in Mesolithic society, which, actually, comes into being much later. On the other hand, "shaman" suggest a very specific believing system, which comes by the Late Prehistory and not everywhere (Tokarev 1990:268-273).

The nuclear point in kinship ideology is the idea about origin from "a common ancestor" that came into being through either the father's or mother's lineage. The manifestation of a real lineage is usually rather ephemeral; the lineage concept looks like a long chain leading into a mythological ancestor. The rites are organized like mysteries, which keep the basic focus on the reproduction of kinship mythology. Apparently, the masks furnished with red deer antlers served as attributes of such performances, and red deer appeared as the totemic symbol of these

groups.

The other way to personify the "mythological ancestor" is a tradition of "a cultural hero" or "a human-animal". Some very famous Paleolithic depictions, namely human-bison from Les Trois Freres cave (Giedon 1965: Fig. 373), human-deer from Caverne du Volp (Breuil et Beguen), human-lion from Höhlenstein-Stadel (Bosinski 1990) are examples.

One of the important functions of the kin is responsibility for marriage regulation, since families have to be composed from people coming from different kin groups. So some members of the local group lived beyond and apart from their kin group. Their ideological affiliation was symbolically marked. This was done as a matter of mythology, style and prevailing aesthetic canon - body decorations, painted or engraved pebbles, or special totem related-depictions (for example, the head of elk from Olenij ostrov cemetery), antlers, etc.

Each special event in the ritual activity (initiations, marriage and mortuary practice) demands repeated contacts between different local groups. Those hunters who focused on acquisition of big grassland ungulates might arrange the ceremonial activity to seasonal hunting, as suggested by the "aggregation sites" concept (see: Conkey 1978). The forest hunters, being oriented to the settled game, had what those were different from such concentration and dispersion.

As is well known from present-day foraging societies, the kinship relationships are the basic criteria that define the moral and ethical norms of human behavior. Lawful norms basically focused on exogamy and come into being through repeatedly performed ritual actions. The mythology is a universal focus of such events. Therefore, this method of lineage regulation is "a custom, which appears to be functional instead of statute-book, lawful norms and etiquette on the historical level under consideration" (Bromley 1986:544-545). By the same token, one has to keep in mind that only kinship members are under its protection (Boas 1928:217-219).

Hunter-gatherer post-mortem ideas constitute a copy of the surrounding material world, and supernatural and natural, religious and non-religious ideas are inseparable from each other (Bromley 1986:533). Thus, the post-mortem concepts keep the same social-normative system and kinship structure that informs the regular life.

More or less complete skeletons represent the majority of the Upper Paleolithic and Mesolithic burials. That surely means some social regard for dead persons. The Mousterian burials on the other hand yielded evidence of postmortem manipulations of the corpse, such as dismembering and defleshining (Alekshin 1995:751). These customs have nothing to do with "early clan or early kinship societies", whose origins very probably coincided with the Upper Paleolithic explosion of the anatomically modern humans. Thus, the care for dead persons (full body and grave goods) aims to keep the body for "post-mortem life" and a reunion with relatives and a mythological ancestor. The people had to believe that being affiliated to the ancestral band they became protected by law. The burials we have considered here, with their marks and depictions (Fat'ma-Koba, Villabruna A), are individual phenomena that fall within this general case.

IV. Conclusion

The economic studies of past and present hunter-gatherers are quite disparate in their methods and definitions. Besides, the archaeological data are very often inconvenient and insufficient. While sharing the skepticism of Philip G. Chase as to our ability to thoroughly reconstruct subsistence systems (1991:181), we still try to use the best from different, even contradictory methods and theories.

There are two general approaches to subsistence, namely the optimal foraging theory (Winterhalder and Smith 1981) and the method of comparative research (Binford 1980 and 1990; Kelly 1983). Both appear to be based on resource variability and its seasonal procurement, since the sites have to be close to the resources as much as possible. These simple premises allow using the "presumed model" as a key component of the optimal foraging theory.

The basic predictive components chosen for this study are ungulate behavior, landscape diversity and settlement pattern data. We certainly cannot claim that ungulate behavior is characterized by totally invariable features. However, such an approach makes sense with some additional remarks. Only micro-features of ungulate behavior were involved in data analysis; these are provided by very reliable observations on wild animals (see: Baskin 1986). Furthermore, some wild and domestic animals have the same important features, such as birth time, mating season, etc. These data are successfully used in the study of seasonality (see: Rowley-Convy 1991). Similarly, the existence of limited geographical areas provides the evidence for objective reconstruction of the settlement pattern (Olszewski 1991).

