

■ The Mediaeval Roof Structures of the Lutheran Parish Church in Sibiu.
Dendrochronology, Building History, Typology
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■ Șarpantele medievale ale Bisericii Parohiale din Sibiu.
Dendrocronologie, istoricul construcției, tipologie
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■ A nagyszebeni evangélikus plébániatemplom középkori tetőszerkezetei.
Dendrokronológia, építéstörténet, tipológia
A cikket 2-33. oldalakon olvasható.

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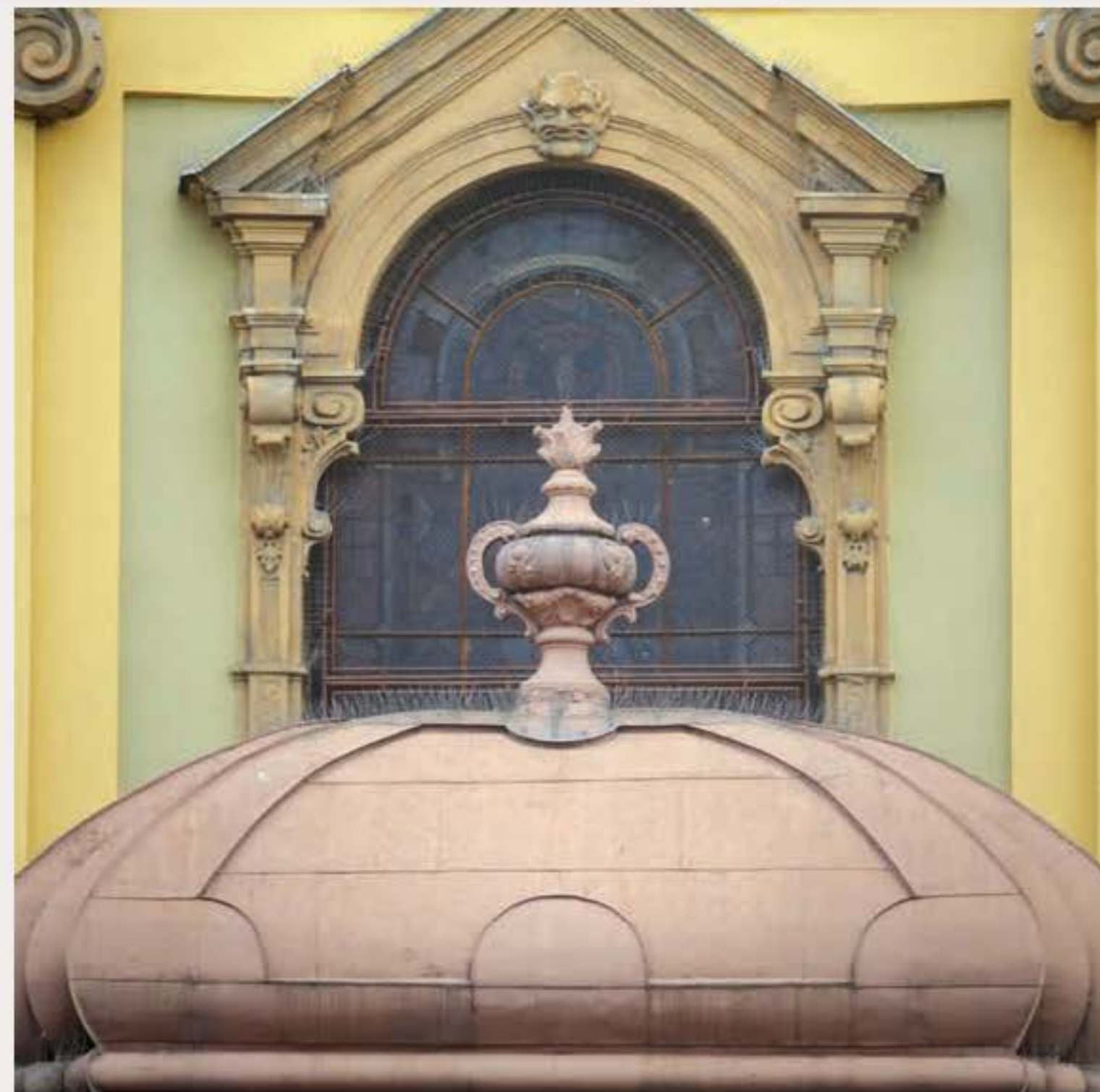
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Transsylvania

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- The fact that the subject of Transylvanian historic landscape design is still extremely rarely visited by researchers may have various causes. [...] there is still room for a great deal of research on *the beginnings of Transylvanian public urban parks*, both in case studies and in synthesis studies on specific settlements or on a larger territory. The complexity of the topic allows and may require, in the future, a multilateral approach, both in terms of urban design, as well as and urban culture, urban geography, urban ecology, etc. (Andreea MILEA)
- Faptul că tematica amenajărilor peisagistice istorice transilvănene este încă deosebit de rar vizitată de către cercetători poate avea diverse cauze. [...] mai este foarte mult loc de cercetare pe tema *începuturilor parcurilor publice urbane transilvănene*, atât în ceea ce privește studiile de caz, cât și studiile de sinteză pe așezări sau pe un teritoriu mai cuprinzător. Complexitatea temei permite și poate solicita, în perspectivă, o abordare multilaterală, atât din perspectiva amenajării urbane, cât și a culturii urbane, geografiei urbane, ecologiei urbane etc. (Andreea MILEA)
- Az a tény, hogy az erdélyi történeti kertművészet témájával még mindig ritkán foglalkoznak a kutatók, különböző okokra vezethető vissza. [...] még bőségesen maradt tér kutatásra *az erdélyi városi közparkok kezdeteit* illetően, mind esettanulmányok, mind pedig egyes településekre vagy akár egy átfogóbb területre vonatkozó szintézisek formájában. A téma összetettsége lehetővé teszi – sőt, a jövőben talán igényelheti is – a többszempontú megközelítést mind a településrendezés, mind a településkultúra, településföldrajz, településökológia stb. vonatkozásában. (MILEA Andreea)

■ Front cover photo: Saint George`s Roman Catholic Cathedral, Timișoara, detail © Virgil POP, 2018

■ Back cover photo: Saint George`s Roman Catholic Cathedral, Timișoara, roof structure © Virgil POP, 2018

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■ Fotografie copertă IV: Domul romano-catolic "Sf. Gheorghe", Timișoara, șarpantă © Virgil POP, 2018

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■ Hátsó Fedél képe: Szent György római katolikus székesegyház, Temesvár, fedélszerkezet © I POP Virgil, 2018

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■ We recommend to our readers this second issue of 2018 of the heritage protection journal, published in the year that was declared the European Year of Cultural Heritage¹. The attention of specialists, as well as of those who simply coexist with built heritage, should be focused on heritage values even more than in the previous years. It is necessary to draw public attention to built heritage values, as part of cultural heritage, at both national and international levels, as well as to recognise their vulnerability. Starting from the second half of this year, our daily lives will be marked by new European-funded conservation sites.² Churches and former manor houses will be renewed, such as the St. Michael's Roman Catholic Church in Cluj-Napoca, the Roman catholic cathedrals in Satu Mare and Timișoara, the manor houses of Coltău, Râșcruci, Gilău, and others. These are just a few examples from nearby areas, the number of conservation sights being significantly more. Due to this fact, the editorial committee decided to launch a new column in addition to the two already launched ones, found in this recommended issue as well (historical roof structures and parks). Thus, conservation sites will be presented from first-hand sources through the column European Conservation Sites.

■ Proposed by ICOMOS and adopted by UNESCO in 1983, April 18 is declared the International Day for Monuments and Sites, with a long tradition of attracting public interest for historic buildings. The topic of this year, Heritage for Generations, or, as it is more trendy, #heritage4generations³, deserves to be appropriated, and is not to be considered just a slogan, as it is also an alarm signal! There is a need to involve young specialists alongside those with experience, which is essential to ensure the continuity of knowledge already acquired, as well as for the protection of national heritage. The Transsylvania Nostra Journal continues to provide a framework for dialogue between the different generations of specialists involved in the conservation of historic buildings.

Imola KIRIZSÁN
Member of the Editorial Committee

- 1 2018 was declared the European Year of Cultural Heritage by the European Parliament and the European Council on May 17, 2017. The main objective of the series of events is to encourage more people to discover Europe's cultural heritage, as well as to reinforce a sense of belonging to a common European space.
- 2 Financed through the Regional Operational Programme – POR axis 5.1 Conservation, protection, promotion and development of natural and cultural heritage.
- 3 The main objectives of the events organised along the topic of #heritage4generations are inter-generational transfer of knowledge and the encouragement of young specialists to take the lead in organising different events, as well as to reach a wider public through the creative use of social media.

■ Vă recomandăm cea de-a doua ediție din 2018 a revistei de protejare a patrimoniului, publicată în anul declarat Anul European al Patrimoniului Cultural. Poate mai mult ca în anii precedenți, atenția specialiștilor, dar și a aceluia care doar simplu conviețuiesc cu patrimoniul construit, ar trebui să fie focalizată asupra valorilor de patrimoniu. Este nevoie de conștientizarea valorilor patrimoniului construit – ca parte a patrimoniului cultural – la nivel național și mondial, dar și de recunoașterea vulnerabilității acestora. Începând din a doua jumătate a acestui an, zilele cotidiene vor fi marcate de noi șantiere de restaurare finanțate din fonduri europene.² Se înnoiesc biserici și castele de altădată, cum ar fi Biserica Romano-Catolică Sf. Mihail din Cluj-Napoca, catedralele romano-catolice din Satu Mare și Timișoara, castelele din Coltău, Râșcruci, Gilău și altele. Acestea sunt doar spiciuri din zonele apropiate, numărul șantiereilor fiind semnificativ mai mult. Datorită acestui fapt colegiul de redacție a decis, pe lângă celelalte două rubrici deja lansate și care se regăsesc în acest număr recomandat (șarpante și parcuri istorice), lansarea unei rubrici noi. Șantierele de restaurare vor fi prezentate în prima sursă prin intermediul rubricii intitulată: Șantierul European.

■ Propusă de către ICOMOS și adoptată de UNESCO în 1983, 18 Aprilie este declarată Ziua Internațională a Monumentelor și Siturilor Istorice, având deja o lungă tradiție în atragerea interesului publicului asupra monumentelor istorice. Tema acestui an merită însușită – Patrimoniul pentru generații, sau cum este la modă, #heritage4generations³, ceea ce nu poate fi considerată doar un simplu slogan, fiindcă este și un semnal de alarmă! Este nevoie și de implicarea tinerilor specialiști alături de cei cu experiență, acest lucru fiind esențial pentru asigurarea continuității cunoștințelor deja dobândite și a protecției patrimoniului național. Revista Transsylvania Nostra asigură în continuare cadru dialogului dintre diferitele generații de specialiști implicați în restaurarea monumentelor istorice.

Imola KIRIZSÁN
membru al Comitetului de redacție

- 1 Anul 2018 a fost declarat Anul European al Patrimoniului Cultural de către Parlamentul European și Consiliul European în data de 17 mai 2017. Obiectivul principal al seriei de evenimente este de a încuraja cât mai multe persoane să descopere patrimoniul cultural al Europei, respectiv de a consolida sentimentul de apartenență la un spațiu european comun.
- 2 Prin Programul Operațional Regional – POR axa 5.1 Conservarea, protecția, promovarea și dezvoltarea patrimoniului natural și cultural.
- 3 Obiectivele principale ale evenimentelor organizate cu tema #heritage4generations sunt transferul de cunoștințe între generații și încurajarea tinerilor specialiști de a lua inițiativă în organizarea diferitelor evenimente, precum și în atragerea unui public cât mai larg prin folosirea creativă a mediilor de socializare.

■ Az örökségvédelmi folyóirat 2018-as, a kulturális örökség európai évének¹ második számát ajánljuk az olvasónak. A szakemberek figyelme, de azoké is, akik épített örökségi környezetben élnek és ennek élvezői, talán az előző éveknél is fokozottabban irányul az örökséértékek felismerésére, ugyanakkor ezek sebezhetőségére is. Szükséges a kulturális örökség szerves részeként nyilvántartott épített örökségi értékek tudatosítása mind országos, mind nemzetközi szinten. Ez év második felétől mindennapjaink részévé válnak templomaink, kastélyaink restaurálási építőtelepei. Olyan értékek várnak felújításra uniós alapokból,² mint a kolozsvári Szent Mihály templom, a szatmári, temesvári római katolikus székesegyházak, a gyalui, válaszúti, koltói egykori nemesi rezidenciák. És a felsorolás még nem ért véget, mi csak a közelebb esőkből válogattunk, ezek száma jóval jelentősebb. Ezért döntött úgy a szerkesztőbizottság, hogy a két, már beindult és ebben a számban mindkét esetben jelenlevő, történeti fedélszerkezetek és történeti kertek rovat mellett egy újjal gazdagítja a folyóiratot: első kézből származó információk alapján számítunk tájékoztatni az uniós restaurálási munkálatokról – az Európai Munkatelepek rovatban.

■ Az ICOMOS javaslatára az UNESCO 1983-ban elfogadta, hogy minden év április 18-án megünnepelje A Műemlékek és Műemléki Helyszínek Nemzetközi Napját, hagyományt teremtve a közösség műemlékek iránti érdeklődésének felkeltésében. A 2018-as év tematikája, Örökség a generációk számára, az európai kulturális év szellemében is kívánatos, és nem csak szlogen a #heritage4generations,³ de vészjelző is! Felhívja a figyelmet a fiatal nemzedék bevonásának szükségességére a tapasztalattal rendelkező szakemberek mellett, nem csupán az eddig összegyűjtött ismeretek átadása, tehát a kontinuitás biztosítása végett, hanem a nemzeti örökséértékek védelméért is. A Transsylvania Nostra folyóirat továbbra is keretét biztosít a műemlékvédelemben érdekelt szakember-generációk közötti párbeszédre.

KIRIZSÁN Imola
szerkesztőbizottsági tag

- 1 Az Európai Parlament és az Európai Tanács 2017. május 17-én a kulturális örökség európai évének nyilvánította a 2018-as évet. A programsorozat fő célja, hogy minél több embert ösztönözzön az egyetemes európai kultúra felfedezésére, valamint hogy megerősítse polgáiraiban az európai azonosságtudatot.
- 2 A romániai Regionális Operatív Program – POR 5.1-es, A természeti és kulturális örökség konzerválása, védelme, népszerűsítése és fejlesztése komponensén keresztül.
- 3 A #heritage4generations tematikával szervezett események célja egyrészt az ismeretek közvetítése és átadása a különböző nemzedékek között, másrészt a fiatal szakemberek ösztönzése különböző események szervezésére, illetve egy tágabb közönség bevonására a közösségi média kreatív felhasználása által.

■ TÓTH Boglárka ■ BOTÁR István ■ Denis WALGAFFE¹

A nagyszebeni evangélikus plébániatemplom középkori tetőszerkezetei

DENDROKRONOLÓGIA, ÉPÍTÉSTÖRTÉNET, TIPOLOGIA

■ **Kivonat:** A nagyszebeni evangélikus plébániatemplom felett több egységből álló tetőszerkezet található. A 2012–2016 között végzett dendrokronológiai vizsgálatok alapján évre pontosan keltezhető a XIV–XVI. századi tetőszerkezetek építése, javítása, és egyben jól nyomon követhető a templom – korábban bizonytalan – építéstörténete. A nagyszebeni fedélszékek Erdély ma ismert legkorábbi álló tetőszerkezetei, ezért megkülönböztetett figyelmet érdemelnek, annál is inkább mert rajtuk keresztül jól megfigyelhető a középkori ácsmesterség és tetőszerkezetek fejlődése.

■ **Kulcsszavak:** nagyszebeni evangélikus plébániatemplom, tetőszerkezet, dendrokronológia, keltezés, építéstörténet

■ Erdélyi történeti tetőszerkezetek utóbbi 10-15 évben végzett módszeres dendrokronológiai kormeghatározása alapján ma már ismert, hogy dacolva Erdély viharos történelmével, számos középkori templom megőrizte építés korabeli tetőszerkezetét.² Nem csak eldugott falvakban találunk középkori tetőszerkezeteket, hanem nagyvárosok központi helyén álló egyházi épületek felett is megmaradtak több száz éve épített fa tetőszerkezetek eredeti állapotukban. Közéjük tartozik a nagyszebeni evangélikus plébániatemplom is, ahol a faszervezetek dendrokronológiai vizsgálata alapján a tetőszerkezetek építésének pontos idejét is meg lehetett határozni, ami által magának a templom építésének a menete is nyomon követhető időben (1. kép).³

A nagyszebeni evangélikus (egykor Szűz Mária tiszteletére szentelt) plébániatemplom a középkori erdélyi szász építészet egyik kiemelkedő emléke (2. kép). A szászok már a XII. század második felében jogot szereztek arra, hogy egyházszervezetüket az erdélyi püspöktől független prépostságba szervezzék, és legkésőbb ekkorra már léteznie kellett a szebeni plébániatemplomnak is, noha első hiteles adatolása csak 1309-ből ismert. A legkorábbi templomról, belső ásatások hiányában, semmit nem lehet tudni, de szinte bizonyosra vehető, hogy a tatárjárás idején súlyos pusztítást szenvedett.

1 TÓTH Boglárka, régész, Anno Domini Dendrolab, Csíkszereda, Románia; BOTÁR István, régész, dr., Csíki Székely Múzeum, Anno Domini Dendrolab, Csíkszereda, Románia; Denis WALGAFFE, régész, Csíkborszova, Románia.

2 A dendrokronológia módszeréről és eddigi erdélyi kutatásainkról több nyelven: www.dendrolab.ro.

3 A tanulmányban szereplő fotókat, felmérési és rekonstrukciós rajzokat az 1. és 2. ábra kivételével a szerzők készítették.

The Mediaeval Roof Structures of the Lutheran Parish Church in Sibiu

DENDROCHRONOLOGY, BUILDING HISTORY, TYPOLOGY

■ **Abstract:** The roof structure above the Lutheran Parish Church in Sibiu consists of several units. Based on the dendrochronological studies conducted between 2012 and 2016, the building and repair of the 14th-16th century roof structures can be dated accurately to a year, and at the same time the church's building history, which was previously uncertain, can be easily traced. The roof structures in Sibiu are the earliest still standing roof structures in Transylvania, thus they deserve special attention, especially as they allow us to observe the development of mediaeval carpentry and roof structures.

■ **Keywords:** Lutheran Parish Church in Sibiu, roof structure, dendrochronology, dating, building history

■ Based on the systematic dendrochronological dating of Transylvanian historic roof structures carried out over the last 10-15 years, today it is clear that, in spite of Transylvania's turbulent history, a large number of mediaeval churches have retained roof structures that are contemporary to their building periods.² We find mediaeval roof structures not only in obscure villages, as timber roof structures constructed hundreds of years ago could have survived in their original state in the centrally located church buildings of large cities as well. Among these is the Lutheran Parish Church in Sibiu, where, based on the timber structures' dendrochronological analysis, the exact date of the roof structures' construction could also be determined, by which the building process of the church itself could also be traced in time (Photo 1).³

1 Boglárka TÓTH, archaeologist, Anno Domini Dendrolab, Miercurea Ciuc, Romania; István BOTÁR, PhD, archaeologist, Szekler Museum of Ciuc, Anno Domini Dendrolab, Miercurea Ciuc, Romania; Denis WALGAFFE, archaeologist, Bărzava, Romania.

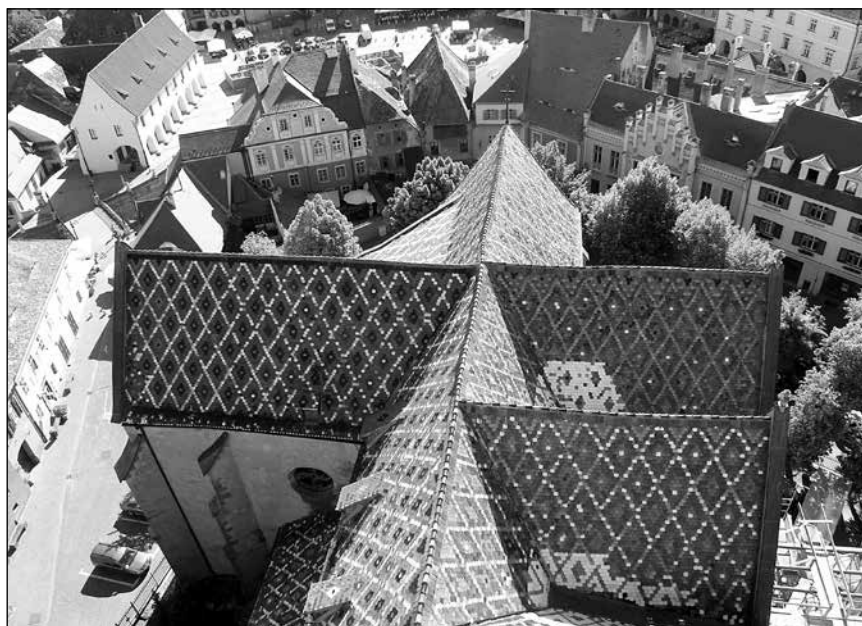
2 On the method of dendrochronology and our Transylvanian research conducted thus far, in several languages: www.dendrolab.ro.

3 The photographs, as well as the survey and reconstruction drawings in this study were made by the authors, except for Figures 1 and 2.

The Lutheran Parish Church in Sibiu (formerly consecrated in honour of the Virgin Mary) is one of the outstanding examples of mediaeval Transylvanian Saxon architecture (Photo 2). The Saxons gained the right to organise their church independently from the Transylvanian bishop, in the form of a provostship, already in the second half of the 12th century, thus the parish church in Sibiu had to be standing by this time the latest, although its first authentic record is only known from 1309. In the absence of excavations in the church interior, nothing is known about the earliest church, however, it is almost certain that it suffered serious devastation during the time of the Mongol invasion.

The building history of the present church is surprisingly vague and in some regards contradictory, in spite of the building's significance and of the relative richness of written data. The fundamental reason for this is the almost complete absence of archaeology and building archaeology research, without which the reconstruction of the building history could, for the most part, only be based on indirect written data, on observable architectural details, and on dated inscriptions.

It is not the purpose of this study to have a critical overview of the scholarly literature regarding the church's building history, thus here we only delineate the most important data of the most recent syntheses. According to the literature, the first written record of the present church dates back to 1351: the Sibiu chapter made its decisions in front of the high altar, dedicated to the Holy Virgin, of Saint Mary's Church. This suggests that the construction of the choir must have been completed by 1351. According to Géza ENTZ, the new church's construction on its predecessor's location was started in the first half of the 14th century: the choir, sacristy, and transept were built in the same period, while the nave was completed in the second half of the 14th century. By this time the construction of the tower was also in progress. The intent of building the western vestibule, the *ferula*, was recorded in a licence to grant indulgences from 1448. Towards the end of the 15th century a side gallery was built above the basilica's southern aisle (ENTZ 1996, 36, 64, 122, 173). Attila WEISZ arrived to the same conclusion on the basis of the church account books and the scholarly literature, i.e. that the choir and the bell tower were ready by the mid-14th century; at the same time he hypothesises, with some uncertainty, that the old church's nave was still standing at this point. He considers it likely that the transept was built in the 1370s, which was later followed by the heightening of the nave. Based on stylistic considerations, he dates the construction of the nave's vaulting to the '30s and '40s of the 15th century (WEISZ 2007, 14-15). According to Daniela MARCU ISTRATE, the archaeologist leading the excavations around the church, the 12th-century graves unearthed in the present church's vicinity are undoubtedly connected to the early, still latent church. The construction of the present church started before the mid-14th century. In agreement with others, the archaeologist believes that prior to 1371 the old nave that had been kept was extend-



■ 1. kép: A nagyszebeni evangélikus templom keleti fele felülről, a toronyból nézve
 ■ Photo 1. The eastern part of the Lutheran church in Sibiu as seen from above, from the tower



■ 2. kép: A templom külső nézete délről
 ■ Photo 2. The church exterior as seen from south

A mai templom építéstörténete az épület jelentősége és a relatív gazdag írott adat ellenére meglepően homályos, néhol ellentmondásos. Ennek alapvető oka a régészeti kutatások és falkutatások szinte teljes hiánya, amelyek nélkül az építéstörténeti rekonstrukciók jobbára csak a közvetett írott adatokra, a megfigyelhető építészeti részletekre, illetve évszámos feliratokra támaszkodhattak.

Jelen dolgozatnak nem célja a templom építéstörténeti szakirodalmának kritikai áttekintése, ezért itt csak a legutóbbi összefoglalások legfontosabb adatait ismertetjük. A szakirodalom szerint a mai templom első írott adatolása 1351-ből való: a szebeni káptalan a Mária-templom Szent Szűznek szentelt főoltára előtt hozta határozatait. Ez arra utal, hogy a szentély építése 1351-re már befejeződhetett. ENTZ Géza szerint az új templom emelése a régi helyén a XIV. század első felében indult meg: egy periódusban épült a szentély, a sekrestye és a kereszthajó, majd a XIV. század második felében készült el a hosszház. Ekkor a torony építése is folyamatban volt. A nyugati előcsarnok, a *ferula* építésének szándékát egy 1448-as

búcsúengedély örökölte meg. A XV. század végén a bazilikális elrendezésű templom déli mellékhajója fölé emeleti oldalkarzatot építettek (ENTZ 1996, 36, 64, 122, 173). Az egyházi számadáskönyvek és a szakirodalom alapján hasonló következtetésre jutott WEISZ Attila is, tudniillik hogy a XIV. század közepére készen állt a szentély és a harangtorony, ugyanakkor némi bizonytalansággal azt felételezi, hogy ekkor még állt a régi templom hajója. A kereszthajó építését az 1370-es évekre valószínűsíti, amelyet később követett volna a hosszház magasztása. A hosszház boltozatának megépítését stilisztikai megfontolásból a XV. század 30–40-es éveire teszi (WEISZ 2007, 14–15). A templom körül ásató régész, Daniela MARCU ISTRATE szerint a jelenlegi templom környezetében feltárt XII. századi sírok kétségkívül a korai, még lappangó egyházhoz köthetők. A mai templom építése a XIV. század közepe előtt kezdődött. Mások véleményével egyetértve a régész úgy látja, hogy 1371 előtt a régi, meghagyott hajót kelet felé bővítették a jelenlegi szentéllyel és kereszthajóval. 1424 és 1432 között, a régi hajó lebontását követően építették volna meg a jelenlegi hajót a régi torony mellé, és ekkor épült volna az első sekrestye, illetve a toronytól nyugatra eső rész is (MARCUS ISTRATE 2007, 51–55).

A SZABÓ Bálint vezette kutatócsoport teljesen új kutatási szemszögből közelítette meg a nagyszebeni templom építéstörténetét. Ők a fedélszerkezetek tartószerkezet-történeti jellemzői (felépítés, ácskötések), valamint a művészettörténeti kutatások addigi eredményei alapján határozták meg a tetőszerkezeti egységek feltételezhető építési idejét, relatív időrendjét. Véleményük szerint a főhajó, a kereszthajó déli része és a szentély felett meglévő „késő román jellegű” fedélszerkezetek eredetiek, és Erdély legrégebb ismert fedélszerkezetei. Feltételezésük szerint 1360-ig megépültek. A templomot 1360 és 1480 között nyugat felé bővítették – ebből az időből maradhatott fenn a *ferula* feletti tetőszerkezet. 1480 és 1520 között emelet került a déli mellékhajóra. A kutatók szerint „gótikus jellegű” tetőszerkezete a XVI. század elejéről származik, de hozzátesszik, hogy akár később, a XVIII. század derekáig tartó időszakban is épülhetett. A tanulmány többször felhívja a figyelmet a tetőszerkezetek kiemelkedő örökségértékére Erdély legrégebbi tetőszerkezeteinek vonatkozásában, valamint a déli mellékhajó tetőrendszerének különleges megoldására és délkelet-európai egyediségére (SZABÓ et al. 2007).⁴

A fedélszerkezeti jellemzők alapján történt kormeghatározással szemben a dendrokronológiai vizsgálat évre pontos keltezésre ad lehetőséget, ugyanis a vizsgált faelemek évgűrű elemzése alapján a fa kivágási idejének fél éves pontosságú meghatározása – a faanyag friss megmunkálása és beépítése miatt – közvetlenül utal a faszervezet építési idejére. A nagyszebeni evangélikus templom dendrokronológiai vizsgálatát 2012-ben SZABÓ Bálint és KIRIZSÁN Imola kezdeményezte azzal a céllal, hogy a közelgő tetőszerkezet-helyreállítás megelőzően, még a beavatkozás előtt megtörténjen a faszervezetek természettudományos alapú kormeghatározása, és az alapján a tetőszerkezetek örökségértékének helyes felmérése. A dendrokronológiai vizsgálatra magyarországi támogatású kutatási program keretében került sor 2012-ben, a felújítást megelőzően, és az adatok kiegészítése végett 2016-ban, az időközben elvégzett felújítást követően.⁵ A vizsgálat alapvető célja a tetőszerkezeti egységek építési idejének, valamint a későbbi megerősítések idejének meghatározása volt. Nagy hangsúlyt fektettünk a tetőszerkezetek részletes megfigyelésére és leírására – indokolt esetben a szerkezeteket ál-

ed towards east with the present choir and transept. The current nave was probably built next to the old tower between 1424 and 1432, following the demolition of the old nave, and this was probably the time when the first sacristy, respectively the part west of the tower were also constructed (MARCUS ISTRATE 2007, 51–55).

The research team led by Bálint SZABÓ approached the church's building history from a completely new research perspective. They determined the probable date and relative chronology of the roof structure units' construction based on the structures' features related to the history of load-bearing structures (configuration, carpentry joints), as well as on the results of the art history research known up to that point. In their view, the extant roof structures of "late Romanesque character" above the central nave, the transept's southern part, and the choir are original and are the oldest known roof structures in Transylvania. They proposed that these had probably been built by 1360. The church was extended towards west between 1360 and 1480; the roof structure above the *ferula* might have been preserved from this time. Between 1480 and 1520 a second level was added to the southern aisle. According to the researchers, the roof structure with "Gothic character" dates from the early 16th century, but they mention that it could have been built later as well, until the mid-18th century. The study repeatedly draws attention to the roof structures' outstanding heritage value in regards to the oldest roof structures in Transylvania, as well as to the particular solution of the roof structure above the southern aisle and its uniqueness in Southeast Europe (SZABÓ et al. 2007).⁴

Contrary to dating based on roof structure features, dendrochronological analysis offers the possibility of dating accurately to a year, since establishing, based on the analysis of the examined timber elements' growth rings, the time a tree was felled with an accuracy of half a year, has direct implications regarding the timber structure's time of construction, as the timber was freshly worked and used. The dendrochronological analysis of the Lutheran church in Sibiu was initiated in 2012 by Bálint SZABÓ and Imola KIRIZSÁN, with the aim of obtaining a natural-scientific dating of the timber structures prior to the upcoming conservation works on the roof structures and, based on the findings, of conducting a proper assessment of the roof structures' heritage value. The dendrochronological analysis was carried out within a Hungarian-funded research programme in 2012, prior to its renovation, as well as in 2016, following the renovation carried out in the meantime, in order to complete the data.⁵ The basic aim of the

4 A lépcsőtornyban olvasható 1520-as építési évszám a tanulmányban tévesen 1521-ként szerepel.

5 A magyarországi OTKA által támogatott kutatási program címe: *Erdélyi történeti faszervezetek és faberendezések dendrokronológiai kutatása* (száma: K 100983). A helyszíni munkát, a fedélszerkezetek eredeti felépítésére, átépítéseire és későbbi megerősítéseire vonatkozó megfigyeléseket, valamint a vizsgálatokhoz szükséges famintavételt a tanulmány szerzői végezték 2012. június 14–16-án, valamint 2016. július 5–6-án. A minták fajfaj meghatározását és dendrokronológiai elemzését a csíkszeredai Anno Domini Dendrolab dendrokronológiai laboratóriumban végeztük el.

4 The construction date 1520 on the staircase tower is mistakenly mentioned in the study as 1521.

5 The title of the research programme funded by the Hungarian Scientific Research Fund (OTKA) is *Dendrochronological researches on historical wood structures and installations in Transylvania* (number: K 100983). The on-site work, the observations on the original configuration, transformations, and later reinforcements of the roof structures, as well as the wood sampling necessary for the analysis were carried out by

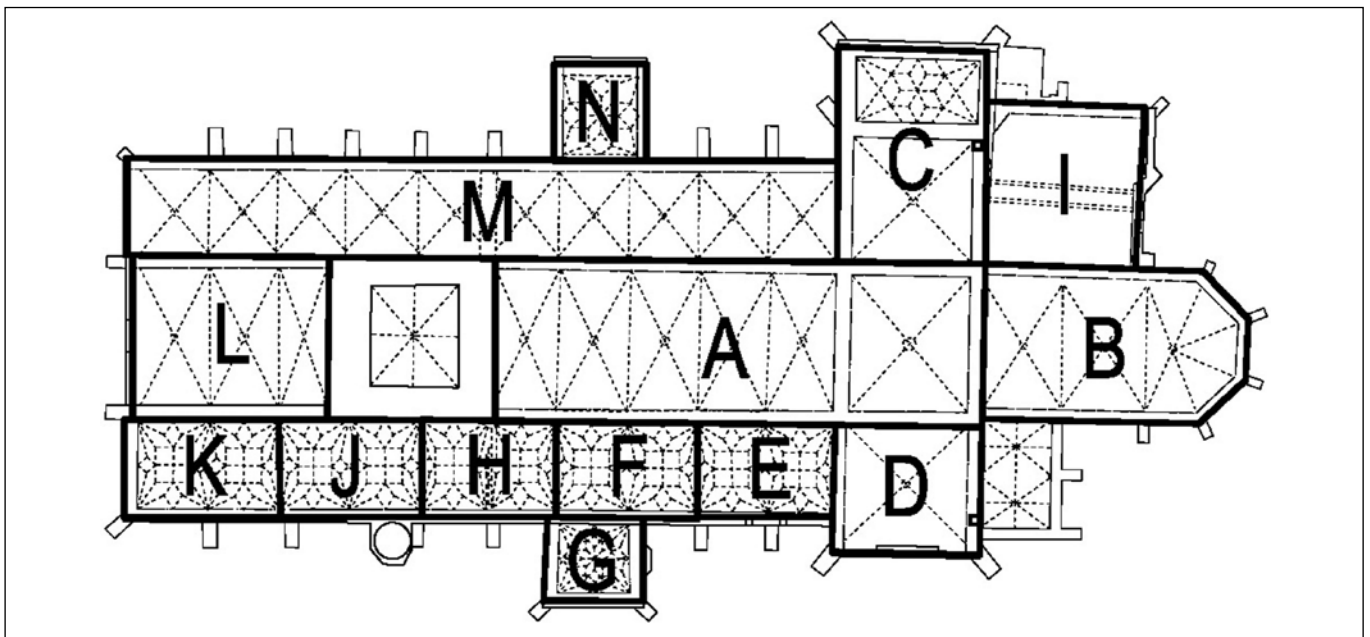
analysis was to determine the roof structure units' time of construction, as well as the time of subsequent reinforcements. A great emphasis was put on the roof structures' detailed observation and description, by examining, where necessary, the structures' trusses and elements one by one, in order to be able to correctly evaluate the dating results obtained during the dendrochronological analysis. As a consequence, the study showed that the roof structures standing presently above the choir, the crossing, the central nave, and the transept's southern arm, which look uniform at a

lásról állásra, elemről elemre vizsgálva – annak érdekében, hogy a dendrokronológiai vizsgálat során kapott keltezési eredményeket helyesen tudjuk értékelni. Ennek köszönhetően a vizsgálat rámutatott arra, hogy a szentély, a négyezet, a főhajó és a déli kereszthajószárny felett ma álló, első látásra egységesnek tűnő tetőszerkezetek nem egy építési periódus eredményei, mint ahogy azt korábban gondolták. A megfigyelések alapján a négyezet, valamint a főhajó feletti legkorábbi szerkezetet rekonstruálni is sikerült.

