

SOME ASPECTS ON THE RADIOCARBON CHRONOLOGY OF THE NEOLITHIC CULTURES IN THE FOREST ZONE OF THE EUROPEAN PART OF RUSSIA

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Abstract

In this article problems concerning the chronology for the Neolithic periods based on radiocarbon dating are discussed. Special attention is paid to the beginning of the Neolithic, which can be dated in Central Russia to about 7000 BP. Time differences for the appearance of different cultures in different regions are shown. The appearance of pottery in the Forest zone is shown to be synchronous with the Neolithization of Central Europe. In the south-eastern areas the early Neolithic is dated probably to an even earlier period. The impact of radiocarbon dating on the construction of a chronology for the early Neolithic periods of Russia is also discussed.

About 400 radiocarbon datings have until now been obtained from about a hundred Neolithic sites in the European part of Russia. The main part of the datings have been made in the ^{14}C Laboratory at the Institute of the History of Material culture, Russian Academy of Sciences, the only laboratory in Russia specialising on dating of archaeological samples. Until present no complete radiocarbon chronology for the Neolithic of the vast area of the Russian forest zone has been established in full scale, but for a number of important sites definite and reliable data are available. A rather great number of datings are obtained for the beginning of the Neolithic period. According to the traditions in Russian archaeology the beginning of the Neolithic is connected with the appearance of the first pottery. We will not here discuss the most ancient objects of burnt clay discovered at several Palaeolithic sites. These isolated finds had no further continuation and pottery was absent during many millennia in the Late Palaeolithic and Mesolithic periods.

The oldest definite existence of a rather wide use of burned clay in the European Russia was investigated at Matveev Kurgan in the Azov-sea area in Southern Russia by L.Ya. Krizhevskaya (1992). At the sites a number of fragments of burnt clay objects were found. According to the excavator several of them were small pieces of archaic vessels. The results from radiocarbon dating of the Matveev Kurgan-I assemblage were 7505 ± 210 BP (GrN-7199) and 7180 ± 70 BP (Le-1217). Taking into consideration some experimental problems at the Institute of the History of Material Culture the older date is probably more correct in this case. Thus the first indications of pottery production in the Azov Sea area date to about 7500 BP or about the middle of the 7th millennium calBC. Similar pieces of clay found in a layer with Neolithic ceramics at site Soroki II in Moldavia are from the same period. The layer was dated to 7515 ± 120 and 7420 ± 80 BP (BlN-588, 587, Markevich, 1974). At this time the vast territory of the Forest zone was occupied by Mesolithic populations. The main part of radiocarbon datings for the Mesolithic of this area fall in the interval 7000–8000 BP (Fig. 1).