Since resources are available on the spatial and provisional base, the subsistence proceeds mobility (Binford 1980; Kelly 1983; Vierra 1995). While residential mobility results in all members of the camp moving from one location to another, logistical mobility concerns individuals or small groups moving from a residential location (Binford 1980; Kelly 1983:278). The reality, however, is usually a combination of residential and logistical patterns (Kelly 1983). The Crimean data under consideration discerns differences between the Final Paleolithic and Mesolithic strategies and mobility. The first rather reminds one of the logistical models, while the second is close to that of residential mobility. Moreover, each cultural phenomenon is denoted by very special features of its own.

It is apparent that wild boar taming occurred at the end of the Crimean Mesolithic and was caused by the need to obtain more predictable basic resources while decreasing the mobility pressure (Cohen, 1996b). The same tendency is found in some others cultures of the Northern Black Sea coast, where the transition to cattle breeding was begun within local Mesolithic populations.

Thus, Neolithization started in the Crimea very early. Nevertheless, a complete Neolithic economy did not appear at this point, and possible explanations for this cannot be based on strictly economic factors (see: Cohen 1996b).

In complex societies, there is a relationship between sociological and economic explanations of the cultural changes. It is sometimes not very clear, however, what kinds of hunter-gatherer societies possess the features of complexity. What does the latter actually mean?

It is reasonable suggest that logistical organization is a good base for the growth of complexity. The larger sites with a high density of artifacts, and clear logistical strategy may be taken to indicate the increase of social complexity (Neeley and Clark 1991:128). These observations tend to be abundantly confirmed in the regions of primary Neolithization in the Natufian case (see: Bar-Yosef and Valla 1991) as well in secondary centers - Lepenski Vir (Voytek and Tringham 1990:442) or Bug-Dniester culture (see: Markevich 1976). However, in the case of the Crimea, Neolithization proceeds from residential mobility without any visible changes in the settlement pattern.

The very mobile economy is not a reliable strategy. The cultural complexity might be specifically concerned with increasing safety in such an economy (Brown and Price 1985). That is apparent in the intensification of ritual activity, with its very coherent symbolic manifestations. There are several basic indicators of complexity: population density, maximum settlement size, permanent shelter, permanent ceremonial grounds, art style and differences in burials (Brown and Price 1985; Binford 1990). The Mesolithic case considered here is definitely marked by few of them, such as cultural variability, developed mortuary practices, burial variability, and symbolism. Mutilated hands as well as symbolic marks, reported from the Crimean Mesolithic, are, probably, specifically related to the same cult of the dead. The Shankobian acquired some complexity features as well. Thus, burial and dusting by ochre of a human skull from the Zamil-Koba I rockshelter (Krainov 1938) as well as pieces of ochre from rockshelter Skalistiy. Hence, both Final Paleolithic and the Mesolithic of Crimea appear to have few features of so-called complex societies.

We now turn to another criterion that makes possible to proceed with the social and cultural explanations of the hunter-gatherers territorial organization.

G. Clark established three-type classification of territory due to subsistence of hunter-gatherers, namely annual territory, social territory and techno-territory (Clarck 1975:11-14). The next step was to suggest that spatial structures (site catchment area, annual territory and techno-territory) have a social function each in its own way (Cohen 1995c). This suggestion, it seems, does not argue with the current ideas that Final Paleolithic and Mesolithic social structures show a three-level system - band, tribe and "ethno-cultural unity"or "linguistic family" or "linguistic space of the cultural exchange" (Constandse-Westermann and Newell 1990; Cohen 1995c). The Northern European and Mediterranean Mesolithic exemplify these assumptions and point to the idea of the growth of a "linguistic space of cultural exchange" throughout the Mesolithic (Vernant 1991:140; Cohen 1997). This means that the very specific innovations were achieved by transferring the various cultural features through large areas.

It is now possible to make some concluding remarks.

The human mentality is universal to the same laws and tendencies (Tylor 1990). At the same time, striking distinctions between collective and individual ideas do exist (Levi-Bruhl 1930).

Art, mythology, ritual practices are undoubtedly related to each other in Paleolithic and Mesolithic Prehistory, without respect to individual human experience but with substantial tendencies to generate the collective values of the culture.

Since kinship is responsible for the ideological sphere of this society as well as for moral and legal regulation, all ritual activities specifically concern this institution.

