

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 gozdni stepi Povolzhje. Predstavljeni in analizirani so keramični zbirki 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-1970-s, 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 have 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 2006).

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 Iliinskaya 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 Ilyinka 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 (TKa-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; Kozłowski, 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



Fig. 1. Site distribution of Elshan culture in Middle Povolzhye. 1 Dzhebel. 2 Chernikov brod. 3 Ivanovskaya. 4 II Staro-Elshanskaya. 5 Viloatovskaya. 6 Shihan. 7 Maximovka. 8 Troitskoye. 9 Ledya-zhinka IV. 10 Krasniy Jar VII. 11 Iliinskaya. 12 Nizhnyaya Orlyanka II. 13 Chekalino IV. 14 Ust-Tashelka. 15 Vyunovo Lake I. 16 Ozimyenki II.

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 suffruticose, 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 chenopodiaceous 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.

Palynological 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 suffruticose vegetation comprising wormwood and chenopodiaceous 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 Middle Povolzhye. 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. Perhaps 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 Middle Povolzhye forest-steppe is presented by materials from Staro-Elshanskaya II on the River Samara (Fig. 3), Ilyinskaya on the River Sok (Fig. 4), and Ozimyenka II on the River Moksha (Fig. 5). The organic temper in the ceramics date the sites to the beginning of the 5th millennium BP (Vybornov 2008). The ceramic 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 tradition of chamotte temper is typical of the Neolithic cultures of the Central Asian interfluvium 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 Ayakagytna site in the Sub-Aral area by six ¹⁴C dates ranging from 7190±20 BP to 7030±90 BP (Szymczak 2006.26). Sudden aridisation in 7200 BP east of the northern Caspian Sea region has been detected, which compelled people to migrate north (Spiridonova, Aleshinskaya 1999. 25). This dynamic seems possible, as data showing that the Amu Darya fell into not the Aral but the Caspian Sea (Timofeev et al. 2004.19). The arrowheads found here show that some Central Asian groups of the Kelteminarskaya culture migrated here (Doubayagin et al. 1982.122). These arrowheads are also found in northern regions as far as the Middle Povol-

No. Site	Lab. No.	Material	Uncalibrated date (BP)	Calibrated date one sigma (BC)
1. Kairshak III	Ki 16401	shells from pottery	7870±100	7050–6500
2. Kairshak III	Ki 16400	pottery carbon	7290±190	6500–5700
3. Tenteksor I	Ua 35266	shells from pottery	7235±45	6250–5890
4. Tenteksor I	Ua 35267	pottery carbon	6695±40	5730–5480
5. Ivanovskaya	Ki 14568	pottery carbon	7930±90	7080–6590
6. Ivanovskaya	Le 2343	bone	8020±90	7038–6718
7. Old Elshanskaya–II	Ki 14413	pottery carbon	6820±80	5880–5610
8. Iliinskaya	Le 5839	shells	8510±60	7610–7450
9. Iliinskaya	Ki 14096	pottery carbon	6940±90	5930–5660
10. Ozimenki–II	Ki 12168	pottery carbon	6950±170	6250–5500
11. Chekalino IV	Le 4781	shells	8990±100	8080–7935
12. Chekalino IV	Gin 7085	shells	8680±120	7890–7570
13. Chekalino IV	Ki 14704	soil	6070±90	5300–4700
14. Chekalino IV	Ki 14705	pottery carbon	5910±90	5000–4540
15. Chekalino IV	Ki 14687	soil	6030±100	5300–4650
16. Chekalino IV	Ki 14686	pottery carbon	5910±90	5000–4540
17. Chekalino IV	Ki 14706	shells	6180±90	5320–4900
18. Chekalino IV	Ki 14689	shells	6100±140	5400–4650
19. Lebyazhinka IV	Gin 7088	shells	8470±140	7590–7400
20. Lebyazhinka IV	Ki 14076	pottery carbon	6680±80	5740–5470
21. Lebyazhinka IV	Ki 16852	pottery carbon	5950±70	5040–4680
22. Vyunovo Lake	Le 9219	soil	5790±130	4950–4350
23. Nizhnaya Orlyanka	Ki14123	pottery carbon	5720±80	4730–4360

Tab. 1. ¹⁴C dates of the Neolithic sites in the Povolzhye forest-steppe.

zhye forest-steppe (Vinogradov 1979.5). Typical Central Asia geometric microliths and trapezes have been discovered in the same region in Neolithic complexes (Vybornov, Penin 1979.5; Morgunova 1980.119). I suggest the most probable migration route was from the northern Caspian Sea to the head of the River Ural, where the latter meets the River Samara. The Chernikov brod I site located in this area is believed to be evidence of this route. Pottery with straight walls, pointed bottom, and lacking ornamentation has been discovered here which, on the other hand, is believed to refer to Elshanka culture (Mosin 2007.79).