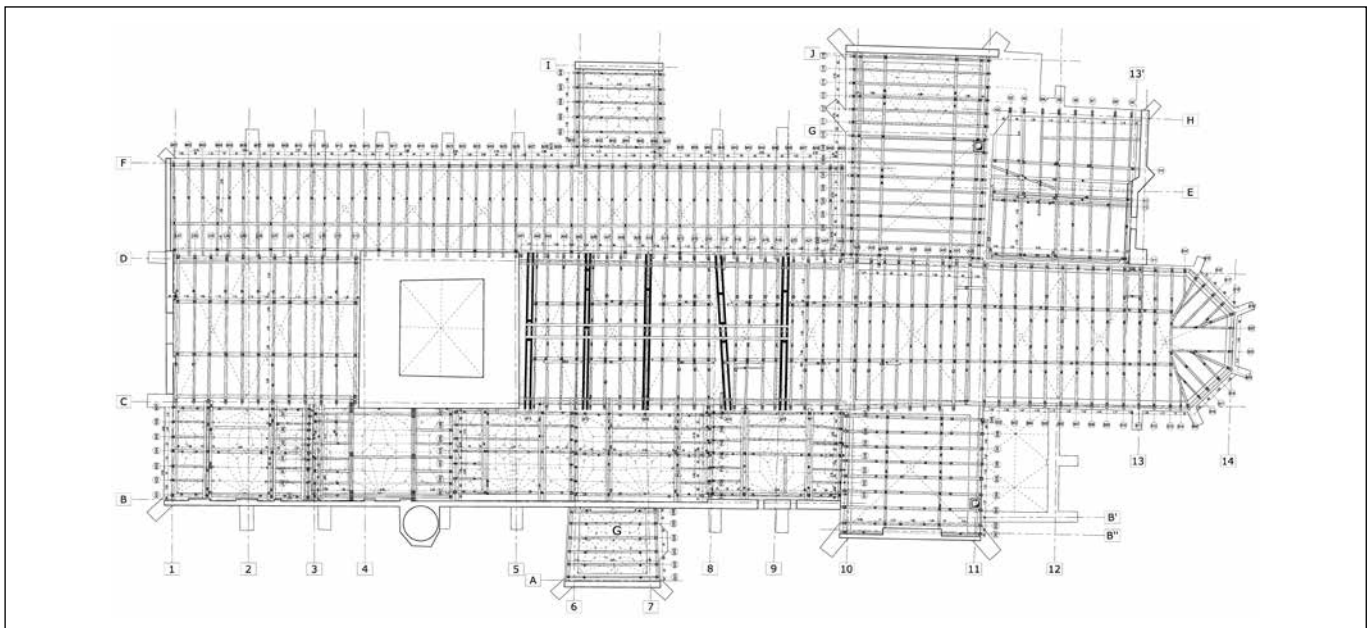
A kereszthajóval, mellékhajókkal, toronnyal, sekrestyével, oldalkápolnával és előcsarnokokkal rendelkező templomot több tetőszerkezeti egység fedi le (1–2. ábra).⁶ Jelen tanulmány a következő tetőszerkezetek leírását és dendrokronológiai kormeghatározását mutatja be:

the study's authors on June 14-16, 2012 and on July 5-6, 2016. The wood species identification and the samples' dendrochronological analysis were carried out in the Anno Domini Dendrolab Dendrochronology Laboratory in Miercurea Ciuc.

6 A tetőszerkezeti egységek megjelölésénél az említett 2007-es tanulmányban használt meghatározásokat vettük át azzal a különbséggel, hogy mi a főhajó és a négyezet feletti szerkezetet két különálló egységként tárgyaljuk, ugyanis megfigyeléseink szerint és a dendrokronológiai eredmények alapján is két, egymástól független szerkezetről van szó.



■ **1. ábra:** A templom tetőszerkezeti egységei (SZABÓ et al. 2007)
 ■ **Figure 1.** The church's roof structure units (SZABÓ et al. 2007)



■ **2. ábra:** A tetőszerkezetek alaprajza (SZABÓ et al. 2007)
 ■ **Figure 2.** Ground plan of the roof structures (SZABÓ et al. 2007)

1. szentély feletti tetőszerkezet („B”);
2. négyezet feletti tetőszerkezet („A” egység keleti része);
3. déli kereszthajószárny feletti tetőszerkezet („D”);
4. főhajó feletti tetőszerkezet („A” egység nyugati része);
5. *ferula* feletti tetőszerkezet („L”);
6. déli mellékhajó feletti tetőszerkezetek („E, F, H, J, K”).

A dendrokronológiai mintavétel kitért az északi kereszthajószárny és az északi mellékhajó feletti tetőszerkezetekre („C” és „M”) is, de tekintettel arra, hogy az innen származó minták elemzése nem eredményezett biztos kelteztést, jelen tanulmány nem tartalmazza az említett tetőszerkezetek leírását. A kutatás során ezen kívül sikerült néhány falba épített gerendából is mintát venni. Összesen 114 faminta áll ma rendelkezésünkre.⁷

A faminták laboratóriumi elemzése alapján a szentély, a négyezet, a déli kereszthajószárny, a főhajó, a *ferula* és a déli mellékhajó feletti tetőszerkezeteket alapvetően jegenyefenyőből (*Abies alba* MILL.) építették (74 vizsgált elem). Egyedül a szentély feletti tetőszerkezet egy vizsgált eleme bizonyult lucfenyőnek (*Picea abies* KARST.). Ezen szerkezetek későbbi, feltehetően XIX. század második felében végzett megerősítéseihez egységesen lucfenyőt (*Picea abies* KARST.) használtak. Szintén lucfenyő elemekből építették az északi kereszthajószárny, valamint az északi mellékhajó feletti tetőszerkezeteket, az északi kereszthajószárny feletti fedélszerkezetben azonban másodlagos felhasználású jegenyefenyő elemek is találhatóak.

A jegenyefenyő famintákból összeállított 297 éves évgyűrűadatsort a besztercei evangélikus templom fedélszerkezeteiből származó, 1406–1560 közé datált jegenyefenyő minták segítségével sikerült abszolút keltezni 1223 és 1519 közé. A kelteztést dél-lengyel és dél-német jegenyefenyő kronológiák is alátámasztották.⁸ A jegenyefenyő szerkezetekkel egykorú egyetlen lucfenyő elemet a jegenyefenyő mintákkal lehetett datálni. A szerkezet-megerősítésekből, valamint az északi kereszthajószárny és északi mellékhajó lucfenyő tetőszerkezeteiből származó lucfenyő mintákat sajnos egyetlen esetben sem tudjuk egyelőre biztosan keltezni.

A szentély feletti tetőszerkezet

■ A szentély felett 13 szaruállásból felépített tetőszerkezet áll, amelynek minden állása ugyanolyan kialakítású: a kötőgerendás–torokgerendás szaruállást két-állósékkal, a székoszlopokhoz belülről kapcsolódó alsó és felső könyökfával, két szinten szögletkötőkkel és kakasülővel erősítették (3. ábra, 3. kép). A székoszlopok nem a szaru-fa–torokgerenda kötésnél, hanem attól beljebb állnak. A tető hosszirányú merevítését az oszlopok alatti talpgerenda, az oszlopok feletti fejgerenda, valamint néhány oszlopon átfutó ferdetámasz biztosítja. Szerkezeti felépítésében megegyező kialakítású fedélszerkezet található a főhajó, a négyezet, a déli kereszthajószárny és a *ferula* felett.

A szerkezet elemeinek kötésére egyenes lapolás, félfecskefarkos lapolás és csapolás jellemző. A szaru-fákat a kötőgerendához egyetlen kivétellel minden esetben csapolták, nyugatról az első állásban lapolták (4. kép).⁹ A torokgerendákat, kakasülőket, szögletkötőket, könyökfákat és hosszanti ferdetámaszokat a legtöbb esetben félfecskefarkos lapolással kötötték, de előfordul egyenes lapolás is.

7 2012-ben 102 mintát, 2016-ban további 12 mintát (103–114. minta) vettünk.

8 A külföldi kronológiákkal való összevetést ez úton is köszönjük Tomasz WAZNY-nak (Cornell University, USA).

9 Ezt a 2012. évi helyszíni munka során dokumentáltuk. A 2014-ben elvégzett felújítási munkálatok során – a 8. állás déli szaru-fája, valamint a záródás szaru-fájának többsége kivételével – az összes szaru-fa–kötőgerenda kapcsolatot javították, ma az összes javított kötés lapolt!

first glance, are not the result, as previously thought, of a single construction period. Additionally, the observations allowed for the reconstruction of the earliest structures above the crossing and the central nave.

The church with a choir, aisles, tower, sacristy, side chapel, and vestibules is covered with several roof structure units (Figures 1 and 2).⁶ This study presents the description and dendrochronological dating of the following roof structures:

1. the roof structure above the choir (“B”);
2. the roof structure above the crossing (the eastern part of “A”);
3. the roof structure above the transept’s southern arm (“D”);
4. the roof structure above the central nave (the western part of “A”);
5. the roof structure above the *ferula* (“L”);
6. the roof structures above the southern aisle (“E, F, H, J, K”).

The dendrochronological sampling covered the roof structures above the transept’s northern arm and the northern aisle (“C” and “M”) as well, but given that the analysis of the samples originating therefrom did not produce reliable dating, the present study does not include the description of these roof structures. In addition, during the research we also managed to sample some of the beams built in the walls. At the moment, a total of 114 samples are at our disposal.⁷

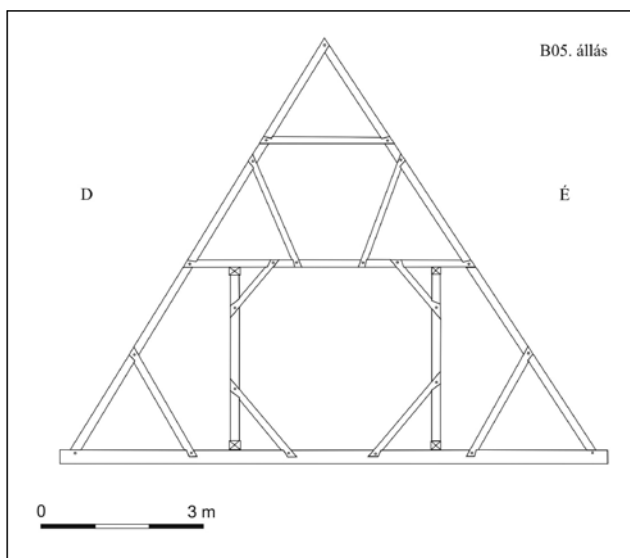
According to the laboratory analysis of the wood samples (74 tested elements) the roof structures above the choir, the crossing, the transept’s southern arm, the central nave, the *ferula*, and the southern aisle were built essentially from silver fir (*Abies alba* MILL.). Only one analysed element of the roof structure above the choir proved to be Norway spruce (*Picea abies* KARST.). For the subsequent reinforcement of these structures, carried out probably in the second half of the 19th century, Norway spruce (*Picea abies* KARST.) was used uniformly. The roof structures above the transept’s northern arm and the northern aisle were also built of spruce elements, however, the roof structure above the northern aisle contains reused silver fir elements as well.

The 297-year-long tree-ring sequence compiled from the silver fir samples was successfully dated between 1223 and 1519 with the help of the silver fir samples originating from the roof structures of the Lutheran Parish Church in Bistrița, dated between 1406 and 1560. The dating was corroborated by silver fir chronologies from southern Poland and southern Germany as well.⁸ The one spruce element that is contemporaneous with the silver fir structures was possible to date with the silver fir samples. Unfortunately, the spruce samples

6 In designating the roof structure units, we adopted the definitions used in the mentioned 2007 study, with the difference that we discuss the structures above the central nave and the crossing as two separate units, as, based on our observations but also on the dendrochronological results, these are two independent structures.

7 We took 102 samples in 2012 and another 12 samples (samples 103–114) in 2016.

8 We would like to thank hereby Tomasz WAZNY (Cornell University, USA) for the comparison with the foreign chronologies.



■ **3. ábra:** A szentély feletti tetőszerkezet B05. állása, 2012. évi állapot (az Utilitas Kft. felmérése és saját megfigyelések alapján)

■ **Figure 3.** Truss B05 of the roof structure above the choir, state of preservation in 2012 (based on the survey of Utilitas Ltd. and on our own observations)



■ **3. kép:** A szentély feletti tetőszerkezet nézete keletről, 2012

■ **Photo 3.** View from east of the roof structure above over the choir, 2012

originating from the structural reinforcements and from the spruce roof structures above the transept's northern arm and the northern aisle could not be dated with certainty.

The roof structure above the choir

■ The roof structure above the choir is composed of 13 trusses, all of which have the same configuration: the truss with common rafters, tie-beam and collar beam was reinforced with queen posts⁹, lower and upper counterbraces that connect to the posts from the inside, angle braces on two levels, and an upper collar (Figure 3 and Photo 3). The posts are located not at the common rafter and collar beam joint, but more inwards. The roof's longitudinal bracing is ensured by the lower plate beneath and the upper plate above the posts, as well as by a few braces intersecting some of the posts. Roof structures identical in structural configuration can be found above the central nave, the crossing, the transept's southern arm, and the *ferula*.

Lapped, half dovetail lap, and mortice and tenon joints are characteristic for joining the structure's elements. Mortice and tenon joints were used in each case for the rafter and tie-beam connections, with the exception of the first truss from the west, where lapped joint was used (Photo 4).¹⁰ The joints of the collar beams, upper collars, angle braces, counterbraces, and longitudinal braces were



■ **4. kép:** A szentély feletti fedélszerkezet északi szarufáinak kapcsolódása a kötőgerendához nyugatról az 1. és 2. állásban. Az 1. állásban a kötés lapolt, a 2. állásban csapolt, 2012

■ **Photo 4.** Joining of the northern common rafters to the tie-beams in the 1st and 2nd trusses from the west of the roof structure above the choir. In the 1st truss the joint is lapped, in the 2nd truss it is mortice and tenon joint, 2012

Az oszlopokat a talp- és fejgerendába csapolták, de oly módon, hogy az oszlop hosszú csapja túlnyúlik a hosszanti gerendán, és fenn a torokgerendában, illetve lenn a kötőgerendában kialakított kis vájatba fut. Ezzel megakadályozták, hogy a hosszanti rács keresztirányba elcsússzon. A torokgerendába felülről egy faszeget is ütöttek. Ugyanezt a megoldást figyelhettük meg a négyezet, a déli kereszthajószárny és a főhajó feletti tetőszerkezetben is.

Az elemeken megfigyelt állásjelek egységes jelölési rendszert követnek (a kötőgerendákon nem találtunk jeleket). Az állásokat nyugatról indulva számozták, a jelek az elemek keleti oldalán, az illesztési oldalon láthatók. Az északi oldalon megfelelő számú szálirányra merőlegesen bekarcolt vonal, a déli oldalon megfelelő számú szálirányban húzódó, hosszú, vésett vonal jelzi, mely álláshoz tartozik az elem (5. kép).

⁹ That is two posts, the elements of which correspond to „stehender Stuhl” used in the German terminology.

¹⁰ This was documented during the 2012 on-site work. In the course of the renovation works carried out in 2014 all of the common rafter and tie-beam connections were repaired, except for the southern common rafter of the 8th truss, as well as for the majority of the rafters of the eastern end; today all the repaired joints are lapped!



■ **5. kép:** A szentély feletti tetőszerkezet déli szarufái. Állásjelek a 12. és 11. állásban. Csapolt szarufákötőgerenda kapcsolatok, 2012
■ **Photo 5.** The southern common rafters of the roof structure above the choir. Truss markings in the 12th and 11th trusses. Mortice and tenon joint at the common rafter and tie-beam connection, 2012

Több szarufán ma funkció nélküli lapolási fészkek figyelhetők meg a torokgerenda és a felső szögletkötő között, ami arra utal, hogy ezek az elemek másodlagos felhasználásúak. A korábbi lécezés szegei alapján arra következtethetünk, hogy a szóban forgó szarufák nagy része el van forgatva. Emellett több oszlopon és szarufán kis vágatokat figyeltünk meg a gerendák sarkain, egy-egy gerendán egymás felett több, 10-15 vajat is sorakozik. Elképzelhető, hogy ezek korábbi állásjelzések lehettek.

A szerkezetben 2012-ben nem láttunk későbbi megerősítő szerkezeteket.

A szentély feletti fedélszerkezetben összesen 22 elemből vettünk furatmintát, közülük 19 minta évgyűrű sorát sikerült abszolút keltezni a dendrokronológiai elemzés során (1. táblázat).

done mostly in half dovetail lap joints, but lapped joints also occur.

The posts were joined to the lower and upper plates with mortice and tenon joints, but in such a way that the long tenons of the posts extend through the longitudinal beams and run into the small mortices cut in the collar beam above and in the tie-beam below. This prevented the longitudinal frame from shifting transversely. A wooden peg was also inserted in the collar beam from above. We were able to observe the same solution in the roof structures above the crossing, the transept's southern arm, and the central nave.

The carpenters' truss marks observed on the elements follow a uniform marking system (we could not find such marks on the tie-beams). The trusses were numbered starting from the west; the markings are on the elements' eastern, i.e. assembly side. The appropriate number of long lines indicates the truss to which the element belongs, etched in against the grain on the northern side and along the grain on the southern side (Photo 5).

Several rafters have notches between the collar-beam and the upper angle brace, belonging to lapped joints that have no function today, indicating that these elements were reused. Based on the nails of the previous battening we can conclude that most of the common rafters in question have been rotated. In addition, we have observed small grooves on several posts and common rafters, at the beams' corners; on some of the beams several, 10-15 grooves are lined up one above the other. These might have been earlier truss markings.

In 2012 we did not observe any subsequent reinforcements in the structure.

In the roof structure above the choir we took core samples from a total of 22 elements, of which during the dendrochronological analysis we were able to achieve absolute dating for the tree-ring sequences of 19 samples (Table 1).

■ **1. táblázat:** A szentély feletti tetőszerkezetből (B) vett minták dendrokronológiai elemzésének eredményei

■ **Table 1.** The results of the dendrochronological analysis of the samples taken from the roof structure above the choir (B)

A szentély feletti tetőszerkezetből (B) vett minták leírása	Fafaj	Évgyűrűk száma	WK, TP	Szinkronhelyzet	Keltezés
Description of the samples taken from the roof structure above the choir (B)	Wood species	Number of growth rings	WE, SW	Synchronous position	Dating
29. B11. állás, déli szarufa, ácsjel: 11 hosszú vonal; lapolási fészkek	Abies	90	-	1238-1327	1327 után
29. truss B11, southern common rafter, carpenter's mark: 11 long lines; lapped joint notch					after 1327
30. B08. állás, déli szarufa, ácsjel: 8 hosszú vonal; lapolási fészkek, 9 vajat a sarkon	Abies	110	-	1223-1332	1332 után
30. truss B08, southern common rafter, carpenter's mark: 8 long lines; lapped joint notch, 9 grooves at the corner					after 1332
20. B03. állás, északi oszlop	Abies	100	WK	1239-1338	1338/1339 tele
20. truss B03, northern post			WE		winter of 1338/1339
25. B09. állás, északi oszlop	Abies	88	WK	1251-1338	1338/1339 tele
25. truss B09, northern post			WE		winter of 1338/1339
104. B05. állás, északi szarufa, lapolási fészkek	Abies	101	WK	1238-1338	1338/1339 tele
104. truss B05, northern common rafter, lapped joint notch			WE		winter of 1338/1339

22. B04. állás, déli oszlop	Abies	82	WK	1270–1351	1351/1352 tele
22. truss B04, southern post			WE		winter of 1351/1352
31. B07. állás, északi szarufa, lapolási fészek	Abies	87	?	1284–1370	1370 után
31. truss B07, northern common rafter, lapped joint notch					after 1370
103. B10. állás, északi oszlop	Abies	99	WK	1274–1372	1372/1373 tele
103. truss B10, northern post			WE		winter of 1372/1373
32. B02. állás, déli szarufa, sok vájat az alsó végén	Abies	57	WK	1317–1373	1373/1374 tele
32. truss B02, southern common rafter, many grooves at its lower end			WE		winter of 1373/1374
109. déli fejszerenda	Abies	38	–	1336–1373	1373 után
109. southern upper plate					after 1373
33. B01. állás, déli szarufa, lapolt szarufa-kötőgerenda	Abies	36	–	1345–1380	1380 után
33. truss B01, southern common rafter, rafter and tie-beam lapped joint					after 1380
28. B12. állás, északi oszlop	Picea	57	–	1330–1386	1386 után
28. truss B12, northern post					after 1386
21. B04. állás, kötőgerenda	Abies	98	–	1295–1392	1392 után
21. truss B04, tie-beam					after 1392
24. B06. állás, kötőgerenda	Abies	59	WK	1336–1394	1394/1395 tele
24. truss B06, tie-beam			WE		winter of 1394/1395
26. B10. állás, kötőgerenda	Abies	94	WK	1301–1394	1394/1395 tele
26. truss B10, tie-beam			WE		winter of 1394/1395
27. B11. állás, kötőgerenda	Abies	58	WK	1337–1394	1394/1395 tele
27. truss B11, tie-beam			WE		winter of 1394/1395
23. B06. állás, déli oszlop	Abies	39	WK	1357–1395	1395/1396 tele
23. truss B06, southern post			WE		winter of 1395/1396
34. B01. állás, északi szarufa, lapolt szarufa-kötőgerenda	Abies	85	WK	1311–1395	1395/1396 tele
34. truss B01, northern common rafter, rafter and tie-beam lapped joint			WE		winter of 1395/1396
105. északi fejszerenda a B06. állásnál	Abies	49	WK	1348–1396	1396/1397 tele
105. northern upper plate at truss B06			WE		winter of 1396/1397

Fafaj-meghatározásnál: *Abies* = *Abies alba* MILL.; *Picea* = *Picea abies* KARST. Az évgűrűk száma a mintán mért évgűrűk számát jelenti, ez nem egyezik a fa korával. Mintavételezésre elsősorban olyan faelemeket keresünk, amelyeken megmaradt a kéreg alatti utolsó évgűrű, a záróévgűrű (szakszóval Waldkante, rövidítése: WK). Amennyiben a minta tartalmazza a záróévgűrűt, a fa kivágásának idejét féléves pontossággal lehet meghatározni. Ha a záróévgűrűben csak tavaszi pászttát (TP) lehet megfigyelni, a fát a vegetációs időszak elején, az adott év nyarán vágják ki. Ha a záróévgűrű teljes, tehát késői pászttát is tartalmaz, a fa kivágása az adott évben a vegetációs időt követően, vagy a következő évben rügyfakadás előtt, tehát télen történt. A szinkronhelyzet a legidősebb és legfiatalabb mért évgűrű keltezését jelenti. A keltezés a fa kivágásának idejére vonatkozik.

A táblázatokban a minták nem a mintaszám, hanem a keltezés sorrendjében követik egymást, hogy időben csoportosítva átláthatóbb legyen az eredmény.

For the wood species identification: *Abies* = *Abies alba* MILL.; *Picea* = *Picea abies* KARST. The number of growth rings means the number of growth rings measured on the sample, which does not match the age of the tree. For sampling, we were primarily looking for timber elements with the outermost growth ring preserved under the bark, i.e. the waney edge (WE). If the sample contains the waney edge, the felling date of the tree can be determined with an accuracy of half a year. If only springwood (SW) can be observed in the waney edge, the tree was felled at the beginning of the vegetation period, during the summer of the given year. If the waney edge is complete, meaning that it also contains latewood, the felling of the tree occurred after the vegetation period of the given year or prior to next year's bud formation, i.e. in the winter. Synchronous position means the dating of the oldest and youngest measured growth rings. The dating refers to the time when the tree was felled.

In the tables the samples are not arranged according to the sample number, but to their dating, so that the results might be more comprehensible when grouped chronologically.

The dated elements can be linked to multiple periods. The earliest elements, two posts and three common rafters on which unused lapped joint notches can be observed, originate from silver firs felled during the winter of 1338/1339 or thereabout. Another post is from a tree felled in the winter of 1351/1352, from

A keltezett elemek több periódushoz köthetők. A legkorábbi elemek, két oszlop és három olyan szarufa, amelyen használaton kívüli lapolási fészek figyelhető meg, 1338/1339 telén, vagy a körül kivágott jegenyefenyőkből származnak. Egy további oszlop 1351/1352 telén kivágott fából való – abból az időből, mint látni fogjuk, amikor a négyzet és a déli kereszthajószárny eredeti tetőszerkezetét építették. 1372/1373 telén, vala-

mint 1373/1374 telén kivágott jegenyefenyőkből készítettek egy további oszlopot és egy szarufát. A keltezett elemek nagy része az 1390-es évek közepén, pontosabban 1394/1395 telén, 1395/1396 telén és 1396/1397 telén kivágott jegenyefenyőkből való. Ide sorolható két hosszanti elem (fejgerenda), négy kötőgerenda, két oszlop, valamint az 1. állás két szarufája, amelyek a kötőgerendához lapolva kapcsolódnak.

A dendrokronológiai keltezők és a helyszíni megfigyelések alapján arra következtethetünk, hogy a szentély feletti ma álló torokgerendás, két-állószerű tetőszerkezet 1397-ben épült 1395 és 1397 tele között kivágott jegenyefenyők és kisebb részt lucfenyők felhasználásával, továbbá másodlagosan felhasznált elemek beépítésével. Az újrahazsnált elemek közül több kivágási ideje 1338/1339 tele. Tekintettel arra, hogy a templom fedélszerkezetében máshol nem fordulnak elő ebből az időből elemek (a vizsgált elemeket tekintve), és figyelembe véve, hogy az alább tárgyalandó keresztahajó a XIV. század közepén már biztosan állt, bizonyosnak vehetjük, hogy a másodlagos elemek a mai szentély korábbi tetőszerkezetéből származnak. Ezek szerint a szentély feletti eredeti tetőszerkezet 1339-ben épülhetett. A szarufák használaton kívüli lapolási fészke alapján azt feltételezzük, hogy a kötőgerendás szarufaállásokat egy torokgerenda és két függesztő erősíthette. A szerkezeten az 1370-es években javításokat végezhettek. Az 1350-es évek elejéről származó elem talán a négyzet vagy a keresztahajó eredeti szerkezetéből keveredhetett ide akkor, amikor a templom teljes tetőszerkezetét „modernizálták” az 1390-es évek közepén.

Hangsúlyozni kell, hogy a szentély feletti, 1390-es évek közepén épült tetőszerkezet állásaiban alapvetően csapolással kapcsolták a kötőgerendákhoz a szarufákat – kivéve az 1. állást. Tekintettel arra, hogy minden vizsgált kötőgerenda, ráadásul az 1. állás mindkét szarufája az 1390-es évekből származik, továbbra is kérdés, mi lehet az oka, hogy az 1. állásban lapolással kötötték a szarufákat a kötőgerendához.

A sekrestye padlásterében a szentély északi, külső falába utólag beépített négy gerenda található a párkány alatt, ezek közül kettőből vettünk mintát. A megmunkált gerendák a szentélytől északra álló épület félnyeregteretjének szelemenét tarthatták. Mindkét tölgyfa minta (*Quercus sp.*) 1433/1434 telén kivágott fából való, tehát a tető 1434-ben épülhetett. Ezek az elemek vagy a korábbi, kisebb területű sekrestyéhez, vagy ami valószínűbb, a korai sekrestye magasztásához köthetők.

A négyzet feletti tetőszerkezet

■ A négyzet felett kilenc szarufaállásból felépített fedélszerkezet áll. Mindegyik szarufaállás ugyanolyan felépítésű: kötőgerendás, torokgerendás, két-állószerű (két oszloppal merevített), két szinten szögletkötőkkel megerősített szerkezet, amelyben az oszlopokat két-két belső könyökfával erősítették meg (4. ábra, 6. kép). Hosszanti irányban az oszlopok alatt talpgerenda, az oszlopok felett fejgerenda húzódik, továbbá a gerendákat ferdetámaszok kapcsolják össze. Az oszlopok a szarufa–torokgerenda csomóponttól beljebb állnak. A szarufákat a kötőgerendához minden állásban lapolással kötötték (7. kép), a torokgerendát, a kakasülőt, valamint a szögletkötőket, könyökfákat és hosszanti ferdetámaszokat félfecskefarkos lapolással kapcsolták a többi elemhez, míg az oszlopokat csapolással kapcsolták a talp- és fejgerendához. Az oszlop hosszú csapja itt is befut a kötőgerendán, illetve a torokgerendán kialakított vájatba, ugyanúgy, mint a szentély feletti szerkezetben (8. kép). Az elemeken egységes rendszernek megfelelő állásjeleket lehet megfigyelni az állások nyugati, illesztési oldalán (a főhajó feletti szerkezetben az illesztések a keleti oldalon vannak). Az állások számozása nyugatról kezdődik. A fedélszerkezet északi felén megfelelő számú (1. állásban 1, 2. állásban 2, stb.) szálirányban húzódik,

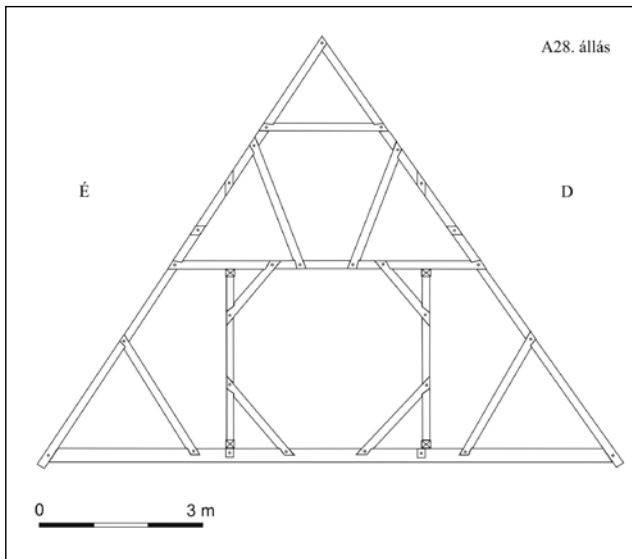
the time, as we will see, when the original roof structures of the crossing and the transept's southern arm were built. One further post and a common rafter were made of silver firs felled in the winters of 1372/1373, respectively of 1373/1374. Most of the dated elements are from silver firs felled in the mid-1390s, more precisely during the winters of 1394/1395, 1395/1396, and 1396/1397. The following are also classified in this same group: two longitudinal elements (upper plates), four tie-beams, two posts, respectively the two common rafters of the 1st truss, which are connected to the tie-beam with lapped joints.

Based on the dendrochronological dating and on the on-site observations we were able to conclude that the roof structure with collar beams and queen posts that stands above the choir was built in 1397 by using silver firs felled between the winters of 1395 and 1397, and to a smaller extent from spruces, furthermore, by incorporating reused elements. Of the reused elements, several were felled in the winter of 1338/1339. Given that elements (meaning the examined ones) from this time were not found anywhere else in the church's roof structure, and considering that the crossing to be discussed below is certain to have been standing by the mid-14th century, we can be sure that the reused elements originated from the present choir's earlier roof structure. According to this information, the original roof structure above the choir was probably built in 1339. Based on the unused lapped joint notches of the common rafters we can assume that the trusses with common rafters and tie-beams were strengthened with a collar beam and two posts in tension¹¹. The structure was repaired in the 1370s. The element from the beginning of the 1350s might have ended up here from the original structure of the crossing or the transept, when the entire roof structure of the church was “modernised” in the mid-1390s.

It has to be emphasised that in the trusses of the roof structure built above the choir in the mid-1390s, all of the common rafter and tie-beam connections were done with mortice and tenon joints, except for the 1st truss. Given that all the examined tie-beams, furthermore, both common rafters of the 1st truss date from the 1390s, the question as to why were the rafters of the 1st truss connected to the tie-beam with lapped joint still remains.

In the sacristy's attic, four beams can be found under the cornice of the choir's northern, exterior wall, which were built in subsequently; we took samples from two of these. The hewn beams had probably supported the purlin of the pent roof above the building north of the choir. Both oak samples (*Quercus sp.*) come from trees felled in the winter of 1433/1434, thus the roof was probably built in 1434. These elements can either be linked to the earlier, smaller sacristy or, more likely, they are the traces of the early sacristy's heightening.

¹¹ Corresponding to „Hängesäule” used in the German terminology.