Acknowledgments

I am especially grateful to Philip G. Chase and Igor Kopytoff for their concerns in reading and discussing the draft of this paper. I am, however, responsible for all ideas and possible errors in it.

References

Aleksandrov V.N., 1968. *Ecologiya kavkazskogo olenya, Trudi Kavkaazskogo gos. Zapovednika*, v. 10. Moskwa, "Lesnaya proomishlennost", 145 p. (In Russian).

Alekseev M., Chistyakov A., Scherbakov F., 1997. *Chetvertichnaya geologiya materikovih okrain*, Moskwa "Nedra", 237p. (In Russian).

Alekshin V.A., 1981. Traditsii i innovatsii v pogrebvalnom obryade (epoha pervobitnoobschinnogo stroya). Preemstvennost i innoivatsii v razvitii drevnih kultur. Leningrad, "Nauka", p.18-22. (In Russian).

Alekshin V.A., 1995. Mousterian burials in Eurasia. Otte M. (ed.). *Nature et culture.* Actes du Colloque Internationale de Liège, 13-17 décembre 1993, ERAUL 68(II):749-761.

Andersen J.M., 1981. The deer hunters: Star Carr reconsidered. *World Archaeology* 13-1:31-36.

Artuschenko A.T., Mishnev V.G., 1978. *Istoria rastitelnosti Krimskih yail I priyailinskih sklonov v golotsene.* Kiev, "Naukova dumka", 138 p. (In Russian).

Bader O.N., 1940. Izutcheniye epipaleolita Krimskoy Yaili. *Sovetskaya Archeologiya* 5:95-100 (In Russian).

Bader O.N., 1976. Nekotoriye itogi rabot pod navesom Buran-Kaya v svyazi s issledovaniyami rannego mesolita Krima. Vostochnaya evropa v epohu kamnya I bronzi. Moskva, "Nauka", p. 27-36 (In Russian).

Bailey G., 1978. Shell middens as indicators of postglacial economics: a territorial perspectives. The early postglacial settlement of northern Europe. London, "Duckworth", p. 6-44.

Bar-Yosef O., 1981. The Epi-palaeolithic complexes in the Northern Levant. Cauvin J., Sanlaville P. (eds.), *Prehistoire du Levant.* Colloque CNRS 598:389-498.

Bar-Yosef O., 1991. Stone tools and social context in Levantine Prehistory. Clark G. A. (ed.), *Perspectives on the Past. Theoretical Biases in Mediterranean Hunter-Gatherer Research*. Philadelphia, "University of Pennsylvania Press", p. 371-395.

Bar-Yosef O., Valla F.R., 1991. The Natufian culture (Introduction). Bar-Yosef O., Valla F. R. (eds.) *The Natufian culture in the Levant*. International monograph in prehistory 1, 637 p.

Barishnikov G., Kasparov A., Tihonov A., 1994. Les chasseurs paléolithique a la saïga en Crime. *L'Anthropologie* 8:3-13.

Bart R., 1989. *Izbrannie raboti. Semiotika. Poetika.* Moskva, 615 p. (In Russian).

Baskin L.M., 1976. *Povedeniye kopitnih zivotnih*, Moskva, "Nauka", 293 p. (In Russian).

Bender B., 1978. Gatherer-hunter to farmer: a social perspective. *World Archaeology* 10:204-223.

Bibikov S.N., 1941. Ob ispolzovanii ulitok helix v pozdnepaleoliticheskoe vremya. *Voprosi Antropologii* X:140-141. (In Russian).

Bibikov S.N., 1981. Epoha mesolita. *Istoriya Ukrainskoy SSR*, t.I, Kiev, "Naukova dumka", p. 45-54 (In Russian).

Bibikov S.N., Stanko V.N., Cohen V.Yu., 1994. *Finalniy paleolit i mezolit Gornogo Krima*, Odessa, "Vest", 237 p. (In Russian).

Bibikova V.I., 1959. Fauna iz navesa Fat'ma-Koba. *Kratkie soobscheniya Instituta Archeologii AN USSR* 8:120-154. (In Russian)

Bibikova V.I., 1985. Ohotnichij promisel v paleolite I mesolite Severnogo Prichernomor'ya. *Kratkie soobscheniya Instituta Arheoligii AN SSSR* 181:17-19 (In Russian).

Bibikova V.I., Belan N.G., 1979. Lokalnie varianty I gruppirovki pozdnepaleoliticheskogo teriokompleksa Yugo-Vostochnoj Evropi. *Bulletin Moskovskogo obschestva ispitatelej priridi* 84(3):3-13 (In Russsian).