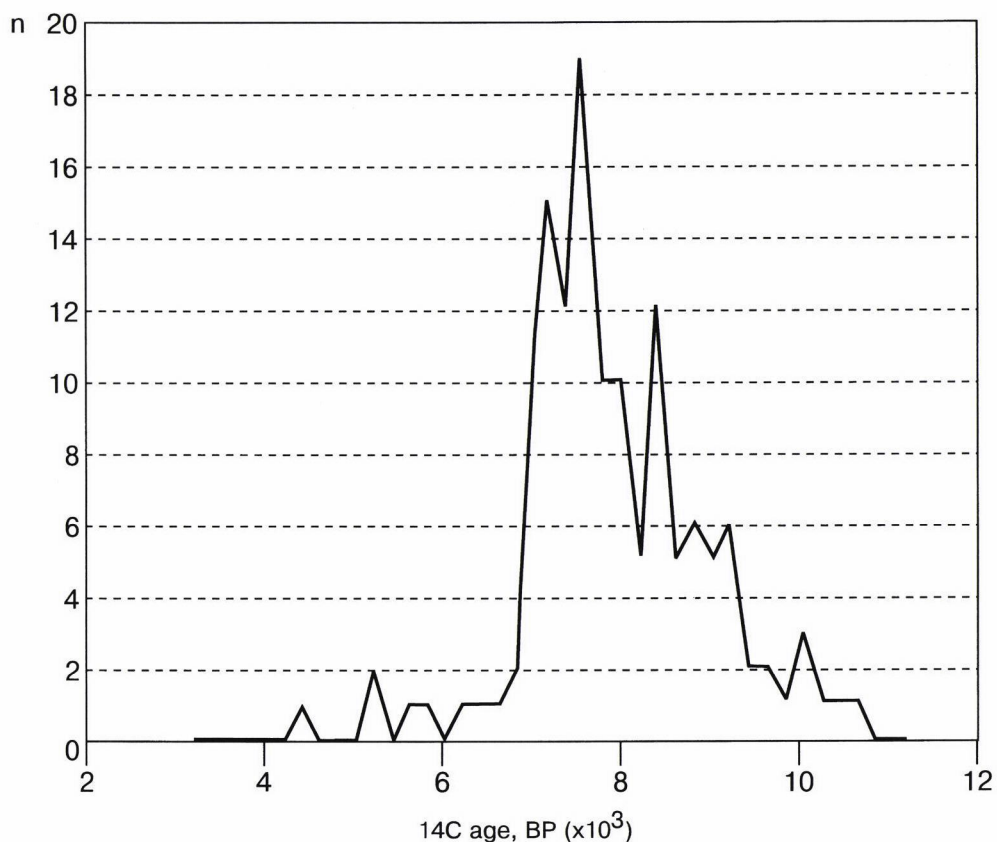


Fig. 1. Diagram showing the distribution of results from radiocarbon dating of samples from Mesolithic sites in the forest zone of Russia.

The datings of the most ancient early Neolithic assemblages from Central Russia belonging to the Verhnevolzhskaya (Upper-Volga) culture are of primary importance for definition of the first pottery appearance in the forest zone. A large number of ¹⁴C determinations in the interval 7000–6300 BP were obtained for samples from the sites Ivanovskoe III, Berendeevo, Yazykovo, Vashutinskaya, Zhabki III, Kurovo II and some other. The series of ¹⁴C dates from the stratified peat-bog site Ivanovskoe III should also be mentioned (Krainov, Zaitseva and Utkin, 1990). Similar ¹⁴C dates were also obtained for some Early Neolithic sites of the Valdai culture with pottery finds of Kotschische-type comparable with Upper-Volga culture ware (N. Kotitzky V: 6860 ± 100 BP (Le-1333); Zalesye: 6530 ± 50 BP (Le-1144); Lanino-2: 6440 ± 1430, 6296 ± 260 BP (Le-4347, Le-3298). Among sites from other regions of European Russia dated to Early Neolithic the stratified peat-bog site Rudnya Serteyskaya in Smolensk oblast (Zaitseva, Miklyaev, Mazurkevich, 1994) is important. This site attributed by A.M. Miklyaev to the local Rudnya culture (related to the Narva culture in the Eastern Baltic area) was dated to the end of the 6th millennium BC (6300–6000 BP). Under the dated layer a cultural layer containing finds of archaic Early Neolithic pottery is embedded. The layer has no ¹⁴C datings. The age of Rudnya assemblage is in good

concordance with the chronology of the Narva culture especially with the numerous data obtained for the peatbog sites of Eastern Latvia (Loze, 1988).

Information concerning the beginning of the Neolithic in more Northern regions was reached by the Laboratories at Tartu University and at the Institute of the History of Material Culture. A number of datings was obtained for samples from sites attributed to the Sperrings culture, the most ancient pottery culture of Finland and Karelia (Erpin Pudas, Pegrema-IX, Sheltozero-XI and Shettima I sites). They are dated to the middle and second half of the 6th millennium BC.

In the last years synchronous material from north-eastern Europe has been ^{14}C dated for the first time. The earliest pottery of this area (Chernoborskaya III type) has some features common with the Early Neolithic wares of Valdai and Upper-Volgian cultures. Charcoal from Prilukskaya site (Arkhangelsk oblast) was dated to 6680 ± 70 and 6350 ± 60 BP (Le-4813, 4814). The ^{14}C dates confirmed the Early Neolithic age of the sites of Chernoborskaya III type, which had been questioned before. As a whole the ^{14}C datings of the Early pottery assemblages assigned the beginning of the Neolithic in the area under consideration to a period not later than 6500 BP, which means not later than the 6th millennium BC. Based on the above mentioned results and the datings of the Late Mesolithic sites one can judge that the first pottery had spread in the areas of the Upper-Volga, Valdai, Sperrings and Narva cultures and in the north-east of the European Russia in a few centuries. This conclusion fits well with the explanation that pottery spread as a result of a diffusion process.

