

On the correlation of natural and cultural processes in the Neolithic – Volga-Kama area

Aleksandr A. Vybornov

Faculty of History, Samara State Academy of Social Sciences and Humanities, Samara, RU

Vibornov_kin@mail.ru

ABSTRACT – *The article is an attempt to retrace the appearance and growth or reduction in the number of Neolithic sites in relation to aridization and rainfall, and changes in the landscape in the Volga Kama region in the Atlantic period.*

IZVLEČEK – *V članku poskušamo slediti pojavu, rasti in zmanjšanju števila neolitskih najdišč v povezavi s sušnimi in padavinskimi obdobji ter okoljskimi spremembami v regiji Volga Kama v obdobju Atlantika.*

KEY WORDS – *Neolithic; aridization; transgression; regression; agricultural economy*

Researchers have advanced a hypothesis regarding the Volga-Kama region of an ecological crisis resulting in human migration and a transition from hunter-gatherer to agricultural economies (Matyushin 1986.133–149; 1992.17–45; Petrenko 2008.10–29). This implies a link between eco-crises with fluctuations in the level of the Caspian Sea and water level in northern regions and, consequently, non-contemporaneous sites located at different hypsometric levels. In other words, general postulates enable Neolithic cultures, their genesis and type of economy to be dated.

Thus, the Mullino IIa layer lies on a flood plain and dates to 8050±160 BP, and the settlement corresponds to the Mangyshlak regression. The bones of domestic animals discovered in this faunal layer lead to the conclusion that agriculture appeared in the Pre-Urals at the end of the 7th millennium BC (Matyushin 1996; Petrenko 2008).

During the Jilandin regression (Mullino III, the second part of 6th–7th millennium BP), tribes with colored pottery migrated to this region from the northern shores of the Caspian Sea, while the population with combed ware left the region, appearing in the forest zone of Prikamiye and Middle Povolzhie. However, the composition of domestic animals bones

found at the Houtorskaja site in Upper Prikamiye was identical to that at Mullino-Davlekanovo (Matyushin 1988.34–37). We have already pointed out the contradictions in Matyushin's hypothesis (Vybornov 1999), and we present some new evidence and comments in this paper.

There was ecological pressure in the northern Caspian Sea region between 8000 and 7000 BP connected with aridization and desertification (Lavroushin et al. 1988). A cold snap and siccation at the end of the Boreal period have been noted (Bolikhovskaja 1990.59), and these phenomena have been substantiated by cryogenic veins in the soil of the cultural layer at the Mesolithic Zhekolgan site (Ivanov and Vasiliev 1995). These processes were probably related to the end of the Jilandin regression. It is remarkable that researchers point out the existence of Mesolithic sites similar to the Zhekolgan examples at the forest-steppe settlement in Central Povolzhie (Lastovskii 2006). It should not be expected that their appearance was caused by climate anomalies and fluctuations in sea levels. At the same time, it is necessary to mention the horse bones at the Mesolithic site at Kairshak V, but it would be hasty to affirm that they are domesticates. The question of whether an eco-crisis around 8200 BP influenced the transition from the Mesolithic to the Neo-

lithic on the well-explored territory of south-western Europe is still open (*Budja 2007. 191–198*).

The recently received radiocarbon dates of ceramics from the earliest Neolithic sites in the northern Caspian Sea region are from 7950±90 BP to 7530±90 BP (*Vybornov 2008*). It is still uncertain if their appearance is connected with the end of the Mangyshlak regression and an eco-crisis at the end of the Boreal. Out of eight dates on two monuments, six cluster in a range from 7780 BP to 7530 BP, *i.e.* the second quarter of the 6th millennium BP. This period is associated with the Dagestanian transgression (8.0–7.5BP), when the climate became more humid and winters warm (*Ivanov 1986.21*), creating favourable conditions for life in this area. It is worth noting that the animal bones found at the Neolithic site at Kairshak III were only of wild species (*Kozin 2002*).