Binford L.R., 1980. Willow smokes and dogs tails: Hunter - gatherer settlement systems and site formation processes. *American Anthropologist* 45:4-20.

Binford L.R., 1982. The archaeology of place. *Journal of Anthropological research* 1/1:5-31.

Binford L.R., 1990. Mobility, housing, and environment: a comparative study. *Journal of Anthropological Research* 46(2):119-151.

Boas F., 1928. *Anthropology and modern life*, New-York, 320p.

Bosinski G. 1990. *Homo Sapiens. L'histoire des chasseurs du Paléolithique supérieur en Europe (40000-10000 avant J.-C.)*, Paris.
Broglio A., 1995. Les sépultures épigravettiennes de la Vénétie (Abri Tagliente et abri Villabruna). Otte M. (ed.), *Nature et Culture*. Actes du Colloque Internationale de Liège, 13-17 décembre 1993, ERAUL 68 (II):847-869.

Bromley Yu.V. (ed.), 1986. *Istoriya Pervobitnogo obschestva. Epoha Pervobitnoy rodovoy obschini.* Moskva, "Nauka", 572 p. (In Russian).

Bromley Yu.V. (ed)., 1988. *Istoriya Pervobitnogo obschestva. Epoha klassoobrazovaniya.* Moskwa, "Nauka", 565 p. (In Russian).

Brown J.A., Price T.D., 1985. *Complex Hunter-Gatherers: Retrospect and Prospect. Prehistoric Hunter-Gatherers*. New-York, "Ac. Press", p. 435-442.

Cohen M.N., 1977. *The Food Crisis in Prehistory*, New Haven, "Yale University Press".

Cohen V.Yu., 1991. Finalnij paleolit Gornogo Krima. *Avtoreferat kandidatskoj dissertatsii*, Kiev, 23 p. (In Russian).

Cohen V.Yu., 1994. Girs'kokrims'ka kultura (do problemi kulturno-istorichnoi tipologii finalnogo paleolitu). *Arheologiya* 4:5-19 (In Ukrainian).

Cohen V.Yu., 1995a. *O functsii stoyanok v grote Skalistiy. Issledovaniya po arheologii Krima v 1994 godu*. Simpheropol, "Tavriya", p. 24-26.

Cohen V.Yu., 1995b. Siurenskaya finalnopaleoliticheskaya kultura (materiali I diskussii). *Arheologicheskij almanah* 5:112-122.

Cohen V.Yu., 1995c. O sotsial'noy funktsii tewrritoriy ohotnikov-sobirateley (materiali i diskussii). *Arheologicheskiy al'manah* 4:125-131 (In Russian).

Cohen V.Yu., 1996a. The Upper Paleolithic of Crimea. *Anthropologie et Préhistoire* 107:93-108.

Cohen V.Yu., 1996b. Neolithization of the Crimean Mountains. *Préhistoire Européenne* 9:417-433.

Cohen V.Yu., (in press). *The population of the Southeastern Europe Plain after the maximum of the second Pleniglacial.*

Cohen V.Yu., 1997. Do pitannya pro tipologiyu etnichnih spilnostey (za meterialami finalnogo paleolitu Seredzemnomor'ya. *Arheologia* 2:18-29, Kiev (In Ukrainian).

Cohen V.Yu., Chabai V.P., Stepanchuk V.N., 1986. K metodike izucheniya ohoti v paleolite. Hozyaistvo I kultura doklassovih I ranneklassovih obschestv. Moskva, "Nauka", p. 169-171. (In Russian).

Cohen V., Gerasimenko N., Rekovetz L., Starkin A., 1996c. Chronostratigraphy of rockshelter Skalistiy: implications for the Late Glacial of the Crimea. *Préhistoire Européenne* 9:325-356.

Clark G., 1975. *The Early Stone Age of Settlements of Scandinavia.* Cambridge, "University Press".

Clottes J., 1989. Le Magdalénien des Pyrénées. *Le Magdalénien en Europe.* Liège, p. 281-357.

Clot A., 1973. *L'art graphique Préhistorique des Hautes-Pyrénées.* Zaragoza, 157 p.

Chase Ph.G., 1991. Issues in Biological and Behavioral Evolution and the Problem of Upper Pleistocene Subsistece. Clark G. A. (Ed.). *Perspectives on the Past. Theoretical Biases in Mediterranean Hunter-Gatherer Research*, Philadellphia, "University of Pennsylvania Press", p. 183-193.

