

# THE LOWER DNIESTER - LOWER DNEPER REGION DURING THE BOREAL PERIOD OF THE HOLOCENE: HUMAN ADAPTATION TO ENVIRONMENTAL CHANGES

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## Introduction

The territory located between the lower valleys of the Dniester and Dnieper, the biggest rivers of the northwestern Black Sea region, is traditionally viewed as the embodiment of the most typical features of the inner Pontic steppes, their paleogeography, and landscapes. This region demonstrates the most characteristic features of the exploitation system for life in the steppes. Moreover, it occupied space where the continuity of economy and the evolution of ethnic culture was displayed in the fullest measure during the entire Mesolithic, demonstrating no clear tendencies toward the transition to a productive economy even in its most recent phases.

## Paleogeography

There are certain limitations to the evidentiary sources for the reconstruction of this region's fauna and flora insofar as most of the Late Mesolithic sites are represented by surface finds with no clearly stratified cultural layers. Also, currently available spore-pollen diagrams of Early Holocene subaerial alluvial sediments as well as those of swamps and estuaries have no associated chronometric chronology. So, high-resolution modeling of the paleogeographic situation in this region has been the subject of further investigation. Analysis of available evidence for the resource base (Smyntyna 2004: 64) allows one to assume that open steppe landscape was the dominant feature within the broad space of the Dniester-Dnieper interfluvium during the Late Mesolithic. The proportion of grasses in the vegetation sometimes reaches 80-90%, and among them, species adapted to arid conditions absolutely prevailed. The proportion of Chenopodiaceae, Artemisiae, and Graminae taken together could be as much as 40- 70% of all grasses. Most widespread (if not the only) faunal inhabitants there were horse (*Equus caballus* L. and *Equus gmelini* L.) and ass (*Asinus hydruntinus* L.), bones of which were found at the two largest Late Mesolithic settlements of this locale - Grebeniki and Girzheve (Stanko, 1966).

At the same time, in all spectra without exception there is a definite increase in the proportion of arboreal vegetation in comparison with the previous period. In this category of flora, the percentage of deciduous species augments considerably. So, the proportion of oak (*Quercus* sp.), elm (*Ulmus* sp.), linden (*Tilia*), and other deciduous species, taken together, sometimes reaches 25% of the total arboreal pollen. Nevertheless, pine (*Pinus silvestris*) and birch (*Betula* sp.) remain the leading arboreal species in the steppe zone (Artyushenko, 1970: 47-51, 60-61, 90-93; Neishtadt, 1957: 69-71). The aurochs (*Bos primigenius* Boj.), which gradually disperses to the west, has become the most typical inhabitant of these semi-closed locales. Most probably, afforested areas were mainly associated with the flows of large and secondary rivers as well as with springs. In the Boreal period, the activity of these waterways considerably intensifies in line with the general tendency of climate changes in the Black and Mediterranean seas.

Therefore, there are serious grounds to consider that during the Boreal, total vegetative and animal biomass of the Dniester-Dnieper living space increased in comparison with the previous, dry and cold Preboreal period.

## Population density, settlement pattern and subsistence strategy

An enrichment in food supply contributed to the growth of population density, which was mirrored in the sharp increase in settlements in this region. Nevertheless, the basic mode of life of the steppe inhabitants did not principally change. Just as was the case during the Early Mesolithic, briefly occupied sites represented by extremely small quantities of Hint artifact surface finds still remain the leading type of archaeological site in this region (Smyntyna 2007: figure 2). Only three sites found here (Abusova Balka, Grebeniki, and Girzheve) could be conditionally interpreted as seasonal settlements regarding the character and quantity of their artifacts. Nevertheless, no diagnostic cultural layer nor interior structures or architectural remains were traced at these settlements.

Such a settlement system implies a high level of mobility for the local population, which must have preferred an extensive method of resource exploitation. This is why one can observe here the highest quantity and density of

evidence relating to the movements of small groups together with the complete absence of durable settlement occupation in the Ukrainian steppe.

This pattern of occupation correlates well with the peculiarities of a local subsistence strategy fully based on hunting. The central place within the range of available game species was taken by non-gregarious animals - aurochs were the most fruitful prey for hunting by individuals or small groups using projectile devices with sighting capabilities. Horses were represented in the bone assemblages of Grebeniki and Girzheve, and this suggests that these sites were exploited as central locations for short-term population agglomeration for collective procurement of gregarious animals in the northwestern Pontic steppes.