■ **4. ábra:** A négyezet feletti tetőszerkezet A28. állása, 2012. évi állapot (az Utilitas Kft. felmérése és saját megfigyelések alapján)

■ **Figure 4.** Truss A28 of the roof structure above the crossing, state of preservation in 2012 (based on the survey of Utilitas Ltd. and on our own observations)



■ **6. kép:** A négyezet feletti tetőszerkezet nézete keletről, háttérben a főhajó feletti tetőszerkezet, 2012

■ **Photo 6.** View from east of the roof structure above the crossing, with the roof structure above the central nave in the background, 2012

The roof structure above the crossing

■ The roof structure above the crossing is composed of nine trusses. All trusses have the same configuration: a structure with common rafters, collar beam, queen posts (braced with two posts), reinforced with angle braces on two levels, in which both posts were reinforced with two inner counterbraces (Figure 4 and Photo 6). In the longitudinal direction, a lower plate runs below the posts and an upper plate above them, furthermore, the beams are fastened with braces. The posts are positioned inwards from the common rafter and collar-beam joint. The common rafter and tie-beam joints are lapped in every truss (Photo 7), the collar beam, the upper collar, as well as the angle braces, counterbraces, and longitudinal braces were joined to the other elements by half dovetail lap joints, while the posts were connected to the lower and upper plates with mortice and tenon joints. The long tenons of the posts run through the mortices of the tie-beams and collar beams here as well, in the same way as in the structure above the choir (Photo 8). Truss marks corresponding to a uniform system can be observed on the elements, on the trusses' western, assembly sides (in the structure above the central nave these are on the eastern side). The numbering of the trusses starts from the west. On the northern side of the roof structure an appropriate number of long lines (1 for the 1st truss, 2 for the 2nd truss) can be seen etched along the grain, while on its southern side the appropriate number of thin lines etched against the grain indicate to which truss the element belongs. On the posts the truss markings can be seen above the lower plate joint.

In 2012, unused lapped joint notches could be observed on six tie-beams and



■ **7. kép:** Lapolt szarufa–kötőgerenda kapcsolatok a négyezet feletti tetőszerkezetben, 2012

■ **Photo 7.** Lapped common rafter and tie-beam joints in the roof structure above the crossing, 2012



■ **8. kép:** A székoszlop kapcsolata a talp- és kötőgerendával a négyezet feletti szerkezetben

■ **Photo 8.** Connection of the post with the lower plate and the tie-beam in the structure above the crossing



■ **9. kép:** Kötőgerendákon megfigyelhető üres lapolási fészkek a négyezet feletti szerkezetben



■ **10. kép:** Szarufákon megfigyelhető üres lapolási fészkek a négyezet feletti szerkezetben

■ **Photo 9.** Unused lapped joint notches on the tie-beams of the structure above the crossing

■ **Photo 10.** Unused lapped joint notches on the common rafters of the structure above the crossing



■ **11. kép:** A négyezet feletti A30. állás kötőgerendájának déli végén megfigyelhető kétféle állásjel, 2016

■ **Photo 11.** The two types of truss marks on the southern end of the tie-beam of truss A30 above the crossing, 2016

hosszú, vésett vonal, déli felén megfelelő számú szálirányra merőleges vékony vonal jelzi, mely álláshoz tartozik az elem. Az állásjelek az oszlopokon a talpgerenda-csatlakozás felett láthatók.

A négyezet feletti tetőszerkezet hat kötőgerendáján és nyolc szarufáján használaton kívüli lapolási fészkeket lehetett megfigyelni 2012-ben. A kötőgerendákon következetesen két függesztő lapolási fészke volt látható, a szarufákon pedig – szintén következetesen – egy torokgerenda vízszintes fészke és feljebb egy függőleges fészkek figyelhető meg (9–10. kép).¹⁰ A felsorolt kötőgerendákon, valamint a 7. állás déli szarufáján kétféle állásjel látható. A 7. állásban (A27.) a kötőgerenda déli végén, a nyugati oldalon hét függőlegesen bekarcolt vonal, a mai faszerkezet állásjele alatt három vízszintes, hosszú, mélyebb vésést láthatunk (11. kép). Több kötőgeren-

¹⁰ 2012-ben a tetőszerkezet következő elemein lehetett megfigyelni az üres lapolási fészkeket: a 3. állásban (A26.) az északi szarufán, a 4. állásban (A27.) a kötőgerendán, az 5. állásban (A28.) a kötőgerendán és mindkét szarufán, a 6. állásban (A29.) a kötőgerendán és a déli szarufán, a 7. állásban (A30.) a kötőgerendán és szintén mindkét szarufán, a 8. állásban (A31.) a kötőgerendán és déli szarufán, végül a 9. állásban (A32.) szintén a kötőgerendán és déli szarufán.

eight common rafters of the roof structure above the crossing. On the tie-beams the lapped joint notches of two posts in tension could be seen in a consistent manner, while on the common rafters, also in a consistent manner, the horizontal notch of a tie-beam's joint and above it a vertically placed joint notch could be observed (Photos 9 and 10).¹² Two types of truss marks are visible on the mentioned tie-beams and on the southern common rafter of the 7th truss. On the southern end of the tie-beam belonging to the 7th truss (A27), on its western side we can see seven vertically etched lines and three horizontal, long, deeper etchings under the truss marking of the current timber structure (Photo 11). The horizontal, deeper etched truss marks can be observed on several tie-beams, next to the unused lapped joint notches of the earlier posts in tension. On the tie-beam of truss A27 six deep, horizontal lines run through the unused lapped joint notch of the post in tension (Photo 12).¹³ According to our observations, these truss markings indicate that the elements have survived in their original positions, as well as that originally the crossing's trusses were numbered from the east (three lines can be seen on the tie-beam of truss A30, while six lines on the tie-beam of truss A27). Based on all these, it is our view that the discussed

¹² In 2012, unused lapped joint notches could be observed on the roof structure's following elements: the northern common rafter of the 3rd truss (A26), the tie-beam of the 4th truss (A27), the tie-beam and both common rafters of the 5th truss (A28), the tie-beam and southern common rafter of the 6th truss (A29), the tie-beam and, once again, both common rafters of the 7th truss (A30), the tie-beam and southern common rafter of the 8th truss (A31), and finally the tie-beam and southern common rafter of the 9th truss (A32).

¹³ Thus, the truss marks were etched into the elements after assembling the truss in the framing yard, so that the trusses could then be disassembled, its elements hauled up, and be reassembled in the right way.

elements were part of the present crossing's former roof structure and have remained in their original positions (!).

During the dendrochronological sampling in the roof structure above the crossing, we sought, along with determining the dating of the present structure's elements, to date the elements of the presumed original structure as well. Thus, in 2012 we carried out a dendrochronological analysis of ten elements. During the analysis we were able to date all ten samples (Table 2).

According to the dendrochronological analysis, the examined elements of the roof structure above the crossing can be linked to two construction periods. The tie-beams and common rafters on which we could observe unused lapped joint notches, respectively both studied posts originated from silver firs felled during the winter of 1351/1352, the summer of 1352, and the winter of 1352/1353. The southern lower plate, respectively the tie-beam and common rafter of truss A25, which do not have unused lapped joint notches, are from silver firs felled in the summer of 1395 or thereabout.

The result of the dendrochronological analysis therefore supports the hypothesis that the elements with unused lapped joint notches are elements of an earlier roof structure. Based on the survey of the tie-beam and common rafters of the 5th truss from the west (truss A28), as well as on the unused lapped joint notches of the elements, in 2012 we carried out the theoretical reconstruction of the former truss' structure. The truss with common rafters and tie-beam was reinforced with a collar beam, built in to connect to the middle of the rafters' length, and with two posts in tension, which were joined directly to the tie-beam and, above the collar beam, to the common rafters. All trusses must have had the same configuration, the trusses' longitudinal bracing being provided only by the battening. Straight lapped joints were used in all cases of the elements' joining. The roof structure covered a span of nearly 10 m with an angle of 57° (Figure 5). Similar roof structures are known from German-speaking territories, i.e. Germany



■ **12. kép:** A négyezet feletti A27. állás kötőgerendáján a használaton kívüli lapolási fészeknél megfigyelhető állásjel

■ **Photo 12.** The truss marking at the unused lapped joint notch on the tie-beam of truss A27 above the crossing

dán a korábbi függesztő üres lapolási fészke mellett is megfigyelhetők a vízszintes, mélyebben vésett állásjelek. Az A27. állás kötőgerendáján hat mély, vízszintes vonal fut át a függesztő üres lapolási fészken (12. kép).¹¹ Megfigyeléseink szerint ezek az állásjelek arra utalnak, hogy az elemek eredeti helyükön maradtak meg, és hogy eredetileg keletről számozták a négyezet állásait. (Az A30-as állás kötőgerendáján három vonal, az A27-es állás kötőgerendáján hat vonal látható.) Mindezek alapján feltételezésünk szerint a tárgyalt elemek a mai négyezet korábbi tetőszerkezetének eredeti helyükön (!) maradt elemei.

A négyezet feletti fedélszerkezetben végzett dendrokronológiai mintavétel során arra törekedtünk, hogy a mai szerkezet elemeinek kormeghatározása mellett a feltételezett eredeti szerkezet elemeinek idejét is meghatározzuk. Így tíz elem dendrokronológiai vizsgálatát végeztük el 2012-ben. Az elemzés során mind a tíz mintát sikerült keltezni (2. táblázat).

11 Az állásjeleket tehát az állás összeépítése után vésték az elemekbe a zsinórpadon, hogy az állást elemekre bontva, az elemeket felszállítva, a magasban helyesen építhessék fel a szaruállásokat.

■ **2. táblázat:** A négyezet feletti tetőszerkezetből (A) vett minták dendrokronológiai elemzésének eredményei

■ **Table 2.** The results of the dendrochronological analysis of the samples taken from the roof structure above the crossing (A)

A négyezet feletti tetőszerkezetből (A) vett minták leírása	Fafaj	Évgyűrűk száma	WK, TP	Szinkronhelyzet	Keltezés
Description of the samples taken from the roof structure above the crossing (A)	Wood species	Number of growth rings	WE, SW	Synchronous position	Dating
40. nyugatról 8. (A31.) állás, déli szarufa, jel: 8 szálirányra merőleges vonal, üres lapolási fészkek	Abies	87	-	1265–1351	1351 után
40. 8 th truss from west (A31), southern common rafter, mark: 8 lines against the grain, unused lapped joint notches					after 1351
41. 6. (A29.) állás, kötőgerenda, jel: 6 szálirányra merőleges vonal, üres lapolási fészkek	Abies	56	-	1296–1351	1351 után
41. 6 th truss (A29), tie-beam, mark: 6 lines against the grain, unused lapped joint notches					after 1351
42. 5. (A28.) állás, északi szarufa, ácsjel: 5 vonal szálirányban, üres lapolási fészkek	Abies	57	WK	1295–1351	1351/1352 tele
42. 5 th truss (A28), northern common rafter, carpenter's mark: 5 lines along the grain, unused lapped joint notches			WE		winter of 1351/1352

38. 8. (A31.) állás, kötőgerenda déli vége, jel: 8 szálirányra merőleges vonal, üres lapolási fészkek	Abies	80	WK, TP	1273–1352	1352 nyara
38. 8 th truss (A31), southern end of tie-beam, mark: 8 lines against the grain, unused lapped joint notches			WE, SW		summer of 1352
39. 9. (A32.) állás, déli szarufa, jel: 9 szálirányra merőleges vonal, üres lapolási fészkek	Abies	69	WK, TP	1284–1352	1352 nyara
39. 9 th truss (A32), southern common rafter, mark: 9 lines against the grain, unused lapped joint notches			WE, SW		summer of 1352
35. 8. (A31.) állás, déli oszlop, jel: 8 szálirányra merőleges vonal	Abies	61	WK	1292–1352	1352/1353 tele
35. 8 th truss (A31), southern post, mark: 8 lines against the grain			WE		winter of 1352/1353
36. 2. (A25.) állás, déli oszlop, jel: 2 szálirányra merőleges vonal	Abies	72	WK	1281–1352	1352/1353 tele
36. 2 nd truss (A25), southern post, mark: 2 lines against the grain			WE		winter of 1352/1353
43. 2. (A25.) állás, kötőgerenda, északi oldal	Abies	62	–	1328–1389	1389 után
43. 2 nd truss (A25), tie-beam, northern side			–		after 1389
44. 2. (A25.) állás, északi szarufa	Abies	51	–	1342–1392	1392 után
44. 2 nd truss (A25), northern common rafter			–		after 1392
37. déli talpfa a 2. és 3. állás között	Abies	84	WK, TP	1312–1395	1395 nyara
37. southern lower plate between the 2 nd and 3 rd trusses			WE, SW		summer of 1395

A dendrokronológiai elemzés szerint a négyzet feletti tetőszerkezet vizsgált elemei két építési periódushoz köthetők. Azok a kötőgerendák és szarufák, amelyeken üres lapolási fészkeket figyelhettünk meg, valamint mindkét vizsgált oszlop 1351/1352 telén, 1352 nyarán és 1352/1353 telén kivágott jegenyefenyőkből származnak. A déli talpfa, valamint az A25. állás kötőgerendája és szarufája, amelyeken nincsenek használaton kívüli lapolási fészkek, 1395 nyarán, illetve a körül kivágott jegenyefenyőkből valók.

A dendrokronológiai elemzés eredménye tehát alátámasztja azt a feltételezést, hogy a használaton kívüli lapolási fészkekkel rendelkező elemek egy korábbi tetőszerkezet elemei. Nyugatról az 5. állás (A28. állás) kötőgerendájának és szarufáinak, valamint az elemeken található üres lapolási fészkek felmérése alapján 2012-ben elkészítettük az egykori állás szerkezetének elméleti rekonstrukcióját. A kötőgerendás szarufaállást a szarufahossz közepére beépített torokgerendával és két függesztővel erősítették úgy, hogy a függesztők közvetlenül a kötőgerendához, valamint a torokgerenda felett a szarufákhoz kapcsolódnak. Minden állás így épülhetett fel, az állások hosszszanti merevítését csak a lécezés biztosította. Az elemek kötésénél minden esetben egyenes lapolással találkozunk. A tetőszerkezet közel 10 m széles teret fedett le, dőlésszöge 57°-os (5. ábra). Hasonló tetőszerkezeteket német nyelvterületről – Németországból és Belgiumból – ismerünk, amelyek falusi templomokban a XIII–XV. századból maradtak meg.¹²

A négyzet feletti mai tetőszerkezet tehát eredetileg 1353-ban épülhetett a bemutatott rekonstrukció formájában, majd bő 40 évvel később, valószínűleg 1395-ben nagyobb átépítésre került sor úgy, hogy megtartották eredeti helyükön a korábbi állások vázát, a kötőgerendák és szarufák nagy részét, valamint újrahasználtak további elemeket.¹³ Ekkor alakították ki a máig fennmaradt tetőszerkezetet, amelynek újdonsága a korábbihoz képest, hogy hosszirányú talp- és fejgerendák közé állított oszlopokkal, valamint ferdetámaszokkal biztosították a szerkezet hosszirányú merevségét, és a torokgerendás szarufaállások két-állószerűvel, szögletkötőkkel, könyökfákkal és kakasülövel megerősített állásokká fejlődtek. A korábbi egyenes lapolások helyett az elemeket félfecskefarkos lapolással kötötték

and Belgium, which have been preserved in 13th–15th-century rural churches.¹⁴

Therefore, the present roof structure above the crossing must have been built originally in 1353 in the form of the presented reconstruction, and around 40 years later, probably in 1395 a major reconstruction was carried out by retaining the frames of the earlier trusses, i.e. most of the tie-beams and common rafters in their original place, and by reusing some additional elements.¹⁵ This was when the roof structure surviving to this day was built, its novelty, compared to the former one, consisting in the fact that the longitudinal bracing of the structure was ensured by posts inserted between the longitudinal lower and upper plates, as well as by braces, and the trusses with collar beams evolved into trusses reinforced with queen posts, angle braces, counterbraces, and upper collar. The previously used straight lapped joints were replaced by half dovetail lap joints. At this time, the elements of the trusses were marked with the appropriate number of long lines (that run against the grain on the southern side and along the grain on the northern side). It is highly probable that only silver fir was used above the crossing for both roof structures, i.e. those from the mid- and the late-14th century.

The roof structure above the transept's southern arm

■ The nine trusses of the roof structure above the transept's southern arm have the same configuration, with tie-beams and collar beams

12 XIII–XIV. századra keltezhető példák: a belgiumi Bertem és Seilles an der Maas, valamint a németországi Werder (bei Jüterborg) plébániatemplomának tetőszerkezetei. XIV–XV. századra keltezhető Tiefenbach (im Kreis Sonthofen) templomának hasonló fedélszerkezete (BINDING 1991, 38–39, 59–60, 32., 34., 33., 66. ábra).

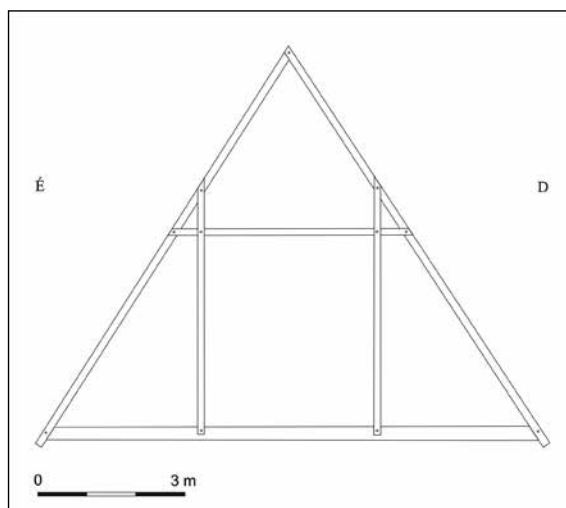
13 Az 1350-es évekből származó oszlopok feltételezhetően eredetileg függesztők lehettek.

14 Examples that can be dated to the 13th–14th centuries: the roof structures of the parish churches in Bertem and Seilles an der Maas, Belgium, as well as Werder (bei Jüterborg), Germany. A similar roof structure of the church in Tiefenbach (im Kreis Sonthofen) can be dated to the 14th–15th centuries (BINDING 1991, 38–39, 59–60, Figures 32, 34, 33, 66).

15 The posts dating from the 1350s were originally probably posts in tension.

(Figure 6 and Photo 13). The trusses' structure is identical to those of the choir, the crossing, and the central nave: the trusses with common rafters, tie-beams and collar beams are reinforced by queen posts, to both of which two inner counterbraces are connected, by angle braces on two levels, and upper collars. The posts are located inwards from the collar beam and common rafter joint here as well. The posts stand between the longitudinal lower and upper plates, and in the longitudinal direction a brace is connected to each post. Similarly to the structure above the crossing, the common rafters were joined to the tie-beams with lapped joints. The collar beams, upper collars, angle braces, counterbraces, and the longitudinal braces are joined with half dovetail lap joints or straight lapped joints. The mortice and tenon joints of the post and lower, respectively upper plate connections were made similarly to those observed in the roof structures above the choir and the crossing (Photo 14). There are etched lines on some of the roof structure's elements, but we have not found consistently used truss marks following a uniform system. There are no other reinforcing elements in the roof structure aside from a longitudinal beam fastened to the posts' upper parts.

On the southern sides of four tie-beams we can observe two unused, vertically placed, straight lapped joint notches (Photo 14). This indicates that the tie-beams were reused and have once been connected to two posts in tension. There are no reused common rafters in the structure. Given that we have found similar tie-beams above the crossing and, as we will see, above the central nave, the idea that the tie-beams of the transept's southern arm might have originated from there has emerged. To answer this question, we have measured the distance between the unused lapped joint notches. We were able to conclude that the spacing of the two unused lapped joint notches was around 390 cm for the tie-beams above the transept's southern arm, 350 cm for the tie-beams above the crossing, and 275 cm for

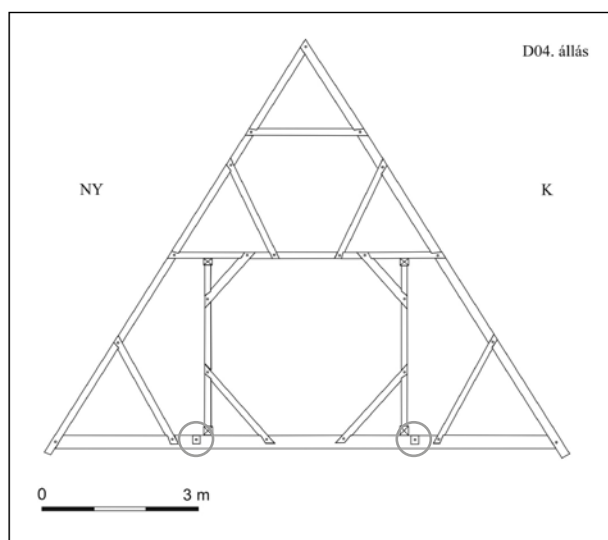


■ **5. ábra:** A négyezet feletti, 1353-ra keltezhető eredeti tetőszerkezet állásának elméleti rekonstrukciója
 ■ **Figure 5.** Theoretical reconstruction of a truss of the original roof structure above the crossing, dated to 1353

össze. Ekkor a szaruállások elemeit megfelelő számú hosszú vonallal jelölték meg (déli oldalon szálirányra merőleges, északi oldalon szálirányban futó vonalak). A XIV. század közepi és XIV. század végi tetőszerkezethez is nagy valószínűséggel kizárólag jegenyefenyőt használtak a négyezet felett.

A déli kereszthajószárny feletti tetőszerkezet

■ A déli kereszthajószárny feletti tetőszerkezet kilenc ugyanolyan szerkezetű, kötőgerendás–torokgerendás szaruállásból épül fel (6. ábra, 13. kép). Az állások szerkezete megegyezik a szentély, a négyezet és a főhajó feletti



■ **6. ábra:** A déli kereszthajószárny feletti fedélszerkezet D04. állása, 2012. évi állapot (az Utilitas Kft. felmérése és saját megfigyelések alapján)
 ■ **Figure 6.** Truss D04 of the roof structure over the transept's southern arm, state of preservation in 2012 (based on the survey of Utilitas Ltd. and on our own observations)



■ **13. kép:** A déli kereszthajószárny feletti fedélszerkezet nézete délről, 2016
 ■ **Photo 13.** View from south of the roof structure above the transept's southern arm, 2016



■ 14. kép: A déli kereszthajószárny feletti D04. állás kötőgerendájának keleti talpgerenda alatti része, 2016
■ Photo 14. The area below the eastern lower plate of the tie-beam of truss D04 above the transept's southern arm, 2016

tetőszerkezetek állásaival: a kötőgerendás–torokgerendás szarufaállásokat két székoszlop, hozzájuk kapcsolódó két-két belső könyökfa, valamint két szinten szögletkötők és kakasülő erősíti. Az oszlopok ez esetben is beljebb állnak, mint a torokgerenda–szarufa csomópont. Az oszlopok hosszanti talpgerenda és fejgerenda között állnak, továbbá az oszlopokhoz hosszanti irányban egy-egy ferdetámasz kapcsolódik. A négyzet feletti szerkezethez hasonlóan itt is lapolással kötötték a kötőgerendákhoz a szarufákat. A torokgerendák, kakasülők, szögletkötők, könyökfák és a hosszanti ferdetámaszok félfecskefarkos vagy egyenes lapolással kapcsolódnak. Az oszlopok talp- és fejgerendába való csapolásának módja hasonló a szentély és négyzet feletti tetőszerkezetben megfigyelt kötéshez (14. kép). A tetőszerkezet egyes elemein vésett vonalak láthatók, de nem találtunk következetesen használt, egységes rendszert követő állásjeleket. Az oszlopok felső részéhez erősített, hosszanti irányba futó gerendán kívül nem található más utólagos megerősítő elem a fedélszerkezetben.

Négy kötőgerenda déli oldalán két üres, függőleges, egyenes lapolási fészkek figyelhető meg (14. kép). Ez arra utal, hogy a kötőgerendák másodlagos felhasználásúak, és egykor két függesztő kapcsolódott hozzájuk. Másodlagosan felhasznált szarufák nincsenek a szerkezetben. Tekintettel arra, hogy hasonló kötőgerendákat találtunk a négyzet és – mint látni fogjuk – a főhajó felett, felmerült, hogy esetleg onnan származnak a déli kereszthajószárny kötőgerendái. Hogy erre a kérdésre választ adhassunk, lemértük az üres lapolási fészkek közti távolságot. Megállapíthattuk, hogy a déli kereszthajószárny feletti kötőgerendákon 390 cm körüli, a négyzet feletti kötőgerendákon 350 cm, és a főhajó feletti kötőgerendákon 275 cm a két üres lapolási fészkek távolsága.¹⁴ Ebből arra következtethetünk, hogy a déli kereszthajószárny felett megmaradt, másodlagosan felhasznált kötőgerendák minden valószínűség szerint a déli kereszthajószárny feletti korábbi tetőszerkezet elemei lehetnek. A feltételezett korábbi tetőszerkezet hasonló felépítésű lehetett, mint a négyzet felett rekonstruált eredeti tetőszerkezet. Egyetlen állásban láttunk eltérést. A D06. állás kötőgerendáján a két függesztő használaton kívüli lapolási fészken kívül, szintén a

14 A D05. állásban 390 cm, a D04. állásban 392 cm, a D03. állásban 394 cm, továbbá a D02. állásban 391 cm a kötőgerendán a két fészkek közti távolság. Ehhez viszonyítva a négyzet feletti kötőgerendákon 354 cm (A27. állás), 353 cm (A29. állás) és 355 cm (A30. állás). 2016-ban a főhajó feletti szerkezetben egyetlen egy (!), másodlagos felhasználású kötőgerenda maradt meg az A19-es állásban. Ezen 275 cm a távolság.

the tie-beams above the central nave.¹⁶ From this we concluded that the reused tie-beams that have survived in the roof structure above the transept's southern arm were most probably the elements of its former roof structure. The hypothetical former roof structure must have had a similar configuration as the original, reconstructed roof structure above the crossing. We found a deviation only in one truss. On the tie-beam of truss D06, in addition to the unused lapped joint notches of the two posts in tension, there are two additional notches, also on the southern side, that indicate two counterbraces running towards the central post. After dismantling the wooden floorboards we were also able to find the mortice belonging to the central post. We did not find similar notches on other tie-beams above the transept's southern arm.

During the dendrochronological analysis of the roof structure above the transept's southern arm, we sought, in addition to determining the dating of the present roof structure's construction, to date the reused tie-beams as well. To do this, in 2012 and 2016 we took core samples from a total of ten elements (Table 3).

According to the dendrochronological analysis, the examined elements of the roof structure above the transept's southern arm can be linked to two periods. The four tie-beams on which we could observe the unused lapped joint notches originate from silver firs felled in the winters of 1351/1352 and 1352/1353. The longitudinal elements (a lower plate and a brace), a tie-beam, a common rafter, as well as two posts were made of silver firs felled in the winters of 1394/1395, 1395/1396, and 1396/1397.

Thus, the roof structure above the transept's southern arm was originally built in 1353, at the same time as the original roof structure above the crossing, and presumably it was constructed with the same structural design. From this structure, the silver fir tie-beams have survived. The tie-beam that had a central post fastened with mortice and tenon joint (of truss D06) also belongs to this structure, but, based on this central post, this truss was later modified.

40 years later, in the mid-1390s, the roof structure was rebuilt and reinforced by introducing a longitudinal bracing frame, similarly to the roof structures above the crossing, the central nave, and the choir. Silver firs were used to build the structure this time as well. This roof structure has survived to this day.

In a few sentences, we would like to touch upon the analysis of the roof structure above the transept's northern arm. It is known that in the last decades of the 15th century the transept was extended to the north with a narrower bay (ENTZ 1996, 174). Today, the transept's northern arm is covered with a uniformly configured roof structure, which

16 The distances between the two notches on the tie-beams were the following: 390 cm for truss D05, 392 cm for truss D04, 394 cm for truss D03, and 391 cm for truss D02. Compared to this, for the tie-beams above the crossing, the measurements were: 354 cm (truss A27), 353 cm (truss A29), and 355 cm (truss A30). In 2016, only one (!) reused tie-beam had remained in the structure above the central nave, at truss A19. The distance here is 275 cm.

is thus certainly no earlier than the enlargement. It was presumably built between the second half of the 19th century and the early 20th century (SZABÓ et al. 2007, 25). In the roof structure composed of main and secondary trusses and reinforced with straining beams and compound rafters, one can find, though sparsely, reused elements as well. Based on the dendrochronological analysis of the samples taken from 12 elements of the structure, it was found that the structure was essentially built of spruce and the reused elements were silver fir and spruce. As we have already mentioned, for the time being we are unable to precisely date the spruce elements, but two silver firs can be dated. The western common rafter of the 6th truss from north originates from a tree felled after 1383, and the eastern common rafter of the 5th truss from a tree felled after 1480. It is highly probable that these two elements were also originally part of the roof structure above the transept's northern arm, and thus their dating provides data for the construction time of the former roof structures.

déli oldalon további két fészék látható, amelyek középső oszlophoz futó két könyökfát feltételeznek. Felszedve a fapadlót meg is találtuk a középső oszlophoz tartozó csaplyukat. Hasonló fészkeket a déli kereszthajószárny felett más kötőgerendán nem találtunk.

A déli kereszthajószárny feletti fedélszerkezet dendrokronológiai vizsgálatánál szintén arra törekedtünk, hogy a mai tetőszerkezet építési idejének meghatározása mellett a másodlagosan felhasznált kötőgerendák korát is megállapítsuk. Ehhez összesen tíz elemből vettünk furatmintát 2012-ben és 2016-ban (3. táblázat).

A dendrokronológiai elemzés szerint a déli kereszthajószárny feletti tetőszerkezet vizsgált elemei két periódushoz köthetők. Az a négy kötőgerenda, amelyen használaton kívüli lapolási fészkeket figyelhettünk meg, 1351/1352 telén és 1352/1353 telén kivágott jegenyefenyőkből származnak. A hosszirányú elemek (egy talpgerenda és egy ferdetámasz), egy kötőgerenda, egy szarufa, valamint két oszlop pedig 1394/1395, 1395/1396 és 1396/1397 telén kivágott jegenyefenyőkből valók.

A déli kereszthajószárny feletti mai tetőszerkezet tehát eredetileg 1353-ban, a négyzet feletti eredeti tetőszerkezettel egy időben és feltételezhetően azonos szerkezeti megoldással épülhetett. Ebből a szerkezetből jegenyefenyő kötőgerendák maradtak meg. A középső csapolt oszloppal is rendelke-

■ **3. táblázat:** A déli kereszthajószárny feletti tetőszerkezetből (D) vett minták dendrokronológiai elemzésének eredményei

■ **Table 3.** The results of the dendrochronological analysis of the samples taken from the roof structure above the transept's southern arm (D)

A déli kereszthajószárny feletti tetőszerkezetből (D) vett minták leírása	Fafaj	Évgyűrűk száma	WK, TP	Szinkronhelyzet	Keltezés
Description of the samples taken from the roof structure above the transept's southern arm (D)	Wood species		WE, SW	Synchronous position	Dating
13. D06. állás, kötőgerenda, ácsjel: IIII; 2 függőleges lapolási fészék + középső oszlop csaplyuka és középső oszlophoz induló 2 könyökfa lapolási fészék	<i>Abies alba</i>	125	WK	1227–1351	1351/1352 tele
13. truss D06, tie-beam, carpenter's mark: IIII; 2 vertical lapped joint notches + mortice of the central post and the lapped joint notches of 2 counterbraces running towards the central post			WE		winter of 1351/1352
113. D03. állás, kötőgerenda, 2 függőleges lapolási fészék	<i>Abies</i>	50	WK	1302–1351	1351/1352 tele
113. truss D03, tie-beam, 2 vertical lapped joint notches			WE		winter of 1351/1352
112. D02. állás, kötőgerenda, 2 függőleges lapolási fészék	<i>Abies</i>	86	WK	1267–1352	1352/1353 tele
112. truss D02, tie-beam, 2 vertical lapped joint notches			WE		winter of 1352/1353
114. D04. állás, kötőgerenda, 2 függőleges lapolási fészék	<i>Abies</i>	70	kéreg	1283–1352	1352/1353 tele
114. truss D04, tie-beam, 2 vertical lapped joint notches			bark		winter of 1352/1353
18. nyugati hosszmerévítés, északról a 2. ferdetámasz	<i>Abies</i>	56	–	1335–1390	1390 után
18. western longitudinal bracing, the 2 nd brace from north					after 1390
19. keleti talpgerenda	<i>Abies</i>	46	WK?	1348–1393	1393 után
19. eastern lower plate			WE?		after 1393
16. D07. állás, kötőgerenda	<i>Abies</i>	66	WK	1329–1394	1394/1395 tele
16. truss D07, tie-beam			WE		winter of 1394/1395
15. D06. állás, keleti szarufa	<i>Abies</i>	64	WK	1332–1395	1395/1396 tele
15. truss D06, eastern common rafter			WE		winter of 1395/1396
14. D04. állás, keleti oszlop	<i>Abies</i>	55	WK	1342–1396	1396/1397 tele
14. truss D04, eastern post			WE		winter of 1396/1397
17. D09. állás, keleti oszlop	<i>Abies</i>	61	WK	1336–1396	1396/1397 tele
17. truss D09, eastern post			WE		winter of 1396/1397

ző kötőgerenda (a D06. állásban) szintén ehhez a szerkezethez tartozik, de a csapolt középső oszlop alapján a későbbiekben ezt az állást átalakították.

40 évvel később, az 1390-es évek közepén a tetőszerkezetet – hasonlóan a négyezet, a főhajó és a szentély feletti tetőszerkezetekhez – átépítették, hosszanti merevítő rendszer beépítésével megerősítették. Ekkor szintén jegegyefenyőket használtak a szerkezet építéséhez. Ez a fedélszerkezet a mai napig fennmaradt.

