

HUMAN SETTLEMENT IN THE NORTHWESTERN BLACK SEA STEPPE REGION IN THE CONTEXT OF ENVIRONMENT AND SEA-LEVEL CHANGES DURING THE FINAL STAGE OF THE LATE PALEOLITHIC

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Introduction

In the course of discussions about the time and the character of sea-level changes in the Black Sea during the Late Pleistocene and Holocene, the archaeological data possess particular importance. The aim of this article is to examine the reasons for migrations of groups with common cultural traditions in the context of their connection with environmental changes, and especially with fluctuations in the level of the Black Sea. A study of this problem could be implemented via a distribution analysis of archaeological sites. The framework of this article includes the final stage of the Late Paleolithic period within the limits of the northwestern Black Sea steppe region (NWBSR).

Final Paleolithic environment in NWBSR

Stratigraphically, the final stage of the Late Paleolithic corresponds to the second and third sublevels of Prichernomorian sediments with a ^{14}C age of 16,000-10,000 BP. But the last episode of the Prichernomorian geochronological period coincides with the Younger Dryas, a time when hunter-gatherer communities began to master early Mesolithic inventories. Therefore, it is reasonable to terminate the Late Paleolithic period in the northwestern Pontic region by Allerød time (Telegin 1982).

During the Final Paleolithic period, Southern Ukraine was part of the Epigravettian cultural area of the Mediterranean and the temperate climate zone in Europe. The appearance of industries that are typical for the final stage of the Late Paleolithic period followed the Last Glacial Maximum (Demidenko 2007). Pollen evidence deriving from geological cores situated near the modern mouth of Dniester liman affirms that loess soils of Prichernomorian time contain single pollen grains of herbaceous vegetation (e.g., crop plants, wormwood) while *Ephedra* pollen and pine spores are almost absent. Such a pollen profile indicates a cold steppe extension into the southern regions of Ukraine (Sirenko, Turlo, 1986). This environmental dynamic in the steppe zone during the final stage of the Late Paleolithic was followed by faunal changes. Bison frequency decreased due to the domination of saiga and the appearance of Mongolian wild horse. Reindeer occurred only in the northeastern part of the European steppes (Bibikova 1975).

Final Paleolithic human occupation of NWBSR

Population dispersion increased during the final stage of the Late Paleolithic (16,500-11,000 BP), as human groups moved toward the partially-wooded steppe areas, which again became fit for habitation with the weakening cryogen. The greatest effects upon archaeological materials of this period were markedly brought by neighbouring influences. Ancient hunters and gatherers in the southwestern steppe (such as the Lower Dniester region, the Bug basin, single sites in the Dnieper basin) continued to function within their traditional range. The characteristic feature of all known Late Paleolithic sites is their location within the inner steppe territory. Shore sites of this period remain unexplored, as they are under the modern level of Black Sea.

A few insignificant Lower Dniester sites are dated to the Final Palaeolithic, though without certainty (Stanko, 1997). An exception is the Chobruchi site, situated on the Dniester's right bank plateau, at an elevation of 150 m. A saturated cultural layer is situated at a depth of 1.05-1.2 m in the higher part of the Prichernomorsky loess. The flint industry from Chobruchi is late Epigravettian. Its analogues could be traced in Pidporizhnyj II (over the Dnieper rapids) and in some settlements of Romanian Moldova (Bofu Mik V, Podisha layer). According to stratigraphy, the last site correlates with Dryas Ic (c. 14,000-13,000 BP) (Sapozynikov, 2003). The emergence of gravettoid traditions in the Dniester basin (Chobruchi, Chobruchi II, Kam'anka complexes) possibly indicates Anetivka (Bug basin) influences.

Layer III, and possibly layer II, of Volodymyrivka in the Bug basin is connected with the final stage of the Late Paleolithic. They contain traces of four hearths, under which there is thin stratum of calcined loess. Layer III faunal remains consist of bone fragments of reindeer, horse, marmot, polar fox, and lion (Chernysh 1953). The number of sites in the Ivashkivska Balka region increases considerably at the end of the Late Paleolithic. Excavations were conducted at the Ivashkovo VI site, but the inventories reveal no direct analogies. The Seredynnyj Gorb site is represented by c. 3000 flints, covered with white patina. Based on technical-morphological criteria, this industry is close to those of the Dniester basin (Smolianinova 1990).

The cultural layer of the Leontiivka site, geostratigraphically connected with the Allerod warming, was discovered in the lower part of a dark greyish-brown loam layer near the Kahovka pool. The site is situated on the second terrace of the Dnieper right bank. Elevations are about 12-16 m above the level of the modern Dnieper. Most of the archaeological materials were gathered in locations of terrace erosion over an area of c. 300 m (Olenkovskii 1991). Faunal remains are not diagnostic. Undoubtedly, they exploited big animals (horse, aurochs, European bison). The Leontiivka flint industry is compositionally antecedent to the Tsarinka-Rogalyk site group and contains at its base some Transcaucasian components. Most typical Ukrainian sites and Crimea are associated with communications between the ancient Ukrainian population and Western Caucasian territory. Under regressive conditions in the Black Sea, this can mean the existence of terrestrial routes connecting in the Paleolithic age these currently separated regions (Olenkovskii, 1996).

Conclusions

To sum up, the period of 16,000-6000 BP is considered to be the stage of Holocene warming, characterised by sea-level increase until almost reaching its modern level (-3.5 to - 4m) and also progressive salinity increase (to 15-16‰). The climatic situation in the northwestern Pontic region during the final Paleolithic period mostly preserved a periglacial character. Therefore, it is possible that the sea level of the climatic optimum (12,300-11,760 BP) remained at depths of -55 to -50 m (Granova 2001). P.F. Gozhik adduces the sea level increasing speed in the range of 10-50 mm/year (Gozhik 2001). This would have been almost undetectable to a mobile seashore population.

According to another scenario, over the early phase (Jenikalskoj) sea level grew to -30 or - 31 m from 16,000 to 12,500 BP (Balabanov, Izmajlov, 1988; Konikov, 2007). Under such conditions, the first transgressive episode took place at more than 15,000 BP. Balabanov and Izmajlov note that close datings are obtained by means of sediments from water meadows and former riverbeds ("zaplava" and "staritsa") of the northwestern Pontic region Ant alluvium (14,500±310 BP, Dnieper-Bug liman) and may correspond to a stage of transgression. Neoeuxinian sea ingressions extended farther north than its shoreline along re-deepened valleys. Nevertheless, great spaces of shelf remained dry land, where loess was deposited, and in river bottoms - alluvial strata (Balabanov, Izmajlov, 1988).

Today, clarification of the influence of Black Sea fluctuations on the distribution of known archaeological sites is impossible, considering the remoteness of these processes from the

real shoreline. All ethnic and cultural processes in the northwestern Pontic region can be reasoned without factoring in the dynamics of the sea. But further investigations on the Black Sea shelf could contribute to greater knowledge of the demographic situation in the region, perhaps revealing new possibilities by proving or disproving the occurrence of migrations and contacts between ancient littoral regions.

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