Elshanka pottery was discovered at the Chekalino IV (Fig. 6), Nizhnyaya Orlyanka II (Fig. 7), and Lebyazhinka IV (Fig. 8) sites on the River Sok, and at Vyunovo Lake on the River Soura. Excavations at Chekalino IV in 2007 (Vybornov et al. 2009) provided new ^{14}C dates of 6070 ± 90 BP (Ki-14704) and 6030 ± 100 BP (Ki-14687) for the soil sediment; and 5910 ± 90 BP (Ki-14705) and 5910 ± 90 BP (Ki-14686) BP for pottery carbon; and 6100 ± 140 BP (Ki-14689) and 6180 ± 90 BP (Ki-14706) for shells. The pottery carbon dates at the Nizhnaya Orlyanka site are 5720 ± 80 BP (Ki-14123) and at Lebyazhinka IV 5970 ± 70 BP (Ki-16852), respectively. The soil sediment dates

from the Elshanka Vyunovo lake dwelling site date to 5790 ± 130 BP (Le-9219). The materialities and the radiocarbon dates from the sites correspond well with those at the Dzhebel site in the eastern Caspian Sea Region (Okladnikov 1956), which is dated to 6140 ± 80 BP (P-3081) and 6030 ± 240 BP (Le-1).

It should be noted that only wild animal bones were found at the sites where Elshanka pottery was discovered. Therefore, I suggest not connecting the Neolithisation of the Povolzhye forest-steppe with a productive economy.

Thus the non-linear nature of the development of Early Neolithic culture in the Middle Povolzhye is clear. This conclusion is supported by processes discovered in other cultures (Budja 2006.183–201).

ACKNOWLEDGEMENTS

The author is grateful to Professor M. Budja for his invitation to the Seminar in November 2010, to the ARRS of Slovenia for hospitality, RGNF for support with grant 10-01-00393, to G. I. Zaytseva, N. N. Kovalyukh and V. V. Skripkin for ^{14}C dating, to A. Papsheva for the translation of this paper.

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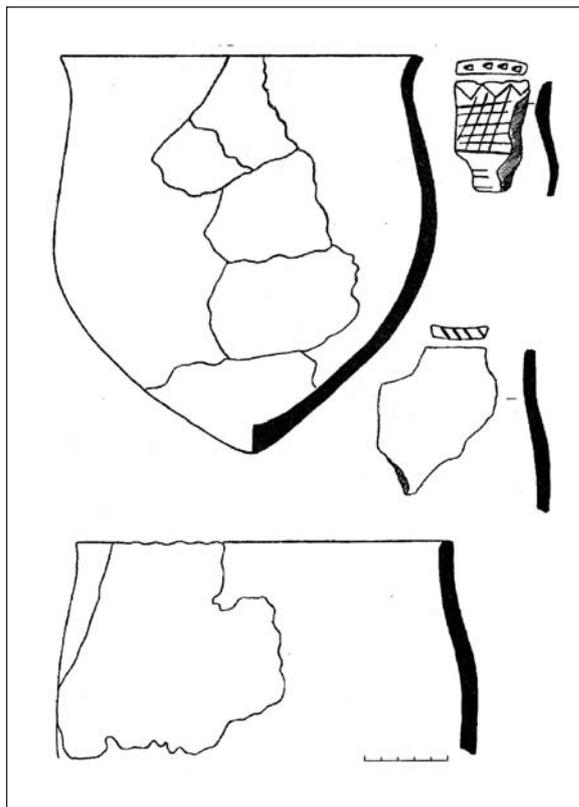


Fig. 2. Elshanian pottery. Ivanovskaya site.