Néhány mondatban szeretnénk kitérni az északi kereszthajószárny feletti tetőszerkezet vizsgálatára. Ismert, hogy a kereszthajót a XV. század utolsó évtizedeiben meghosszabbították észak felé egy keskenyebb szakasszal (ENTZ 1996, 174). Ma az északi kereszthajószárnyat egységes kialakítású tetőszerkezet fedi, amely tehát biztosan nem korábbi, mint a bővítés. Feltételezhetően a XIX. század második felében – a XX. század elején épült (SZABÓ et al. 2007, 25). A fő- és mellék-szaruállásokból kialakított, mellszorítóval és ferdedúcokkal megerősített szerkezetben szórványosan másodlagos felhasználású elemek is találhatóak. A szerkezet 12 eleméből vett minta dendrokronológiai elemzése alapján megállapíthatjuk, hogy a szerkezet alapvetően lucfenyőből épült, és a másodlagosan felhasznált elemek jegegyefenyők, illetve lucfenyők. Ahogy már említettük, a lucfenyő elemeket egyelőre nem tudjuk biztosan keltezni, de két jegegyefenyő elem keltezhető. Északról a 6. állás nyugati szarufája 1383 után kivágott fából, az 5. állás keleti szarufája 1480 után kivágott fából származik. Nagy a valószínűsége, hogy ez a két elem eredetileg is az északi kereszthajószárny feletti tetőszerkezet része volt, így keltezésük adattal szolgál a korábbi tetőszerkezetek építési idejéhez.

A főhajó feletti tetőszerkezet

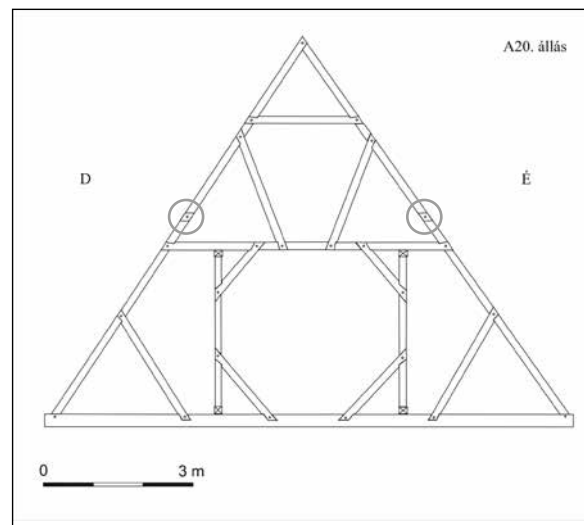
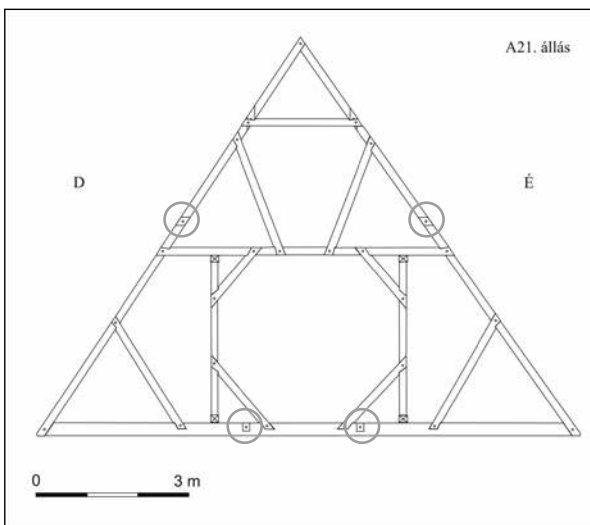
■ A főhajótető alapszerkezete 23 szaruállásból áll. A későbbi megerősítésekkel eltekintve mindegyik állás ugyanolyan, a négyezet, a szentély, és a déli mellékhajószárny feletti állások szerkezetével megegyező felépítésű volt: a kötőgerendás–torokgerendás és két-állószerű szarufaállásokat kakashülő, két szinten szögletkötők és oszlopokhoz kapcsolódó belső könnyőfák erősítik (7. ábra, 15. kép). Ebben a szerkezetben is beljebb állnak az oszlopok, mint a szarufa–torokgerenda kötés. A szerkezet hosszmerítését az oszlopok alatt és felett húzódó talp- és fejgerendák, valamint a köztük álló ferdetámaszok biztosítják. Fontos kiemelni, hogy a hosszanti

The roof structure above the central nave

■ The basic structure of the central nave consists of 23 trusses. Disregarding the subsequent reinforcements, each truss had the same configuration, identical to the structure of the trusses above the crossing, the choir, and the transept's southern arm: the trusses with common rafters, tie-beams, collar beams, and queen posts were reinforced with upper collars, angle braces on two levels, and inner counterbraces connecting to the posts (Figure 7 and Photo 15). In this structure as well, the posts are positioned more inwards than the common rafter and collar beam joints. The structure's longitudinal bracing is ensured by the lower and upper plates beneath and above the posts, as well as by the braces positioned between them. It is important to point out that the longitudinal elements, i.e. the lower and upper plates, continue in the roof structure above the crossing, there are no beam extensions between the two structures.

Examining the carpenter's joints on the elements, it is surprising that there are two types of common rafter and tie-beam joints, i.e. lapped and mortice and tenon joints that alternate from truss to truss (Photo 16).¹⁷ For the other elements (collar beams, upper collars, angle braces, counterbraces, longitudinal braces) half dovetail lap joints or straight lapped joints were used. The posts are joined to the longitudinal beams with mortice and tenon joints, similarly to the structures above the choir, the crossing, and the transept's southern arm.

¹⁷ For the 2nd, 3rd, 5th, 7th, 9th, 11th, 13th, 17th, and 21st trusses the common rafters are fastened to the tie-beams with lapped joints, while for the 1st, 4th, 6th, 8th, 10th, 12th, 14th, 16th, and 18th trusses mortice and tenon joints were used. In one single instance lapped joints were used for two neighbouring trusses: these are the 2nd and 3rd trusses. In the case of the unmentioned trusses the tie-beam has been replaced, thus the original joint is uncertain. These observations were made in 2012.



■ **7. ábra:** A főhajó feletti tetőszerkezet A21. és A20. állása, 2012. évi állapot (az Utilitas Kft. felmérése és saját megfigyelések alapján)

■ **Figure 7.** Trusses A21 and A20 of the roof structure above the central nave, state of preservation in 2012 (based on the survey of Utilitas Ltd. and on our own observations)

The trusses were numbered from the east, truss A23 is the 1st one, while truss A01 is the 23rd (whereas above the crossing the numbering started at the western end). The truss marks can be seen on the elements' eastern sides (at the trusses of the crossing, on the elements' western sides). An appropriate number of long lines running along the grain, seen on the roof structure's northern side, respectively an appropriate number of lines etched against the grain on the structure's southern indicate to which truss the elements belong (similarly to the roof structure above the crossing, but in the opposite way to the structure above the choir). The truss marks can also be found on the elements of the longitudinal bracing frame.

The roof structure was subsequently reinforced several times. An additional lower, respectively upper plate was built in next to the original beams, from the outside, and posts were set up between the beams, for reinforcing both longitudinal bracing frames. The upper plates that were thus placed one next to the other were fastened with iron screws. In the roof structure's western part, in the case of six trusses (the 10th, 12th, 16th, 18th, 20th, and 22nd trusses), a straining beam was inserted between the two original posts, and two compound rafters were added from the posts' exterior. In addition, five straining-hanging trusses were inserted, either between two trusses (between the 18th and 19th, respectively the 4th and 5th trusses), or by the complete or partial dismantling of the trusses (affecting the 9th, 14th, and 23rd trusses).

In 2012, unused lapped joint notches could be observed on several of the tie-beams and common rafters of the roof structure above the central nave, respectively, aside from the already described truss marks, additional carpenters' marks could be observed. Examining these reused elements, we can observe the following regularities in the trusses with lapped joints. On each tie-beam that is connected to the common rafters with lapped joints, there are two vertical unused lapped joint notches; there are a total of eight such tie-beams, in one of the trusses the tie-beam with lapped joint was replaced.¹⁸ The notches indicate a joint with two posts in tension. On all of the reused common rafters with lapped joints a horizontal and, above it, a vertical lapped joint notch can be observed; we have found 15 such common rafters in the structure (Photo 17).¹⁹ These traces allow for deducing a similar truss configuration as in the case of the former, reconstructed roof structure above the crossing, but the proportions of the two trusses are different, as the distance between the two posts in tension is much smaller than in the case of the structure above the crossing.²⁰

18 The tie-beams in the 2nd, 3rd, 5th, 7th, 11th, 17th, and 21st trusses counting from east have lapped joints.

19 We were able to observe the mentioned lapped joint notches on both common rafters of the 3rd, 5th, 9th, 11th, and 17th trusses counting from east, as well as on the northern common rafter of the 7th truss and on the southern common rafters of the 13th, 15th, 19th, and 21st trusses.

20 See footnote 16.



■ 15. kép: A főhajó feletti tetőszerkezet keletről, 2012

■ Photo 15. The roof structure above the central nave, as seen from the east, 2012



■ 16. kép: Lapolt és csapolt szarufa–kötőgerenda kapcsolat a főhajó feletti szerkezetben, egymás melletti állásokban

■ Photo 16. Lapped and mortice and tenon joints at the common rafter and tie-beam connections in the roof structure above the central nave, at adjacent trusses

elemek, a talp- és fejgerendák a négyzet feletti fedélszerkezetben folytatódhatnak, nincsen gerendatoldás a két szerkezet között.

Az elemek ácskötéseit vizsgálva meglepő, hogy a szarufa–kötőgerenda kapcsolat kétféle, lapolás, illetve csapolás, méghozzá állásonként egymás után váltakozva (16. kép).¹⁵ A többi elem kötése félfecskefarkos vagy egyenes lapolás (torokgerenda, kakasülő, szögletkötők, könyökfák, hosszanti ferdetámaszok). Az oszlopok csapolással kapcsolódnak a hosszanti gerendákhoz, hasonló módon, mint a szentély, a négyzet és a déli kereszthajó-szárny feletti szerkezetekben.

Az állásokat keletről kezdve számozták, az A23-as az 1. állás, az A01-es a 23. állás (míg a négyzet felett nyugatról indult a számozás). Az állásjelek az elemek keleti oldalán láthatók (a négyzet állásaiban az elemek

15 Keletről a 2., 3., 5., 7., 9., 11., 13., 17. és 21. állásokban a szarufákat lapolva, az 1., 4., 6., 8., 10., 12., 14., 16. és 18. állásokban csapolva kötötték a kötőgerendához. Egyetlen helyen áll egymás mellett két lapolt szarufaállás – ez a 2. és 3. állás. Az itt nem említett állásokban cserélt a kötőgerenda, így bizonytalan az eredeti kötési mód. A megfigyelések 2012-ből származnak.

nyugati oldalán). A fedélszerkezet északi oldalán megfelelő számú szálirányban húzódó hosszú vonal, a szerkezet déli oldalán megfelelő számú szálirányra merőlegesen bekarcolt vonal jelzi, mely álláshoz tartozik az elem (hasonló módon, mint a négyzet feletti fedélszerkezetben, de éppen ellenkező módon, mint a szentély feletti szerkezetben). Az állásjelek a hosszanti merevítő rendszer elemein is megtalálhatók.

A tetőszerkezetet utólag többször is megerősítették. Mindkét hosszanti merevítő síkrendszer megerősítéseként plusz egy talp-, illetve fejgerendát építettek be az eredeti gerendák mellé kívülről, a gerendák közé oszlopokat állítottak. Az ily módon egymás mellé került fejgerendákat vascsavarokkal fogták össze. A fedélszerkezet nyugati felében hat állásba (a 10., 12., 16., 18., 20. és 22. állásba) a két eredeti oszlop közé egy mellszorítót és az oszlopokhoz kívülről egy-egy ferdedúcot építettek be. Ezen kívül öt feszítő-függesztőművet építettek be hol két állás közé (18. és 19. állás, valamint a 4. és 5. állás közé), hol az állások teljes vagy részleges elbontásával (a 9., 14. és 23. állást érintve).

2012-ben a főhajó feletti tetőszerkezet több kötőgerendáján és szarufáján használaton kívüli lapolási fészkeket, valamint a már leírt állásjelek mellett további ácsjeleket lehetett megfigyelni. Ezeket a másodlagosan felhasznált elemeket vizsgálva a következő szabályosságokra figyelhetünk fel a lapolással kapcsolt állásokban. Minden olyan kötőgerendán, amely lapolással kapcsolódik a szarufákhoz, két függőleges üres lapolási fészkek látható – összesen nyolc ilyen kötőgerenda van, az egyik állásban cserélt a lapolt kötőgerenda.¹⁶ A fészkek két függesztő kapcsolódására utalnak. A másodlagos felhasználású, lapolt szarufákon minden esetben egy vízszintes és felette egy függőleges lapolási fészkek figyelhető meg – 15 ilyen szarufát találtunk a szerkezetben (17. kép).¹⁷ Ezek a nyomok hasonló állásfelépítésre engednek következtetni, mint a négyzet feletti korábbi, rekonstruált tetőszerkezet esetében, de más a két állás aránya, ugyanis a két függesztő egymástól való távolsága jóval kisebb, mint a négyzet feletti szerkezet esetében.¹⁸

Minden második, csapolással kapcsolt állásban a kötőgerendákon egyetlen esetben sem találtunk használaton kívüli lapolási fészkeket. A kötőgerendákhoz csapolással kötött szarufákon viszont van üres lapolási fészkek, és következetesen mindig csak egy vízszintes fészkek látható, amely egyetlen torokgerenda egykori létére utal.¹⁹

Néhány kötőgerendán és szarufán a már bemutatott rendszer állásjelzése mellett további jelet is találunk.²⁰ Ezek a jelek olyan állásjelölési rendszerhez tartoztak, ahol szintén keletről, de csak a mai 2. állástól kezdve számozták a szaruállásokat, méghozzá a lapolt és csapolt kötési állásokat folytatólagosan.

A használaton kívüli lapolási fészkek ritmusa, szabályossága, valamint az állásjelek alapján arra következtethetünk, hogy a másodlagos felhasználású kötőgerendák és szarufák eredeti helyükön maradtak (néhány esetben elforgatták a szarufákat). Ahogy már említettük, a lapolással és csapolással kötött állások egymást váltva következnek (kivéve a 2. és 3. állást), így a megfigyelések a másodlagosan felhasznált elemek esetében fő- és mellékállás váltakozására utalnak.



■ 17. kép: A hajó feletti tetőszerkezetben a szarufákon látható használaton kívüli lapolási fészkek, 2016. Piros nyíl: vízszintes lapolási fészkek, sárga nyíl: függőleges lapolási fészkek

■ Photo 17. Unused lapped joint notches seen on the common rafters in the roof structure above the central nave, 2016. Red arrow: horizontal lapped joint notches, yellow arrow: vertical lapped joint notches

Every second truss has lapped joints; in their case we were unable to find any unused lapped joint notches on the tie-beams. However, there are unused lapped joint notches on the common rafters that are connected to the tie-beams with mortice and tenon joints, and, in a consistent manner, only horizontal notches can be observed, which indicate the existence of a single collar beam.²¹

In addition to the truss marks of the already presented system, on some tie-beams and common rafters further marks can be found.²² These marks belonged to a truss marking system where the trusses were also numbered from the east but only from the present 2nd truss, continuously both the trusses with lapped and with mortice and tenon joints.

Based on the rhythm and regularity of the unused lapped joint notches, as well as on the truss marks, we can conclude that the reused tie-beams and common rafters have remained in their original positions (in some cases the

16 Keletről a 2., 3., 5., 7., 11., 13., 17. és 21. állás kötőgerendája lapolt.

17 Keletről a 3., 5., 9., 11. és 17. állásban mind a két szarufán, a 7. állásban az északi szarufán, míg a 13., 15., 19. és 21. állásban a déli szarufán figyelhettük meg az említett lapolási fészkeket.

18 Lásd 14. lábjegyzet.

19 Négy állásban mind a két szarufán (4., 6., 8. és 12. állás), továbbá a 16. és 20. állásban a déli szarufán látható a lapolási fészkek.

20 Keletről az 11. állásban a kötőgerendán (az északi végén) és a hozzá lapolással kötött északi szarufán 11 szálirányú hosszú vonal mellett tíz szálirányra merőleges, tehát keresztirányú vonal is megfigyelhető. A 9. állás szintén lapolt északi szarufáján nyolc, a 12. állás csapolt (!) északi szarufáján pedig 11 keresztirányú vonal látható.

21 The lapped joint notches are visible in the case of four trusses on both common rafters (the 4th, 6th, 8th, and 12th truss), and in the case of the 16th and 20th truss, on the southern common rafter.

22 In the 11th truss from the east, on the tie-beam (its northern end) and on the northern common rafter connected to it with lapped joint, next to the 11 long lines running along the grain, 10 lines running against the grain, i.e. perpendicularly, can be observed. The 9th truss is also lapped, on its northern common rafter eight perpendicular lines are visible, while on the northern common rafter of the 12th truss, with mortice and tenon joint (!), there are 11 perpendicular lines.

common rafters have been rotated). As we have already mentioned, the trusses with lapped and with mortice and tenon joints are alternating (except for the 2nd and 3rd trusses), thus, in the case of the reused elements, these observations indicate the alternation of main and secondary trusses.

The correct interpretation of the on-site observations required the results of the den-

A helyszíni megfigyelések helyes értelmezéséhez elengedhetetlenek bizonyult a dendrokronológiai elemzés eredményének az ismerete, amely által el lehetett különíteni az időben egymáshoz tartozó elemeket. A hajó feletti tetőszerkezetnek 15 eleméből vett minta közül 14-et sikerült kelteznünk a dendrokronológiai elemzés során (4. táblázat).²¹A dendrokronológiai

21 További négy mintát vettünk a későbbi megerősítés két mellszorítójából és két ferdedúcából. Megállapíthattuk, hogy az elemek lucfenyőből valók, de korukat egyelőre nem sikerült meghatározni.

■ **4. táblázat:** A főhajó feletti tetőszerkezetből (A) vett minták dendrokronológiai elemzésének eredményei

■ **Table 4.** The results of the dendrochronological analysis of the samples taken from the roof structure above the central nave (A)

A főhajó feletti tetőszerkezetből (A) vett minták leírása	Fafaj	Évgyűrűk száma	WK, TP	Szinkronhelyzet	Keltezés
Description of the samples taken from the roof structure above the central nave (A)	Wood species	Number of growth rings	WE, SW	Synchronous position	Dating
51. keletről 11. (A13.) állás, kötőgerenda (lapolt; 2 függőleges lapolási fészkek)	Abies	113	-	1249–1361	1361 után
51. 11 th truss from the east (A13), tie-beam (lapped joint; 2 vertical lapped joint notches)					after 1361
57. 10. (A14.) állás, déli szarufa (csapolt; vízszintes lapolási fészkek)	Abies	35	-	1327–1361	1361 után
57. 10 th truss (A14), southern common rafter (mortice and tenon joint; horizontal lapped joint notch)					after 1361
48. 7. (A17.) állás, kötőgerenda (lapolt; 2 függőleges lapolási fészkek)	Abies	60	-	1303–1362	1362 után
48. 7 th truss (A17), tie-beam (lapped joint; 2 vertical lapped joint notches)					after 1362
47. 3. (A21.) állás, északi szarufa (lapolt; vízszintes és felette függőleges lapolási fészkek)	Abies	54	WK	1309–1362	1362/1363 tele
47. 3 rd truss (A21), northern common rafter (lapped joint; horizontal and above it vertical lapped joint notch)			WE		winter of 1362/1363
50. 3. (A21.) állás, déli szarufa (lapolt; vízszintes és felette függőleges lapolási fészkek)	Abies	33	WK	1330–1362	1362/1363 tele
50. 3 rd truss (A21), southern common rafter (lapped joint; horizontal and above it vertical lapped joint notch)			WE		winter of 1362/1363
53. 12. (A12.) állás, északi szarufa (csapolt, vízszintes lapolási fészkek)	Abies	38	WK	1325–1362	1362/1363 tele
53. 12 th truss (A12), northern common rafter (mortice and tenon joint, horizontal lapped joint notch)			WE		winter of 1362/1363
54. 3. (A21.) állás, kötőgerenda (lapolt; 2 függőleges lapolási fészkek)	Abies	112	WK	1251–1362	1362/1363 tele
54. 3 rd truss (A21), tie-beam (lapped joint; 2 vertical lapped joint notches)			WE		winter of 1362/1363
55. 6. (A18.) állás, északi szarufa (csapolt; vízszintes lapolási fészkek)	Abies	35	WK	1328–1362	1362/1363 tele
55. 6 th truss (A18), northern common rafter (mortice and tenon joint; horizontal lapped joint notch)			WE		winter of 1362/1363
56. 8. (A16.) állás, északi szarufa (csapolt; vízszintes lapolási fészkek)	Abies	39	WK	1324–1362	1362/1363 tele
56. 8 th truss (A16), northern common rafter (mortice and tenon joint; horizontal lapped joint notch)			WE		winter of 1362/1363
52. 12. (A12.) állás, kötőgerenda (csapolt)	Abies	42	-	1353–1394	1394 után
52. 12 th truss (A12), tie-beam (mortice and tenon joint)					after 1394
58. 11. (A13.) állás, déli oszlop	Abies	60	-	1335–1394	1394 után
58. 11 th truss (A13), southern post					after 1394
49. 8. (A16.) állás, kötőgerenda (csapolt)	Abies	32	WK	1363–1394	1394/1395 tele
49. 8 th truss (A16), tie-beam (mortice and tenon joint)			WE		winter of 1394/1395
60. déli talpfa	Abies	58	WK	1338–1395	1395/1396 tele
60. southern lower plate			WE		winter of 1395/1396
61. 18. (A06.) állás, északi oszlop	Abies	78	WK	1318–1395	1395/1396 tele
61. 18 th truss (A06), northern post			WE		winter of 1395/1396

vizsgálat szerint a főhajó feletti tetőszerkezet keltezett elemei két építési periódushoz köthetők. Azok a kötőgerendák és szarufák, amelyeken üres lapolási fészkeket figyelhetünk meg, egységesen 1362/1363 telén kivágott jegenyefenyőkből származnak.²² Közéjük tartoznak azok a szarufák is, amelyek lapolva csatlakoznak a kötőgerendához és rajtuk a vízszintes lapolási fészkek felett függőleges fészkek is megfigyelhető, és azok a szarufák is, amelyek csapolva kapcsolódnak a kötőgerendához, és csak vízszintes lapolási fészket őriztek meg. A déli talpfa, két oszlop és két csapolt, használaton kívüli lapolási fészkeket nem tartalmazó kötőgerenda 1394/1395, illetve 1395/1396 telén kivágott jegenyefenyőből való.

Mindebből a következő építéstörténet rajzolódik ki. *A főhajó feletti tetőszerkezetet eredetileg 1363-ban építették 1362/1363 telén kivágott jegenyefenyők felhasználásával.* Ebből a tetőszerkezetből kötőgerendák és szarufák maradtak meg – minden bizonnyal – eredeti helyükön. A megmaradt elemek alapján a tetőszerkezet a következőképpen rekonstruálható: minden második állás lapolással kötött kötőgerendás szarufaállás volt, amely torokgerendát és szarufa, valamint kötőgerenda közé épített, torokgerendán átfutó két függesztőt tartalmazott – amint láttuk, hasonló állást lehetett rekonstruálni a négyzet és a déli kereszthajószárny felett is. Ezt a fajta állást 2016-ban készített felmérések alapján próbáltuk rekonstruálni. A 2014. évi felújítás után sajnos egyetlen egy olyan kötőgerenda maradt meg, amely megőrizte a két függőleges lapolási fészket (2012-ben még nyolcat számolhattunk meg!). Ez az A19-es állásban található. Ebben az állásban viszont nem maradtak meg a 2012-ben dokumentált, eredetileg lapolt szarufák. Így a rekonstrukciót az A21-es állás szarufáin és az A19-es állás kötőgerendáján látható lapolási fészkek felmérése alapján készítettük el. Fontosnak tartottuk a megfigyelések rajzos megjelenítését, hiszen így érzékelhető leginkább a négyzet és a főhajó feletti rekonstruált tetőszerkezetek közötti különbség (8. ábra).

Ezek között az állások között egyszerűbb felépítésre utalnak a mai szerkezetben újrhasznált, ma csapolt szarufák: a kötőgerendás szarufaállásokat csak torokgerenda fogta össze. Tekintettel arra, hogy a csapolt kötési kötőgerendák az 1390-es évekből valók, nem tudhatjuk biztosan, hogy a ma csapolt szarufák eredetileg hogyan kapcsolódtak a kötőgerendához. Feltételezésünk szerint valószínűbb, hogy eredetileg ezeket az állásokat

²² Egy korábbi tanulmányunkban téves keltezéssel szerepel az 54. minta, amely helyesen 1362/1363 telére keltezhető (BOTÁR, GRYNÆUS & TÓTH 2015, 233–242).

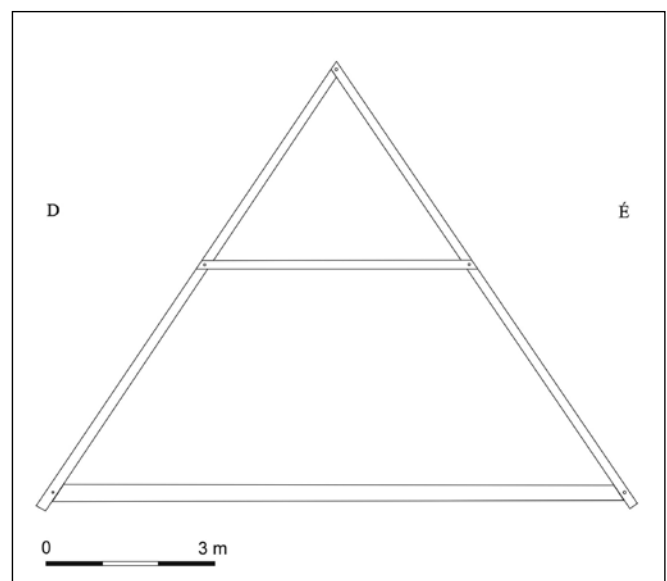
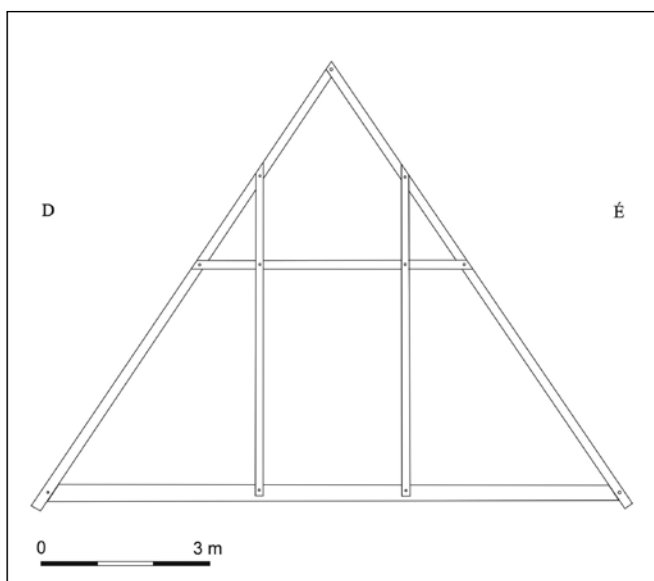
drochronological analysis for the identification of the chronologically related elements. Of the samples taken from 15 elements the roof structure above the nave, we were able to date 14 during the dendrochronological analysis (Table 4).²³

According to the dendrochronological analysis, the dated elements of the roof structure above the central nave can be linked to two construction periods. The tie-beams and common rafters on which unused lapped joint notches were observed are all commonly derived from silver firs felled in the winter of 1362/1363.²⁴ They also include the common rafters that are connected to the tie-beams with lapped joints, and on which vertical notches can be observed above the horizontal lapped joint notches, as well as the common rafters that are connected to the tie-beams with mortice and tenon joints and have only preserved horizontal notches. The southern lower plate, two posts, and two tie-beams with mortice and tenon joints that do not have unused lapped joint notches are made of silver firs felled in the winters of 1394/1395, respectively 1395/1396.

Based on this, the following building history can be sketched out. *The roof structure above the central nave was originally built in 1363, using silver firs felled in the winter of 1362/1363.* From this roof structure the tie-beams and common rafters have been preserved, in all probability in their original positions. On the basis of the remaining elements, the roof structure can be reconstructed as follows: every second truss had common

²³ We took an additional four samples from two straining beams and two compound rafters of the subsequent reinforcement. We could determine that the elements were made of spruce, but so far we were unable to determine their age.

²⁴ In an earlier study sample 54 is mentioned with an erroneous dating, which can be dated correctly to the winter of 1362/1363 (BOTÁR, GRYNÆUS & TÓTH 2015, 233–242).



■ 8. ábra: A főhajó feletti, 1363-ra keltezhető eredeti tetőszerkezet főállásának és mellékállásának elméleti rekonstrukciója

■ Figure 8. Theoretical reconstruction of a main and secondary truss of the original roof structure above the central nave, dated to 1363

rafters and tie-beams connected with lapped joints, containing a collar beam and two posts in tension built in between the common rafters and the tie-beam, intersecting the collar beam; as we saw, similar trusses could be reconstructed above the crossing and the transept's southern arm. We tried to reconstruct this kind of truss based on the 2016 surveys. Unfortunately, after the 2014 renovation, only one tie-beam remained that preserved the two vertical lapped joint notches (in 2012 we were able to count eight!). It can be found in truss A19. In this truss, however, the original common rafters with lapped joints, documented in 2012, have not survived. Thus, the reconstruction was done on the basis of the survey of the lapped joint notches found on the common rafters of truss A21 and on the tie-beam of truss A19. We thought it important to represent the observations in drawing as well, as the difference between the reconstructed roof structures above the crossing and central nave are most noticeable this way (Figure 8).

Among these trusses, the common rafters that presently have mortice and tenon joints and that were reused in the current structure, indicate a simpler configuration: the trusses with common rafters and tie-beams were strengthened only by collar beams. Given that the tie-beams with mortice and tenon joints are from the 1390s, we can not know for sure how the common rafters that currently have mortice and tenon joints were originally connected to the tie-beams. We assume that it is more likely that originally these trusses also had lapped joints. Based on these, in the original roof structure built in 1363, the main and secondary trusses were alternating. Given that both the original roof structure above the crossing that can be dated to the 1350s and the subsequent roof structures that were reinforced in the 1390s were constructed of a single type of truss, this is surprising.

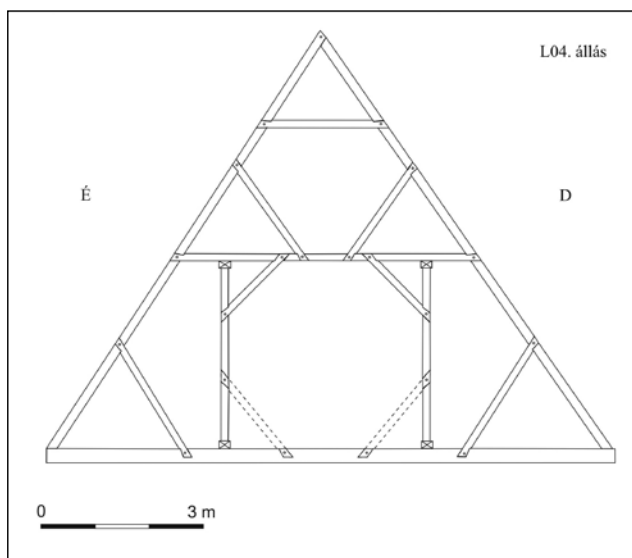
is lapolták. A leírtak szerint tehát az 1363-ban épített eredeti tetőszerkezetben fő- és mellékállások válhatták egymást. Figyelembe véve, hogy a négyezet 1350-es évekre keltezhető eredeti tetőszerkezete és a későbbi, 1390-es évekbeli megerősített tetőszerkezetek is egyfajta állásokból épülnek fel, ez meglepő.

A főhajó feletti tetőszerkezetet 30 évvel később, 1396-ban átépítették, hosszanti elemek beépítésével megerősítették, ez esetben is jegenyefenyők felhasználásával. A korábbi szerkezet külső vázának több elemét valószínűleg eredeti helyén újrahasználva, ugyanolyan állásokból kialakított, két-állószerűekkel, szögletkötőkkel és hosszanti elemekkel megerősített tetőszerkezetet építettek. Ezzel egy időben és hasonló módon történt a szentély, a kereszthajó és négyezet feletti szerkezetek megerősítése. Ezzel magyarázható, hogy az ekkor beépített talp- és fejderendák a négyezet és a főhajó között folytonosak. Ekkor új kötőgerendák kerültek az egykori mellékállásokba, amelyeket csapolva kötöttek az újrahasznált, eredetileg feltételezhetően lapolt szarufákhoz. Ezzel kapcsolatban fontos visszautalni arra, hogy a szentély feletti, 1390-es évek közepén épült tetőszerkezet állásaiban is csapolva kötötték a szarufákat a kötőgerendához (egy kivétellel).²³ Ez a tetőszerkezet – utólagos megerősítő elemekkel kiegészítve – a mai napig fennmaradt.

A ferula középhajója feletti fedélszerkezet

■ A templom nyugati előcsarnoka, az ún. *ferula* középhajója feletti csonkakontyos nyeregtető 12 ugyanolyan állásból felépített, hosszanti merevítéssel ellátott szerkezet (9. ábra, 18. kép). A kötőgerendás szarufaállásokat torokgerenda, kakasülő, két oszlop, oszlopokhoz kapcsolódó két-két könyökfá és szögletkötők beépítésével alakították ki. Az oszlopok alatt és felett hosszanti irányban talp-, illetve fejderenda húzódik, a tető hosszanti merevítését oszlopokon átfutó négy ferdetámasz biztosította. A fejderendák nem a torokgerenda–szarufa találkozásnál, hanem annál beljebb találhatóak. Az oszlopok alsó könyökfái mind hiányoznak, csak a lapolási fészkek utalnak egykori létükre. Jellemző, hogy az oszlopok nincsenek minden esetben a

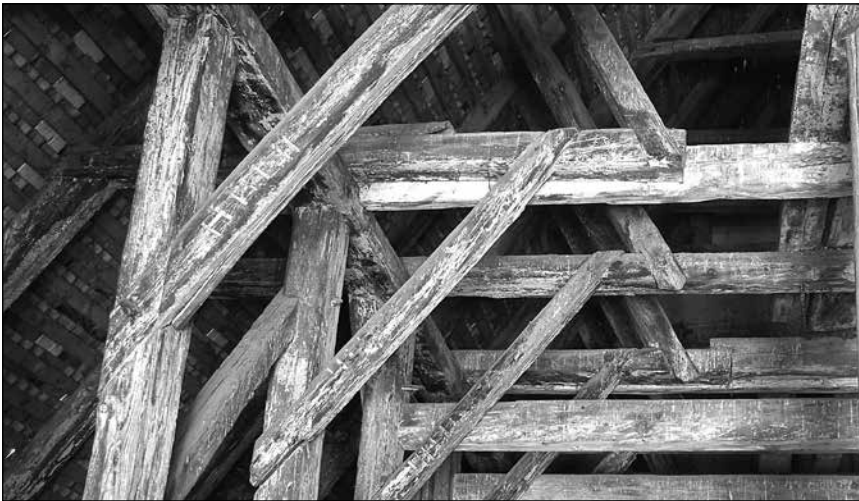
²³ A szászsebesi evangélikus plébániatemplom hajója feletti tetőszerkezetben is láttunk példát arra, hogy az eredetileg lapolással kötött szarufákat később csapolva kapcsolták a kötőgerendához.