Chase Ph.G., Dibble H.L. 1987. Middle Paleolithic Symbolism: A Review of Current Evidence and Interpretations. *Journal of Anthropological Archaeology* 6:263-296.

Churchill S.E., 1994. Weapon Technology, Prey Size Selection, and Hunting Methods in Modern Hunter-Gatherers: Implications for Hunting in the Paleolithic and Mesolithic. Peterkin G. L., Bricker H. M., Mellars P. (eds.). *Hunting and Animal Exploitation in the Later Paleolithic and Mesolithic of Eurasia, Archaeological Papers of the AAA* 4:11-24.

Conkey M., 1980. The identification of prehistoric hunter-gatherers aggregation sites: the case of Altamira. *Current Anthropology* 21.

Constandse-Westermann T.S., Newell R.R., 1990. Social and Biological Aspects of the Western European Mesolithic Population Structure: a Comparison with the Demography of North American Indians. Bonsall C. (ed.). *The Mesolithic in Europe.* Glasgow, "Bell and Bain LTD", p. 106-115.

Darling F.F., 1957. *A Herd of Red Deer.* Oxford, "Oxford University Press".

Debetz G.F., 1936. Tardenuazskiy kostyak iz navesa Fat'ma-Koba v Krimu. *Antropologicheskiy zurnal*, 2:144-165 (In Russian).

Delpech F., 1989. L'environnement animal des magdaléniens. *Le*

Magdalenien en Europe. Liège, "ERAUL", p. 5-30.

Dennell R.W., 1979. Prehistoric diet and nutrition: some food for thought. *World Archaeology* 11(2):121-135.

Dennell R.W., 1985. *European Economic Prehistory. A New Approach*. London, "Academic press", 217 p.

Fedorov P.V., 1977. Pozdnechetvertichnaya istoriya Chernogo morya I razvitie Yuznih morey Evropi. Paleogeografiya I otlozeniya pleistotsena yuznih morej SSSR. Moskva, "Nauka", p. 25-30 (In Russian).

Formozov A.N., 1976. Zveri, ptitsi I ih vzaimosvyazi so sredij obitaniya, Moskva, "Nauka", 193 p. (In Russian).

Frazer J.G., 1989. *Fol'klor v Vethom Zavete*, Moskwa, "Politizdat", 537 p. (Russian edition).

Gammerman A.F., 1934. Rezultati izuchenija Chetvertichnoy flori poostatkam drevesnogo uglya. *Trudi Komissii po izucheniyu Chetvertichnogo perioda* 5:68-73 (In Russian).

Gerasimov M.M., 1955. *Vosstanovleniye litsa po cherepu*. Moskva, "Izd-vo AN SSSR", 582 p. (In Russian).

Gideon S., 1965. *L'Éternel Présent. La naissance de l'art. Constance et changement: une contribution*, Bruxelles.

Glassow M.A., 1978. *The Concept of Carrying Capacity in the Study of Cultural Process. Advances in Archaeological Method and Theory*. New York, "Academic Press", p. 31-48.

Goring-Morris A.N., 1989. Developments in terminal Pleistocene hunter-gatherer socio-cultural systems: a perspective from the Negev and Sinai deserts. Hershkovitz I. (ed.) *People and culture in change (Part I)*. BAR international series 508:7-28.

Gromov I.M., 1953. Fauna pozvonochnih tardenuazskoj stoyanki Murzak-Koba v Krimu. *Materiali I issledovaniya po Arheologii SSSR* 129:459-462 (In Russian)

Gromov V.I., Gromova V.I., 1937. Materiali k izucheniu paleoliticheskoj fauni Krima v svyazi s nekotorimi voprosami izucheniya stratigrafii. *Trudi Komissii po izucheniu Chetvertichnogo perioda* 1:52-93, Moskva (In Russian).

Grunberg J.M., 1995. Burial goods and social structure in Mesolithic Europe. Otte M. (ed.). *Nature et culture*, Colloque de Liège 13-17 décembre 1993, Liège, ERAUL 68:897-910.

Jacobs K., 1993. Human postcranial variation in the Ukrainian Mesolithic-Neolithic. *Current Anthropology* 34(3):311-324.

Jarman M.R., 1972. A territorial model for archaeology: a behavioral and geographical approach *Models in Archaeology*. London, "Duckworth", p. 705-735.

Jewell F.A., 1966. The concept of Home range in mammals. *ZOO. Soc. Symposium* 18, London.