The closest prototypes for the pottery of the Narva culture can be found in the material from the Early Neolithic in the Dniepr river basin (Timofeev, 1994). The pottery of Sperrings type and Chernoborskaya III type has more common elements in ornamentation and technology with some groups of Early Neolithic wares from upper Volga and Valdai. It should be emphasised, that the earliest group of ^{14}C datings for the cultures mentioned above falls in a period about 7000 BP, and only materials from the Upper-Volgian culture is known to be older than 6500 BP (Fig. 2.). Probably the Upper river Volga basin could be considered as one of the centres from where the pottery making technology had spread to the north and north-east. Judging by these chronological data the process of pottery adaptation proceeded rather rapidly. It is unlikely that the Upper-Volga Early Neolithic pottery had been a local invention. The close parallels to this ware can be observed for the sites of the more southern Mid-Don Early Neolithic culture. Unfortunately there are no radiocarbon datings of the Mid-Don culture.

Recently extremely early datings have been obtained for assemblages of archaic pottery of so-called Elshan type from the forest-steppe zone in the south-eastern part of European Russia. A series of shell samples from a cultural layer at Chekalino 4 site (situated to the east from the Volga basin in Sergiev district of Samara oblast) were dated at the laboratories of The Geological Institute (GIN) and Institute of the History of Material Culture. The results were: 8680 ± 120 , 7950 ± 130 , 8990 ± 100 , 8000 ± 120 and 7940 ± 140 BP (GIN-7085–7086, Le-4781–4784). Based on results from palynological and geological studies E.A. Spiridonova and Yu.A. Lavrushin attribute the layer to the Boreal optimal climatic period in good concordance with the ^{14}C datings. There are similar data for an other site of Elshan type (Lebyazhanka-IV) ^{14}C dated to 8470 ± 140 BP (GIN-7088) (Mamonov, 1995). These results are at present the earliest radiocarbon datings for the Neolithic of the forest and forest-steppe zones. A number of geochronological data can be correlated with the beginning of the Neolithic in the eastern regions of Russia. A large part of these datings have been obtained in the Laboratory at Institute of the History of Material Culture. Among them are the age deter-