Some experts notice sharp aridization and climate anomalies at the 7500 BP (*Bolikhovskaja 1990.60*). Others have described dry, but hot conditions in the period 7500–7000 BP, connected with the Jelandin regression (*Ivanov 1986.21; Ivanov and Vasiliev 1995.17*). However, no Neolithic sites have been

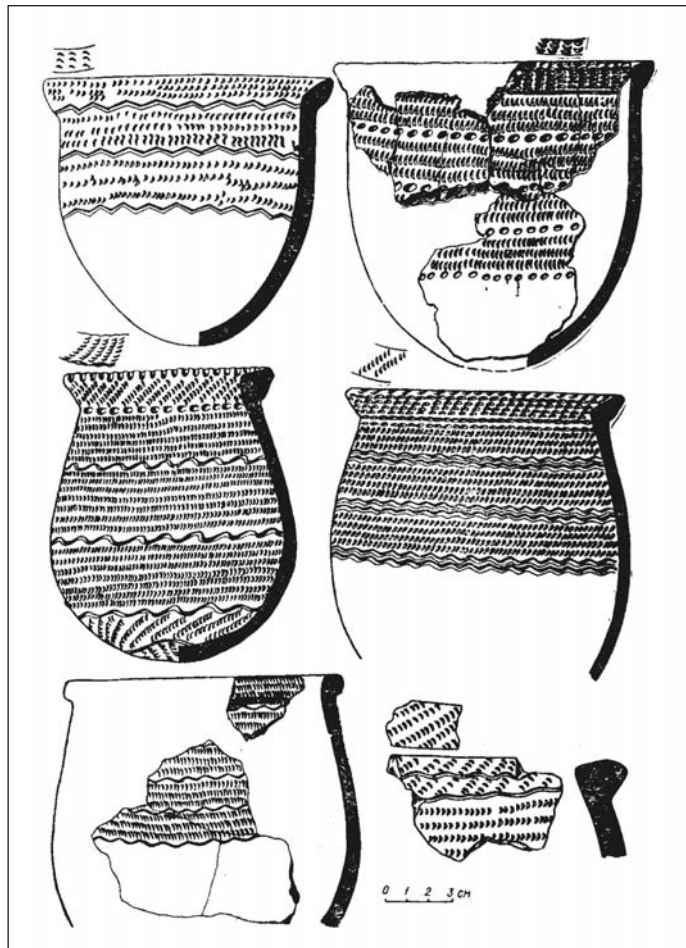
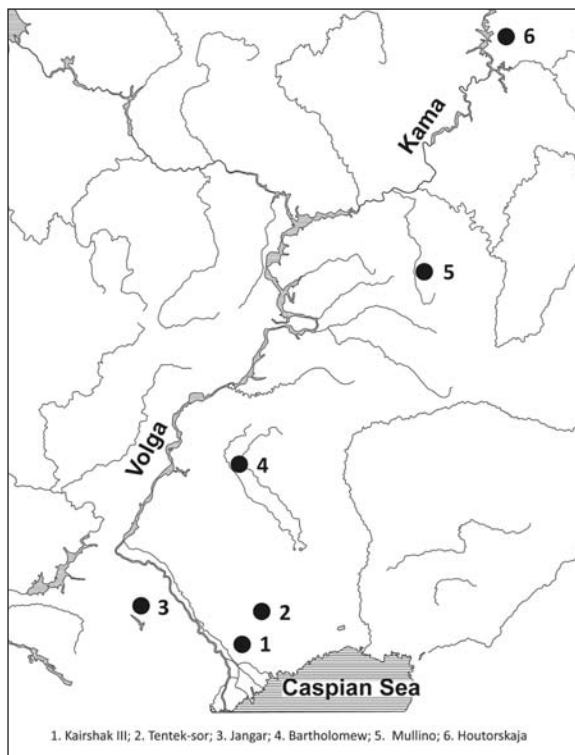


Fig. 1. The Khvalynsk pottery.



found in the northern Caspian Sea region between 7500 BP and 7200 BP. Perhaps this is no coincidence, and is connected with the deterioration in the ecological situation in this region, which lasted until 7200 BP (*Spiridonova, Aleshinskaja 1999*). Researchers have supposed that the Kairshak population left the inhospitable region, and moved north (*Barynkin, Kozin 1998*), a process evidently occurring within the stated chronological time span and supplemented with an economy of a specific character – koulan and saiga hunting. These animals even now head north from the Ryn-Peski Desert during the dry season, and return with the beginning of the rainy season. But there is no proof of their domestication in the Neolithic.