Jochim M.A., 1976. *Hunter-gatherer subsistence and settlement: a predictive model*. New York, "Ac. Press".

Julien M., 1989. Activités saisonnières et déplacements des magdaléniens dans le Bassin Parisien. Otte M. (ed.). *Le Magdalénien en Europe*. Liege, ERAUL 38:177-189.

Julien M., 1992. Les harpons Magdaléniens. *Gallia Préhistoire* 17, Paris.

Heider K.G., 1970. *The Dugum Dani. A Papuan Culture in the highlands of West New Guinea*. Chicago, "Aldine Publishing", 333 p.

Heider K.G., 1972. *The Dani of West Irian*. A Warner Modular Publication, p. 1-75.

Harpending H., Davis H., 1977. Some implications for hunter-gatherer ecology derived from the spatial structure of resources. *World Archaeology* 3:275-283.

Hassan F.A., 1973. Demographic Archaeology. *Advances in Archaeological Method and Theory*. New York, "Ac. Press", p. 49-103.

Hayden B., 1981. Research and development in the Stone age: technological transitions among hunter-gatherers. *Current Anthropology* 22:519-543.

Henry D.O., 1991. Foraging, Sedentism, and Adaptive Vigor in the Natufian: Rethinking the linkages. Clark G. A. (ed.). *Perspectives on the Past. Theoretical biasess in Mediterranean Hunter-Gatherer Research*. Philadelphia, "University of Pennsylvania Press", p. 353-370.

Higgs E.S. (ed.)., 1975. *Palaeoconomy*, London, "Cambrige University Press".

Higgs E.S., Vita-Finzi C., Harris D.R, Faga A.E., 1967. The climate, Environment and Industries of Stone Age Greece: Part III. *Proceedings of Prehistoric Society* xxxiii:1-30.

Kabo V.R., 1986. Pervobitnaya dozemledelcheskaya obschina. Moskva, "Nauka", 1986, (In Russian).

Kelly R.L., 1983. Hunter-gatherer mobility strategies. *Journal of Anthropological Research* 39(3):277-305.

Kolosov Yu.G., 1971, Mezolit Krima. Arheologiya Ukrainskoy SSSR, t. 1, Kiev, "Naukova dumka"(In Ukrainian).

Kolosov Yu.G., Stepanchuk V.N., Chabai V.P., 1990. *Pozdnij Paleolit Krima*. Kiev, "Preprint", 40 p. (In Russian).

Kozlowski J.K., 1989. The recolonisation of the Southeast Europe - an alternative approach. Neolithic of Southeastern Europe and its Near Eastern connections. *Varia Archeologica Hungarica* 11:131-147, Budapest.

Kozlowski S.K., 1990. A survey of Early Holocene Cultures of the Western Part of the Russian Plain. Bonsall C. (ed.). *The Mesolithic in Europe*, Glasgow, "J.Donald L.T.D.", p. 424-440.

Krainov D.A., 1938. Peschernaya stoyanka Zamil-Koba I. *Trudi GIM* 8:7-32.

Larsson L., 1990. Late Mesolithic Settlements and Cemeteries at Skateholm, Southern Sweden. Bonsall C. (ed.). *The Mesolithic in Europe*. Edinburgh,"John Donald Publishers LTD", p. 367-378.

Lebedev L.L., 1952. Ribi iz pozdnepaleoliticheskoj stoyanki Murzak-Koba v Krimu. Bulletin Moskovskogo obschestva ispitatelej Prirodi. *Otdelenie biologii*, p. 40-50 (In Russian).

Lee R.B., 1969. Kung Bushman subsistence: An input-output analysis. *Environment and Cultural Behavior*. New York, "Natural History Press", p. 47-79.

Lee R.B., De Vore (eds.), 1968. *Man the Hunter*. Chicago, "Aldine".

Lejeune M., 1998. Manifestation "artistique"dans une sépulture Mésolithique de Crimée. Otte M. (ed.). *Préhistoire d'Anatolie, Genèse de deux mondes*, Liège, ERAUL 85:447-452.

Levy-Bruhl L., 1930. *Pervobitnoye mishlenie*. Moskwa, "Ateist', 327p. (Russian edition).

Matskevoj L.D., Pashkevich G.A.K., 1973. K paleogeofrafii Kerchenskogo poluostrova vremen mezolita I neolita. *Sovetskaya Arheologiya* 2:123-137 (In Russian).

Matskevoj L.D., 1977. *Mezolit I Neolit Vostochnogo Krima*. Kiev, "Naukova dumka", 178 p. (In Russian).

