

growth factor and so trees are suitable filters to absorption of pollution in their wood texture and for monitoring the pollution agent's effects.

## Medieval oak chronology from the Vilnius Lower Castle

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During recent archaeological investigation of Vilnius Lower Castle territory a big amount of medieval and post-medieval timbers was collected. The main tree species used in wooden constructions was Scots pine (*Pinus sylvestris* L). Some constructions contained quite a big proportion of oak (*Quercus robur* L). One such construction in which big size oak timbers were used was excavated by the Castle research centre "Lietuvos pily" in 1999 and in 2002-2004.

The construction was found close to the southern gate of the Royal Palace in the depth of 4-5 m. It consists of horizontal timbers of rectangular cross-section and boards laid in several layers and joined by short vertical posts. The sides of timber cross-sections are 30 to 45 cm. The width of the construction is 6-7 m, the length is about 20 m. The construction was provisory named as 'bridge foundation'.

Dendrochronological analysis of fourteen oak timbers from the 'bridge foundation' construction and two separate oak samples excavated in the third wood layer east of the palace was carried out at the dendrochronological laboratory of the Castle Research Center using Sheffield tree-ring measurement stage and the program Dendro (Ian Tyers). Tree ring series of the timbers were of 133 to 211 years length. Eight samples of the 'bridge foundation' had only hardwood present, rest six samples contained up to 9 sapwood rings. One

of the two logs from the third wood layer east of the palace has 15 sapwood rings, another has only hardwood present.

Tree ring series of the analysed oak timbers were cross-dated with good agreement and mean chronology ZP04QRC1 of 217 years length was constructed. The chronology was dated against English oak chronologies of Baltic origin BALTIC1, BALTIC2 and WINCHCOL (authors J.Hilliam, I.Tyers, D.Mills). The span of the Vilnius oak chronology is 1202 – 1418. The best agreement is between ZP04QRC1 and BALTIC1 (t=7.57) and WINCHCOL (t=5.74) chronologies. Agreement of ZP04QRC1 to North Poland oak chronology (author T.Wazny) is lower (t=3.16).

The hardwood – sapwood boundary of the 'bridge' samples containing sapwood is between 1406 and 1407 on the average. Considering the average number of sapwood rings in Lithuanian oak as 17 the most probable tree felling date is around 1424. The series of one of the two III layer logs is dated to 1226-1388 and has 15 sapwood rings, the other log without sapwood is dated to 1206-1362. The construction in which these logs were used most probably was built around 1390.

In 2004 about 10 timbers of the 'bridge foundation' construction were additionally sampled. It is possible that some of them has a bark edge and tree felling date will be fixed.

## Status of the Swiss Late-glacial tree-ring chronologies

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Alpine glaciers formed numerous lateral drainage channels on the Swiss plateau during the last glacial maximum. Adjacent to former nunataks (e.g.,