

Paleoenvironment and human occupation at the site of Zaliznychne in the light of neolithization in the Lower Danube region of Ukraine

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Introduction

During recent years, the transition from hunting-gathering to a productive economy and the neolithization of the northwestern part of the Black Sea region have appeared to be rather widely discussed in the context of the consequences of a so-called 'Great Flood' that some propose to have taken place at the Pleistocene-Holocene boundary. According to some researchers, the spread of agriculture in this region was the result of direct migration of population from the Fertile Crescent occurring due to a catastrophic sea-level change. These groups brought with them agricultural skills and techniques as well as domestic seeds and animals. The Late Mesolithic Grebeniky flint knapping tradition is often regarded as an indicator of such movements (Zalizniak, 2004). The subject of the present contribution is to examine the directions taken by the Grebeniky tradition diffusion on the basis of data from Zaliznychne, the westernmost settlement of the Final Mesolithic occupation in the Ukrainian part of the Lower Danube region.

Paleoenvironment

The site is situated within the Bolgrad district of Odessa region, to the north of the eponymous village on the left bank of the Yalpug River within the fourth landscape tier (135–140 m above sea level and 35–40 m above the contemporary river level) on a high terrace-shaped bench at the junction of the watershed plateau with the fluvial valley decline. The territory of the settlement is characterized as an abrupt (15–25°, sometimes more) and terraced locality, intensively broken up with numerous gullies and ravines, sometimes shallow ones.

Reconstruction of the Boreal vegetation seems to be problematic in that the spore-pollen samples taken from cultural layers often contain seeds dated to historical times. They could have been introduced by shower flows or results of rather intensive activity, signs of which could be easily traced on the site surface. The basis for faunal reconstruction is a little more representative. According to identifications made by A.V. Starkin from more than 2,000 animal bones, only 25 are diagnostic. Among them, there are cattle (21 bones), horses (2 bones), and *Capra-Ovis* (2 bones), species of which could not be identified. As a result, taking into account the scarcity of our evidence base, it is possible to suppose that the Boreal landscape of this territory seems to be rather close to the contemporary one, defined as a northern steppe landscape.

The cultural layer of Zaliznychne is distributed over 3 horizons, which directly cover the rocky substrate of the slope. The thickness of these horizons depends on the rocky plateau elevation; it is 3–15 cm in the NE corner of the investigated plot and 85–100 cm in its SE corner.

Flint assemblage

The flint assemblage of Zaliznychne today consists of 7711 artefacts, among them 5299 pieces were obtained during excavations of the cultural layers, and 2412 pieces resulted from surface finds around the excavation. No principal differences have been revealed in the morphology or typology of both these categories of finds, so they could be regarded as an entire complex.

Analysis of the Zaliznychne flint assemblage testifies that the artefacts found there are connected with two different traditions of flint processing. Small rounded scrapers, flattened nuclei, and trapezes are characteristic of the Grebeniky culture; on the other hand, typical forms for the Anetivka culture of the Kukrek culture complex are also represented in the assemblage: pencil-like nuclei, rough burins on

flint fragments, pièces écaillés (trimmed blades), and a variety of non-geometric inserts. It should be noted that similar intercultural combinations could be traced in all assemblages from Late Mesolithic sites in the Dniester-Danube interfluvium (Smyntyna, 2004).

Table 1. Results of primary flint knapping at the site of Zaliznychne.

Category	Cultural layer		Picked up		Total	
	Pieces	%	Pieces	%	Pieces	%
Raw material	17	0.32	42	1.75	59	0.77
Nuclei	9	0.17	37	1.53	46	0.6
Flakes	1156	21.82	646	26.78	1802	23.37
Blades	1606	30.31	1069	44.32	2675	34.69
Nuclei renewals	19	0.36	24	0.99	43	0.56
Waste	2492	47.03	594	24.63	3086	40.02
Total	5299	100	2412	100	7711	100

Secondary processing was applied to approximately 7% of the blades and 4% of the flakes; the general proportion of secondarily processed artefacts in the assemblage is 4.69%. Most tools were produced on medial and proximal fragments of microblades.

Table 2. Results of secondary flint knapping at the site of Zaliznychne.

Category	Cultural layer		Picked up		Total	
	Pieces	%	Pieces	%	Pieces	%
Scrapers	54	27.14	85	52.15	139	38.4
Burins	50	25.13	15	9.2	65	17.96
Retouched blades	60	30.15	36	22.09	96	26.52
Geometric forms	17	8.54	7	4.29	24	6.63
Points	3	1.51	4	2.45	7	1.93
Retouched flakes	2	1.0	5	3.07	7	1.93
Pièces écaillés	8	4.02	8	4.91	16	4.42
Varia	5	2.51	3	1.84	8	2.21
Total	199	100	163	100	362	100

Discussion

The Ukrainian part of the Lower Danube region and most of the Dniester-Danube interfluvium were located within the area of Grebeniky and Anetivka culture formation: this took place in the territory of the Dniester-Pivdennyi Bug interfluvium. They formed there based on two discrete local traditions of the Holocene Preboreal period: the Tsarinka-Rogalik and the Anetivka Early Mesolithic, respectively. Most probably, the Dniester-Danubian interfluvium occupation was the result of Grebeniky and Anetivka population migration from inner parts of the Ukrainian steppe zone to the southwest. The most probable reason for such a migration could be the abundant food resource base of the Lower Danube region; during the Late Paleolithic-Early Mesolithic, it was practically unexplored. The only sporadic inhabitants were Bilosyia culture transmitters, which had insignificant influence on the ethnic and environmental condition of this region. When the population density in the neighboring living space of Steppe Ukraine became critical, they began their movement to the Lower Danube region. As seems now, this regional exploitation could have begun no earlier than the middle of the Boreal period, which is associated with middle Late Mesolithic times.

By that time, the major part of the assemblages of Anetivka and Grebeniky settlements situated in Pivdennyi Bug-Dniester interfluve had become mixed in some ways: elements of one culture could easily be found with the other culture's determinants in the same archaeological context. In fact, for that time, absolutely "pure" complexes of any culture are unknown. This means that these two traditions were actively interacting during the whole Late Mesolithic. Analysis of the relative chronology of Grebeniky and Anetivka sites in this region has given serious grounds to suppose that mutual penetration of these cultures began from the very moment of their origin (Kovalenko and Tsoy, 1999). Long-lasting contacts between their ancestors could have greatly contributed to this process.

Conclusions

As was suggested already in the mid-1980s by Vladimir Stanko (1982), the flint assemblage from Zalizhnychne proves the hypothesis about long-lasting contacts between Anetivka (Kukrek) and Grebeniky populations in the central part of the northwestern Black Sea region. It is reasonable to suppose that the Lower Danube region was inhabited by such already mixed, or at least deeply integrated, populations moving out of the Dniester-Pivdennyi Bug interfluve in search of new foraging territory. As it seems now, Anetivka and Grebeniky tradition transmitters explored the new living space jointly, providing a rather peculiar understanding of this living space.

So, this analysis cannot find any clear connection between the appearance of the Grebeniky flint knapping tradition in the Lower Danube region and population movements from the Fertile Crescent. As a result, the problem of neolithization and the spread of agriculture in the Ukrainian part of the Lower Danube region still remain open for discussion.

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