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DENDROCHRONOLOGICAL STUDIES OF MEDIEVAL NOVGOROD (Based on the Findings of Archaeological Excavations 1991–2006)

The present paper discusses the results of dendrochronological studies into wood samples from the buildings of medieval Novgorod carried out during the period 1991–2006. New dating techniques have been employed in more than 1600 samples taken from 14 excavation areas and in assessing the age of 330 structures including wooden pavements of nine streets. Based on comparisons with pine wood reference samples, local dendrochronological scales were created for six excavations and a computerized version of a general dendroscale for Novgorod generated. The results of dendrochronological analyses compared with excavation materials have made it possible to reconstruct the history of various town quarters and to trace the development of medieval Novgorod from the earliest centers to the periphery between the 10th and 15th cent.

Key words: *Medieval Novgorod, excavation, dendrochronology, dendrochronological scale, construction dating, development of town land.*

The excellent preservation of clearly stratified medieval layers and extensive long-term excavations carried out at Novgorod provide the perfect conditions for dendrochronological studies. Although wood from medieval Novgorod buildings has been studied for almost half of a century, the potential of this method is still far from exhausted. Dendrochronological studies were initiated by B.A. Kolchin more than 40 years ago. The first dendrochronological achievements in Russia are closely associated with his name as are the works of the Laboratory at the Institute of Archaeology RAS established by Kolchin in the 1960s. Achievements include the absolute dendrochronological scale of Novgorod based on the Nerevsky excavation (Vikhrov, Kolchin, 1962; Kolchin, 1963). This work provided a powerful stimulus for similar research conducted at other archaeological sites in Eastern Europe (Kolchin, Bitvinskis, 1972; Kolchin, Chernykh, 1977; Kolchin, 1979).

By the early 1990s, the Novgorod collection numbered 15,653 specimens of archaeological wood examined by researchers from the Laboratory; 5540 samples were

dated using the standard technique. A.F. Urieva also studied archaeological wood from Novgorod along with B.A. Kolchin and N.B. Chernykh. After the creation of the Nerevsky scale, dendroscales based on wood samples from other sites were also constructed. By 1995, eight such local scales had been created (Chernykh, 1996: 26; Urieva, Chernykh, 1995: 108).

In 1995, the Laboratory for Dendrochronology was established at the Center for the Organization and Provision of Archaeological Studies at the State Novgorod Museum Reserve. Along with the development of analytical procedures, more and more samples were collected, and as expertise has accumulated, new challenges have been met (Tarabardina, 2001a, b).

Currently, wood samples from medieval sites on the Novgorod Land are being examined at the Laboratory: Novgorod, Ruric's citadel, Staraya Russa, and others. The main portion of the wood collection (10th–16th cent.) was formed during the course of archaeological excavation. However, it also includes specimens from architectural monuments and later constructions dated to the 18th–

20th cent. as well as living trees slices. The present article describes various results of studies conducted into medieval constructions excavated at Novgorod during the period 1991–2006.

More than 3000 specimens of pine, fir, and oak were collected between 1995 and 2006. The analysis of this material makes it possible to continue developing the chronology of Novgorod sites that was successfully begun by our predecessors (Fig. 1).

The traditional technique of dendrochronological analysis that was efficiently used over many years of studies into archaeological wood from Old Russian towns has been modified in accordance with modern conditions.

This modification particularly implies the differentiated approach to various types of wood and the use of special computer programs in cross-dating samples and the creation of dendroscales. At various times, data have been processed using DENDRO (Y.V. Zakharov, G.B. Titova, S.V. Voronin, and I. Tyers) and CATRAS (R. Aniol) software (Tarabardina, 2005a: 86–87).

Local and universal dendrochronological scales (chronologies) characterizing annual tree-ring growth of a particular taxon over a considerable period of time are constructed on the basis of reliable dates obtained for archaeological wood samples. Local chronological sequences are created for particular sites (excavations).