■ **9. ábra:** A ferula középhajója feletti tetőszerkezet L04. állása, 2012. évi állapot (az Utilitas Kft. felmérése és saját megfigyelések alapján)
 ■ **Figure 9.** Truss L04 of the roof structure above the ferula's central nave, state of preservation in 2012 (based on the survey of Utilitas Ltd. and on our own observations)



■ **18. kép:** A ferula középhajója feletti tetőszerkezet nyugatról, 2012
 ■ **Photo 18.** The roof structure above the ferula's central nave, as seen from the west, 2012



■ 19. kép: A ferula középhajója feletti tetőszerkezet északi elemeinek állásjelzése

■ Photo 19. Truss marking of the northern elements in the roof structure above the ferula's central nave

torokgerenda és a kötőgerenda között, néhol el vannak csúszva hosszanti irányban. A hosszanti ferdetámaszok három oszlophoz csatlakoznak.

A szarufákat csapolással kötötték a kötőgerendához. A torokgerenda, kakasülő, szögletkötő, könyökfa és hosszanti ferdetámasz kötése egyenes lapolás, az oszlopokat csapolással kapcsolták a hosszanti gerendákhoz.

A fedélszerkezet minden elemén – beleértve a hosszanti merevítés elemeit is – egységes rendszer szerinti állásjeleket lehet megfigyelni. Az állásokat keletről kezdték számozni, az ácsjelek az elemek nyugati oldalán láthatók. Az északi oldal elemein megfelelő számú mély és széles vonal (19. kép), a déli oldal elemein megfelelő számú téglalap alakú bevésés jelzi, mely álláshoz tartozik az elem.

Az oszlopokhoz kapcsolódó, ma hiányzó alsó könyökfák lapolási fészkeken kívül sem a szarufákon, sem a kötőgerendákon nem látni használaton kívüli lapolási fészkeket. Ez alapján és az egységes jelrendszer alapján arra következtethetünk, hogy a leírt fedélszerkezet egy építési fázis eredménye. A fedélszerkezet felépítésében pontosan megegyezik a szentély, a négyzet, a déli kereszthajószárny és a főhajó 1390-es évek közepén átépített tetőszerkezeteivel, de az elemek kötését, valamint az állások jelölését illetően vannak eltérések.

A ferula feletti tetőszerkezetbe, feltételezhetően a XIX. század második felében, hasonló megerősítő elemeket – mellszorítót és ferdedúcokat – építettek be öt állásba (keletről az 1., 3., 4., 5. és 6. állásba), mint a főhajó feletti szerkezetbe.

Dendrokronológiai vizsgálatra a ferula feletti fedélszerkezet hat eleméből vettünk mintát a szerkezet építési idejének megállapításához. Mind a hat mintát sikerült keltezni (5. táblázat).

The roof structure above the central nave was rebuilt 30 years later, in 1396, as well as reinforced by the incorporation of longitudinal elements, by using silver firs in this case as well. Reusing, probably in their original positions, several elements of the earlier structure's exterior frame, a roof structure was built that was composed of the same type of trusses, with queen posts and angle braces, respectively reinforced with longitudinal elements. The reinforcement of the structures above the choir, the transept, and the crossing was carried out simultaneously and in a similar manner. This explains why the built-in lower and upper plates are continuous between the crossing and central nave. At this point, new tie-beams were placed in the former secondary trusses, which were connected to the reused common rafters, originally presumably having lapped joints, with mortice and tenon joints. Let us not forget that the in the case of the trusses of the roof structure built in the mid-1390s above the choir, the common rafters were also connected to the tie-beams with mortice and tenon joints (with one exception).²⁵ This roof structure, completed with subsequent reinforcing elements, has been preserved to this day.

The roof structure above the ferula's central nave

■ The half-hipped saddleback roof above the central nave of the church's western vestibule, the so-called *ferula*, is constructed from 12 trusses of the same type and is equipped with longitudinal bracing (Figure 9 and Photo 18). The trusses with common rafters and tie-beams were constructed by inserting a collar beam, an upper collar, two posts, two counterbraces connecting to each post, and angle braces. Below and above the posts, lower and upper plates run in the longitudinal direction, the longitudinal bracing of the roof was ensured by four braces intersecting the posts. The upper plates are not positioned at the collar beam and common rafter junctures, but more inwards. All of the lower counterbraces of the posts are missing, only the lapped joint notches indicate their former existence. It is

²⁵ In the roof structure above the nave of the Lutheran Parish Church in Sebeș, we also saw an example of common rafters that originally had lapped joints and were later connected to the tie-beams with mortice and tenon joints.

■ 5. táblázat: A ferula középhajója feletti tetőszerkezetből (L) vett minták dendrokronológiai elemzésének eredményei

■ Table 5. The results of the dendrochronological analysis of the samples taken from the roof structure above the ferula's central nave (L)

A ferula középhajója feletti tetőszerkezetből (L) vett minták leírása	Fafaj	Évgyűrűk száma	WK, TP	Szinkronhelyzet	Keltezés
Description of the samples taken from the roof structure above the ferula's central nave (L)	Wood species	Number of growth rings	WE, SW	Synchronous position	Dating
87. keletről 6. (L07.) állás, kötőgerenda, állásjel: 6 vonal	Abies	132	–	1311–1442	1442 után
87. 6 th truss from the east (L07), tie-beam, truss mark: 6 lines					after 1442
88. 4. (L09.) állás, északi szarufa, állásjel: 4 vonal	Abies	113	–	1340–1452	1452 után
88. 4 th truss (L09), northern common rafter, truss mark: 4 lines					after 1452

86. 7. (L06.) állás, északi szarufa, állásjel: 7 vonal	Abies	70	-	1388–1457	1457 után
86. 7 th truss (L06), northern common rafter, truss mark: 7 lines					after 1457
89. 7. (L06.) állás, déli szarufa, állásjel: 7 négyzet	Abies	160	WK	1298–1457	1457/1458 tele
89. 7 th truss (L06), southern common rafter, truss mark: 7 squares					WE
85. 7. (L06.) állás, északi oszlop, állásjel: 7 vonal	Abies	79	WK	1380–1458	1458/1459 tele
85. 7 th truss (L06), northern post, truss mark: 7 lines					WE
90. 8. (L05.) állás, kötőgerenda	Abies	117	WK	1342–1458	1458/1459 tele
90. 8 th truss (L05), tie-beam					WE

characteristic that the posts are not in all cases positioned between the collar beams and the tie-beams, some of them have shifted in the longitudinal direction. The longitudinal braces are connected to three posts.

The common rafters were joined to the tie-beam with mortice and tenon joints. The joining of the collar beam, upper collar, angle brace, counterbrace, and longitudinal brace was done with straight lapped joints, the posts were connected to the longitudinal beams with mortice and tenon joints.

Truss marks in accordance with a uniform system can be observed on all of the roof structure's elements, including those of the longitudinal bracing. The trusses were numbered starting from the east, the carpenters' marks can be seen on the elements' western sides. The corresponding number of deep and wide lines found on the elements of the northern side (Photo 19), while the corresponding number of rectangularly shaped engravings on the elements of the southern side indicate the truss to which the elements belong.

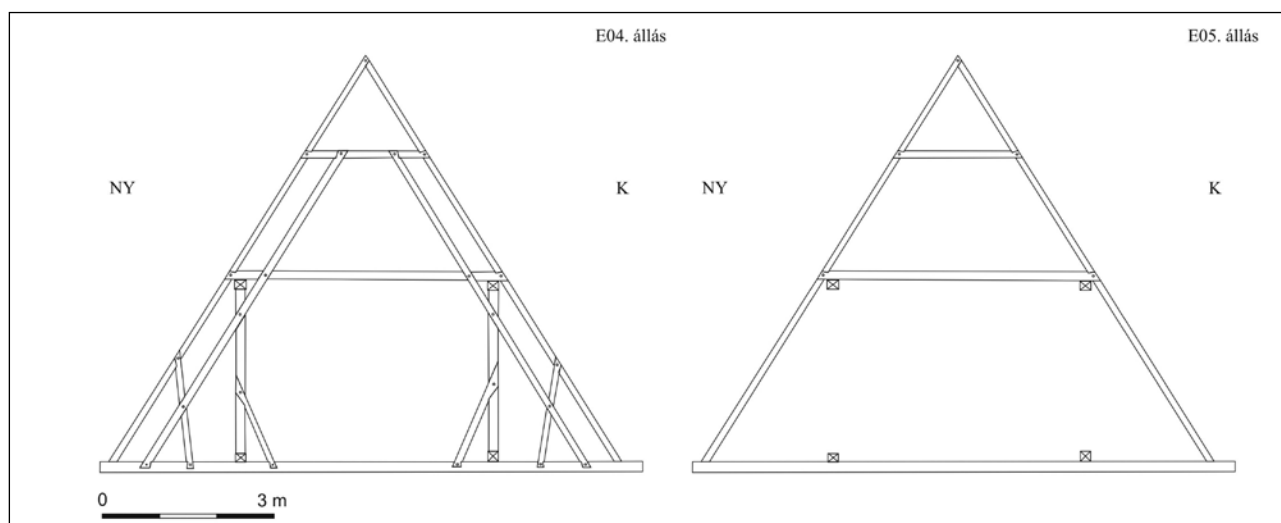
Aside from the lapped joint notches of the currently missing counterbraces connected to the posts, there are no unused lapped joint notches either on the common rafters or on the tie-beams. Based on this and on the uniform marking system we can conclude that the described roof structure is the result of a single construction phase. Its configuration is identical to the roof structures, modified during

A minták fajok meghatározása szerint mindegyik minta jegenyefenyő. Három, évre pontosan keltezett minta 1457/1458 telén, illetve 1458/1459 telén kivágott fából származik. Ez alapján megállapíthatjuk, hogy a *ferula* középhajója feletti tetőszerkezetet 1459-ben építették. A fedélszerkezet tehát bő 60 évvel fiatalabb a templom 1390-es évek közepén épített, hasonló felépítésű tetőszerkezeteinél. Ez ismét jó példa arra, hogy az ácsmesterek az adott templom korábbi, jól működő tetőszerkezetének mintájára építik meg az új tetőt.²⁴

A déli mellékahajó fedélszerkezete

■ A kelet-nyugati irányú, hosszú déli mellékahajót öt, észak-déli tengelyű nyeregtető fedi. A tetőszerkezeteket délről oromfal zárja, északról a szerkezetek a főhajó és a *ferula* tetőszerkezeteihez, illetve a toronyhoz kapcsolódnak (2. kép). Az öt tetőszerkezeti egység hasonló kialakítású, minden bizonnyal mind az öt egy időben épült. Egy tetőszerkezet hét kötőgerendás szaruállásból áll, közülük három főszaruállás, négy egyszerűbb kialakítású mellékszaruállás. A főállások között két mellékállás követi egymást (a sorrend: FMMFMMF). A főszaruállásokban a kötőgerendával, torokgerendával és kakashülővel összefogott szarufapárt két székoszlop, hozzájuk kapcsolódó alsó könyökfák, továbbá kötőgerenda és kakashülő közti ferdedúc, valamint alsó szögletkötő merevíti. A mellékszaruállásban torokgerenda és kakashülő található. A tetőszerkezetek hosszanti merevítését az oszlopok síkjában húzódó talp- és fejgerenda, valamint az oszlopokhoz kapcsolódó ferdetámaszok biztosítják. A déli oszlophoz két könyökfa kapcsolódik (10. ábra, 20. kép). Csa-

²⁴ A bögyözi református templomnál hasonló esetet dokumentálhattunk: 1665-ben, a hajó új fedélszerkezetének építésekor a szentély feletti, építés korabeli, 1504-ben épített tetőszerkezetet vették mintául (TÓTH et al. 2016, 33–34).



■ 10. ábra: A déli mellékahajó feletti E tetőszerkezet fő- és mellékszaruállása (E04. és E05. állás), 2012. évi állapot (az Utilitas Kft. felmérése és saját megfigyelések alapján)

■ Figure 10. Main and secondary truss (trusses E04 and E05) of roof structure E above the southern aisle, state of preservation in 2012 (based on the survey of Utilitas Ltd. and on our own observations)



■ 20. kép: A déli mellékhajó feletti E tetőszerkezet nézete
■ Photo 20. View of roof structure E above the southern aisle

polva kötötték a szarufákat a kötőgerendához, illetve az oszlopokat a hosszanti gerendákhoz. A többi elem kötése alapvetően félfecskefarkos lapolás. Az állások elemeit megfelelő számú beütött vonallal jelölték délről kezdve, az elemek déli, illesztési oldalán. A elemeken nem láttunk másodlagos felhasználásra utaló nyomokat.

Minden tetőegységben történt utólagos átépítés, megerősítés. Több mellékállásban hiányzik a kötőgerenda: vagy teljesen, és ebben az esetben egy hosszanti talpgerendán állnak a szarufák, vagy csak a kötőgerenda középső része. Ezzel lehet összefüggésben a meglévő kötőgerendák hosszanti alátámasztása az oszlopok alatt, valamint további hosszanti gerendák a kötőgerendán, az oszlop két oldalán.

A déli mellékhajó feletti tetőszerkezetek építési idejének dendrokronológiai vizsgálattal történő meghatározásához mindegyik tetőszerkezeti egységben kettő vagy három mintát, összesen 13 famintát vettünk a szerkezetek építés korabeli elemeiből. A minták elemzése szerint mindegyik jegenyefenyőből való. 11 faminta korát sikerült meghatározni, két minta kevés évgűrűt tartalmazott a biztos keltezéshez (6. táblázat).

the mid-1390s, of the choir, the crossing, the transept's southern arm, and the central nave, but there are differences in the joining of the elements and the marking of the trusses.

Presumably in the second half of the 19th century, reinforcing elements similar to those built in the structure above the central nave, i.e. straining beams and compound rafters were built into five trusses (the 1st, 3rd, 4th, 5th, and 6th truss from east) of the roof structure above the *ferula*.

For the dendrochronological analysis, we took samples from six elements of the roof structure above the *ferula*, in order to determine the structure's construction time. All six samples were possible to date (Table 5).

According to the wood species identification, each sample is silver fir. Three samples dated accurately to the year come from trees felled in the winters of 1457/1758 and 1458/1459. Based on this we can conclude that the roof structure above the *ferula*'s central nave was built in 1459. The roof structure, therefore, is 60 years younger than the church's roof structures of similar configuration built in the mid-1390s. This is again a good example of how master carpenters built the new roof based on an earlier, well-functioning roof structure of the church.²⁶

The roof structure of the southern aisle

■ The long southern aisle with an east-west orientation is covered with five saddle roofs with north-south axes. The roof structures are closed from the south with gables, and from the north the structures are connected to the roof structures of the central nave and of the *ferula*, respectively to the tower (Photo 2). The five roof structure units have a similar configuration; it is highly probable that all five were built at the same time. A roof struc-

²⁶ We could document a similar case at the Calvinist Church in Mugeni: in 1665, when building the new roof structure of the nave, it was modeled after the roof structure above the choir, built in 1504, at the same time the church was built (TÓTH et al. 2016, 33-34).

■ 6. táblázat: A déli mellékhajó feletti tetőszerkezetekből (E, F, H, J, K) vett minták dendrokronológiai elemzésének eredményei
■ Table 6. The results of the dendrochronological analysis of the samples taken from the roof structures above the southern aisle (E, F, H, J, K)

A déli mellékhajó feletti tetőszerkezetekből (E, F, H, J, K) vett minták leírása	Fafaj	Évgűrűk száma	WK, TP	Szinkronhelyzet	Keltezés
Description of the samples taken from the roof structures above the southern aisle (E, F, H, J, K)	Wood species	Number of growth rings	WE, SW	Synchronous position	Dating
69. E01. állás, nyugati oszlop	Abies	63	WK	1455–1517	1517/1518 tele
69. truss E01, western post			WE		winter of 1517/1518
71. E04. állás, nyugati oszlop	Abies	91	–	1427–1517	1517 után
71. truss E04, western post			–		after 1517
72. F04. állás, keleti oszlop	Abies	59	–	1456–1514	1514 után
72. truss F04, eastern post			–		after 1514
75. F07. állás, nyugati szarufa	Abies	117	–	1400–1516	1516 után
75. truss F07, western common rafter			–		after 1516
76. H04. állás, kötőgerenda	Abies	88	–	1413–1500	1500 után
76. truss H04, tie-beam			–		after 1500

77. H04. állás, keleti szarufa	Abies	65	–	1443–1507	1507 után
77. truss H04, eastern common rafter					after 1507
78. H05. állás, keleti szarufa	Abies	63	WK	1455–1517	1517/1518 tele
78. truss H05, eastern common rafter			WE		winter of 1517/1518
79. J03. állás, nyugati szarufa	Abies	48	WK	1471–1518	1518/1519 tele
79. truss J03, western common rafter			WE		winter of 1518/1519
80. J06. állás, nyugati szarufa	Abies	68	WK, TP	1452–1519	1519 nyara
80. truss J06, western common rafter			WE, SW		summer of 1519
82. K04. állás, nyugati oszlop	Abies	97	WK	1422–1518	1518/1519 tele
82. truss K04, western post			WE		winter of 1518/1519
83. K04. állás, kötőgerenda	Abies	78	–	1400–1477	1477 után
83. truss K04, tie-beam					after 1477

ture consists of seven trusses with tie-beams, of which three are main trusses and four are secondary trusses with simpler configurations (below: main truss = M, secondary truss = S). Two secondary trusses are placed between the main trusses (the order is MSSMSSM). In the main trusses, the pair of common rafters fastened with a tie-beam, a collar beam, and an upper collar is braced by queen posts, lower counterbraces connected to these, furthermore compound rafters inserted between the tie-beam and upper collar, as well as lower angle braces. In the secondary trusses collar beams and upper collars can be found. The longitudinal bracing of the roof structures is ensured by lower and upper plates found in the posts' planes, as well as the braces connected to the posts. Two counterbraces connect to the southern post (Figure 10 and Photo 20). The common rafters and the tie-beam, respectively the posts and the longitudinal beams, were connected with mortice and tenon joints. The joints of the other elements were basically half dovetail lap joints. The elements of the trusses were marked with the corresponding number of punch-marked lines, starting from the south, on the elements' southern, assembly sides. We did not see any traces of reuse on the elements.

Subsequent transformations and reinforcements were carried out in each roof unit. The tie-beams are missing in several secondary trusses, either completely, and in this case the common rafters stand on a longitudinal lower plate, or just in the middle of the tie-beam. This may explain the longitudinal support of the existing tie-beams under the posts, as well as the additional longitudinal beams on the tie-beams, on both sides of the posts.

For the determination, through dendrochronological analysis, of the construction time of the roof structures above the southern aisle, we took two or three samples from each roof structure, i.e. a total of 13 wood samples, from the elements contemporary with the structures' building. According to the analysis of the samples, all of them are from silver firs. 11 wood samples could be dated, two samples did not contain enough growth rings for a precise dating (Table 6).

On the basis of the dendrochronological analysis, the wood samples come from silver firs felled in the winters of 1517/1518 and 1518/1519, and from the summer of 1519. Ac-

A dendrokronológiai elemzés alapján a faminták 1517/1518 telén, 1518/1519 telén és 1519 nyarán kivágott jegenyefenyőkből származnak. Eszerint a déli mellékhajó feletti tetőszerkezetek 1518–1519-ben épülhettek. A déli lépcsőtorny falába vésett 1520-as évszám alapján elképzelhető, hogy 1520-ig eltartott az építkezés (21. kép).



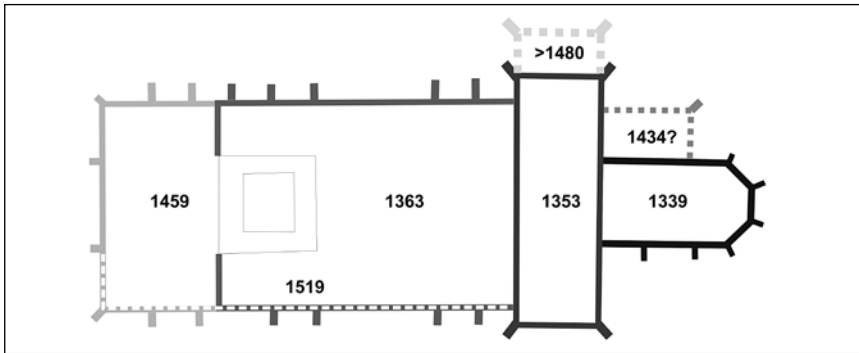
■ 21. kép: A lépcsőtornyban olvasható évszám

■ Photo 21. The date that can be read on the staircase tower

A templom építéstörténete a tetőszerkezetek vizsgálata és kormeghatározása alapján

■ A nagyszebeni evangélikus templom tetőszerkezeteinek dendrokronológiai vizsgálata a középkori tetőszerkezetek történeti fejlődését illetően, illetve a mai álló templom építéstörténetére vonatkozóan is nagymértékben gazdagította ismereteinket. A korábbi, sokszor közvetett adatokra alapozott és emiatt bizonytalan, olykor téves rekonstrukciókkal szemben a dendrokronológiai adatok alapján a templom építéstörténetét világos, egymástól jól elhatárolható és évre pontosan keltezett szakaszokra bonthatjuk. Olyan korai fázisokat sikerült azonosítani – a szentély esetében 1339-es, a főhajó esetében 1363-as építés –, amelyekről eddig nem volt konkrét ismeretünk. A dendrokronológiai kutatás eredményeképpen tehát szépen követhető és keltezhető a templom építésének több évszázadig elhúzódó története.

A szentély feletti mai tetőszerkezetben másodlagosan felhasznált elemek alapján feltételezhető, hogy a szentély építés korabeli tetőszerkezete



■ **11. ábra:** A templom építéstörténetének rekonstrukciója a tetőszerkezetek dendrokronológiai vizsgálata alapján

■ **Figure 11.** Reconstruction of the church's building history based on the dendrochronological analysis of the roof structures

1339-ben vagy azután egy-két évvel épült.²⁵ A kereszthajó építésének befejezését a négyzet és déli kereszthajószárny feletti egykori fedélszerkezetek újrahasznált elemeinek keltezése jelöli ki 1353-ra. Tíz évvel később, 1363-ban fedték be a hosszház főhajóját – erre szintén a mai hajó-fedélszerkezetben újrahasznált elemek utalnak. Nagy valószínűséggel a teljes hosszház megépült ekkor, de erre a dendrokronológiai adatok közvetlenül nem utalnak, a mellékhajók mai tetőszerkezetei ugyanis jóval későbbiek, többek között későbbi emeletráépítés miatt. A szentély feletti mai tetőszerkezet 1370-es évekből származó, másodlagos helyzetű elemei a fedélszerkezet javítására utalnak. 1395 és 1397 között a templom tetőszerkezeteinek nagyobb átépítésére került sor. A szentély, a déli kereszthajószárny és a főhajó feletti mai tetőszerkezetek – az utólagos megerősítéseket leszámítva – ebből az időből származnak. A sekrestye egykori félnyeregteretjének megmaradt, 1434-es elemei a sekrestye átépítésére vagy újrafödésére utalnak. A *ferula* építésének befejezésére a nyugati előcsarnok középhajója feletti mai tetőszerkezet utal, amely 1459-ben épült. Az északi kereszthajószárny észak felé történt bővítésének idejére a mai tetőszerkezetben másodlagosan felhasznált faelem utalhat, amely 1480 után kivágott fenyőből való. A templom építéstörténetét illetően időben a legkésőbbi dendrokronológiai keltezés a déli mellékhajó emelet-ráépítésével hozható összefüggésbe: a déli mellékhajó feletti, ma álló tetőszerkezetek 1518–1519-ben épültek.

A templom építéstörténetével foglalkozó szakirodalomban felmerül, hogy a korábbi templomból megmaradt főhajót az 1370 és 1448 közötti, más szerző szerint 1424 és 1432 közötti időszakban magasították volna, majd a XV. század 30–40-es éveiben beboltolták (WEISZ 2007, 15; MARCU ISTRATE 2007, 54). Megfigyeléseink szerint a főhajó 1363-ban már mai magasságában állt. Igaz, hogy van példa arra a középkorból, hogy egy épület falkoronájának magasításakor visszahelyezték a korábbi tetőszerkezetet (BINDING 1991, 13), de Nagyszébenben nincs nyoma tetőszerkezet-át helyezésnek. Az 1363-as fedélszerkezet megmaradt elemei is eredeti helyükön találhatóak, és azok felhasználásával építették meg az 1390-es évek közepén a máig (2014-ig) fennmaradt szerkezetet (11. ábra).²⁶

25 Számolni kell annak a lehetőségével, hogy az 1339-re keltezett elemek nem a plébániatemplom szentélyének első tetőszerkezetéből, hanem máshonnan származnak, ez azonban kevésbé valószínű. 1330-as évekbeli elemek csakis itt fordulnak elő, sehol máshol a tetőszerkezetben. Hasonló módon: a négyzet és déli kereszthajószárny felett csak 1350-es évekbeli, a főhajó felett csak 1360-as évekbeli újrahasznált elemeket találtunk a mai tetőszerkezetben. Ebből az következik, hogy az 1390-es években külön-külön történt az egyes tetőszerkezeti egységek átalakítása. Másrészt az 1330-as évek végére feltételezett tetőszerkezet létét és építési periódusát a nem csak közvetlenül az erre az időszakra keltezett elemek, hanem közvetve, de bizonyosan, a későbbi periódus, a keresztház tetőszerkezetének keltezése (lásd alább) is igazolja. A kereszthajót ugyanis a korábbi szentély megépítését követően építették.

26 Ha az 1353-ban befedett kereszthajó mellett alacsonyabb főhajó állt volna, a négyzet feletti nyeregteret minden bizonnyal kő oromfallyal zárták volna le nyugat felé. Erre semmilyen nyom nem utal.

According to this, the roof structures above the southern aisle were built in 1518-1519. Based on the year 1520 engraved in the wall of the southern stair tower, it is possible that the construction lasted until 1520 (Photo 21).

The church's building history on the basis of the roof structures' analysis and dating

■ The dendrochronological analysis of the roof structures of the Lutheran church in Sibiu has greatly enriched our knowledge, both regarding the historical development of mediaeval roof structures and the building history of the present church. Contrary to earlier reconstructions, which were often based on indirect data and were therefore uncertain, sometimes erroneous, based on the dendrochronological data the church's building history can be divided into clear, well-delineated phases that can be dated accurately to a year. We were able to identify early phases, a 1339 construction date for the choir, as well as a 1363 construction for the central nave, about which we have not had any specific knowledge so far. Thus, as a result of the dendrochronological research, the history of the church's construction, stretching for many centuries, can be followed and dated well.

On the basis of the reused elements of the present roof structure above the choir, it can be presumed that the roof structure contemporaneous with the building of the choir was constructed in 1339, or a few years after this date.²⁷ The date of completion of the transept is indicated to be 1353 by the dating of the reused elements of the former roof structures above the crossing and the transept's southern arm. The central nave was covered ten years later, in 1363; this is also indicated by the reused elements in the nave's present roof structure. It is likely that the entire nave was built at this time, but this is not backed up directly by dendrochronological data, as the aisles' present roof structures date from a much later period, due mostly to the building of the upper level. The elements in secondary position, dating from the 1370s, of the present roof structure above the choir indicate the repair of this roof structure. Between 1395 and 1397 the roof structures of the church were transformed massively. The present roof structures above the choir, the transept's southern arm, and the central nave, excluding the subsequent reinforcements, date

27 The possibility that the elements dated to 1339 are not from the first roof structure of the parish church's choir, but that they originate from somewhere else should also be taken into consideration, but this is unlikely, as elements from the 1330s can only be found here and nowhere else in the roof structure. Similarly: in the present roof structures above the crossing and the transept's southern arm we only find reused elements from the 1350s, and above the nave only from the 1360s. It follows that in the 1390s the modification of each roof structure unit was made separately. On the other hand, the existence and building period of the roof structure presumed to have taken place at the end of the 1330s is attested not only directly, by the elements dated to this period, but also indirectly, and definitely, by the dating of the transept's roof structure, from a later period (see below), as the transept was built after finishing the construction of the former choir.

from this period. The elements from 1434 that have remained of the sacristy's former pent roof indicate a rebuilding or re-roofing. The completion of the *ferula's* construction is evidenced by the present roof structure above the western vestibule's central nave, which was built in 1459. The time of the enlargement, towards north, of the transept's northern arm might be evidenced by a reused timber element in the present roof structure, which originates from a fir felled after 1480. Concerning the church's building history, the latest dendrochronological dating is connected to the building of the southern aisle's upper level: the roof structures standing today above the southern aisle were built in 1518-1519.

The scholarly literature on the church's building history mentions that the central nave that had remained from the earlier church might have been heightened in the period between 1370 and 1448, or between 1424 and 1432, according to other authors, and later vaulted in the '30-40s of the 15th century (WEISZ 2007, 15; MARCU ISTRATE 2007, 54). According to our observations, in 1363 the central nave was already standing at its present height. However, there are examples from the Middle Ages, when the former roof structure was reset on a building whose wall crowning was heightened (BINDING 1991, 13), but in Sibiu there are no traces of a roof structure relocation. The remaining elements of the 1363 roof structure are in their original position and the roof structure that has been preserved until present times (until 2014) was built with their use in the mid-1390s (Figure 11).²⁶

The historical typology of the roof structures in Sibiu

■ Based on the mediaeval roof structures standing today above the church in Sibiu, as well as on the reconstructed predecessors of several structures, we can have an overview of the history of an approximately 170-year-period, from 1353 to 1519, for the development of roof structures. These structures give us an insight into one of the most exciting times, as fundamental innovations took place during this period. It is particularly interesting that these changes can be witnessed within a single building, at roof structures built from the same kind of trees, i.e. from silver fir.

The earliest roof structure, which can be reconstructed based on reused elements, from 1353 above the crossing and the transept's southern arm, was a structure built from a single truss type. The common rafters were joined to the tie-beam with lapped joints. The trusses were braced with collar-beams and two queen posts in tension connected to the collar-beam with cross lapped joints, and to the common rafters and tie-beam with straight lapped joints. The roof's angle was 56-57°. As we have already mentioned, roof structures having a similar configuration, built of a single type of truss and lacking longitudinal bracing are known from German-speaking territories, from the 13-15th

²⁶ If a lower nave had stood next to the transept covered in 1353, the saddle roof above the crossing would probably have been closed towards the west by a stone gable. No indications were found to presume this.

A nagyszzebeni tetőszerkezetek történeti tipológiája

■ A nagyszzebeni templom felett ma álló középkori tetőszerkezetek, valamint több szerkezet rekonstruált elődje alapján 1353 és 1519 között mintegy 170 éves időszak történetét tekinthetjük át a tetőszerkezetek fejlődése szempontjából. Ezek az emlékek az egyik legizgalmasabb időszakra adnak képet, ugyanis ekkor alapvető újításokra került sor. Különösen érdekes, hogy ezek a változások egy épületen belül, azonos fajta fenyőfából, jegenyefenyőből épített tetőszerkezeteknél ragadhatók meg.

A legkorábbi fedélszerkezet, amely a négyezet és a déli kereszthajó-szárny felett rekonstruálható 1353-ból újrahasznált elemek alapján, egyfajta állásokból felépített szerkezet. A szarufákat lapolással kötötték a kötőgerendához. A szarufaállást egy torokgerenda és – a torokgerendához keresztlapolással kötött, szarufához és kötőgerendához egyenes lapolással kapcsolt – két függesztő merevítette. A tető dőlésszöge 56–57°-os. Ahogy már említettük, nagyon hasonló felépítésű, egyfajta állásból felépített, hosszanti merevítés nélküli tetőszerkezetek német nyelvterületről, a XIII–XV. századból ismertek. A német példánál azonban gyakoribb a torokgerenda és függesztők félfecskefarkos vagy fecskefarkos lapolással történt kötése.²⁷

1363-ból hasonló szerkezetű főállásokból, és feltételezhetően csak torokgerendával merevített mellékállásokból felépített fedélszerkezet rekonstruálható a főhajó felett. A szarufa-kötőgerenda kapcsolat szintén lapolt, mint ahogy a többi elem kötése is lapolással történt. Úgy tűnik, mintha ez egy korai kísérlet lett volna a kétféle állásból felépített tetőszerkezetre, ugyanis a bő 30 évvel később, de még a 90 évvel később épített tetőszerkezeteknél is ismét egyfajta állás sorakozik kivétel nélkül mindegyik szerkezetben.²⁸

Az 1395 és 1397 között történt nagyméretű tetőszerkezet átalakítás/megerősítés alapvető újdonsága, hogy míg korábban a szerkezetek hosszanti merevítését kizárólag a héjazatlécek, minden bizonnyal zsindelecek biztosították, ezúttal hosszanti merevítő rácsokat alakítottak ki két oszlopsor síkjában talpgerenda, fejgerenda és közéjük állított ferdetámaszok beépítésével. A szarufapárt kötőgerendával, torokgerendával és kaksülővel fogták össze, továbbá alsó szögletkötők, két oszlop és oszlopokhoz kapcsolt belső könyökfák erősítették az állásokat. Ezen kívül a szarufa-kötőgerenda kötés is megváltozott: míg korábban lapolva, a megerősítés során az új építésű állásokban csapolva kötötték a szarufákat a kötőgerendákhoz. A szerkezetet továbbra is ugyanolyan állásokból alakították ki. Ez a megerősítés vagy átalakítás a négyezet, a déli és minden bizonnyal az északi kereszthajószárny, valamint a főhajó tetőszerkezetét érintette, míg a szentély esetében inkább új tetőszerkezet építéséről beszélhetünk, hiszen több régi elem másodlagos helyzetű felhasználásától eltekintve a teljes fedélszerkezet új építésű.