According to the paleogeographic data, transgression ‘6’ occurred in the northern Caspian Sea region at 7200–6800 BP, and again caused loss of land. This is confirmed by the radiocarbon dates of late Kairshak pottery type: 7180–6929 BP; (bone sample, 7190–7010 BP), Tentek-sorsskii: 7005–6630 BP; Jangar: 7080–6680 BP (charcoal sample, 6870±130 BP); Bartholomew: 7170–6980 BP (charcoal sample,

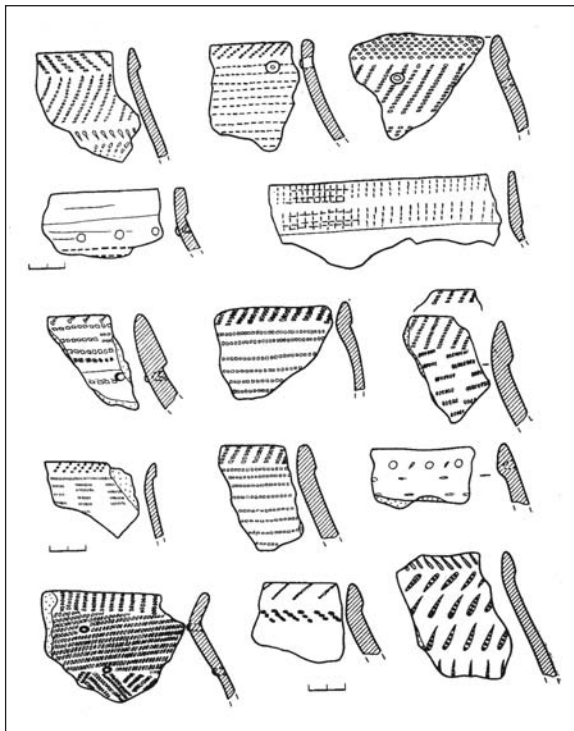


Fig. 2. The Agidelsky pottery.

6980±200 BP). It is important to emphasize the appearance of late Kairshak pottery in the lower layers at the Jangar and the Bartholomew settlements, which only goes to confirm the ability of these populations to migrate and interact even in an earlier period. On the other hand, it is essential to highlight the absence of domestic species among these faunal finds in these contexts. There are no collar pottery types in either the northern Caspian Sea region or Lower Povolzhie during the Jelandin regression period and transgression '6', so it is difficult to accept their appearance at Mullino III in the Cis-Ural region in the chronological interval from second half of 6th to first half of 5th millennium BP. The ¹⁴C dates show collar pottery distribution in the North Caspian Sea region in the period of 6800– 6000 BP (Vybornov et al. 2008) (Fig 4), which is precisely the period when domestic animals appeared in the area. The Khvalynsk culture appeared in the region at 6000–5600 BP (Fig. 1) (Map 1). According to the palaeographic data, this period corresponds with the Gousanskaja transgression (6500–5200 BP).

Thus, the fluctuation in Caspian Sea levels in the 6th millennium BP can be partially correlated with bodies of ground water in the Trans-Urals. The situation in the Pre-Urals is not still clear. The date 8050±160 BP, offered by Matyushin to link with Neolithic layer Mullino IIa, fits well into the group of dates in the Mesolithic layer from 8500 BP to 8300 BP that cor-

responds to the Mangyshlak regression at the end of the Boreal period. This is proven by the pollen composition from this layer, which comprises semi-desert species unusual for this region, indicating sharp aridization at the beginning of the 6th millennium BP (Matyushin 1996.104).

Concerning the 6th millennium BP, there is no data suggesting any correspondence with regression '6' (Jilandin) of the Mullino II B and II C and Mullino III (with collar pottery) layers. All the cultural layers at the Mullino site are dated in the period marked by floods in the plain, and no migrations have been observed.

Matyushin (1996) and Petrenko (2008) date the Mullino III layer by the presence of collar pottery at 6450±80 BP, and correlate it with the Eneolithic period. However, this date relates to Neolithic Mullino II (A–C) layer, and it is not clear what pottery type corresponds to it (Zajceva, Timofeev 1998.114). Matyushin (1996) points out that pottery without ornamentation was found in the lower Mullino IIA layer, so it is possible that the date corresponds to this pottery. Other ¹⁴C dates range from 6800 BP to 6500 BP (Vybornov 2008). It is worth remembering that ornamented pottery does occur in the Neoli-

