Time and palaeoenvironment in the Neolithisation of the Povolzhye forest-steppe

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ABSTRACT - The paper presents the Early Neolithic Elshanka culture in Povolzhye forest-steppe. Along with the presentation of pottery assemblage the radiocarbon dates are presented and analysed. The paper addresses the question of an early pottery production in the region.

IZVLEČEK – Članek predstavlja zgodnjeneolitsko kulturo Elshanka v gozdi stepi Povolzhye. Predstavljeni in analizirani so keramični zbiri in radiokarbonski datumi. Članek se ukvarja tudi z vprašanjem o zgodnji produkciji keramike v regiji.

KEY WORDS – Middle Povolzhye; Neolithisation; pottery; 14C dating

Introduction

The area of the Middle Povolzhye forest-steppe includes the western part of the Orenburg, Samara, Ulyanovsk, and Penza Regions, and the eastern part of Mordovia. In the mid-1970s, sites were discovered on the Samara River with unusual Neolithic ceramics with pointed bottoms and faint dash ornamentation, which the researchers compared to Early Neolithic pottery from Central Asia, the Eastern Caspian Sea region, and dated to the 6–5th millennia BP (Vasiliev, Penin 1977; Vybornov, Penin 1979). This type of pottery was denoted as Elshanka, from the name of the first site examined. As a result of studies in the 1980–90s, the number of locations yielding such ceramics increased (Fig. 1). This allowed for a number of hypotheses, some of which connected the appearance of Elshanka type ceramics with the infiltration of certain population groups from south-eastern regions (Vasiliev and Vybornov 1988; Morgounova 1995). Others showed the autochthonous nature of Elshanka cultural origins (Mamonov 1999). The discovery of sites with similar material in the western part of Middle Povolzhye has led some to propose Priazovsko-Prichernomorskiy (Kotova 2002; Stavickiy 2005) and even the Balkans (Viskalin 2002) as the primary centres of Elshanka culture. The problem of the Neolithisation of the Middle Povolzhye is topical, in so far as some specialists consider Elshanka culture as the most ancient Neolithic pottery culture in Europe (Timofeev 2002), and that it influenced the Neolithisation of other regions (Doluhanov 2003; Nikitin 2006; Gronenborn 2009). Other specialists doubt the special status of Early Neolithic ceramics of Elshanka type (Lastovskiy 2009).

One of the most controversial questions is the periodisation of the process of Neolithisation. Mamonov (2000.158) takes the 14C dates of bivalve shells found in the occupation debris of Chekalino IV, Ilyinskaya and Lebyazhinka IV sites from c. 8600 to 7940 BP to show that Elshanka culture was autochthonous. He suggests that Elshanka pottery was formed in the Povolzhye forest-steppe because “there is no chronological possibility of a substratum or cultural centre from which the ceramic tradition could be borrowed” (Mamonov 2006a.274). The supporters of the Balkan origins of Elshanka type sites oppose such early dates. They point to the natural occurrence of shells in the layers (Viskalin 2006), and consider the Balkan-Carpathian analogies that date these sites to the 6th and the beginning of the 5th millennia BP (Viskalin 2009.163).
An alternative interpretation of the Chekalino IV dates of 8990±100 BP (Le–4871) and 8680±120 BP (Gin–7085) can be suggested; they date the Mesolithic layer. On the other hand, the dates of Ilinskaya 8510±60 BP (Le–5839) and Lebyazhinka IV 8470±140 BP (Gin–7088) should be corrected because of the 'reservoir' effect. However, the shell temper in the Neolithic pottery of the northern Caspian Sea region is dated to 7235±45 BP (Ua 35266), and the organic matter to 6695±40 BP (Ua 35267) (Zaytseva et al. 2009.800). The carbonate fraction of ceramics from Kairshak III is dated to 7870±100 BP (Ki–16401), and the organic matter from these items to 7290±190 BP (Ki–16400). The dating based on the shells from the Lebyazhinka IV and Ilinskaya sites also needs to be defined more precisely. A date of 6680±80 BP was obtained from the organic temper in pottery from the first site, and from the latter, 6940±90 BP. Thus, the beginning of the Early Neolithic in the eastern part of the Middle Povolzhie forest-steppe may be dated no earlier than to the turn of the 7th and 6th millennia BP. The date of the bones from the layer with Elshanka ceramics at the Ivanovskaya site of 8020±90 BP confirm this assumption. The assumption that this date can be referred to Mesolithic remains at this site is contradicted by the date 7930±90 BP (Fig. 2), based on the organic temper in the Elshanka type pottery at the Ivanovskaya site. The correction of the lower chronological boundary of Elshanka culture from the 7th millennium BP to the turn of the 7th and 6th millennia BP raises doubts as to its origin as autochthonous. At this time, not only profiled and flat bottomed ceramics appear in the region, but also the haft type arrowhead. Similar arrowheads on plates at early Hassuna sites are dated to 8065±45 BP (MTC–04347) and 7900±120 BP (Tk–12717) (Nishiaki, Le Miere 2005.59–66). In complex XXXIII at Mersin and some other sites, they are dated to 7920±90 BP (Rome–467) (Balossi 2006.15, 48–49; Kozlowski, Aurenche 2005.122). Researchers have thus suggested sources in Asia Minor for the Early Neolithic cultures in the steppes of European Russia and Ukraine (Danilenko 1969).