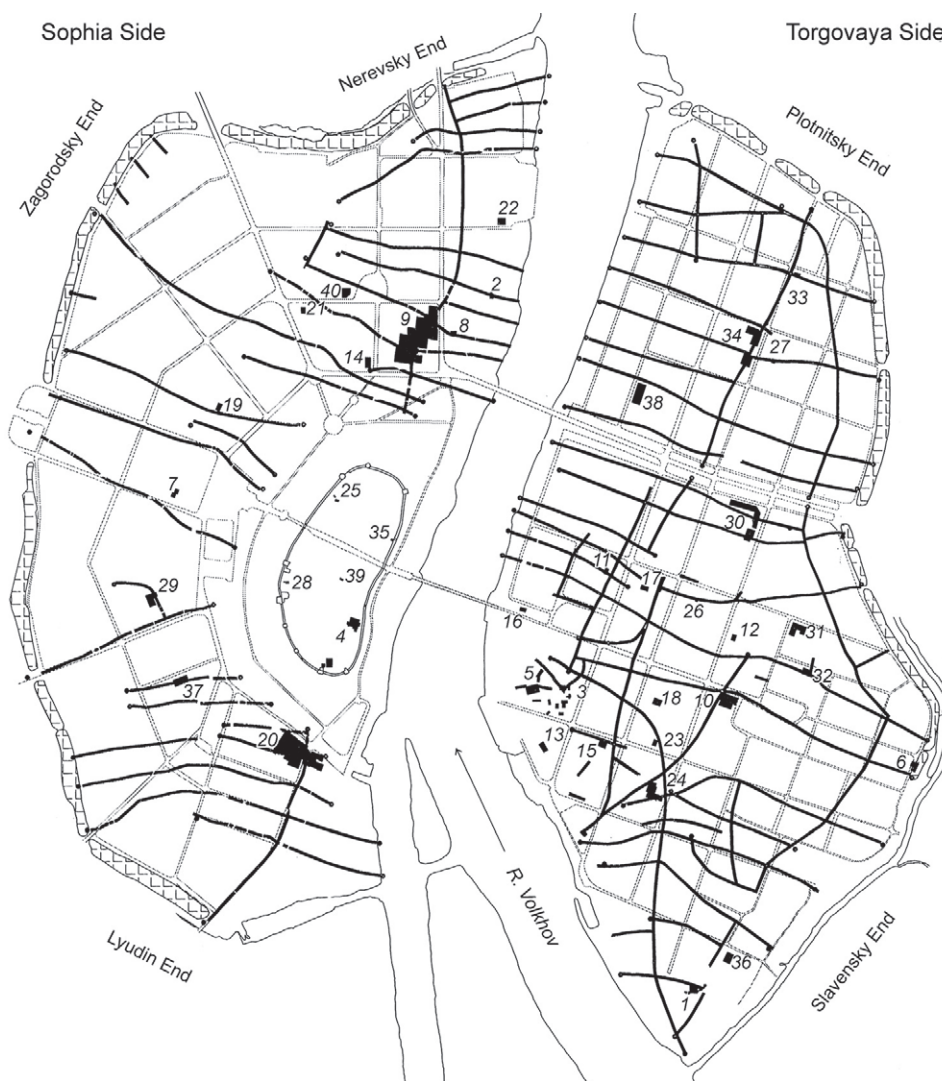


Fig. 1. Map showing the location of archaeological excavations at Novgorod.

1 – Slavna; 2 – Borkovaya Street; 3, 5 – Yaroslav's Yard; 4, 28 – Kremlin; 6 – eastern rampart; 7 – Chudintseva Street; 8 – Kholopiya Street; 9 – Nerevsky; 10 – Ilinsky; 11 – Buyanaya Street; 12 – Slavensky; 13 – Gotsky; 14 – Tikhvinsky; 15 – Mikhailovsky; 16 – Torgovy; 17 – Rogatitsky; 18 – Kirovsky; 19 – Lyudogoshinsky; 20 – Troitsky; 21 – Kozmodemianovsky; 22 – Dmitrievsky; 23 – Duboshin; 24 – Nutny; 25 – Likhudov's Building; 26 – Bolshevikov Street; 27 – Molotkovsky; 29 – Mikhailo-arkhangelsky; 30 – Fedorovsky; 31 – Ipatievsky; 32 – Lukinsky; 33 – Konyukhov; 34 – Andreyevsky; 35 – Kremlin, St. Sophia Bell Tower; 36 – Posolsky of 1999; 37 – Dobryni Street; 38 – Nikitinsky; 39 – Kremlin of 2004; 40 – Kozmodemianovsky of 2005.

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