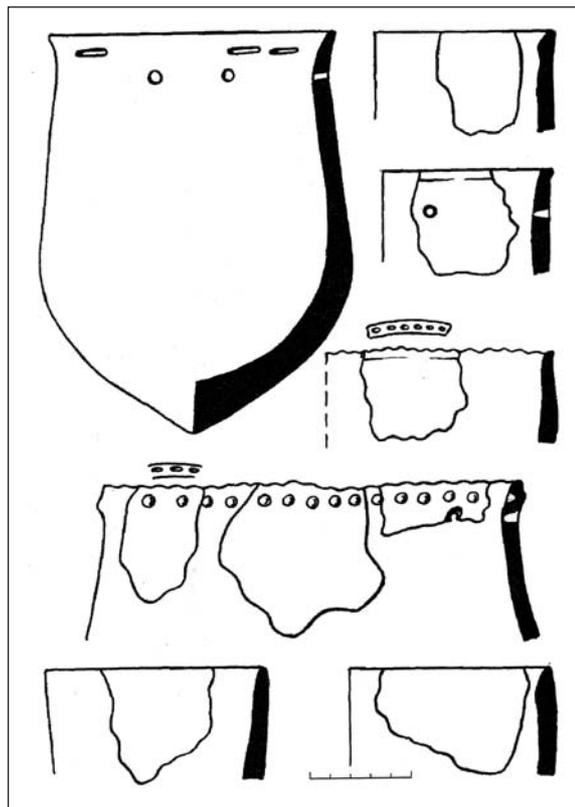


Fig. 3. Elshanian pottery. II Staro-Elshanskaya site.

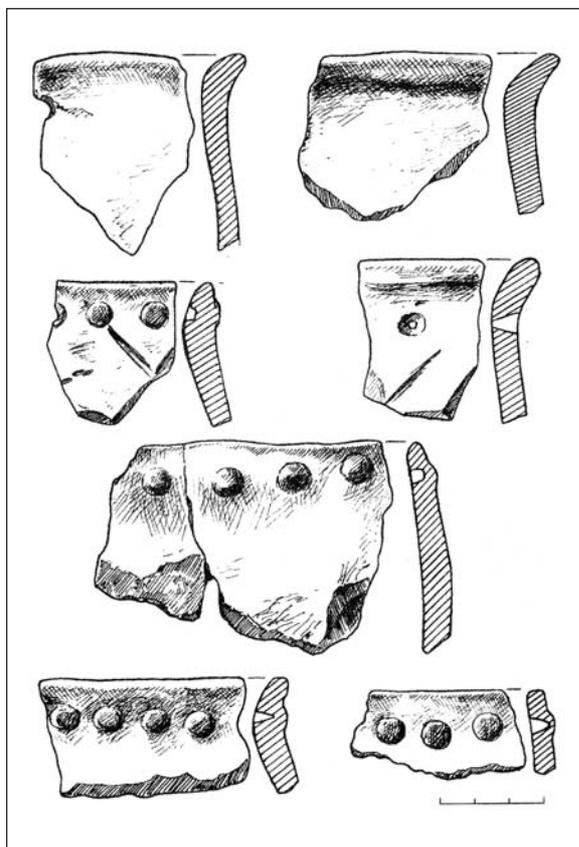


Fig. 4. Elshanian pottery. Iliinskaya site.

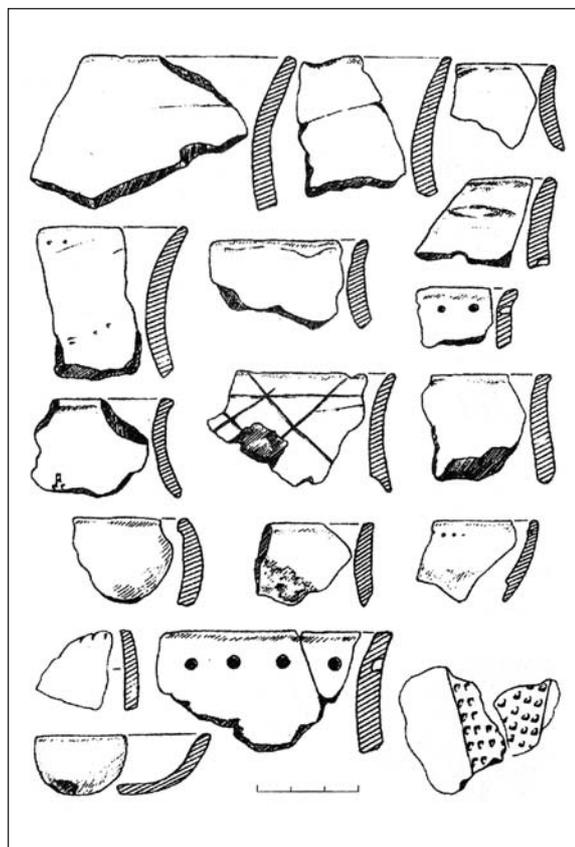


Fig. 5. Elshanian pottery. Ozimyenka II site.