Spore/pollen tests were obtained for this chronological cycle. A sample from the lower Neolithic layer of the Ivanovskaya site shows that the region was almost bare of trees in this period. Birch was rarely found and the main areas were grassy and suffruti-cose, among which wormwood predominated (Morgunova 1995.174). Appropriate data were obtained directly from the bottom of the Neolithic layer. There was a prevalence of herbs, among which chenopo-diaceous plants and wormwood predominate. Climatic conditions were unfavourable to the growth of not only woodland, but also meadow steppe formations. Sudden changes in continental climate and a reduction in precipitation have been detected (Morgunova 1995.185), making the period comparable to the driest interval of the first part of the Atlantic period.

Thus landscape and climatic conditions of the southern part of the Volga-Urals forest-steppe at the beginning of the Atlantic period conform substantially with southern steppe and even semi-desert conditions.

Palyngological data were also obtained in areas further north in the basin of the River Sok, which is now the border between southern and northern sub-areas of forest-steppe. Calcium carbonate has been found in buried soils, which suggests that there was
a lack of humidity when they were formed. At Chekalino IV, the layer with an Early Neolithic complex dated by shells to 8000–7900 BP yielded spore/pollen test results which indicated grassy and suffruti-cose vegetation comprising wormwood and cheno-podiacious plants (68%). About 15% are woody and covered the river valley. Thus this natural environment is rather similar to the picture reconstructed from the materials from the southern part of Mid-
dle Povolzhie. In other words, steppe landscapes of southern type spread up to the basin of the River Sok. Saiga bones found in the cultural layers of the Chekalino IV and Lebyazhinka IV sites (Mamonov 2006.94) offer further support this conclusion. Per-
haps the appearance of Early Neolithic sites in this period was the result of aridisation at the end of the Boreal c. 8200 BP, although we should be careful with this supposition (Budja 2007.191–201).

The second group of Early Neolithic sites in the Mid-
dle Povolzhie forest-steppe is presented by materials from Staro-Elshanskaya II on the River Samara (Fig. 3), Ilyinskaya on the River Sok (Fig. 4), and Ozimyen-
ka II on the River Moksha (Fig. 5). The organic tem-
per in the ceramics date the sites to the beginning of the 5th millennium BP (Vybornov 2008). The cera-
mic technology is identical at both groups of sites. El-
shanka pots were made of muddy clay, sometimes with chamotte temper (Vasilieva 2006), unlike Early Neolithic vessels from the northern Caspian region
and northern Black Sea region cultures, which were made of silts with bivalve shell impurities. The tradi-
tion of chamotte temper is typical of the Neolithic cultures of the Central Asian interfluve and eastern Caspian Sea region (Tsetlin 2007.205–206). There is similarity in the shapes of vessels (profiled, biconical, pointed bottom) and elements of ornament (Vinogradov 1968.85, 108; Vinogradov, Mamedov 1975. 88, 94, 110, 136, 157, 194, 203; Vinogradov 1981. 69). These pottery types have been dated to the end of the 6th millennium BP (Vinogradov 1981.132). This date is confirmed at Ayakagytma site in the Sub-
Aral area by six 14C dates ranging from 7190±20 BP to 7030±90 BP (Szymczak 2006.26). Sudden aridi-
sation in 7200 BP east of the northern Caspian Sea
region has been detected, which compelled people
to migrate north (Spiridonova, Afeshinskaya 1999. 25). This dynamic seems possible, as data showing that the Amu Darya fell into not the Aral but the Cas-
pian Sea (Timojeev et al. 2004.19). The arrowheads
found here show that some Central Asian groups of
the Kelteminarskaya culture migrated here (Dou-
byagin et al. 1982.122). These arrowheads are also
found in northern regions as far as the Middle Povol-

<table>
<thead>
<tr>
<th>No.</th>
<th>Site</th>
<th>Lab. No.</th>
<th>Material</th>
<th>Uncalibrated date (BP)</th>
<th>Calibrated date one sigma (BC)</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Kairshak III</td>
<td>Ki 16401</td>
<td>shells from pottery</td>
<td>7870±100</td>
<td>7050–6500</td>
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<tr>
<td>3</td>
<td>Tenteksor I</td>
<td>Ua 35266</td>
<td>shells from pottery</td>
<td>7235±45</td>
<td>6250–5890</td>
</tr>
<tr>
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<td>Ua 35267</td>
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<td>6695±44</td>
<td>5730–5480</td>
</tr>
<tr>
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<tr>
<td>6</td>
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<td>Le 2343</td>
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Tab. 1. 14C dates of the Neolithic sites in the Povolzhie forest-steppe.
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Fig. 2. Elshanian pottery. Ivanovskaya site.

Fig. 3. Elshanian pottery. II Staro-Elshanskaya site.

Fig. 4. Elshanian pottery. IIIinskaya site.

Fig. 5. Elshanian pottery. Ozimyenka II site.
Fig. 6. Elshanian pottery. Chekalino IV site.

Fig. 7. Elshanian pottery. Nizhnyaya Orlyanka II site.

Fig. 8. Elshanian pottery. Lebyazhinka IV site.