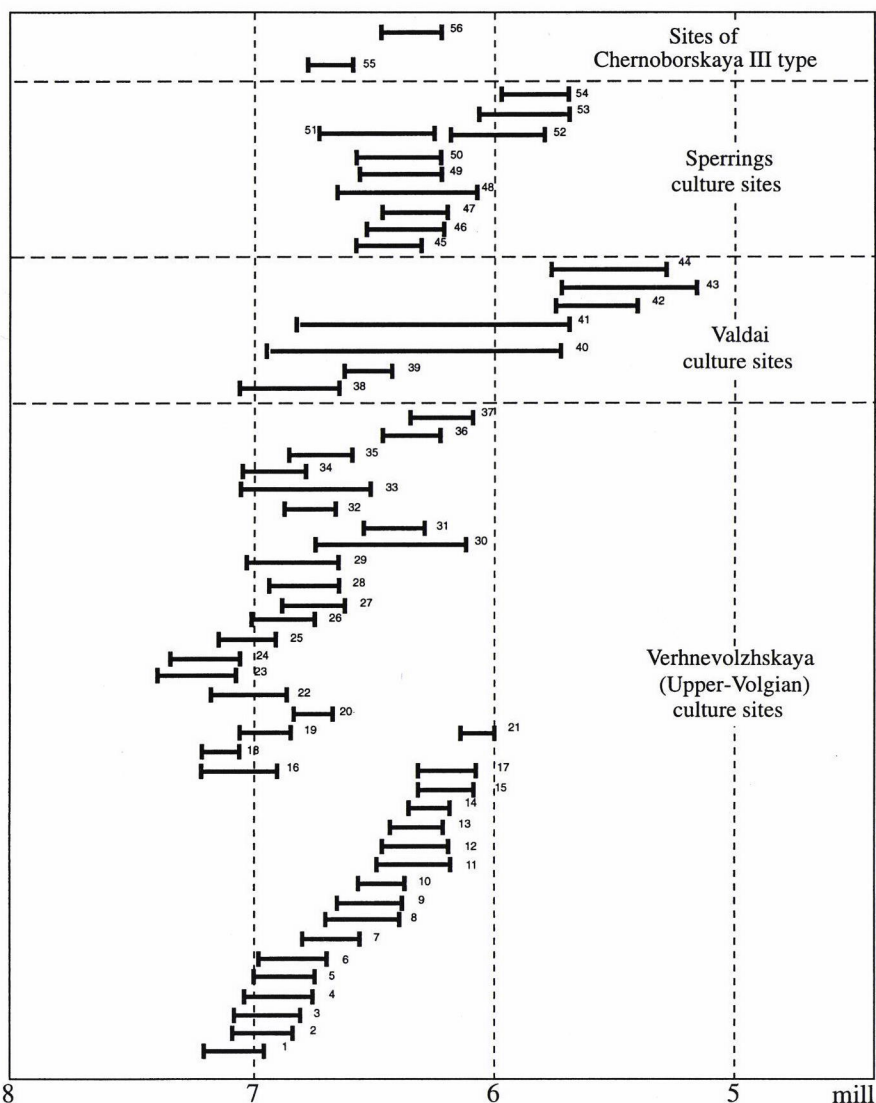


Fig. 2. The radiocarbon chronology for the Early Neolithic in different regions of the Forest zone of European Russia. A large part of the dated samples originate from layers containing finds of several different assemblages and the attribution of these samples to a defined culture can not be defined with full certainty. The suggested attribution is considered as the most probable.

minations of samples from the Early Neolithic sites in the Ural region and Western Siberia (Leushi VII, Tyumen oblast: 6890 ± 70 and 6370 ± 60 BP (Le-2726, 2729); Sumpanya IV, Hanty and Mansy Autonomous District: 6850 ± 60 , 6520 ± 70 and 6530 ± 70 BP (Le-1440, 1813, 1814) and other).

A significant series of datings in the interval 7000–6500 BP were obtained mainly in the GIN Laboratory for Neolithic burials in the lake Baikal area (Mamonova and Sulerzhitskiy, 1989). There are also a few extremely early datings for Neolithic sites

Table 1. List of ^{14}C dates from different archaeological sites (Timofeev and Zaitseva, 1996). The dates are also presented in Figure 2.