The presently available resource base gives no reasons to assume that the inhabitants of the Lower Dniester - Lower Dnieper were transitioning to a productive economy: in contrast with the Late Mesolithic population of the Lower Danube region, no signs of domestication of animals or plants could be traced in the region under study.

### **Flint assemblages**

Distribution of different Hint-knapping traditions in the lower Dniester-Dnieper region, as it seems now, is also connected with the extensive character of the exploitation strategy. The extraordinary situation in this region during the Late Mesolithic is that groups using two different technocomplexes (Anetivka and Grebeniky cultures) settled here side by side, and in some cases, their sites were arranged in immediate proximity.

The Grebeniky technique of primary flint processing is based on flattened nuclei and characterized by a dominance of thin prismatic blades with thin cross-sections; in the tool complex, small circular end- scrapers absolutely prevail, high trapezes are practically the only type of geometrized inserts. The full absence of micropoints and non-geometric microliths is typical for the Grebeniky industry. For the Anetivka technocomplex, by contrast, diverse types of retouched micro-blades and backed blades are typical; the most characteristic forms of tools are blades with ventral processing and burins on massive debitage flakes.

The two cultures jointly exploited this living space, and did not divide it up into areas of influence. Moreover, the locale has become the birthplace of both traditions, each one of which has local ancestors. The formation of both cultures is the result of a gradual evolution of the local Early Mesolithic flint processing traditions. Now, is it beyond doubt that it was the Tsarinka-Rogalik Preboreal cultural circle that was the origin for the Grebeniki technocomplex. In the Anetivka Late Mesolithic culture, all the principal peculiarities of flint artifact morphology inherent to the Preboreal phase of this culture were preserved (Stanko, 1991).

### **Discussion and conclusions**

During last decade, two basic questions have been discussed in relation to the ecological interpretation of the Late Mesolithic of the inner northwestern Pontic region. One of them is connected with the attempts to explain such a unique co-existence of two different flint-knapping traditions and joint exploitation of the same living space by their representatives. In this context, the attention of most researchers has been paid to the intensive interaction of these populations, which actually starts from the moment of their first appearance during the Dryas III and Preboreal periods of the Holocene (Kovalenko and Tsoy, 1999: 259). It should be stressed that traces of such interactions to some extent can be seen also in the assemblages of other regions of the Ukrainian steppe.

As it seems now, the intensive inter-penetration of different cultural traditions became possible due to two circumstances. On one hand, their ancestors' long-lasting existence side by side contributed to it greatly. On the other hand, the high mobility of the Anetivka and Grebeniky populations should not be underestimated because it was just this mode of life that caused the numerous multi-level contacts. Their peaceful nature led to a definite improvement in the food supply. As a whole, irrespective of any concrete interpretation of the course and consequences of Anetivka and Grebeniky culture interaction in the Dniester-Dnieper area, the fact that the local population developed a peculiar understanding of their living space is beyond doubt. Such an understanding was based on a joint exploitation together with their neighbors since earlier times and it brought about an improvement in their extensive means of resource procurement. The second central point of discussion about human exploitation of the Dniester-Dnieper area during the Boreal period is connected with our understanding of the mode of life, system of occupation, and procurement as a response to environmental changes in the northwestern Pontic region at the Pleistocene-Holocene boundary. Proponents of the so-called 'catastrophic flood' scenario of the northwestern Black Sea shelf suggest that a rapid rise in the level of the Black Sea practically desolated the local population that had settled there living on agriculture and cattle breeding which they brought from the west (Ryan, 2007; Zalizniak, 2005).

State-of-the-art archaeological site studies of the Late Mesolithic in the Dniester-Dnieper area give no signs of this region's desolation nor the penetration of immigrant culture groups nor the transition to a productive economy. As the number of known archaeological sites has risen, the roots of flint production techniques were easily found in the local Early Mesolithic assemblages, and the subsistence system was understood as based on the extensive exploitation of local gregarious and non-gregarious game. So, the local population apparently continued its history in the region under study, successfully and logically adapting to non-catastrophic climate changes and a non-catastrophic rise in the level of the Black Sea.

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