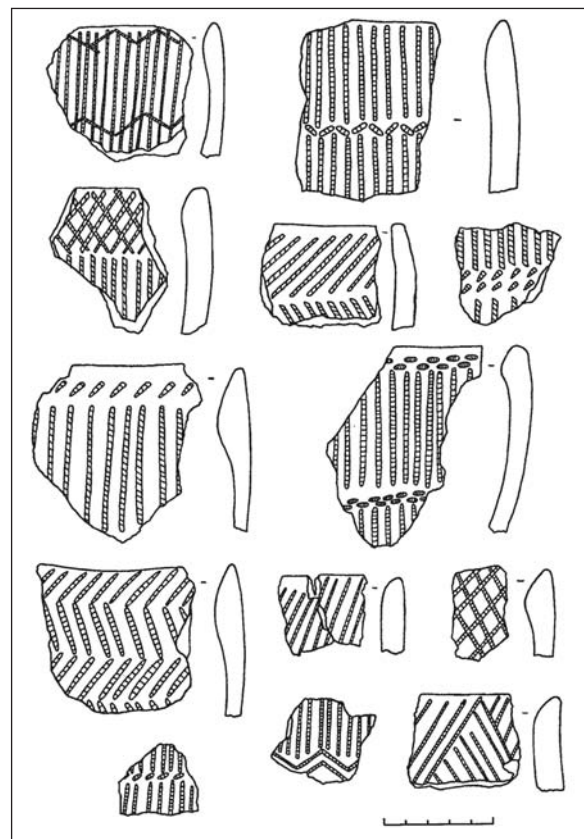


Fig. 3. The Comb pottery. Prikamiye.

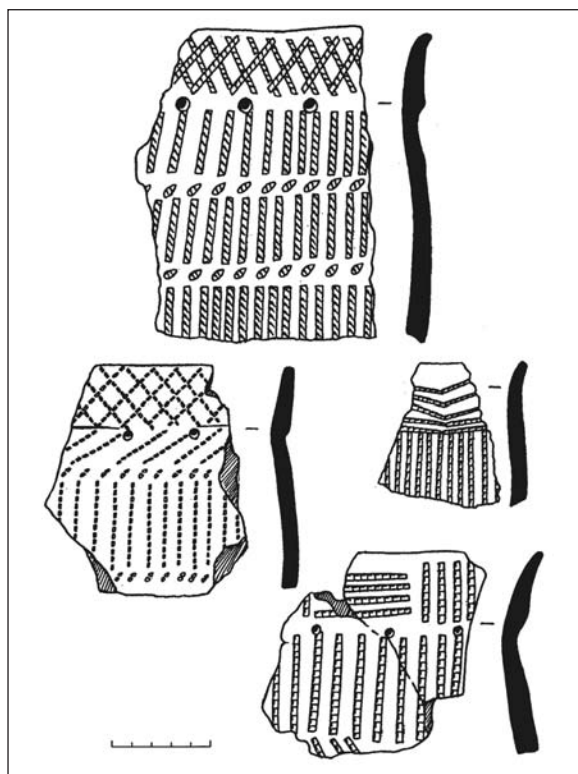


Fig. 4. The Collar pottery. Prikamiye.

thic Mullino II layer (see *Matyushin 1982.254, Tab. 111.3*).

The ^{14}C date 6260 ± 70 BP listed in the catalogue relates to the Mullino III layer (*Zajceva, Timofeev 1977.114*). It corresponds well with the early phase of the Samara culture in the Povolzhie forest-steppe (*Vybornov 2008*). The problem remains, since the Mullino III layer contains the Ivanov type collar pottery typical of the second phase of Samara culture. Other dates range in the interval from 6000 BP to 5600 BP. Thus the date 6260 ± 70 BP for the Mullino III layer remains problematic.