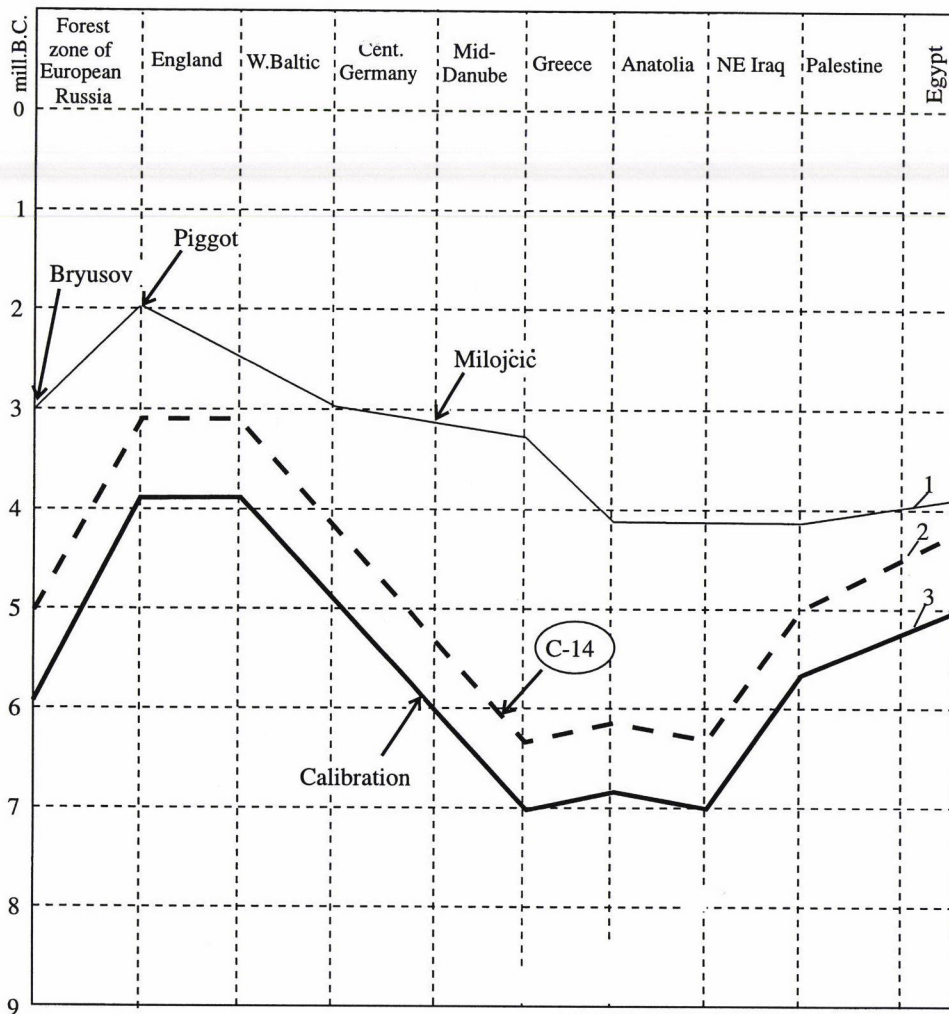
No. from fig. 2	Lab. no.	Archaeological sites	^{14}C age, years BP
Sites of the Upper-Volga culture (Verhnevolzhskaya culture)			
1	Le-1972	Ivanovskoe-III	7110 \pm 80
2	Le-1250	Ivanovskoe-III	7010 \pm 70
3	Le-1949	Ivanovskoe-III	6980 \pm 80
4	Le-1904	Ivanovskoe-III	6930 \pm 80
5	Le-1948	Ivanovskoe-III	6900 \pm 70
6	Le-1911	Ivanovskoe-III	6860 \pm 70
7	Le-1913	Ivanovskoe-III	6690 \pm 70
8	Le-1970	Ivanovskoe-III	6570 \pm 80
9	Le-1935	Ivanovskoe-III	6540 \pm 70
10	IGAN-71	Ivanovskoe-III	6500 \pm 50
11	Le-1973	Ivanovskoe-III	6370 \pm 70
12	Le-1978	Ivanovskoe-III	6360 \pm 80
13	Le-3097	Ivanovskoe-III	6350 \pm 70
14	IGAN-160	Ivanovskoe-III	6300 \pm 40
15	Le-3094	Ivanovskoe-III	6210 \pm 60
16	Le-1950	Ivanovskoe-II	7080 \pm 80
17	Le-1974	Ivanovskoe-II	6270 \pm 80
18	IGAN-95	Ivanovskoe-VII	7170 \pm 40
19	IGAN-96	Ivanovskoe-VII	6970 \pm 70
20	IGAN-92	Ivanovskoe-VII	6670 \pm 70
21	IGAN-94	Ivanovskoe-VII	6100 \pm 40
22	Le-1576	Berendeevo-I	7050 \pm 80
23	Le-1585	Berendeevo-IIa	7270 \pm 80
24	Le-1561	Berendeevo-IIa	7240 \pm 80
25	Le-1560	Berendeevo-IIa	7080 \pm 80
26	Le-1585	Berendeevo-IIa	6930 \pm 70
27	Le-1586	Berendeevo-IIa	6780 \pm 70
28	Le-2607	Vashutinskaya	6820 \pm 80
29	GIN-2767	Zhabki-III	6870 \pm 100
30	GIN-3214	Zhabki-III	6460 \pm 160
31	Le-2055	Nikol'skaya-pravaya	6470 \pm 70
32	GIN-6416	Okaemovo-18	6800 \pm 60
33	GIN-6193	Okaemovo-5	6800 \pm 140
34	Le-2051	Yasykovo	6950 \pm 70
35	Le-2053	Yasykovo	6730 \pm 80
36	Le-1181	Yasykovo	6370 \pm 80
37	Le-1080	Yasykovo	6250 \pm 60
Sites of Valdai culture			
38	Le-1333	Nizhnie Kotizy-II	6860 \pm 100
39	Le-1144	Zales'e-I	6530 \pm 50
40	Le-4347	Lanino-2	6440 \pm 370
41	Le-3298	Lanino-2	6296 \pm 260
42	Le-3485	Lanino-2	5570 \pm 80
43	Le-3490	Lanino-2	5440 \pm 140
44	Le-1223	Chernaya Rechka-1	5540 \pm 140
Sites of Sperrings culture			
45	TA-1161	Pegrema-IX	6510 \pm 90
46	TA-1312	Sheltosero-XI	6480 \pm 70
47	TA-1308	Sheltosero-X	6400 \pm 80
48	TA-1152	Shettima-I	6400 \pm 150
49	Le-1412	Hepo-yarvi	6480 \pm 60
50	Le-1411	Hepo-yarvi	6380 \pm 60
51	TA-344	Erpin Pudas	6510 \pm 120