Elképzelhető, hogy az 1330-, 50- és 60-as években épített tetőszerkezetek gyengének bizonyultak, de az is lehet, hogy a héjazat anyagának cseréje, zsindeletről cserépre való váltás miatt volt szükség a szerkezetek megerősítésére.

A *ferula* középhajója felett bő 60 évvel később, 1459-ben épített tetőszerkezet egy az egyben megegyezik az 1390-es évek közepén épített

²⁷ Lásd 12. lábjegyzet.

²⁸ Német nyelvterületen számos tetőszerkezet maradt fenn a XIV. század közepéről, második feléből, amelyben fő- és mellékállás váltakozik. A warburgi domonkos templom hosszháza feletti, XIV. század közepéről származó tetőszerkezet egyik fajta főállása éppen hasonló felépítésű, mint a főhajó felett rekonstruált főállás. Itt is lapolással kötötték a szarufákat a kötőgerendához, és nincs hosszanti merevítő elem a szerkezetben (BINDING 1991, 88–89).

fedélszerkezetek felépítésével: hasonló az állások és a hosszanti merevítő rács felépítése is. Szintén csak egyfajta állásból épül fel a szerkezet, és a szarufákat ez esetben is már csapolva kötötték a kötőgerendához. Az új épületrész felett megépítendő tető szerkezetét tehát a templom meglévő fedélszerkezeteiről másolhatták.

A déli mellékhajó feletti tetőszerkezetek egy következő fejlődési szakasz emlékei, 1518–1519-ből. A szintén szarufaállásos tetőszerkezetekben főállások és kevésbé megerősített mellék- vagy más néven üres állások váltják egymást. A főállás szerkezete itt is hasonló az 1390-es, illetve 1450-es évekbeli főállásokhoz, annyiban tér el, hogy további két, szarufával párhuzamos ferdedúc is merevíti. A szarufa–kötőgerenda kötés itt is csapolt.

A középkori tetőszerkezetek fejlődésének legfontosabb jellemzőit a 7. táblázatba gyűjtöttük össze.

A nagyszebeni evangélikus templom középkori tetőszerkezetei alapján megállapíthatjuk, hogy míg a szarufa–kötőgerenda kapcsolat a XIV. század közepéig, de még a 60-as években is lapolt, addig a XIV. század végén már csapolt. Mai ismereteink szerint Erdélyben nincs példa későbbi időszakból fennmaradt lapolt szarufa–kötőgerenda kapcsolatra, vagyis a hagyomány nem él tovább, s így valós kormeghatározó jellegről lehet szó.

Tapasztalataink szerint azonban nem szabad csak abból a tényből, hogy azonos fajta állásokból épül fel egy szerkezet, sem abból, hogy nem

centuries. However, in the case of the German examples, it is more common to join the collar-beam and posts in tension with half dovetail lap or dovetail lapped joints.²⁹

From 1363, a roof structure with main trusses having a similar structure and with secondary trusses braced, presumably, only with collar-beams, may be reconstructed above the central nave. The common rafter and tie-beam joints are also lapped, as the connection of the other elements was also done with lapped joints. It seems to have been an early attempt to build a roof structure of two types of trusses, since in the case of roof structures built 30, or even of 90 years later, the same type of trusses line up in each structure, without exception.³⁰

²⁹ See footnote 14.

³⁰ In the German-speaking territories a large number of roof structures have survived from the middle and the second half of the 14th century, where main and secondary trusses alternate. One main truss type of the roof structure above the nave of the Warburg Dominican church, dating from the mid-14th century, is of a similar configuration to that of the reconstructed main truss above the central nave. Here also, the common rafters were connected to the tie-beam with lapped joints and there is no longitudinal bracing element in the structure (BINDING 1991, 88-89).

■ **7. táblázat:** A középkori tetőszerkezetek fejlődésének legfontosabb jellemzői

■ **Table 7:** The most important aspects of the development of the mediaeval roof structures

	Állásrajz	Szarufa-kötőgerenda kapcsolat	Függőleges elem kapcsolata	Hosszirányú merevítő elemek	Főállás – mellékállás
	Truss drawing	Common rafter and tie-beam joint	Vertical element's joint	Longitudinal bracing elements	Main truss – secondary truss
1353: négyzet feletti rekonstruált szerkezet		lapolt	lapolt	-	FFFF
1353: reconstructed structure above the crossing		lapped	lapped		MMMM
1363: főhajó feletti rekonstruált szerkezet		lapolt	lapolt	-	FMFM
1363: reconstructed structure above the central nave		lapped	lapped		MSMS
1395–1397: szentély, kereszthajó és főhajó felett álló szerkezetek		az új kötőgerendáknál csapolt	csapolt	talp- és fejgerenda, ferdetámasz	FFFF
1395–1397: structures above the choir, transept, and central nave		mortice and tenon for the new tie-beams	mortice and tenon	lower and upper plates, brace	MMMM
1459: ferula középhajója feletti szerkezet		csapolt	csapolt	talp- és fejgerenda, ferdetámasz	FFFF
1459: structure above the ferula's central nave		mortice and tenon	mortice and tenon	lower and upper plates, brace	MMMM
1518–1519: déli mellékhajó feletti szerkezetek		csapolt	csapolt	talp- és fejgerenda, ferdetámasz, könyökfa	FMMF
1518–1519: structures above the southern aisle		mortice and tenon	mortice and tenon	lower and upper plates, brace, counterbrace	MSSM

The fundamental novelty of the large-scale roof structure transformation/reinforcement carried out between 1395 and 1397 is that while earlier the longitudinal bracing of the structures was provided exclusively by battening, most probably shingle battens, this time longitudinal bracing frames were built in the planes of the two rows of posts by incorporating a lower plate, an upper plate, and braces placed between the two. The pair of common rafters was joined with a tie-beam, a collar-beam and an upper collar, furthermore, the trusses were reinforced with lower angle braces, two posts, and inner counterbraces connected to them. In addition, the common rafter and tie-beam joint also changed: while previously a lapped joint was used, during the reinforcing, in the newly built trusses the common rafters were connected to the tie-beams by using mortice and tenon joints. The structure was still formed from the same type of trusses. This reinforcement or transformation affected the roof structures above the crossing, the transept's southern arm, and the central nave, while in the case of the choir we should rather talk about the construction of a new roof structure, since, with the exception of the use of numerous old elements in secondary positions, the entire roof structure is newly constructed.

It is possible that roof structures built in the 1330s, '50s, and '60s have proven to be weak, but it may also be that the reinforcement of the structures was necessary due to replacing the roofing material, e.g. switching from shingles to roof tiles.

The roof structure above the *ferula's* central nave, built over 60 years later, in 1459, corresponds perfectly to the configuration of the roof structures built in the mid-1390s: the configuration of the trusses and of the longitudinal bracing frame is also similar. The structure is also built from a single type of truss, and the common rafters were connected to the tie-beam with mortice and tenon joints in this case as well. The roof structure to be constructed above the new building part could have therefore been copied from the church's existing roof structures.

The roof structures above the southern aisle are a testament to a subsequent developmental period, from 1518-1519. In the roof structure having trusses with common rafters, the main trusses alternate with less reinforced secondary trusses, otherwise called empty trusses. The structure of the main truss is similar to that of the ones from the 1390s and 1450s here as well; it diverges in that it is braced with two more compound rafters, positioned parallelly to the common rafters. The joint of the compound rafters and the tie-beam is mortice and tenon here as well.

The most important aspects of the development of mediaeval roof structures are summarised in Table 7.

Based on the mediaeval roof structures of the Lutheran church in Sibiu, it can be stated that, while the common rafter and tie-beam joint is lapped until the mid-14th century or even in the '60s, by the end of the 14th century it becomes mortice and tenon joint. According to our present knowledge, in the case of Transylvania no later examples survive for lapped

rendelkezik hosszanti merevítő ráccsal, messzemenő következtetéseket levonni a szerkezet építési idejére vonatkozóan. Több olyan tetőszerkezet ismert ugyanis, amely hasonló jellemzővel a XVII–XVIII. században épült.²⁹

Néhány gondolat a nagyszebeni tetőszerkezetek 2014. évi felújításáról

■ Végére érve a tetőszerkezetek és építéstörténetük ismertetésének, elkerülhetetlen néhány, a 2014. évi felújításhoz kapcsolódó következtetés levonása. A tetőszerkezetek dendrokronológiai vizsgálata Európa-szerte évtizedek óta elmaradhatatlan része a műemléki helyreállításoknak, és erdélyi alkalmazhatósága is már több mint egy évtizede ismert, a felújítás előtt azonban itt saj-

29 Ide sorolható a krasznai református templom szentélye feletti 1662-es és a hajó feletti 1667-es fedélszerkezet, a tasnádi református templom hajója feletti tetőszerkezet 1714-ből, a krasznahorvati református templom hajója és szentélye feletti fedélszerkezet 1720-ból, továbbá a sepsiszentkirályi unitárius templom tetőszerkezete 1816-ból. A kelezések alapja mindegyik példa esetében a dendrokronológiai vizsgálat, de Sepsiszentkirályon évszámos felirat is alátámasztja a kelezést. Nagy a valószínűsége, hogy ezeknél a tetőszerkezeteknél a templom korábbi fedélszerkezete adta a követendő példát, lásd: dendrolab.ro.



■ 22. kép: A szentély feletti tetőszerkezet keletről a felújítás után, 2016

■ Photo 22. The roof structure above the choir, as seen from the east, after the renovation, 2016



■ **23. kép:** Szarufa–kötőgerenda kapcsolatok a szentély feletti tetőszerkezetben a felújítás után, 2016
 ■ **Photo 23.** Common rafter and tie-beam joints in the roof structure above the choir after the renovation, 2016

nos nem volt elvárás. Egy 2007-ben közzétett tetőszerkezet-történeti tanulmány már jelezte, hogy itt talán Erdély legrégebbi tetőszerkezete áll. Egy további, 2011-ben németországi szakemberek által készített szakvélemény is felhívta a figyelmet, hogy a fedélszerkezetek XIV. századi és XV. századi jellegzetességeket mutatnak. Ennek fényében, egy ilyen rangú műemlék esetében, ahol ilyen léptékű beavatkozást terveztek, megkerülhetetlen alapfeltétel illeté volna legyen egy előzetes dendrokronológiai vizsgálat és egy részletes építészettörténeti (!) felmérés, amely állásonként dokumentálja az ácsjeleket, az esetleges másodlagos felhasználásra utaló nyomokat, az illesztéseket, stb., hogy a felújítás során ne tűnjenek el örökre alapvető adatok. Csakis a véletlen szerencsén múlt, hogy 2012-ben lehetőségünk volt külső forrásból, a helyreállítási projekttől függetlenül dokumentálni az eredeti állapotokat, illetve elvégezni a dendrokronológiai mintavételt. Nem vagyunk építészek, sem tartószerkezeti szakemberek, de tény, hogy 2012-ben nem láttunk olyan nagy mértékű károsodásokat, amelyek ekkora mértékű beavatkozást indokoltak volna. A 2011-ben müncheni szakemberek által készült állapotfelmérés és szakvélemény szintén arról tanúskodik, hogy nem volt szükség ilyen léptékű beavatkozásra. A felújítás során ugyanis nem csak a sérült elemeket javították, cserélték, hanem programszerűen a legtöbb meglévő könyökfát és szögletkötőt következetesen új elemre cserélték! Kidobásra került számtalan jó állapotú, építés korabeli, több mint 600 éves tetőszerkezeti elem! A szentély feletti szerkezetben új elemek kiegészítésével szinte az összes szarufa–kötőgerenda kapcsolatot javították (csak a záródás szarufái és egyetlen déli szarufa úszta meg a felújítást). Ezzel értelemszerűen az összes egykori állásjel nyomtalanul eltűnt. A javítás ráadásul nem hitelesen történt, mert az eredetileg csapolt szarufa–kötőgerenda kapcsolatok helyett az összes javított állásban lapolva kötötték a szarufákat a kötőgerendához. Ez látszólag részletkérdés, de az erdélyi, romániai anyagban eddig csak itt lehetett időrendileg vizsgálni a történeti szempontból lényeges XIV. századi lapolás–csapolás váltást. A felújítás után a főhajó felett nem maradt egyetlen egy olyan állás sem, ahol az eredeti kötőgerenda és az eredetileg hozzá kapcsolódó szarufák együtt megmaradtak volna, míg 2012-ben még nyolc állásban eredeti helyükön megvoltak ezek az elemek. A nagymérvű beavatkozások miatt az egykori építés- és technikátörténeti adatok töredékét sem lehetne ma kinyerni a megmaradt szerkezetből. Olyan sok elem került kidobásra vagy javításra, hogy ha először 2016-ban végeztünk volna dendrokronológiai mintavételt, nem tudtuk volna rekonstruálni sem a négyzet, sem a főhajó feletti korábbi, 1353-as és 1363-as szerkezeteket, és nem tudtuk volna helyesen értelmezni a tetőszerkezetekben újrahasznált vagy másodlagosan felhasznált elemeket. Mindezek mellett fontos szempont, hogy a felújítással alapvetően megváltozott a tetőszerkezetek

common rafter and tie-beam joints, i.e. the tradition did not survive, thus it is a feature that can be used for dating.

However, according to our experience, one cannot draw far-reaching conclusions related to the construction time of a structure based on the fact that it was built of a single type of truss, neither from the fact that it does not have a longitudinal bracing frame. Several roof structures are known to have been built with similar characteristics in the 17th-18th centuries.³¹

Some considerations on the 2014 renovation of the roof structures in Sibiu

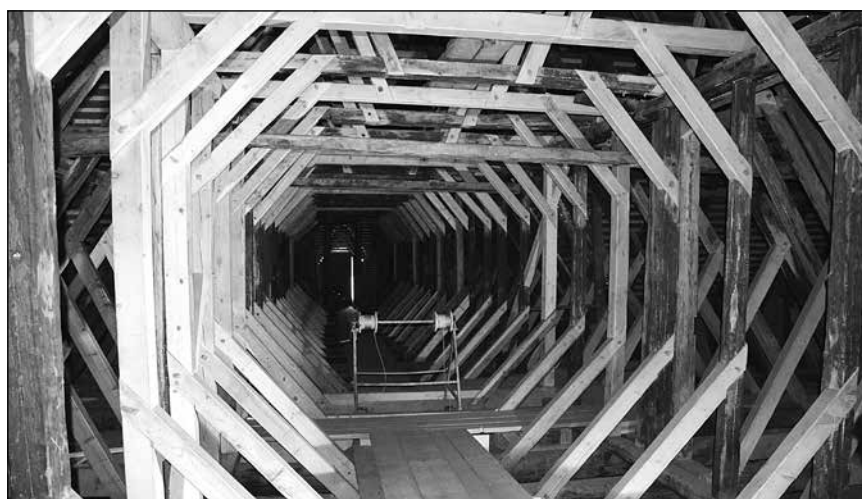
■ Reaching to the end of the presentation of the roof structures and their building history, drawing some conclusions related to the 2014 renovation is inevitable. The dendrochronological analysis of roof structures has been for decades an indispensable part of historic building conservation works throughout Europe, and its applicability in Transylvania has also been known for over a decade, but, unfortunately, here it was not a requirement prior to the renovation. A 2007 study on roof structures already indicated that the oldest roof structure in Transylvania might be here. In 2011 an additional expert opinion from Germany also drew attention to the fact that the roof structures show features characteristic to the 14th and 15th centuries. In light of this, in the case of a historic building of this rank, where such a large-scale intervention was planned, a preliminary dendrochronological examination and a detailed survey of architectural history (!) recording truss by truss carpenters' joints, traces that indicate the reuse of elements, joints, etc., would have been an indispensable prerequisite for preventing the permanent loss of basic data in the course of the renovation. It was only by chance that in 2012 we had the opportunity to document the original conditions and to perform dendrochronological sampling, done via external funding and independently from the rehabilitation project. We are neither architects nor experts on load-bearing structures, but it is a fact that in 2012 we did not see any major decay that would have justified such a large-scale intervention. The 2011 survey of the state of preservation and expert opinion carried out by specialists from Munich also shows that there was no need for such a major intervention. It was not only the damaged parts that were repaired or replaced during the renovation, as most of the existing counterbraces and angle braces were replaced

31 This includes the 1662 roof structure above the choir and the 1667 roof structure above the nave of the Calvinist Church in Crasna, the roof structure above the nave of the Calvinist Church in Tășnad from 1714, the roof structures above the nave and choir of the Calvinist Church in Horoatu Crasnei from 1720, as well as the roof structure of the Unitarian Church in Sâncraiu from 1816. The basis for the dates was, in each case, the dendrochronological analysis, but in Sâncraiu a dated inscription also supports the dating. There is a high probability that in the case of these roof structures the churches' former roof structures served as models to be followed, see: dendrolab.ro.

systematically with new elements! Numerous roof structure elements that were in a good state of preservation and contemporary to the building period, i.e. of over 600 years of age, have been thrown out! In the roof structure above the choir almost all of the common rafter and tie-beam joints were repaired by integrating with new elements (only the common rafters of the choir's eastern end and a single southern common rafter have survived the renovation). By this, implicitly all of the former truss marks have disappeared without a trace. In addition, the repair was not authentic, as instead of the original mortice and tenon joints of the common rafter and tie-beam connections, the common rafters were joined to the tie-beams by lapped joints in all of the repaired trusses. This might seem only a small detail, but within the Transylvanian and Romanian material, thus far it was only here that it was possible to investigate the historically crucial 14th-century shift from lapped to mortice and tenon joints. After the renovation, there was not a single truss where the original tie-beam and the common rafters originally connecting to it have survived in unit, while in 2012 these elements were still in their original positions in eight trusses. Due to the large-scale interventions, today not even a fraction of the former data regarding building and technical history can be extracted from the remaining structure. So many elements were thrown out or repaired that if we had done the dendrochronological sampling for the first time in 2016, we would not have been able to reconstruct the former, 1353 and 1363 structures above the crossing or the central nave, and we would not have been able to correctly interpret the elements reused in the roof structures. In addition to these, it is important to note that with the renovation, the aesthetic appearance of the roof structures has changed fundamentally: the otherwise nicely finished, new, light-coloured elements are the ones that dominate the aspect of the timber structures instead of the former elements with patina. The renovation of the roof structure in Sibiu is unfortunately an excellent example of how our built heritage, in this case a roof structure over 600 years old, loses its values under the pretext of rehabilitation.

Due to the roof structures' historical value, the decision regarding the degree to which the truncation or replacement of the elements was justified would have deserved a more careful consideration. According to the local priest, the architect responsible for the implementation and the contractor were both aware of the results of the dendrochronological analysis and of the German expert opinion, thus they must have known that they were renovating a roof structure of over 600 years of age. We are convinced that the knowledge and application of the research data, as well as a greater humility shown towards historic roof structures would have significantly increased the value of the renovation.

We would like to thank art historian Szilárd PAPP for his valuable observations on to the reconstruction of the church's building history and on the entire manuscript.



■ **24. kép:** A négyzet feletti tetőszerkezet nyugatról a felújítás után, 2016

■ **Photo 24.** The roof structure above the crossing, as seen from west, after the renovation, 2016

esztétikai megjelenése is: az egyébként szépen kidolgozott új, világos színű elemek uralják a faszervezetek képét az egykori patinás elemek helyett. A nagyszebeni tetőszerkezet-felújítás sajnos kítűnő példa arra, hogyan vesznek el épített örökségünk, jelen esetben egy több mint 600 éves tetőszerkezet értékei helyreállítás címén.

A tetőszerkezetek történeti értéke miatt sokkal alaposabb megfontolást érdemelt volna annak eldöntése, hogy milyen mértékben indokolt az elemek csonkolása, cseréje. A helyi tiszteletes elmondása szerint a kivitelezésért felelős építész és a kivitelezést vezető cég ismerte a dendrokronológiai vizsgálat eredményeit és a német szakvéleményt is, tehát tisztában kellett legyenek azzal, hogy több mint 600 éves tetőszerkezeteket újítanak fel. Meggyőződésünk, hogy a kutatási adatok megismerése és hasznosítása, illetve a történeti tetőszerkezetek iránti nagyobb alázat a felújítás értékét jelentősen növelte volna.

Köszönjük PAPP Szilárd művészettörténésznek a templom építéstörténeti rekonstrukciójával és a kézirat egészével kapcsolatos értékes észrevételeit.

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■ BABOS Rezső¹

„Lassú katasztrófák”

ÉPÜLETEINK BIOLÓGIAI KÁROSÍTÓI,
A GOMBÁK ÉS ROVAROK ELLENI PREVENTÍV VÉDEKEZÉS,
VALAMINT A MAGYARORSZÁGON JELENLEG ÉRVÉNYES
JOGSZABÁLYOK

■ **Kivonat:** Épületeinket, ideértve a műemléképületeket is, nemcsak a látványos katasztrófák (tűz, víz, villámcsapás, földrengés) pusztíthatják el, hanem a gyakran lappangó és csak későn észlelt biológiai károsítók is, amelyek az építmények faanyagát támadják meg. Jelen írás kitér a két leggyakoribb és ugyanakkor legveszélyesebb biológiai károsító, a könnyező házigomba (*Serpula lacrymans*) és a házicincér (*Hylotrupes bajulus*) tárgyalására, a megtelepedésüket megelőzni igyekvő preventív védelemre, illetve bemutatja a faanyagvédelmi munkára vonatkozó jelenleg érvényes magyarországi jogszabályokat.

■ **Kulcsszavak:** biológiai károsítók, könnyező házigomba (*Serpula lacrymans*), házicincér (*Hylotrupes bajulus*), preventív védekezés, faanyagvédelem, magyarországi jogszabály

■ Amikor a nyár elején elolvastam a konferencia tematikáját³, felöltött bennem, hogy lesz itt minden: tűz, víz, villámcsapás, földrengés. Egy régebbi előadásban elmondtam, hogy ezekért a katasztrófákért – talán a földrengést kivéve – legalább részben gyakran bizony mi magunk is felelősek vagyunk. A letarolt hegyek völgyeiből kizúduló áradások viszik a falut, a tűzvészek nagy része gondatlanság, sőt szándékosság következménye. Úgy véltem, ezekhez képest a gombák és a bogarak igencsak alacsony hatékonysággal működnek.

A szervezőbizottság újabb felkérésére, hogy mégis tartsak egy kis előadást a könnyező házigombáról és a veszélyes rovarokról, hiszen ezek, ha lassabban is, de kitartóan pusztítják épületeinket, fogalmaztam meg az alábbiakat. A könnyező házigomba és a veszélyes rovarok munkái nem olyan látványosak, ezért kevesebbet is törődünk velük, bár a végeredmény igencsak hasonló. Az élő kártevők elleni védekezési lehetőségekről szóló tanácsokat sokan és sokszor meghallgatták már, de nagyon kevesen fogadták meg ezeket.

1 Okl. erdőmérnök, c. egyetemi docens a Soproni Egyetem Simonyi Károly Műszaki, Faanyagtudományi és Művészeti Karának Faanyagtudományi Intézetén, Sopron, Magyarország.

2 Szerk. megj.: Jelen cikk a *Történeti Tartószerkezetek Nemzetközi Konferencia* 17. ülésén, 2017. október 20-án elhangzott előadás írott változata. Az időközben módosult érvényes jogszabályok miatt a jelenlegi, frissített változat 2018. május 20-ra keletkezett.

3 A konferencia tematikája: *A történeti tartószerkezetek védelme katasztrófhelyzetekben.* [szerk. megj.]

“Slow Catastrophes”

PREVENTIVE PRESERVATION MEASURES
AGAINST THE BIOLOGICAL DECAYING
AGENTS, FUNGI AND INSECTS ATTACKING
OUR BUILDINGS AND THE LEGISLATION
CURRENTLY IN FORCE IN HUNGARY

■ **Abstract:** Our buildings, including historic buildings, can be destroyed not only by dramatic catastrophes (fire, floods, lightning, earthquakes), but also by the often latent biological decaying agents that attack the timber in constructions and that are detected too late. This article discusses the two most common and dangerous biological decaying agents, the dry rot fungus (*Serpula lacrymans*) and the woodboring beetle (*Hylotrupes bajulus*), preventive preservation measures trying to combat their ecesis, as well as the legislation currently in force in Hungary on timber preservation.

■ **Keywords:** biological decaying agents, dry rot fungus (*Serpula lacrymans*), woodboring beetle (*Hylotrupes bajulus*), preventive preservation, wood/timber preservation, Hungarian legislation

■ When I read, at the beginning of the summer, the conference topic³, I considered all the possibilities that it would entail: fire, floods, lightning, and earthquakes. In a former presentation I said that, perhaps with the exception of earthquakes, we ourselves are responsible for these catastrophes, at least in part. The floods gushing out from valleys of deforested mountains wash away villages, while most fires are caused by negligence or even intentionally. I deemed that fungi and insects operate quite less effectively as compared to all of the above.

I have formulated the following upon the organising committee's request to deliver a

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2 Ed. note: The present article is the written version of the presentation delivered on October 20, 2017, at the 17th edition of the *International Conference on Historic Structures*. Due to some changes in the legislation in force in Hungary, the present, updated version is dated May 20, 2018.

3 The conference topic was: *Protection of Historic Structures in Case of Emergency Situations.* [ed. note]

short presentation about the dry rot fungus and dangerous insects, as these, although they operate slowly, are steadily destroying our buildings. Certainly, they operate less dramatically and that is why we care less about them, however, the outcome is quite similar. Many have heard about the possibilities of protection against living harmful pests many times, but less people have heeded the advice.

The sad topicality of this presentation is also given by the storm that has recently torn down many roofs and towers.⁴ They will have to be conserved eventually, and the interventions will require good quality, treated wood.

Let us examine a bit more closely the manner in which these organisms live and cause harm. There are too many of them, and that is why, for reasons of brevity, I will mention only one fungus and one insect, namely the most aggressive building destroyer, the *dry rot fungus*, and the very harmful insect, the *woodboring beetle* (*Hylotrupes bajulus*).

The dry rot fungus (*Serpula lacrymans*)

■ What is our problem with the dry rot fungus?

First, it destroys everything that contains cellulose. Second, it dampens the environment with the water it produces, and thus facilitates the ecesis of other fungi or moulds. Third, it has an aesthetically unpleasing appearance.

The growth and reproduction of the fungus:

spore → mycelial strand → mycelial cord → sporophore

⁴ In September of 2017 the wind damaged and tore down the roof coverings of several timber churches in Sălaj County, Romania. [ed. note]

Ennek az előadásnak szomorú aktualitást ad az a vihar, ami a közel-múltban számos tetőt és tornyot küldött a földre.⁴ Előbb-utóbb helyre kell őket állítani, a helyreállításához pedig jó lenne jó minőségű, védett faanyagot használni.

Nézzük meg egy kicsit közelebbről, hogyan élnek és hogyan károsítanak ezek a szervezetek. Sokan vannak, ezért terjedelmi okokból csak egy gombát és egy rovarot választottam ki, nevezetesen a talán legagresszívabb épületrongálót, a *könnyező házigombát*, és a szintén nagyon veszélyes rovarkártevőt, a *házcincért* (*Hylotrupes bajulus*).

Könnyező házigomba (*Serpula lacrymans*)

■ Mi a problémánk a könnyező házigombával?

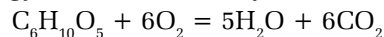
Először is elpusztít mindent, ami cellulózt tartalmaz. Másodszor, a megtermelt vízzel nedvesíti a környezetét, ezzel elősegíti más gombák és penészek megtelepedését. Harmadszor pedig esztétikailag nem megfelelő látványt nyújt... A gomba szaporodása és kifejlődése:

spóra → micélium fonal → micélium köteg → termőtest

A spórából micélium fonal indul, ami lassan kötegekbe tömörül, majd termőtestet hoz létre, amelyen újabb spórák milliói képződnek. Előfordul, hogy a gomba hosszú ideig, akár évekig nem hoz termőtestet, de eközben is szorgalmasan pusztítja a faanyagunkat (1. kép).

A gomba táplálkozása:

A gomba elpusztítja a cellulóz tartalmú anyagokat: a fát, textíliát, szigetelő anyagokat, papírt stb. A cellulóz bontása során felszabadul a fában kémiaiilag megkötött víz, ami elegendő a gomba életének fenntartásához, sőt, a fölösleget – *nomen est omen* – ki is könnyezi. Nagyon leegyszerűsítve ez a folyamat a következő képlet szerint megy végbe:



Mivel a faanyag szilárdsága, rugalmassága a cellulóznak köszönhető, elpusztítása az anyag tönkremenetelét jelenti (2. kép).

⁴ 2017 szeptemberében számos Szilágy megyei fatemplom sérült, épületek héjazatait tépte fel a szél. [szerk. megj.]



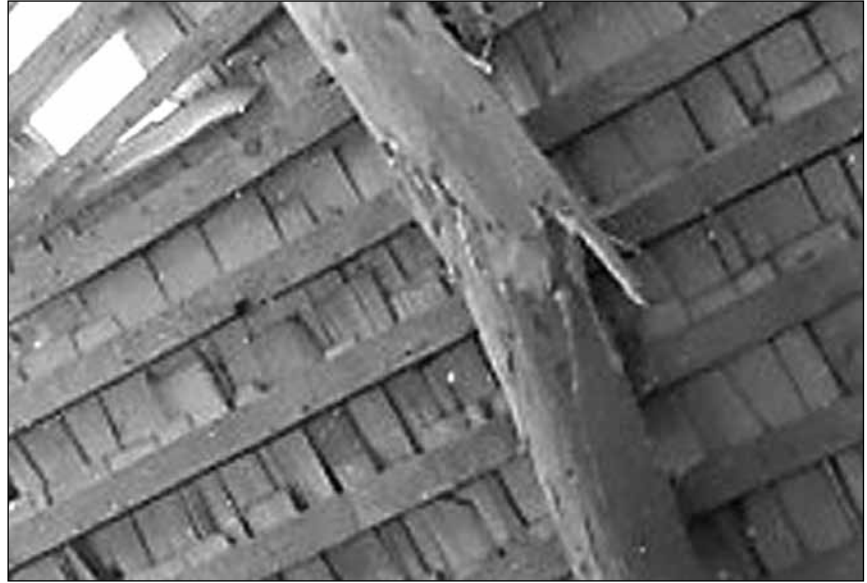
■ 1. kép: A könnyező házigomba termőteste
 ■ Photo 1. The sporophore of the dry rot fungus



■ 2. kép: A könnyező házigomba kártétele
 ■ Photo 2. Decay caused by the dry rot fungus



■ **3. kép:** Házicincér imágó © BALÁZS Márta
■ **Photo 3.** Woodboring beetle imago © Márta BALÁZS



■ **4. kép:** Cincérvár tetőszerkezetben © Utilitas Kft.
■ **Photo 4.** Damage caused by the beetle in a roof structure © Utilitas Ltd.

Házicincér (*Hylotrupes bajulus*)

■ Nagysága 7–12 mm között változik. Színe barnásfekete, két fényes dudorral a nyakpajzson (3. kép). Rendkívül szapora. Az épület faanyagának legnagyobb kártevője. A faanyag felszínét épen hagyja, de alatta a teljes szíjácsréteget károsítja. Kifejlődése optimális viszonyok mellett is 4-5 évig tart, de kedvezőtlen körülmények között 10-15 év vagy több is lehet. Az álca kifejlődésének az időtartamát a faanyag fehérjetartalma befolyásolja. Csak kisebb szellőző, illetve rágcsálék eltávolításra szolgáló lyukakat készít, a furatliszt jelentős részét bennhagyja a járatokban, ezért hatástalan ellene a felületi védelem. Ovális kirepülő nyílásokat hagy maga után. Kedveli a 30 °C körüli hőmérsékletet és a 28–30%-os nedvességtartalmú faanyagot. Rajzási ideje júniustól augusztusig tarthat az időjárás függvényében. A nőtény élete során 200–400 petét is lerak. Mivel a hazai erdei- és feketefenyő faanyag nagy százalékban tartalmaz szíjácsot, ezért nálunk a házcincér kártétele jóval nagyobb, mint például a skandináv országokban. A lucfenyőben is jól érzi magát. A közép-európai éghajlati viszonyok, a hosszabb vegetációs idő kedvezőbb számára, mint az északi területek hűvösebb klímája. A beépített fenyőfélék leggyakoribb károsítója. Tetőszerkezetek, faházak faanyagának kitartó roncsolásával jelentős károkat okoz (4. kép).

Megelőző (preventív) védelem

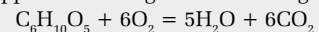
■ A gombák és rovarok által okozott „lassú katasztrófák” elkerüléséhez be kell tartanunk bizonyos építéstechnikai előírásokat, amelyek megvédik a faanyagot a káros környezeti behatásoktól (nedvesedés, túlzott felmelegedés stb.). A biológiai károsításoktól viszont közvetlenül a faanyagot kell megvédeni az ún. megelőző vagy preventív védőkezeléssel.

Az erre a célra fejlesztett védőszerek „szelídek”, nem alkalmasak már fellépett károsítások megszüntetésére, de megakadályozzák a károsítók

Mycelial strands germinate from the spores, slowly aggregating into bundles and creating a sporophore on which millions of new spores are formed. It may happen that the fungus does not produce a sporophore for a long time, maybe for years, but is still steadily destroys the timber (Photo 1).

Nutrition of the fungus:

The fungus destroys materials containing cellulose, i.e. wood, fabric, insulating materials, paper, etc. As cellulose breaks down, the water chemically bound in the wood is released, which is sufficient for keeping the fungus alive, and what is more, as *nomen est omen*, it “weeps out” the excess water. Putting it plainly, this process happens according to the following formula:



As cellulose gives strength and elasticity to wood, breaking it down leads to the destruction of the material (Photo 2).