There are some grounds for referring this date to the Neolithic Mullino II layer with comb pottery. Two pottery fragments have been dated to 6290 ± 80 BP and 6170 ± 80 BP (see Tab. 1). Similar dates were obtained for comb type vessels from both the forest settlement at Prikamiye and at Middle Povolzhie (Fig. 3). Therefore, we may hypothesise that forest tribes migrated to the south, reaching the River Samara during the Goussanskaja transgression (6500–5500 BP). Data on spore/pollen analysis also confirm the hypothesis. For the Neolithic Mullino II layer, herbage (54%) and aboreal (43%) species are represented by birch (38%), pine (3%) and alder (2%) (*Matyushin 1996.104*). Besides the pollen of herbaceous plants, also birch, pine and alder were

discovered at the Ivanovskaja site, south of Mullino, in the upper part of the Neolithic layer (mainly comb pottery type occurred there) and in the lower part of the Eneolithic layer (*Morgounova 1995.175*). It is interesting that the comb type pottery dates from the Ivanovskaja site at 6100 ± 90 BP and 6090 ± 80 BP are nevertheless somewhat later than those from Mullino. Thus, judging from these data, a reverse process occurred, connected not with the Jelandin, but with the Goussanskaja transgression.

The Ivanovsky (Agidelsky) pottery type presents a combination of both the Kamskaja and the Samarskaja types, which means they were contemporaneous (*Vybornov 1985*) (Fig. 2). Therefore, the hypothesis that a population with collar type pottery from the northern Caspian Sea region superseded a comb type pottery culture in Prikamiye does not correspond to the available data. It is necessary to recall that the Houtorskaja site in Upper Prikamiye (derived from Mullino II during the Jelandin regression according to *Matyushin*) is situated on a terrace at altitudes of 16 metres that does not correspond with the low level of standing water. It is notable that while specialists identified horse bones at the Houtorskaja site, they did not consider them domesticates.

For a more detailed concretization of the issue, a series of radiocarbon dates is required for all types of Neolithic and Eneolithic pottery from the Mullino site.

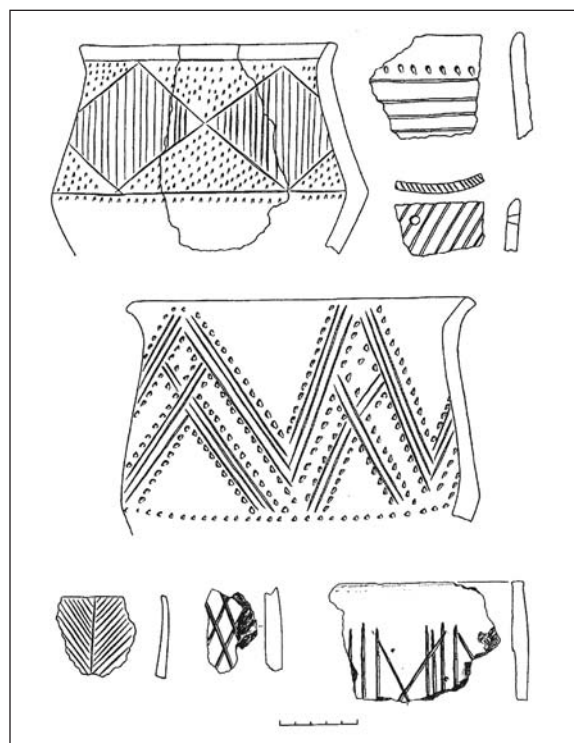


Fig. 5. The Kairshak pottery. North Caspian Sea.