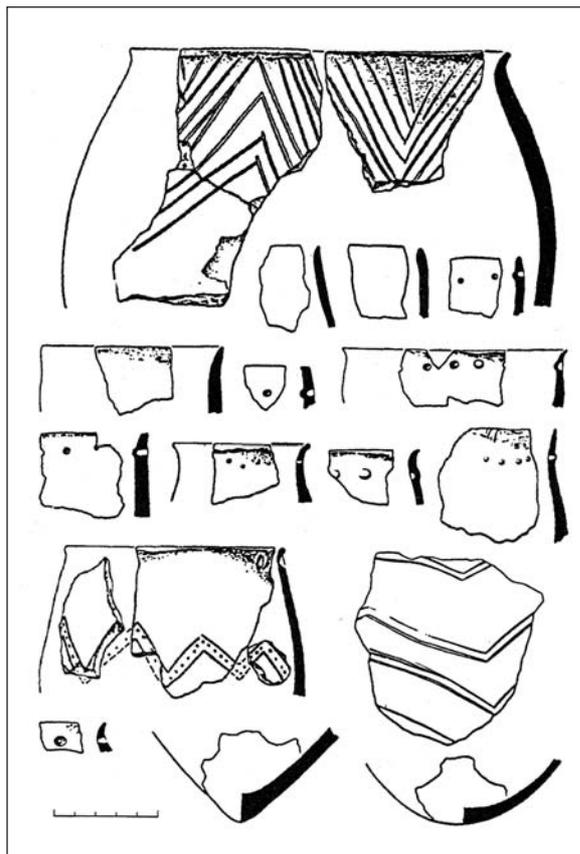


Fig. 6. Elshanian pottery. Chekalino IV site.

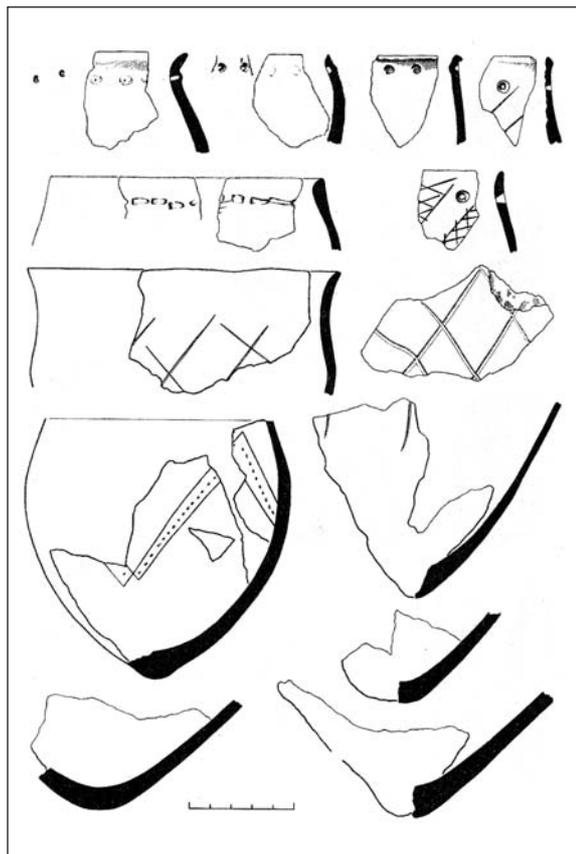


Fig. 7. Elshanian pottery. Nizhnyaya Orlyanka II site.

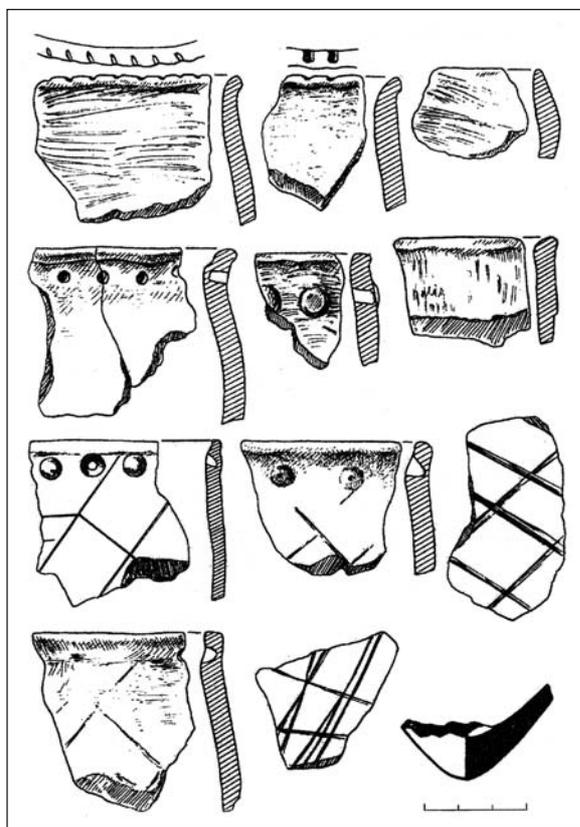


Fig. 8. Elshanian pottery. Lebyazhinka IV site.