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CHRONOLOGY OF THE URALIAN NEOLITHIC*

Until the early 2000s, the chronology of the Uralian Neolithic was based on isolated radiocarbon dates and on V.N. Chernetsov's and O.N. Bahder's typological schemes. In 2007 we began directly dating ceramics tempered with organic substances. As a result, a long series of reliable dates was generated. A total of 212 estimates has been analyzed, spanning various Neolithic cultures of the Urals. The entire period lasted from the late 7th to the late 5th millennia BC and can be tentatively subdivided into two stages: early (late 7th – late 6th millennia BC) and late (5th millennium BC). Cultural and territorial differences within those two stages are described.

Keywords: *Neolithic, Urals, chronology, radiocarbon dates, ceramic traditions.*

Introduction

Evaluating the chronological limits of the Neolithic in an inland Eurasian region such as the Urals without using science-based techniques appears an almost impossible task. An attempt, however, must be made otherwise any interpretations are rendered futile. In the case of the Urals circumstances are complicated by the multiplicity of cultural groups defined by previous researchers. The relationships between these groups have been a matter of

contention for many years, preventing the development of historical reconstructions. The objective of the present study is to propose certain approaches to a solution and to correlate regional chronological schemes within a single framework.

The reference point in the chronology of the Uralian Neolithic is taken to be the date of the Lyeveshino site, suggested by A.V. Schmidt, who first conducted a professional excavation in 1925. The date was based on parallels to the copper knife and awl in regions such as the Ukraine, Northern Caucasus, Hungary, and the Near East. Because the Lyeveshino knife resembles that from an Assyrian burial in Aššur, dating to 2300 BC, the date of the Lyeveshino site was estimated at 2000 BC (Schmidt, 1940: 23–26). Later estimates proposed for the Neolithic sites in the Urals (initially the mid-3rd and subsequently the late 4th and 3rd millennia BC), were partly based on Schmidt's date and partly on findings of A.Ya. Bryusov's

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excavations at the Gorbunovo Pit-Bog near Nizhny Tagil. Based on analyses of pollen and charred food remains, and on the stratigraphy of Gorbunovo, Bryusov (1951) dated the Strelka site to the late Atlantic Period (late 4th–early 3rd millennia BC). Bryusov's and Bahder's conclusions were supported in V.N. Chernetsov's (1953: 31) studies of the Neolithic and Bronze Age sites in the Urals and Siberia.

In the 1950s, the first two dates were obtained for the key Uralian Neolithic sites known at that time: 4800 ± 200 and 4360 ± 200 BP. Both dates were generated on wood samples from the Strelka site and Section VI (both at Gorbunovo Peat-Bog), respectively (Vinogradov et al., 1956). V.N. Chernetsov used these dates for in his periodization of the eastern Ural (Trans-Ural) Neolithic. The first (Kozlov) phase was attributed to an earlier period on the basis of the typology of the Keltiminar arrowheads found in the Trans-Urals and Aral–Caspian regions as well as on the date obtained for layer IV at Djebel Cave – 6030 ± 240 BP (Chernetsov, 1968). Later, without substantiation Chernetsov dated the Early Neolithic to the second half or the end of the 5th millennium BC, and the Middle Neolithic, to the period no later than the mid-4th millennium BC (1973: 13).

O.N. Bahder used these dates when constructing the periodization of the entire Uralian Neolithic. In addition, the fourth Chalcolithic Lipchinskaya stage in the Trans-Urals was supported by the date for the Kozlova Pereima II burial ground – 4000 ± 130 BP; while the first Kozlov stage, according to Bahder (on the basis of the date from Djebel Cave), encompassed the larger portion of the 4th millennium BC. The chronology of the western Ural (Cis-Ural) Neolithic was based on typological parallels with the Neolithic of the Trans-Urals and with the Dnieper-Donets culture (Bahder, 1970; Khalikov, 1969, 1973).

This scheme was used until the 1980s–1990s, when new radiocarbon dates for some sites in the Urals and Siberia appeared (Varankin, 1982; Kovaleva, Ustinova, Khlobystin, 1984; *Neoliticheskiye pamyatniki...*, 1991; Matyushin, 1996: 62–65). Based on these dates, the Early Neolithic was attributed to the 5th millennium BC, while the Late Neolithic, to the 4th millennium BC (Kovaleva, 1989). At the beginning of the 21st century, the chronological scheme of the Cis-Uralian Neolithic was analyzed in the context of available radiocarbon dates and as a result major problems were highlighted (Vybornov, Mamonov, 2007).

The radiocarbon analysis of organic admixture in potsherds carried out at the Institute of Environmental Geochemistry (Ukrainian Academy of Sciences, Kiev) (Vybornov, Kovalyukh, Skripkin, 2008) became the turning point in the chronology of the Uralian Neolithic. The present study integrates all the absolute dates available for the Uralian Neolithic.

Results of radiocarbon dating

While the sample is relatively large, 212 absolute dates span a long interval of time and a vast and culturally heterogeneous area. Therefore they were pooled into ten groups relating to three areas (Volga-Ural, Kama, and the Trans-Urals; Fig. 1) according to our understanding of technological and decorative traditions. These groups are unequal in size, some including less than 20 dates. The distribution of dates deviates from the norm in certain cases.

Analyses of pottery, charred food remains, and charcoal were carried out at nine laboratories (Vybornov, 2008, 2011; Gusentsova, 1993, 2000; Lychagina, 2011; Arefiev, Ryzheva, 2010; Bunkova, 2011; Villisov, 2012; Zakh, Skochina, 2009; Zyryanova, 2011; Zhilin et al., 2007; Kovaleva, Zyryanova, 2007, 2010, 2011; Mosin, Strakhov, 2011; Timofeyev et al., 2004; Shorin, Shorina, 2011a). The vast majority of dates (75 %) were generated at the Kiev laboratory. Regrettably, some of these appear to be too early, and their validity has been questioned (Chernykh, Orlovskaya, 2011; Kuznetsov, 2013; and others). On the other hand, certain dates based on organic inclusions in clay appear much too young (Andreyev, Vybornov, Kulkova, 2012). For most Neolithic sites, alternative dating techniques are either unavailable or too costly to conduct (specifically the AMS method). Only 5 % of the dates in our sample are based on such techniques. Only a few groups provide the option of comparing dates based on various materials. Judging from these samples, there is no systematic bias, and the number of dates based on charcoal is regularly distributed with regard to those based on pottery. In a number of cases, the results based on organic inclusions in clay and on other organic materials coincide almost entirely (Vybornov, 2012).

All dates were calibrated and sums of probabilities were calculated for each group according to the OxCal 3.10 procedure. Because most conventional dates have a large standard deviation, one sigma intervals were used to avoid an almost complete overlap*. Some dates due to being outliers (less than 10 %) were not included in the probability sums. This is the case with regard to the earliest dates in the Elshanka and Koshkino groups, which differed from most others by 300–400 years (conventional). We will now consider each sample.

The Volga-Uralian Neolithic falls into three ceramic traditions – Elshanka, pricked, and comb-cogged (Table 1)**. The former two traditions coexist during

*This is a common practice (see, e.g., (Chernykh, Orlovskaya, 2009)).

**Initially a more detailed classification was elaborated, which generally corresponds with our ideas, but most series are

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