REFERENCES

- BARYNKIN P. P., KOZIN E. V. 1998. Prirodno-klimaticheskie i kul'turno-demograficheskie processy v Severnom Prikaspii v rannem i srednem golocene. (Natural and climatic, cultural and population processes in the Northern Caspian Sea region during early and middle Holocene). In I. Vasiliev (ed.), *Problemy drevnej istorii Severnogo Prikaspija*. Samara: 66–83.
- BOLIKHOVSKAJA I. S. 1990. Palinoindikacija izmenenija landshaftov Nizhnego Povolzh'ja v poslednie 10 tys. let. (Palynoidication of landscape in Lower Povolzhie in the last ten thousand years). *Kaspijskoe more. Voprosy geologii i geomorfologii*. Moscow: 52–68.
- BUDJA M. 2007. The 8200 cal BP climate event and the process of neolithisation in south-eastern Europe. In M. Budja (ed.), *14th Neolithic Studies. Documenta Praehistorica 34*: 191–201.
- IVANOV I. V. 1986. Izmenenie klimaticheskih uslovij stepnoj zony v golocene. (Climate changes in steppe zone in Holocene). In N. Morgunova (ed.), *Problemy jepohi neolita stepnoj i lesostepnoj zony Vostochnoj Evropy*. Orenburg: 18–21.
- IVANOV I. V., VASILIEV I. B. 1995. *Chelovek, priroda i pochvy Ryn-peskov Volgo-Ural'skogo mezhdurech'ja v golocene. (Human, nature and soils of Ryn-Peski Volga-Ural interfluves in the Holocene)*. Moscow.
- KOZIN E. V. 2002. *Neolit Severnogo Prikaspija (Neolithic of northern shores of the Caspian Sea)*. Izhevsk: 3–16.
- LAVROUSHIN J. A., SPIRIDONOVA E. A., SULERZHICKIJ L. D. 1998. Geologo-paleologicheskie sobytija severa aridnoj zony v poslednie 10 tys. let. (Galeological-paleological events of arid zone of north in last ten thousand years). In I. Vasiliev (ed.), *Problemy drevnej istorii Severnogo Prikaspija*, Samara: 40–65.
- LASTOVSKII A. A. 2006. Zakljuchenie. (Conclusions). In A. Skripkin (ed.), *Arheologija Nizhnego Povolzh'ja. (Lower Povolzhie Archeology)*. Volgograd: 217.
- MATYUSHIN G. N. 1982. *Jeneolit Juzhnogo Urala. (Eneolithic of the Southern Urals)*. Moscow.
1986. The Mesolithic and Neolithic in the southern Urals and Central Asia. In M. Zvelebil (ed.), *Hunters in transition. Mesolithic societies of temperate Eurasia and their transition to farming*. Cambridge University Press, Cambridge. 133–150.
1988. Jekologicheskie krizisy i ih rol' v smene kul'tur kamennogo veka. (Ecological crises and their role in change of lithic age cultures). In *Priroda i chelovek*. Moscow: 21–37.
1992. Jekologicheskie krizisy, proizvodjavee hozjajstvo i civilizacii. (Ecological crises, producing economy and civilization). In A. Petrenko (ed.), *Drevnosti 3*. Kazan: 17–45.
1996. *Neolit Juzhnogo Urala. (Neolithic of the Southern Urals)*. Moscow.
- MORGOUNOVA N. L. 1995. *Neolit i jeneolit juga lesostepi Volgo-Ural'skogo mezhdurech'ja. (Neolithic and Eneolithic in the south of Volga-Urals interfluves in forest steppes)*. Orenburg.
- PETRENKO A. G. 2008. Problemy stanovlenija proizvodjavego hozjajstva v Volgo-Kam'e. (Problems of formation of producing economy in Kama-Volga region). In M. Galimova (ed.), *Arheologija i estestvennye nauki Tatarstana. Kniga 3*. Kazan: 10–29.
- SPIRIDONOVA E. A., ALESHINSKAJA A. S. 1999. Periodizacija neolita-jeneolita Evropejskoj Rossii po dannym palinologicheskogo analiza. (Neolithic-Eneolithic periodization in European Russia on the base of palynological data). *Rossijskaja arheologija 1*: 23–33.
- VYBORNOV A. A. 1985. O dal'nejshih sud'bah neolita Nizhnej Beloj. (On further fortunes of Lower Belaja Neolith). In A. Sinuk (ed.), *Arheologicheskie pamjatniki na Evropejskoj territorii SSSR*. Voronezh: 45–57.
1999. *K voprosu o pribel'skoj kul'ture. (On the issue of pribel'skaja culture)*. XIV Ural'skoe arheologicheskoe soveshanie. Cheljabinsk: 23–24.
2008. *Neolit Volgo-Kam'ja. (Neolithic in Volgo-Kam'ja)*. Samara.
- VYBORNOV A. A., KOVALUH N. N., SKRIPKIN V. V. 2008. O korrekcirovke absoljutnoj hronologii neolita i jeneolita Severnogo Prikaspija. (On adjustment of the absolute chronology of Neolithic and Eneolithic on the northern shores of the Caspian Sea). In A. Derevyanko and N. Markarov (eds.), *Trudy II (XVIII) Vserossijskogo arheologicheskogo sjezda v Suzdale 2008 g.* T. I. Moscow: 191–193.
- ZAJCEVA G. I., TIMOFEEV V. I. 1998. Radiouglerodnye daty pamjatnikov mezolita-jeneolita juga Evropejskoj Rossii i Sibiri. (Radiocarbon dates of Mesolithic-Eneolithic monuments in the south of european Russia). *Arheologija i radiouglerod 2*: 109–127.