Woodboring beetle (*Hylotrupes bajulus*)

■ It ranges between 7 to 12 mm in size. It is brownish-black and features two shiny protrusions on the prothorax (Photo 3). It is extremely prolific. It is the biggest decaying agent of timber in buildings. It leaves the surface of the wood sound, but it damages the entire sapwood under it. Under optimal conditions it develops in 4-5 years, but under unfavourable conditions this process can take up to 10-15 years or even more. The time the larva takes to develop varies depending on the protein content of the wood. It only bores smaller holes for air intake and to remove residues, and leaves most of the frass in the tunnels, that is why surface protection is inefficient against it. It leaves behind oval exit holes. It likes temperatures of around 30°C and wood with a moisture content of 28-30%. The swarming period lasts



■ **5. kép:** Korszerű automata vezérlésű áztatókád © Hubel
 ■ **Photo 5.** Modern automated steeping tank © Hubel



■ **6. kép:** Telítőhenger
 ■ **Photo 6.** Impregnation cylinder

between June and August, depending on the weather conditions. The female lays around 200-400 eggs during its lifetime. As the sapwood content is high in the local scots pine and black pine timber, the damage the wood-boring beetle produces here is more significant than in the Scandinavian countries, for instance. It also enjoys spruce. The Central European climate conditions, the longer vegetation period is more favourable than the cooler climate of the northern regions. It is the most frequently encountered decaying agent of built-in timber of the pine family. It produces significant damage to roof structures and to the timber in wooden houses, by steadily destroying them (Photo 4).

Preventive preservation

■ In order to avoid the “slow catastrophes” caused by fungi and insects, we have to observe certain construction engineering prescriptions that would protect the timber from harmful environmental effects (humidity, overheating etc.). However, biological decay can be avoided by subjecting the timber directly to so-called preventive preservation treatments.

The preservative substances designed for this purpose are „mild”, thus unsuitable in case the damage has already appeared, but they can prevent the ecesis of decaying agents on healthy, uninfected timber. It is best to carry out this process in steeping tanks or impregnation cylinders.

Steeping

The timber is submerged once or several times in the steeping tank, and it slowly soaks in the preservative solution (Photo 5).

The diagram in Figure 1 shows how the preservative penetrates the timber in time. As in the building industry we have everything

megtelepedését az egészséges, fertőzésmentes faanyagban. Ezt a munkát legjobb áztatókádokban vagy telítőhengerekben elvégezni.

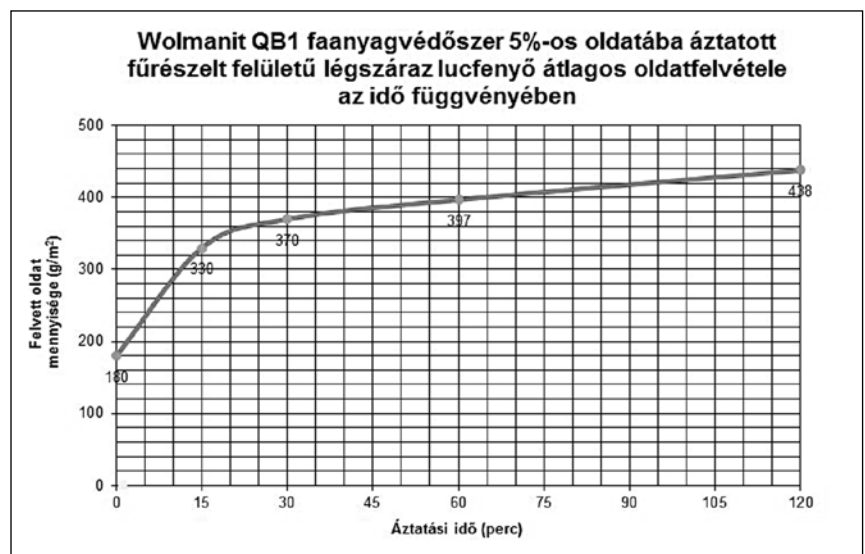
Áztatás

Az áztatókádba egyszer vagy többször bemelegítik a faanyagot, amely lassan magába szívja a védőszer oldatot (5. kép).

Az 1. ábra diagramja mutatja, hogy az idő függvényében, hogyan hatol be a védőszer a faanyagba. Mivel az építőiparban minden van, csak általában idő nincs, törekedjünk arra, hogy legalább fél óráig maradjon bemelegítve a faanyag (1. ábra).

Telítés

A telítőhengerben 8–10 bar nyomás alatt „kényszerítjük” be a védőszer a faanyagba. A telítés nem a megfelelő kifejezés, mert teljes ke-



■ **1. ábra:** Védőszer beszívódása a faanyagba
 ■ **Figure 1.** Penetration of the preservative in the timber

resztmetszet védelméről szó sincs. Jóval mélyebbre hatol be jóval több védőszer mint az áztatásnál, de ez még mindig csak néhány centiméter (6. kép). Talán megfelelőbb lenne a „nyomás alatt végzett mélyvédelem” kifejezés. A tapasztalat minden esetre azt mutatja, hogy nyomás alatt szakszerűen elvégzett mély védelem évtizedekig megvédi még a meglehetősen rossz, Gk.3 vagy Gk.4 „veszélyeztetettségű osztályba” kerülő faanyagot is, míg a szokásos építőipari környezetbe (Gk.1 vagy Gk.2) kerülő faanyag megvédéséhez elegendő a fentebb tárgyalt áztatókádban történő védelem is (2. ábra).

A faanyagvédelmi munkára vonatkozó jelenleg érvényes magyarországi jogszabályok

- 312/2012. (XI. 8.) Korm. rendelet az építésügyi és építésfelügyeleti hatósági eljárásokról és ellenőrzésekről, valamint az építésügyi hatósági szolgáltatásról

Az építészeti-műszaki dokumentáció tartalma:

8. melléklet, III. pont

„2. Helyiséget tartalmazó meglévő építmény átalakítása, bővítése, felújítása, korszerűsítése, helyreállítása esetén”

5 Az idézett „építmény átalakítása, bővítése, felújítása, korszerűsítése, helyreállítása esetén” szövegrész a 482/2016. (XII. 28.) Korm. rendelet 32. § ia) pontnak megfelelően a

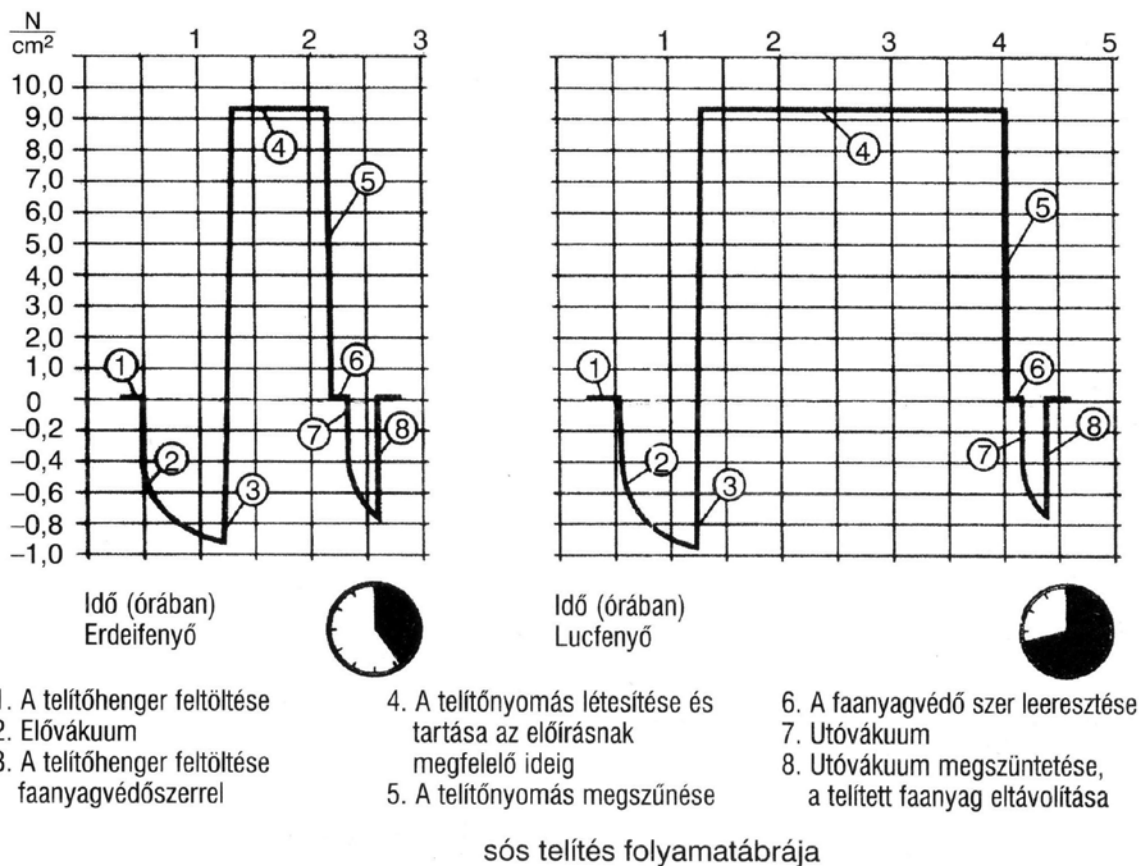
but time, we should try to leave the timber to soak at least for half an hour (Figure 1).

Impregnation

The preservative substance is “forced into” the timber in an impregnation cylinder under a pressure of 8-10 bar. Impregnation might not be the appropriate term, as it does not protect the whole cross-section at all. A larger quantity of preservative penetrates more in depth than in the case of steeping, but it is still only a few centimetres (Photo 6). A more appropriate expression would be “deep preservation under pressure”. At any rate, experience shows that deep preservation carried out properly under pressure protects for decades even the rather poor timber classified in Use Classes 3 and 4, while the timber normally used in construction (Use Classes 1 or 2) can easily be protected by soaking it in the aforementioned steeping tanks (Figure 2).

The legislation currently in force in Hungary on timber preservation

- Government Decree No. 312/2012 (November 8) on the Procedures and Inspec-



■ 2. ábra: Telítési diagram erdei- és lucfenyőre

■ Figure 2. Impregnation diagram for scots pine and spruce

tions of the Authorities Responsible for Licensing and Supervision of Constructions, and on Services Provided by Authorities for Constructions

The content of the architectural and technical documentation:

Appendix 8, item III

“2. In case of the conversion, expansion, renovation, modernisation, rehabilitation of an existing construction featuring premises⁵

2.1. The documentation for the construction permit must contain: [...]

2.1.9. *less than one-year-old*⁶ expert’s speciality studies:

2.1.9.1. on buildings featuring structures whose performance characteristics change in time (e.g. wood, cinder block, bauxite concrete)

and

2.1.9.2. on the load-bearing structures of buildings more than 50 years old.”

Hence the validity of the expert’s speciality study on timber preservation cannot exceed one year. An amendment is that the mandatory supervision of load-bearing structures was decreased from 80 to 50 years.

• Government Decree No. 68/2018 (April 9) on the Rules Regarding the Protection of Cultural Heritage

The content of the reports regarding activities subject to notification requirements or of the applications for heritage conservation permits, as well as their appendices:

Subtitle 26 “Rules regarding activities related to reports or heritage conservation permits”

Item A of appendix 12: one will attach to the report or the heritage conservation permit

“4.1. *expert’s speciality study on wood preservation in case of woodwork*”.

We must note that the previous decrees set forth more details about the woodwork for which an expert’s speciality study on wood preservation had to be attached to a permit application or to a report. The current regulations have simplified it and require an expert’s assessment to be drafted for any kind of woodwork to be carried out. Should any kind of destructive testing (e.g. sampling) be required for drafting the study, it must be reported, and, prior to the start of the analysis, the owner or the expert must file a report at the Department for Heritage Conservation with the competent Government Agency. It must be filed pursuant to sections 65-66 of Government Decree No. 68/2018 (April 9), based on Appendix 12 of the respective Decree.

• Government Decree No. 439/2013 (November 20) on the Expert Activities Related Archaeological Heritage and Historic Building Values

The experts’ work on historic buildings is governed and bound by the following con-

⁵ The quoted “conversion, expansion, renovation, modernisation, rehabilitation of an existing construction” was amended by Government Decree No. 482/2016 (December 28), section 32, item ia) in its current form of “expansion of an existing construction”. [ed. note]

⁶ Highlighting by the author; here, as well as in the other quotes. [ed. note]

2.1. Az építési engedélyezési dokumentációnak az alábbiakat kell tartalmaznia: [...]

2.1.9. *egy évnél nem régebbi*⁶ szakértői véleményeket:

2.1.9.1. az időtávtatban változó teljesítmény-jellemzőjű szerkezeteket tartalmazó (pl. fa, salakbeton, bauxitbeton) épületszerkezetekről,

és

2.1.9.2. az 50 évesnél idősebb építmények tartószerkezetéről.”

Ebből az következik, hogy a faanyagvédelmi szakvélemény érvényességi ideje nem lehet több mint egy év. Változás, hogy a tartószerkezetek kötelező vizsgálatának idejét 80 évről 50-re csökkentették.

• 68/2018. (IV. 9.) Korm. rendelet a kulturális örökség védelmével kapcsolatos szabályokról

Bejelentéshez kötött tevékenység bejelentésének vagy az örökségvédelmi engedély iránti kérelemnek és mellékleteinek adattartalma:

26. alfejezet „A bejelentéshez vagy örökségvédelmi engedélyhez kötött tevékenységekkel kapcsolatos szabályok”

12. melléklet. A pont: a bejelentés vagy az örökségvédelmi engedély iránti kérelemhez mellékelni kell

„4.1. faanyag munkái esetén *faanyagvédelmi szakvéleményt*”.

Megjegyezzük, hogy a korábbi rendeletben részletesebben tárgyalták azokat a faanyaggal történő munkákat, amelyek esetén faanyagvédelmi szakvéleményt kell a bejelentéshez vagy a kérelemhez csatolni. A jelenlegi szabályozás ezt egyszerűsítette, és bármilyen fával kapcsolatos munka esetén el kell készíteni a faanyagvédelmi szakvéleményt. Ha a szakvélemény elkészítéséhez valamilyen roncsolás szükséges (pl. mintavétel), akkor a bejelentés köteles, és a vizsgálat megkezdése előtt a tulajdonosnak vagy a szakértőnek a területileg illetékes Kormányhivatal Örökségvédelmi osztályánál a bejelentést kell tennie. Ezt a 68/2018. (IV.9.) Korm. rendelet 65–66. §-a szerint, a rendelet 12. melléklete alapján kell megtenni.

• 439/2013. (XI. 20.) Korm. rendelet a régészeti örökséggel és a műemléki értékkel kapcsolatos szakértői tevékenységről

A műemléki épületeken végzett szakértői munkákat szabályozza és feltételekhez köti: ha egy faanyagvédelmi szakértő (akár több évtizedes gyakorlattal a háta mögött) rendelkezik ugyan a Magyar Mérnöki Kamara faanyagvédelmi szakértői tevékenység végzésére jogosító engedélyével (tanúsítványával), ez még nem jogosítja fel, hogy műemléki épületek faszerkezetéről is készítsen szakvéleményt. Műemléki épületre vonatkozó szakvéleményt csak erre jogosult *műemlékvédelmi faanyagvédelmi szakértő* készíthet.⁷

Valamilyen ismeretlen okból a faldiagnosztikai szakértők ugyanabban a listában található, megkülönböztetés nélkül. Az elkülönítéshez tehát kell egy kis ismeret, nehogy egy geológust küldjünk fel a padlásra...

• 253/1997. (XII. 20.) Korm. rendelet az országos településrendezési és építési követelményekről (OTÉK)

53.§ (1) „Az építményt és részeit [...] úgy kell megvalósítani [...], hogy [...] a rendeltetészerű használók egészségét ne veszélyeztesse [...]

e) az építmény felületein káros nedvesedés keletkezése, megmaradása, [...]

következő formában módosult: „építmény bővítése esetén”. [szerk. megj.]

⁶ Az idézetekben szereplő kiemelések a szerzőtől származnak. [szerk. megj.]

⁷ A szakértők névjegyzéke a Miniszterelnökség honlapján az alábbi linken található: <http://www.kormany.hu/hu/miniszterelnokseg/parlament-i-allamtitkar/regeszeti-es-muemleki-szakertoi-nevjegyzek/muemlekvedelem>.

- g) vegyi és korróziós hatás,
h) biológiai kártevők megtelepedése, elszaporodása”.

53.§ (2) „Az építmények megvalósítása és rendeltetésszerű használata során biztosítani kell [...]

b) a helyiségek nedvesség (csapadékvíz, talajvíz, talajpára [...] stb.) elleni védelmét, a páratartalom kicsapódása elleni védelmét”.

53.§ (3) „Az egészségre és a környezetre káros hatású anyagot [...] építési célra felhasználni nem szabad. Anyagot [...] építménybe beépíteni csak olyan módon szabad, hogy az életet, a testi épséget ne veszélyeztesse.”

53.§ (5) „Faanyagot a beépítési helyének megfelelő, a tűzvédelemre és a faanyagvédelemre vonatkozó előírásoknak megfelelő égéskésleltető, gombamentesítő, illetőleg rovarkár elleni kezelés után szabad beépíteni.”

- A 38/2003. (VII. 7.) ESzCsM-FVM-KvVM együttes rendelet a biocid termékek előállításának és forgalomba hozatalának feltételeiről szabályozza a faanyagvédőszereket is.

A 23 biocid típus közül a faanyagvédőszerek a 8-as számú terméktípusba tartoznak. Faanyagvédőszer hatóanyagként csak az ebben a listában szereplő 43 fajta hatóanyag használható.

Minden faanyagvédőszer engedélyköteles (lesz), valamint Magyarországon a védőszereket külföldi gyártók csak kölcsönös elismerési dokumentum (OTH engedély) birtokában forgalmazhatnak.

Faanyagvédőszerrel történő kivitelezéskor kockázatelemzést kell készíteni.

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- *** 439/2013. (XI. 20.) Korm. rendelet a régészeti örökséggel és a műemléki értékkel kapcsolatos szakértői tevékenységről. [Government Decree No. 439/2013 (November 20) on the Expert Activities Related Archaeological Heritage and Historic Building Values.]
- *** 68/2018. (IV. 9.) Korm. rendelet a kulturális örökség védelmével kapcsolatos szabályokról. [Government Decree No. 68/2018 (April 9) on the Rules Regarding the Protection of Cultural Heritage.]

ditions: even if a wood preservation expert (even with an experience of several decades) has the authorisation issued by the Hungarian Chamber of Engineers for performing wood preservation works (certification), he or she is still not entitled to draft a speciality study on the timber structures of historic buildings. Such a study on a historic building can be written only by authorised *historic building wood preservation experts*⁷.

For some unknown reason, the building diagnostics experts are included in the very same list without distinction. We have to be aware of the distinctions in order to avoid sending a geologist up in the attic...

- Government Decree No. 253/1997 (December 20) on the National Urban Planning and Architectural Requirements

53.§ (1) “A construction and the parts thereof [...] have to be erected in such a way [...] as not to endanger the health of the intended users by [...]

e) harmful moisture appearing and persisting on the building surfaces, [...]

g) chemical and corrosive effects,
h) eciosis of and infestation by biological decaying agents”.

53.§ (2) “During the erection and intended use of the buildings one must ensure [...]

b) protection against moisture in the premises (rainwater, groundwater, soil moisture [...], etc.), protection against precipitation of humidity”.

53.§ (3) “Materials dangerous to human health and the environment [...] must not be used for construction. Materials [...] can only be built in a construction in such a way as not to endanger life and physical integrity.”

53.§ (5) “Timber can be used only after treatment appropriate to the place of building, treated accordingly with flame retardants, fungicides, and insecticides *in compliance with* the fire safety and wood preservation *regulations*.”

- The Joint Decree of the Ministry for Health and Social and Family Affairs, the Ministry of Agriculture and Rural Development, and the Ministry of Environment and Water No. 38/2003 (July 7) on the Requirements Regarding the Production and Marketing of Biocidal Products regulates *wood preservatives as well*.

Amongst the 23 types of biocides, the wood preservatives are listed in the 8th class of products. The active agents of wood preservatives can only be those listed among the 43 types of agents.

All the wood preservatives (will) require authorisation, respectively foreign manufacturers can sell preservatives in Hungary only if they are bearers of the mutual recognition document (OTH permit).

A risk analysis must be drafted when working with wood preservatives.

⁷ The list of experts can be found on the a website of the Prime Minister's Office, by accessing the following link: <http://www.kormany.hu/hu/miniszterelnokseg/parlamenti-allamtitkar/regeszeti-es-muemleki-szakertoi-nevjegyzekek/muemlekvedelem>.

■ Andreea MILEA¹

The Béldy Pál, Mikes, and Nemes Manor House Parks in Budila, Braşov County

HISTORICAL AND CONTEMPORARY DATA²

■ **Abstract:** The article presents several landmarks from the history of construction and landscape design of the Béldy Pál, Mikes, and Nemes Manor Houses in Budila (Braşov Co.). The parks, of which the one belonging to the Béldy Pál Manor House is an arboretum, listed in the 2004, 2010, and 2015 Historic Buildings List, were created in the 19th century, but were altered during the 20th century to such an extent that today their former elements are undecipherable. While the Béldy Pál Manor House regained its functionality at the end of the first decade of the 21st century, entering into a rehabilitation process, the Mikes and Nemes Manor Houses were at the time in an advanced state of degradation. The article describes the main built and landscaped elements of the three neighbouring manor house ensembles, the relationships that exist between them and with the settlement, as well as with surrounding landscape, as they were observed by the author in the summer of 2009, in an attempt to sketch a brief inventory of their current state.

■ **Keywords:** historical residential garden, landscaped style design, mixed style design, 19th century

Parcurile castelelor Béldy Pál, Mikes și Nemes din Budila, județul Braşov

DATE ISTORICE ȘI CONTEMPORANE²

■ **Rezumat:** Articolul prezintă câteva repere din istoria construcțiilor și amenajărilor parcurilor castelelor Béldy Pál, Mikes și Nemes din Budila (județul Braşov). Parcurile, dintre care cel al castelului Béldy Pál parc dendrologic, clasate drept monumente istorice în Listele Monumentelor Istorice 2004, 2010, respectiv 2015, au fost create în secolul al XIX-lea dar alterate pe parcursul secolului al XX-lea, până la a face, în prezent, indescifrabile fostele lor amenajări. În timp ce castelul Béldy Pál și-a regăsit funcționalitatea la sfârșitul primului deceniu al secolului al XXI-lea, intrând într-un proces de reabilitare, castelele Mikes și Nemes se aflau pe atunci într-o stare avansată de degradare. Articolul descrie principalele elemente construite și amenajate ale ansamblurilor celor trei castele învecinate, relațiile dintre ele și relațiile lor cu așezarea și peisajul înconjurător, așa cum au fost observate de către autoare în vara anului 2009, în încercarea de a schița un inventar sumar al situației amenajărilor în zilele noastre.

■ **Cuvinte cheie:** grădină istorică rezidențială, amenajare în stil peisager, amenajare în stil mixt, secolul XIX

Introducere

■ Date puține avem în prezent despre istoria ansamblurilor castelelor Béldy Pál, Mikes și Nemes.³ Situația lor învecinată, cu posibile legături de pe o

1 Architect, PhD, lecturer at the Technical University of Cluj-Napoca, Romania.
2 Following the methodological structure described in the first article of the *Historical Gardens* column, the presentation of the Béldy Pál, Mikes, and Nemes Manor House Parks in Budila approaches the following aspects, relevant for a systematic analysis of Transylvanian historical residential gardens: general data on “owners, building stages, architectural style, contractors”; landscape (“main landforms, watercourses, the presence of dominating elements”); site (“location within the settlement, general shape of the site, limit characteristics”); local relief and the placement of major elements (“site topography, location of the main elements on site: access area, the residence, the park, other natural or built elements”); access and the elements related to it (“access placement – to the property and to the residence – and the descriptions of the related elements”); the manor houses and their relationship with the exterior design elements (“description” of the residences’ “main volumes and the devices for the connection with the exterior”); as well as the actual landscape design (“composition, placement of the vegetation, vegetation elements, pavement, ornamental objects, ornamental constructions”). For a detailed description of the methodology, see the first article (MILEA 2012).

1 Arhitect, dr., lector la Universitatea Tehnică din Cluj-Napoca, România.
2 Urmând structura metodologică descrisă în articolul de debut al rubricii *Grădini Istorice*, prezentarea parcurilor castelelor Béldy Pál, Mikes și Nemes din Budila abordează următoarele aspecte, relevante pentru o analiză sistematică a grădinilor istorice rezidențiale transilvănene: date generale despre „proprietari, etape de construcție, stil arhitectural, constructori”; peisaj („formațiuni principale de relief, cursuri de apă, prezența unor elemente dominante”); amplasament („localizare în cadrul așezării, forma generală a sitului, caracterul limitelor”); relief local și dispunerea elementelor majore („topografia sitului, localizarea elementelor majore pe sit: zona de acces, reședința, parcul, alte elemente naturale sau construite”); amenajările de acces („localizarea acceselor – pe proprietate și în reședință – și descrierea amenajărilor aferente”); castelele și relația lor cu amenajările exterioare („descrierea volumelor principale” ale castelelor și a „dispozitivelor de legătură cu exteriorul”); respectiv, amenajarea exterioară propriu-zisă („compoziție, dispunerea vegetației, elemente de vegetație, paviment, obiecte ornamentale, construcții ornamentale”). Pentru descrierea detaliată a metodologiei, a se vedea articolul de debut (MILEA 2012).
3 Ansamblul castelului Béldy Pál (BV-II-a-A-11616) sec. XVIII-XIX: castelul Béldy Pál (BV-II-m-A-11616.01) 1731; parc dendrologic (BV-II-m-A-11616.02) sec. XIX; pavilionul porții (BV-II-m-A-11616.03) sec. XVIII (Lista Monumentelor Istorice 2004, 2010, respectiv 2015).
Ansamblul castelelor Mikes și Nemes (BV-II-a-A-11617) sec. XVIII-XIX: castelul Mikes (BV-II-m-A-11617.01) sec. XIX; castelul Nemes (BV-II-m-A-11617.02) sec. XVIII; grănar (BV-II-m-A-11617.03) sec. XVIII; remiza pentru trăsură (BV-II-m-A-11617.04) sec. XVIII; parc (BV-II-m-A-11617.05) sec. XIX (Lista Monumentelor Istorice 2004, 2010, respectiv 2015).
Budila/Bodila (ro.), Bodola (magh.), Bodeln/Budille/Bodila/Bodola (ger.) (SZABÓ, Dicționar...).



■ **Foto. 1.** Ortofotografia satului Budila (2009). Conturul alb cu linie continuă reprezintă limitele amplasamentelor ansamblurilor castelelor Béldy Pál, Mikes și Nemes, iar cu linie punctată întinderea posibilă a amplasamentelor, corespunzător reprezentărilor istorice: 1 – ansamblul castelului Béldy Pál, 2 – ansamblul castelelor Mikes și Nemes, 3 – ansamblul castelului Béldy Ladislau (însemnările grafice și textuale sunt adăugate de către autoare, scala grafică reprezentată este estimativă) © GoogleEarth, CNES/Airbus, 2018 © Andreea MILEA

■ **Photo. 1.** Orthophoto of Budila Village (2009). The solid white contour represents the site limits of the Béldy Pál, Mikes, and Nemes Manor House ensembles, while the dotted line the possible limits of the ensembles, corresponding to the historical representations: 1 – Béldy Pál Manor House ensemble, 2 – Mikes and Nemes Manor Houses' ensemble, 3 – Béldy Ladislau Manor House ensemble (the graphic and textual markings are added by the author, the represented graphic scale is estimative) © GoogleEarth, CNES/Airbus, 2018 © Andreea MILEA

proprietate pe alta, vechimea apropiată (secolele XVIII-XIX), dar și istoria comună, inclusiv de pe parcursul secolului al XX-lea, dau temei prezentării lor împreună. Castelul Béldy Pál a trecut în posesia familiei MIKES prin căsătoria lui Kelemen MIKES (1865-1918) cu Emma BÉLDY (1873-1957) (STOICA, Budila...). Toate cele trei castele și-au pierdut funcțiunea rezidențială odată cu naționalizarea, iar în anii 1950 au ajuns să adăpostească o școală de corecție pentru fete. Desființată în 1964, școala de corecție a fost înlocuită în 1965 de o școală profesională cu internat, înlocuită, la rândul ei, la sfârșitul anilor 1960, de Liceul Agroindustrial Budila. Cele trei castele au fost bine întreținute până în 1982, când liceul agricol a fost mutat la Prejmer. Din acel moment a început decăderea ansamblurilor arhitectonice. Castelele au fost transformate în adăposturi pentru animale și, ulterior, părăsite, iar iazul din parcul castelului Mikes a fost asanat, după ce, din cauza lipsei de întreținere, începuse să inunde subsolurile caselor din vecinătate. Retrocedat moștenitorilor familiei MIKES (STOICA, Budila...), așa-numitul castel Béldy Pál și-a regăsit funcționalitatea la sfârșitul primului deceniu al secolului al XXI-lea, intrând într-un proces de reabilitare, în timp ce castelele Mikes și Nemes rămâneau încă într-o stare avansată de degradare.

Peisaj

■ Satul Budila este situat în Depresiunea Brașovului, cu râurile Tărlung și Zizin trecând la vest și nord de așezare, și cu râul Seaca traversând așe-

Introduction

■ We currently have few data on the history of the Béldy Pál, Mikes, and Nemes Manor House ensembles.³ Their neighbouring locations, with possible connections from one property to the other, their similar ages (18th-19th centuries), and their common history, also throughout the 20th century, argue for their joint presentation. The Béldy Pál Manor House became the property of the MIKES family through the marriage of Kelemen MIKES (1865-1918) and Emma BÉLDY (1873-1957) (STOICA, Budila...). All three

³ Béldy Pál Manor House ensemble (BV-II-a-A-11616) 18th-19th centuries; Béldy Pál Manor House (BV-II-m-A-11616.01) 1731; arboretum (BV-II-m-A-11616.02) 19th century; gate pavilion (BV-II-m-A-11616.03) 18th century (Lista Monumentelor Istorice 2004, 2010, and 2015, respectively).

Mikes and Nemes Manor Houses' ensemble (BV-II-a-A-11617) 18th-19th centuries: Mikes Manor House (BV-II-m-A-11617.01) 19th century; Nemes Manor House (BV-II-m-A-11617.02) 18th century; granary (BV-II-m-A-11617.03) 18th century; carriage house (BV-II-m-A-11617.04) 18th century; park (BV-II-m-A-11617.05) 19th century (Lista Monumentelor Istorice 2004, 2010, respectiv 2015).

Budila/Bodila (ro.), Bodola (hum.), Bodeln/Budille/Bodila/Bodola (ger.) (SZABÓ, Dicționar...).

manor houses lost their residential function after the nationalisation and, in the 1950s, ended up housing a correctional school for girls. Closed down in 1964, the correctional school was replaced in 1965 by a vocational boarding school, replaced in its turn, at the end of the 1960s, by the Budila Agro-industrial High School. The three manor houses were well-maintained until 1982, when the agricultural high school was moved to Prejmer. From that moment on began the degradation of the architectural ensembles. The manor houses were turned into animal shelters and later abandoned, and the pond in the Mikes Manor House park was drained after it began, due to lack of maintenance, to flood the basements of the neighbouring houses. Given back to the heirs of the MIKES family (STOICA, Budila...), the so-called Béldy Pál Manor House regained its functionality at the end of the first decade of the 21st century, entering into a rehabilitation process, while the Mikes and Nemes Manor Houses remained in an advanced state of degradation.

Landscape

■ Budila Village is found in the Braşov Depression, with the Târlung and Zizin rivers passing to the west and north of the settlement, and with the Seaca River crossing the settlement from the south-east to the north-west.⁴ The Baraolt

⁴ Mentioned in (MILEA 2013), Valea Popii Creek, a tributary of Târlung River, runs to the east of the settlement.

zarea dinspre sud-est spre nord-vest.⁴ Munţii Baraolt se înalţă la nord de aşezare, Munţii Întorsurii la sud-est şi Munţii Bârsei la sud.

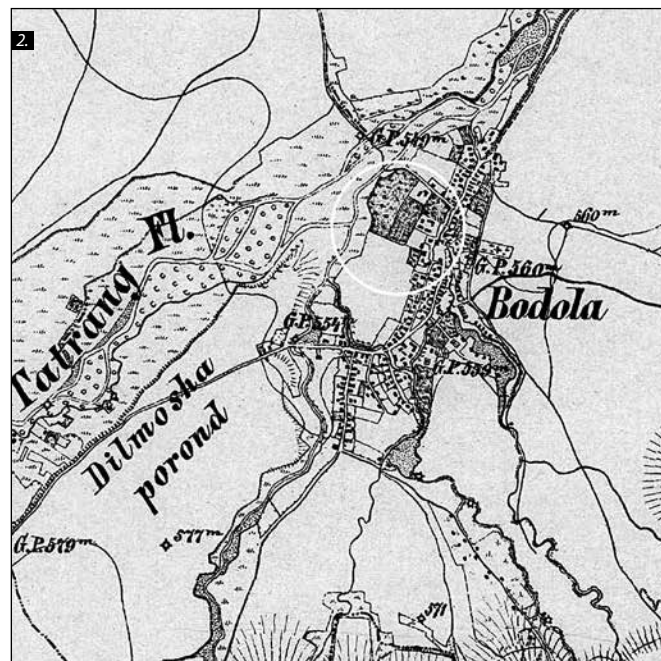
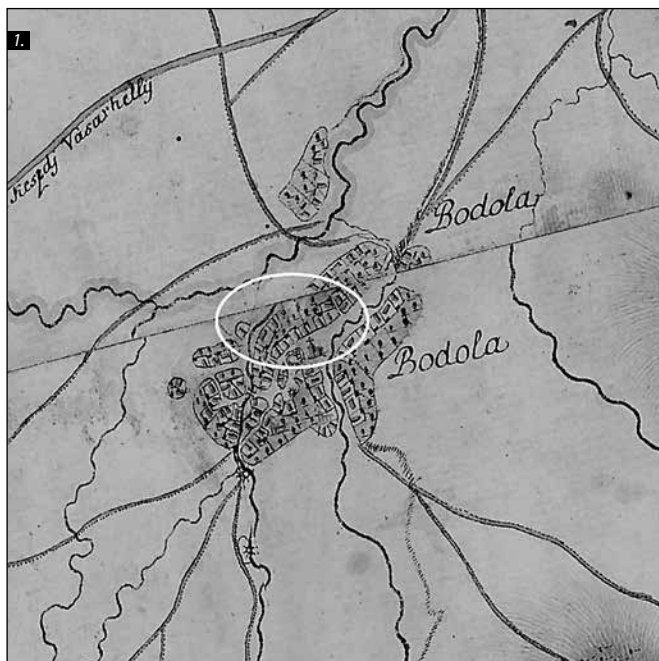
Amplasament (foto 1)

■ Satul Budila se dezvoltă alungit, aproximativ pe direcţia nord-sud, legând văile râurilor Zizin şi Seaca. Ansamblurile castelelor Béldy Pál, Mikes şi Nemes se află în zona centrală a satului, la vest de drumul principal care îl traversează şi din care ansamblul castelelor Mikes şi Nemes este direct accesibil; un drum secundar permite accesul în ansamblul castelului Béldy Pál. Tot în zona centrală a aşezării, dar mai la sud şi, totodată, la sud de drumul principal, se află ansamblul castelului Béldy Ladislau (a se vedea MILEA 2013).