Markevich A.M., 1976. *Neolit Bugo-Dnestrovskoj kulturi*. Kishinev, "Shtiintza", 189 p. (In Russian).

Mellars F.A., 1985. Two Ecological Basis of Social Complexity in the Upper Paleolithic of Southwestern France. Price D. (ed.). *Prehistoric Hunter-Gatherers (The Emergence of cultural complexity)*. New York, "Ac. Press", p. 3-17.

Mikhailova N.R., 1994. Pohodzennya i rozvitok institutu "shamaniv"u suspil'stvi mislivtsiv na olenya. *Arheologiya* 4:19-29 (In Ukrainian).

Nasimovich A.A., 1956. Rol rezima snegovogo pokrova v zizni kopitnih zivotnih na territorii SSSR. Moskva, "Izd-vo AN SSSR", 195 p. (In Russian).

Neeley M.P., CLARK G.A., 1991. Measuring Social Complexity in the European Mesolithic. Vermeersh P. M., Van Peer Ph. (Eds.). *Contributions to the Mesolithic in Europe*, Leuven, "University Press", p. 127-137.

Nuznij D.Yu., Yanevich A.A., 1989. *O hozyaistvennoj interpretatsii pamyatnikov kukrekskoj kulturnoj traditsii. Kratkie soobscheniya instituta arheologii AN SSSR* 157:38-40 (In Russian).

Olszewski D.I., 1991. Social Complexity in the Natufian? Assessing the relationship of ideas and data. Clark G. D. (Ed.). *Perspectives on the Past. Theoretical Biases in Mediterranean Hunter-Gatherer Research*. Philadelphia, "University of Pennsylvania Press", p. 323-339.

Olzewski, D., Dibble, H., 1993. The Zagros Aurignacian. *Current Anthropology* 68:68-75.

Otte M., 1993. *Préhistoire des Religions*. Paris, "Masson", 140p.

Parmentier R., 1990. Elementarnaya teoriya istini Pirsa. Znakovie sistemi v sotsialnih i cognitivnih protsessah. Novosibirsk, "Nauka", p. 25-39 (In Russian).

Pequart S.J., Boule M., Vallois H., 1937. *Teviec. Station-Nécropole Mésolithique du Morbihan*. Archives de l'Institut de Paléontologie Humaine. Paris, "Masson et C.", 227 p.

Pershitz A.I., Traide D. (eds.), 1986. *Sotsial'no-economicheskie otnosheniya i sotsionormativnaya kultura*. Moskwa, "Nauka", 237 p. (In Russian).

Price T.D., Feinman G.M., 1993. *Images of the Past*. London, "Madison press", 523 p.

Price T.D., Brown J.A., 1985. *Aspects of Hunter-Gatherer Complexity. Prehistoric Hunter-Gatherers*. New York, "Ac. Press", p. 3-17.

Rakov N.E., 1963. Vozmoznie prichini izmeneniya chislennosti saigakov v paleolite Krima. Prirodnaya obstanovka I fauni proshlogo, v. 1. Kiev, " Izd-vo AN USSR", p. 147-151 (In Russian).

Reformatorski A.A., 1987. *Lingvistika i poetika*. Moskwa, "Nauka", 262 p. (In Russian).

Rous F., 1981. *Aborigeni Avstralii*. Moskwa, "Nauka", 159 p. (In Russian).

Roper D.C., 1979. The Method and theory of Site Catchment Analysis: A Review. *Advances in Archaeological Method and Theory* 2:119-140, New York, " Ac. Press".

Rowley-Conwy P., 1993. Season and Reason: The case for regional interpretation of Mesolithic Settlement Pattern. Peterkin G. L., Bricker H. M., and Mellars P. (eds.). *Hunting and Animal Exploitation in the Later Paleolithic of Eurasia, Archaeological Papers of the AAA* 4:179-188.

Rozoy J.G.D., 1978. *Les dernier chasseurs*. Charleville, Société archéologique Champenoise, 1245 p.

Sapoznikov I., Sapoznikova G., 1993. Ob interpretatsii kukrekskih vkladishej. Drevnosti Severnogo prichernomor'ya I Krima. Zaporoz'ye, p. 3-17.

Scherbakov F.A., 1977. Paleogeographiya Azovo-Chernomor'ya v Pozdnem Pleistotsene I Golotsene. Paleogeographia I otlozeniya pleistotsena Yuznih morej SSSR. Moskva, "Nauka", p. 51-61 (In Russian).