No. from fig. 2	Lab. no.	Archaeological sites	¹⁴ C age, years BP
52	TA-799	Erpin Pudas	5990 ± 100
53	TA-472	Erpin Pudas	5860 ± 100
54	TA-413	Erpin Pudas	5825 ± 80
Sites of Chernoborskaya III type			
55	Le-4813	Prilukskaya	6680 ± 70
56	Le-4814	Prilukskaya	6350 ± 60

in Southern Siberia (N. Djilinda I, Buryat Republic: 7880 ± 80, 7580 ± 80 and 7230 ± 40 BP (Le-1955–1956, GIN-4051); Ust-Karenga I, Buryat Republic: 7230 ± 80 and 6890 ± 80 BP (Le-1960–1961; and others). These data point to the existence of several centres for early pottery making in the Eurasian forest zone. Based on the local stylistical peculiarities recognisable in the first pottery assemblages from different areas and the large distances between these areas one can judge that the centres appeared independently and probably as the result of spread of the new technology from southern Neolithic cultures. About 6500 BP pottery making was probably known in the main areas of the forest zone. A number of data testify to the earlier appearance of pottery in south-eastern and eastern areas of Russia including Siberia. In the far north pottery was probably introduced later when compared with more southern areas of the forest zone. In any case the radiocarbon age of the Early Neolithic sites of the Kola peninsula is about a thousand years younger than the age of the Early Neolithic sites of Central Russia (Kola datings: Tsavanga 5560 ± 80 BP (Le-1122); Ust' Drozdovka 5510 ± 100 BP (Le-1332); Tsaga I 5760 ± 160 BP (Le-1087) and others).

Certain methodical difficulties are connected with the circumstance that a layer sometimes contains finds of different cultural and chronological origin. This situation occurs rather often at the sites of the Forest zone. In such cases an accelerator dates on food-crust, which sometimes remains on pottery, be of great importance. With the introduction of the radiocarbon method in the 1960s the beginning of the Neolithic in the main part of Europe and the Near East was dated significantly older than previously believed (Clark, 1965). A similar phenomenon takes place in the chronology of the Neolithic in the Forest zone of Russia. The change is very substantial. In the 1950s the main specialist on Neolithic chronology of the Forest zone A.Ya. Bryusov (1953) proposed the time around 3000 BC as the initial period for the Neolithic of this area. Radiocarbon dating then proved this period to be about 1500 years older (Timofeev, Romanova, Malanova, Svezhentzev, 1978) and after converting of ¹⁴C age to calendar time the first appearance of pottery can now be attributed to the very beginning of the 6th millennium BC (Fig. 3). The data presented show that the beginning of the Neolithic in the Forest zone took place not later than the Neolithization of the Central Europe connected with the spread of the Linear-band pottery culture, which brought in the food producing economy and the pottery manufacturing about 6500–7000 BP (Breunig 1987). Some data point towards even earlier time for the appearance of pottery in the Forest-Steppe area and in the Eastern regions of the Eurasian forest zone. In the Eastern Baltic area the first pottery appeared about 500–700 years earlier than in Scandinavia (Timofeev, 1994). The first Ertebølle-type pottery on Danish sites is dated to about 5700–5800 BP or to the first half of the 5th millennium BC (Andersen and Johansen, 1986).

The radiocarbon chronology now established for the Neolithic periods in the Russian forest zone can be compared with archaeological evidence from western parts of



(after Clark, 1965, Barford, 1994, with additions)

Fig. 3. A presentation of the “traditional” dating of the beginning of the Neolithic, and the result based on uncalibrated and calibrated ¹⁴C dates (after Clark 1965, Barford, 1994, with additions). 1 – “traditional” dating, 2 – uncalibrated ¹⁴C dating, 3 – calibrated ¹⁴C dating.

Europe. Such a link provides the Zedmar Neolithic culture, which occupied the area of Kaliningrad oblast of Russia and north-eastern Poland.

In the archaeological material of this culture the influence from contacts with farming and stock breeding western populations of the funnelbeaker culture can be observed. The elements introduced from the West are recognisable in shape and ornamentation of vessels (for instance the flat-bottomed pottery appeared here much earlier than in other parts of the eastern Baltic area). Small amount of bone of domesticated animals has also been found in the excavated material. Radiocarbon datings obtained for 4 main peat-bog sites of Zedmar-type (more than 30 dates including a group of accelerator data) give results in good agreement with the age of the earliest stages of the funnelbeaker culture of Poland (Timofeev, Zaitseva, Possnert 1994).

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