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Dendrochronological dating of churches in the Kaunas County

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In 2018, dendrochronological dating was performed in five churches located in the Diocese of Kaunas: St. Anna church in Skaruliai, St. George the Martyr church in Kaunas, St. Jacob church in Jonava, Bishop Martin church in Šimkaičiai and St. George church in Kėdainiai. Missing sapwood rings in oak were estimated assuming that the number of sapwood in the Baltic countries ranges from 6 to 18 rings (Sohar et al. 2012). Missing sapwood rings in pine were estimated using the compiled pine sapwood database.

It is supposed that St. Anna church in Skaruliai was built in 1620–1622. The date is based on the fact that a benefaction for the church was given at that time. 26 pine samples from subfloor, attic and roof constructions have been sampled trying to determine dates of the building and main renovations. The first (lowest) floor has been dated to 1630s–1640s. The upper floor was installed in the 19th c. (between 1810 and 1863). Four oldest beams in the attic were dated to 1571–1574. The identified renovations in the attic took place in 1600, 1670–1671, 1715, and 1817. Rafters were replaced in 1676 and 1731.

In St. George church in Kaunas, 12 samples of disassembled side altar, parts of Baroque-style pews and choir gallery have been dated. Dating has revealed that the side altar was made in the 1760s. Pews were made from pine and lime. The parts made from pine do not have a waney edge. Therefore, the sapwood estimate has indicated a range between 1777 and 1832, which means that pews could be remade according to the old style after the war of 1812. The dating of pine beam from the choir gallery has indicated that it was built in the second half of the 19th c. (1852–1899).

St. Jacob church in Jonava was built in 1791–1793. Pine beams in the attic were dated to 1791, which corresponds to the building date of the church. Beams in the belfry were dated to the second half of the 19th c. (sample without waney edge) and 1900–1901 indicating the later repairs in the tower.

In the church of Šimkaičiai, three pine samples and one oak timber were dated. All samples have a waney edge. A rafter is dated to 1932, which coincides with the building time (1931–1932) of the church. Two beam supports (oak and pine) were dated to 1873–1874, and one pine beam, which was withdrawn from the constructions and left in the attic, was dated to 1841. This indicates that the older timbers were reused from the former cemetery chapel in Girkalnis. The building date of the chapel is unknown and the aforementioned dates represent the chapel reconstructions because archival sources confirm that the chapel was already standing in 1806.

Eleven oak samples were taken in the belfry of St. George church in Kėdainiai. Nine samples were crossdated with each other and a chronology spanning for 82 years was constructed. One sample containing 93 rings do not show similarity to other samples. The dating attempts with available regional oak chronologies from Poland and Latvia so far were not successful.