Shild R., 1966. Pozni paleolit Krimu a Cicle mazowshanski. *Archeologiya Polski* 2:431-473.

Smith F.E., 1972. Changes in population pressure in archaeological explanation. *World Archaeology* 4:5-13.

Snirelman V.A., 1992. Crises and economic Dynamics in Traditional Societies. *Journal of Anthropological Research* 11:25-46.

Soffer 0., 1989. Storage, sedentism and Eurasian Paleolithic record. *Antiquity* 63(241):719-732.

Stanko V.N., 1982. *Mirnoye. Problema Mesolita Stepej Severnogo Prichernomor'ya*. Kiev, "Naukova dumka", 174 p. (In Russian).

Stolyar A.D., 1959. Ob odnom tsentre odomashnivaniya svinii. *Sovetskaya Arheologiya* 3 (In Russian).

Stolyar A.D., 1961. Mesoliticheskie kompleeksi Alimovskogo navesa v Krimu. *Kratkie soobscheniya Instituta Arheologii AN SSSR* 84:38-44 (In Russian).

Stolyar A.D., 1954. Translyatsiya idey kak mnogoobraznaya arheologicheskaya rteal'nost'. Kulturnie translyatsii i istorisheskiy protsess. St Peterburg, p. 26-63 (In Russian).

Telegin D.Ya., 1982. *Mesolitichni pam'yatki Ukraini*. Kiev, "Naukova dumka", 252 p. (In Ukrainian).

Testard A., 1982. The significance of food storage among Hunter-Gatherers: Residence pattern, Population densities and Social Inequalities. *Current Anthropology* 23:523-530

Tokarev S.A., 1989. *Ranniye formi religii*. Moskwa, "Politizdat", 620p. (In Russian).

Tylor E.V., 1989. *Pervobitnaya kultura*. Moskwa, "Politizdat", 568p. (Russian edition).

Ullrich H., 1995. Reconstruction of close Biological Relationships in Palaeolithic burials. Otte M. (ed.), *Nature et Culture*, Colloque de Liège 13-17 Décembre 1993, Liège, ERAUL 68:763-794.

Vekilova E.A.K., 1966. K voprosu o svyazyah naseleniya na territorii Krima v epohu Mezolita. U istokov drevnih kultur. Moskva, " Nauka", p. 144-154 (In Russian).

Vekilova E.A., 1971. Kamenniy vek Krima. Nekotorie itogi I problemi. Materiali I issledovanoya po Arheologii SSSR 175:117-161 (In Russian).

Vereschagin N.K., Rusakov A.S., 1979. Kopitniye Severo-Zapada SSSR. Moskva, "Nauka", 305 p. (In Russian).

Verhart L.B.M., 1991. Stone age bone and antler points as indicators for "social territories"in the European Mesolithic. Veermeersch P. M., Van Peer Ph. (eds.). *Contribution to the Mesolithic in Europe*. Leuven, "University Press", p. 139-151.

Vierra B.J., 1995. *Subsistence and stone tool technology: An Old World perspective*. Arizona State University, 275p.

Vita-Finzi C., Higgs E.S., 1970. Prehistoric economy in the Mount Carmel Area of Palestine: Site Catchment Analysis. *Proceedings Prehistoric Society* xxxvi:1-37.

Winterhalder B., Smith E.A. (eds.)., 1981. *Hunter-Gatherers Foraging strategy*. Chicago, "Chicago Press".

Woodburn J., 1982. *Hunters and gatherers today and reconstruction of the past. Soviet and Western Anthropology.* New York, "Columbia Univ. Press", p. 9-11.

Yanevich O.O., 1987. Etapi rozvitkuu kulturi Kukrek v Krimu. *Arheologiya* 2:7-17 (In Ukrainian).

Yanevich A.A., 1990. Hozyaistvo Mezoliticheskoogo I Neoliticheskogo naseleniya gornogo Krima. Kamennij vek na territorii Ukraini. Kiev, "Naukova dumka", p. 102-111 (In Russian).

Yanevich O.O., 1993. Shapanska Mesolitichna kultura. *Arheologiiya* 1:3-14 (In Ukrainian).

Zirov E.V., 1940. Kostyaki iz grota Murzak-koba. *Sovetskaya arheologiya* 5:179-186 (In Russian).

Zuk S., Cohen V., 1996. Novie mezoliticheskie stoyanki na Yuznom beregu Krima. *Arheologiya Krima* 1:4-11, Simferopol, "Tavria".