Amplasamentele sunt identificabile deja din prima ridicare topografică militară a Imperiului Habsburgic (1763-1787) (fig. 1), primind o reprezentare convenţională de grădină mare sau livadă. În acest stadiu, amplasamentele sunt înconjurate de mici proprietăţi construite, cu excepţia unei deschideri scurte spre est, la drumul principal al aşezării, respectiv a laturilor lor vestice, deschise către valea râului Zizin.

Cea de-a doua ridicare topografică militară a Imperiului Austriac (1806-1869) (fig. 2) clarifică structura aşezării. În schimb, în ceea ce priveşte amplasamentele studiate, ea lasă loc interpretării. Astfel, comparând situaţia reprezentată cu poziţia amplasamentelor în prezent, dar şi cu cea din prima ridicare topografică militară, am fi îndreptăţiţi să considerăm suprafeţele haşurate ca aparţinând amplasamentelor studiate. Pe de altă parte, limitarea amplasamentelor la suprafeţele haşurate este discutabilă,

⁴ Amintit în (MILEA 2013), pârâul Valea Popii, afluent al râului Târlung, se desfăşoară mai la est de aşezare.

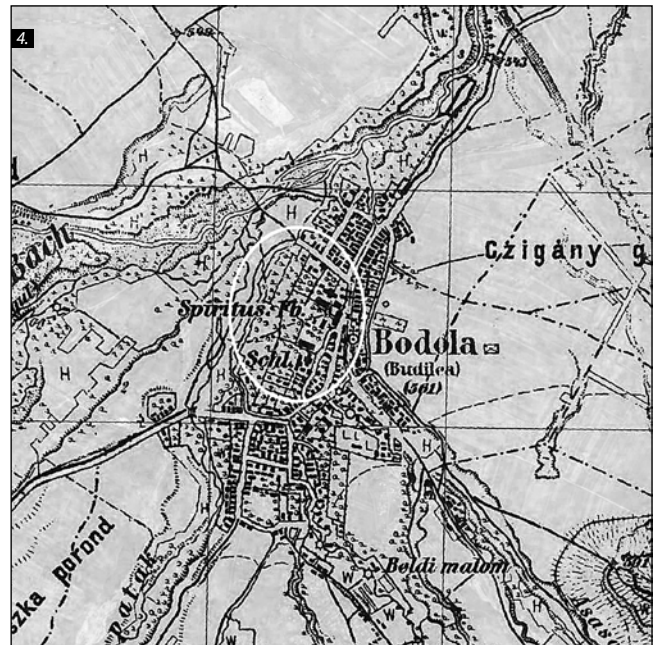
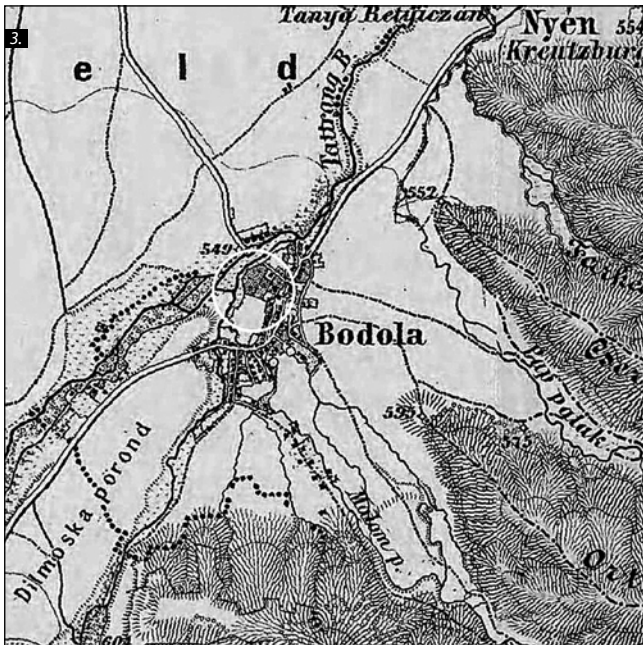


■ **Fig. 1.** Reprezentarea satului Budila (Bodola) în prima ridicare topografică militară a Imperiului Habsburgic (1763-1787). Zona amplasamentelor studiate este reprezentată (de către autoare) cu linie albă © Österreichisches Staatsarchiv, Arcanum Adatbázis Kft., 2018

■ **Figure 1.** Representation of Budila (Bodola) in the 1st Military Survey of the Habsburg Empire (1763-1787). The area of the studied sites is represented (by the author) with a white line © Österreichisches Staatsarchiv, Arcanum Adatbázis Kft., 2018

■ **Fig. 2.** Reprezentarea satului Budila (Bodola) în cea de-a doua ridicare topografică militară a Imperiului Austriac (1806-1869). Zona amplasamentelor studiate este reprezentată (de către autoare) cu linie albă © Österreichisches Staatsarchiv, Arcanum Adatbázis Kft., 2018

■ **Figure 2.** Representation of Budila (Bodola) in the 2nd Military Survey of the Austrian Empire (1806-1869). The area of the studied sites is represented (by the author) with a white line © Österreichisches Staatsarchiv, Arcanum Adatbázis Kft., 2018



- **Fig. 3.** Reprezentarea satului Budila (Bodola) în cea de-a treia ridicare topografică militară a Austro-Ungariei (1869-1887). Zona amplasamentelor studiate este reprezentată (de către autoare) cu linie albă © Österreichisches Staatsarchiv, Arcanum Adatbázis Kft., 2018
- **Figure 3.** Representation of Budila (Bodola) in the 3rd Military Survey of Austro-Hungary (1869-1887). The area of the studied sites is represented (by the author) with a white line © Österreichisches Staatsarchiv, Arcanum Adatbázis Kft., 2018
- **Fig. 4.** Reprezentarea satului Budila (Bodola/Budilea) în cartarea Regatului Maghiar (1869-1887). Zona amplasamentelor studiate este reprezentată (de către autoare) cu linie albă © Österreichisches Staatsarchiv, Arcanum Adatbázis Kft., 2018
- **Figure 4.** Representation of Budila (Bodola/Budilea) in the mapping of the Kingdom of Hungary (1869-1887). The area of the studied sites is represented (by the author) with a white line © Österreichisches Staatsarchiv, Arcanum Adatbázis Kft., 2018

fie și doar din motive de accesibilitate. În timp ce amplasamentul castelului Nemes s-ar fi extins spre nord-est cu o suprafață mărginită pe două laturi de drumuri, amplasamentele castelelor Mikes și Béldy Pál ar fi fost lipsite de vreun contact cu drumul și, prin urmare, inaccesibile în mod direct. Faptul pare puțin plauzibil. De asemenea, amplasamentul castelului Béldy Pál apare ca având o suprafață foarte mică, în care o grădină nu ar prea fi avut cum să-și găsească locul. Astfel, suprafețele hașurate ar putea reprezenta, de fapt, doar zonele ocupate cu clădiri (castel, anexe) ale amplasamentelor, la acestea adăugându-se suprafețele de contact cu drumurile de acces și suprafețele de grădină spre valea râului Zizin. Cu o mai slabă claritate și detaliere grafică, cea de-a treia ridicare topografică militară a Austro-Ungariei (1869-1887) (fig. 3) reprezintă aceeași situație.

Cartarea Regatului Maghiar (1869-1887) (fig. 4) pare să confirme presupunerile expuse, delimitând clar trei amplasamente, toate în contact direct fie cu drumul principal al satului (castelele Nemes și Mikes), fie cu un drum secundar (castelul Béldy Pál) și, de asemenea, toate cu grădini extinse spre valea râului Zizin. Și în această cartare amplasamentul castelelor Mikes și Nemes apare ca fiind extins spre nord-est cu aceeași suprafață, mărginită pe două laturi de drumuri, discutată anterior. În această cartare apare totodată, pentru prima dată, mențiunea *Schl.* (Schloss, castel), în dreptul ansamblului castelului Béldy Pál, evidențiat astfel față de celelalte trei castele din așezare (Mikes, Nemes și Béldy Ladislau).

În prezent, formele amplasamentelor sunt neregulate. Amplasamentul castelului Béldy Pál este delimitat la est de un drum secundar al așezării; la sud de proprietăți construite și grădini; la vest de grădini, loturi agricole și valea râului Zizin; iar la nord de amplasamentul castelelor Mikes și Nemes. Acesta din urmă este delimitat la est parțial de drumul principal al așezării, parțial de proprietăți construite; la nord de proprietăți construite și grădini; la vest parțial de un drum secundar al așezării, parțial de grădini și valea râului Zizin; iar la sud parțial de grădini, parțial de amplasamentul castelului Béldy Pál.

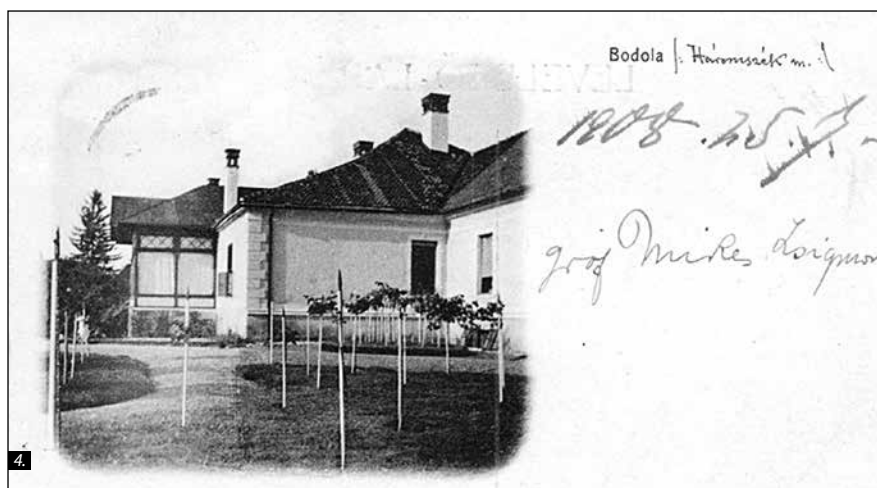
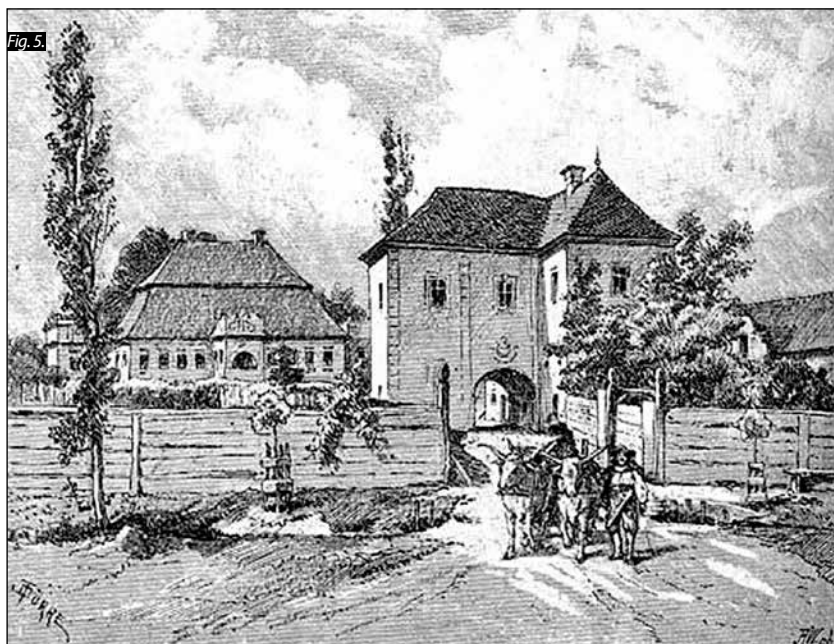
Mountains rise to the north of the settlement, Întorsurii Mountains to the south-east, and Bârsei Mountains to the south.

Placement (Photo1)

■ Budila Village has an elongated layout, on an approximately north-south direction, connecting the valleys of the Zizin and Seaca rivers. The Béldy Pál, Mikes, and Nemes Manor House ensembles are placed in the village's central area, to the west of the main road that crosses it, and from which the Mikes and Nemes Manor Houses' ensemble is directly accessible; a secondary road gives access to the Béldy Pál Manor House ensemble. The Béldy Ladislau Manor House ensemble is also placed in the settlement's central area, but more to the south and also to the south of the main village road (see MILEA 2013).

The sites can already be identified on the First Military Survey of the Habsburg Empire (1763-1787) (Figure 1), receiving the conventional representation of large gardens or orchards. At this stage, the sites are surrounded by small built properties, with the exception of a short opening to the east, to the settlement's main road, and of their western sides, opened on the Zizin River Valley.

The Second Military Survey of the Austrian Empire (1806-1869) (Figure 2) clarifies the settlement's structure. However, it leaves room for interpretation regarding the studied sites. Thus, when comparing the represented situation with the current placement of the sites, but also with the one from the First Military Sur-

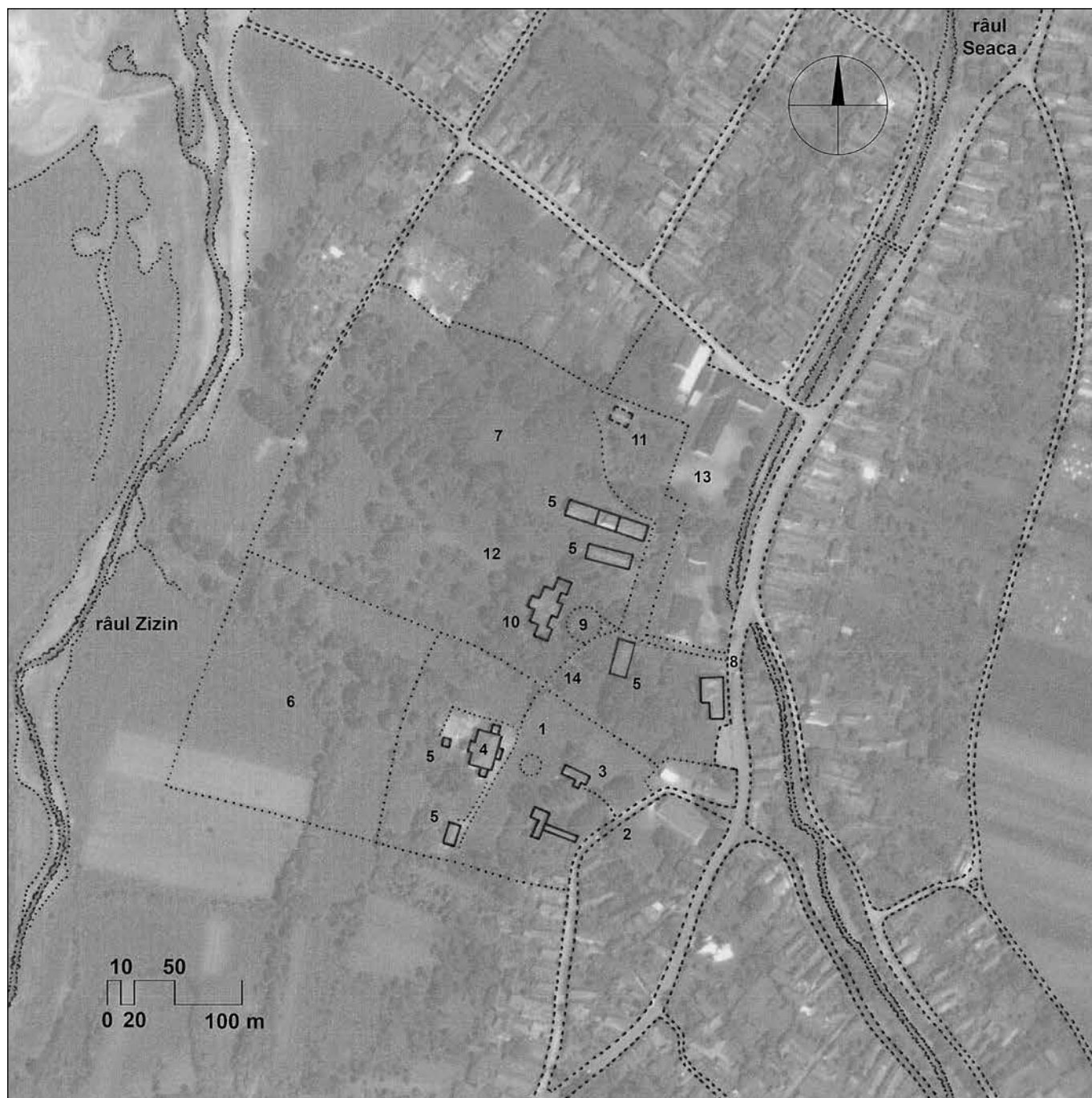


- **Fig. 5.** Gravură de la sfârșitul secolului al XIX-lea sau începutul secolului al XX-lea, înfățișând ansamblul castelului Béldy Pál: pavilionul porții (în planul de mijloc), castelul (în planul îndepărtat) și, parțial, o clădire anexă (în partea dreaptă a imaginii); se întrevăd, de asemenea, unele amenajări dovedind grija pentru plantare © Monumente Uitate
- **Figure 5.** Engraving from the end of the 19th or the beginning of the 20th century, showing the Béldy Pál Manor House ensemble: the gate pavilion (in the middle ground), the manor house (in the background), and, partially, an outbuilding (on the right side of the image); some designs, showing a care for landscaping, can also be seen © Monumente Uitate
- **Foto 2.** Ilustrată de la sfârșitul secolului al XIX-lea sau începutul secolului al XX-lea (utilizată în 1906), înfățișând latura estică a castelului Mikes, precedată de amenajări ornamentale de acces © Monumente Uitate
- **Photo 2.** Postcard from the end of the 19th or the beginning of the 20th century (used in 1906), showing the eastern side of the Mikes Manor House, preceded by ornamental access elements © Monumente Uitate
- **Foto 3.** Ilustrată de la sfârșitul secolului al XIX-lea sau începutul secolului al XX-lea, înfățișând latura estică a castelului Mikes © Monumente Uitate
- **Photo 3.** Postcard from the end of the 19th or the beginning of the 20th century, showing the eastern side of the Mikes Manor House © Monumente Uitate
- **Foto 4.** Ilustrată de la sfârșitul secolului al XIX-lea sau începutul secolului al XX-lea (utilizată în 1908), înfățișând latura vestică a castelului Mikes, însoțită de amenajări ornamentale ale grădinii © Monumente Uitate
- **Photo 4.** Postcard from the end of the 19th or the beginning of the 20th century (used in 1908), showing the western side of the Mikes Manor House, with ornamental landscaping of the garden © Monumente Uitate

vey, we might consider that the hatched areas belonged to the studied sites. On the other hand, limiting the sites to the hatched areas is questionable, even if only for accessibility reasons. While the site of the Nemes Manor House would have been extended to the north-east with an area bordered by roads on two sides, the sites of the Mikes and Béldy Pál Manor Houses

Relief local și dispunerea elementelor majore (fig. 6)

- Terenul este relativ plat, cu o ușoară cădere spre vest, către valea râului Zizin. Clădirile castelelor se succed de-a lungul unei linii care traversează median amplasamentele, în paralel cu drumul principal al așezării. Pe amplasamentul castelului Béldy Pál se mai află, în apropierea laturii



■ **Fig. 6.** Disponerea elementelor majore ale ansamblurilor castelelor Béldy Pál, Mikes și Nemes: 1 – parcul castelului Béldy Pál, 2 – acces în incinta parcului castelului Béldy Pál, 3 – pavilionul porții, 4 – castelul Béldy Pál, 5 – clădire anexă, 6 – întinderea posibilă a amplasamentului castelului Béldy Pál, corespunzător reprezentărilor istorice, 7 – parcul castelelor Mikes și Nemes, 8 – acces în incinta parcului castelelor Mikes și Nemes, 9 – rondou în dreptul intrării în castelul Mikes, 10 – castelul Mikes, 11 – ruina castelului Nemes, 12 – urma fostului iaz, 13 – întinderea posibilă a amplasamentului castelelor Mikes și Nemes, corespunzător reprezentărilor istorice, 14 – aleea de legătură dintre amplasamente (reconstituirea autoarei, suprapusă unei ortofotografii © GoogleEarth, CNES/Airbus, 2018; scala grafică reprezentată este estimativă) © Andreea MILEA

■ **Figure 6.** Placement of the major elements of the Béldy Pál, Mikes, and Nemes Manor House ensembles: 1 – Béldy Pál Manor House park, 2 – access to the Béldy Pál Manor House park, 3 – the gate pavilion, 4 – Béldy Pál Manor House, 5 – outbuilding, 6 – possible size of the Béldy Pál Manor House ensemble, corresponding to the historical representations, 7 – Mikes and Nemes Manor Houses' park, 8 – access to the Mikes and Nemes Manor Houses' park, 9 – round lawn in front of the entrance to the Mikes Manor House, 10 – Mikes Manor House, 11 – Nemes Manor House ruin, 12 – trace of the former pond, 13 – possible size of the Mikes and Nemes Manor Houses' ensemble, corresponding to the historical representations, 14 – the alley connecting the sites (reconstruction of the author, superposed over an orthophoto © GoogleEarth, CNES/Airbus, 2018; the represented graphic scale is estimative) © Andreea MILEA

estice, pavilionul porții, iar în apropierea laturii sudice, o clădire anexă. Pe amplasamentul castelelor Mikes și Nemes se află, de asemenea, clădiri anexe, două dispuse în paralel cu drumul principal al așezării, între acesta și clădirea castelului Mikes; alte două dispuse perpendicular pe drumul principal al așezării, între clădirile castelelor Mikes și Nemes. Partea vestică a amplasamentelor este liberă de construcții. Aici se află, în dreptul

would have been lacking any contact with the road and, as a consequence, would have been inaccessible directly. This does not seem plausible. Also, the site of the Béldy Pál Manor House is shown as having a very small area, where there would have been no place for a garden. Thus, the

hatched areas could represent in fact only the areas with buildings (manor house, outbuildings), completed with the areas of contact with the access roads and with the areas of gardens towards the Zizin River Valley. Less clear and graphically detailed, the Third Military Survey of Austro-Hungary (1869-1887) (Figure 3) presents the same situation.

The mapping of the Kingdom of Hungary (1869-1887) (Figure 4) seems to confirm the presented assumptions, giving clear borders to the sites, all in direct connection either with the main village road (Nemes and Mikes Manor Houses) or with a secondary road (Béldy Pál Manor House), and all having gardens extending to the Zizin River Valley. The site of the Mikes and Nemes Manor Houses appears to be extended to the north-east with the same area in this mapping as well, bordered on two sides by the above-mentioned roads. This mapping shows for the first time the mention *Schl.* (Schloss, manor house) next to the Béldy Pál Manor House, which is thus highlighted when compared to the other manor houses in the settlement (Mikes, Nemes, and Béldy Ladislau).

The shapes of the sites are currently irregular. The site of the Béldy Pál Manor House is bordered to the east by a secondary road of the settlement; to the south by built properties and gardens; to the west by gardens, agricultural plots, and the Zizin River Valley; and to the north by the site of the Mikes and Nemes Manor Houses. The latter is bordered to the east partially by the settlement's main road, partially by built properties; to the north by built properties and gardens; to the west partially by a secondary road of the settlement, partially by gardens, and the Zizin River Valley; and to the south partially by gardens and partially by the Béldy Pál Manor House site.

Local relief and the placement of major elements (Fig. 6)

■ The terrain is relatively flat, with a slight incline to the west, towards the Zizin River Valley. The manor houses follow one another along a line that crosses the sites in their middle, parallel to the settlement's main road. The Béldy Pál Manor House site includes the gate pavilion as well, close to the eastern side, and an outbuilding close to the southern side. Outbuildings are found on the site of the Mikes and Nemes Manor Houses as well, two placed parallel to the settlement's main road, between the road and the Mikes Manor House; other two placed perpendicular to the main village road, between the Mikes and Nemes Manor Houses. The western area of the sites is free of buildings. The trace of the former pond is found here, in front of the Mikes Manor House. Trees are scattered on almost the entire area of the sites, more densely in the western part, towards the edges, and around the Mikes Manor House.

Regarding the historic representations, the First Military Survey of the

clădirii castelului Mikes, urma fostului iaz. Vegetația arborescentă este răsfirată pe aproape întreaga suprafață a amplasamentelor, îndesindu-se în partea vestică, înspre margini și de jur împrejurul clădirii castelului Mikes.

În ceea ce privește reprezentările istorice, prima ridicare topografică militară a Imperiului Habsburgic (1763-1787) (fig. 1) nu oferă indicii privind prezența clădirilor sau amenajărilor pe amplasamentele studiate. Cea de-a doua ridicare topografică militară a Imperiului Austriac (1806-1869) (fig. 2) semnalează prezența clădirilor, dar scara desenului și lipsa clarității reprezentării, datorată suprapunerii hașurii, nu ne permite să urmărim consecvent o corespondență cu situația prezentă. Cea de-a treia ridicare topografică militară a Austro-Ungariei (1869-1887) (fig. 3) este și mai sumară în acest gen de informații și totodată mai puțin clară în reprezentare. Abia în cartarea Regatului Maghiar (1869-1887) (fig. 4) putem observa unele similitudini cu situația actuală. Astfel, pe amplasamentul castelului Béldy Pál par să fie identificabile atât pavilionul porții cât și clădirea castelului, iar pe amplasamentul castelelor Mikes și Nemes par să fie identificabile un corp de clădire consistent în apropierea limitei cu amplasamentul castelului Béldy Pál (reperabil și într-o gravură de la sfârșitul secolului al XIX-lea sau începutul secolului al XX-lea (fig. 5), dar inexistent în prezent), clădirea castelului Mikes, clădirea castelului Nemes, precum și anexele consistente ale acestuia din urmă.

Amenajările de acces

■ Reprezentările cartografice istorice nu ne oferă indicii despre amenajările de acces, dar unele elemente pot fi observate în gravura și ilustratele de la sfârșitul secolului al XIX-lea sau începutul secolului al XX-lea de care dispunem (fig. 5, foto 2-3), constituind o bază pentru comparația cu situația actuală.

Accesul pe amplasamentul castelului Béldy Pál este posibil pe latura sa estică, dintr-un drum secundar al așezării. O legătură este totodată posibilă cu amplasamentul castelelor Mikes și Nemes prin intermediul unei alei care străbate median situl în paralel cu drumul principal al așezării,



■ Foto. 5. Fațada estică a castelului Béldy Pál, privit din drumul principal al așezării
© Andreea MILEA, 2009

■ Foto. 5. Eastern elevation of the Béldy Pál Manor House, seen from the settlement's main road
© Andreea MILEA, 2009



■ **Foto. 6.** Fațada estică a castelului Mikes și rondoul de întoarcere din dreptul său
© Andreea MILEA, 2009

■ **Photo. 6.** Eastern elevation of the Mikes Manor House and the round lawn in front of it
© Andreea MILEA, 2009

■ **Foto. 7.** Castanii rondoului din dreptul fațadei estice a castelului Mikes
© Andreea MILEA, 2009

■ **Photo. 7.** Chestnuts of the round lawn in front of the eastern elevation of Mikes Manor House © Andreea MILEA, 2009



unind anexele castelului Béldy Pál, castelul Béldy Pál și castelul Mikes (foto 8); alea continuă de altfel, cu unele inflexiuni, până la castelul Nemes (foto 9), permițând astfel legătura dintre cele trei castele în cadrul amplasamentelor lor. Gravura de la sfârșitul secolului al XIX-lea sau începutul secolului al XX-lea (fig. 5) ne oferă unele indicii privind amenajările de acces pe amplasamentul castelului Béldy Pál. Odată depășită limita proprietății, alea de acces era condusă prin gangul pavilionului porții și, mai departe, spre clădirea castelului. Observăm delimitarea proprietății cu o împrejmuire opacă de lemn (pari și scânduri); poarta, cu separarea accesului pedestru de cel pentru animale și vehicule; alea, aparent de pământ bătut; și caracterul îngrijit al plantării în dreptul fațadei estice, de acces în clădirea castelului, intermediată printr-un pridvor prominent. În uliță, în dreptul porții, era dispusă o bancă, loc tradițional de socializare. Aparatul de acces, atât pe amplasament cât și în clădirea castelului Béldy Pál s-a păstrat, chiar dacă degradat.

Accesul pe amplasamentul castelelor Mikes și Nemes este posibil pe latura sa estică, din drumul principal al așezării. O alee dreaptă străbate zona dedicată anexelor, ajungând în apropierea fațadei estice a castelului Mikes (foto 6), unde este preluată de traseul circular impus de un rondou de castani (foto 7), care permite întoarcerea în dreptul

Habsburg Empire (1763-1787) (Figure 1) does not offer clues on the existence of buildings or landscaping on the studied sites. The Second Military Survey of the Austrian Empire (1806-1869) (Figure 2) signals the presence of buildings, but the scale of the drawing and its lack of clarity, caused by the superposition of the hatching, does not allow for a consistent pursuit of a correspondence with the current situation. The Third Military Survey of Austro-Hungary (1869-1887) (Fig. 3) is even more vague in this regard and is also less clear in its representation. Only on the mapping of the Kingdom of Hungary (1869-1887) (Figure 4) can we observe some similitude with the current situation. Thus, on the site of the Béldy Pál Manor House, both the gate pavilion and the manor house seem to be present, and on the site of the Mikes and Nemes Manor Houses a building can be identified near the border with the Béldy Pál Manor House site (discernible also in an engraving from the end of the 19th or the beginning of the 20th century (Figure 5), but non-existent at present), as well as the Mikes Manor House, the Nemes Manor House, and the latter's outbuildings.

Access elements

■ The historical cartographic representations do not offer clues on the access elements, but some may be observed on the available engraving and postcards from the end of the 19th or the beginning of the 20th century (Figure 5, Photos 2 and 3), constituting a basis for the comparison with the current situation.

The access to the Béldy Pál Manor House site is possible from its eastern side, from a secondary road of the settlement. A connection is also possible with the Mikes and Nemes Manor House sites, through an alley that crosses the middle of the site, parallel to the main village road, connecting the outbuildings of the Béldy Pál Manor House, the Béldy Pál Manor House, and the Mikes Manor House (Photo 8). The alley continues, with some inflexions, to the Nemes Manor House (Photo 9), allowing thus the connection between the three manor houses within their sites. The engraving from the end of the 19th or the beginning of the 20th century (Figure 5) offers us some clues regarding the access elements of the Béldy Pál Manor House site. Once the estate border was crossed,

■ **Foto. 8.** Aleea de legătură între amplasamente; aici, privind dinspre castelul Mikes către amplasamentul castelului Béldy Pál © Andreea MILEA, 2009

■ **Photo. 8.** The alley connecting the sites; here, looking from the Mikes Manor House towards the Béldy Pál Manor House's site © Andreea MILEA, 2009

■ **Foto. 9.** Aleea de legătură între amplasamente; aici, privind dinspre castelul Mikes către anexele premergătoare castelului Nemes © Andreea MILEA, 2009

■ **Photo. 9.** The alley connecting the sites; here, looking from the Mikes Manor House towards the outbuildings preceding Nemes Manor House © Andreea MILEA, 2009

the access alley led through the gangway of the gate pavilion and further to the manor house. We notice that the estate was delimited by an opaque wooden enclosure (poles and boards); the gate, separating the pedestrian access from the animal and vehicle one; the alley, apparently of beaten earth; and the neat character of the plantings next to the eastern elevation, housing the access to the manor house, through a prominent porch. On the street, beside the gate, there was a bench, a traditional socialisation place. The access elements, both to the site and to the Béldy Pál Manor House, were preserved, even if they are degraded.

The access to the site of the Mikes and Nemes Manor Houses is possible from its eastern side, from the settlement's main road. A straight alley crosses the area dedicated to the outbuildings, reaching near the eastern elevation of the Mikes Manor House (Photo 6), where it is taken over by the circular route imposed by a round lawn with chestnut trees (Photo 7), which allows the turn in front of the entrance to the manor house. This element is at the same time placed on the alley that unites the three manor houses; thus, from here the route can be followed to any of them (Photos 8 and 9). One of the available post-cards from the end of the 19th or the beginning of the 20th century (Photo 2) also signals the presence of the round lawn in front of the Mikes Manor House's eastern elevation; at the time, a round lawn, modelled as a slightly raised hill, with a relatively large area (its diameter was slightly smaller than the length of the manor house's eastern elevation), with both trees and ornamental flower designs, and also pedestrian alleys. The entrance to the Mikes Manor House was found, as now, on the eastern side of the building, in the axis of the symmetrical elevation, highlighted by a central jutting and mediated by a set of steps that make the connection between the levels of the terrain and of the ground floor (Photos 2, 3, and 6).

Regarding the Nemes Manor House, as we have seen, it is possible that its site used to be accessible directly from one of the settlement's roads, in an area to the north-east of the current site's limits. For the moment, the access to the Nemes Manor House's outbuildings and to its ruins can be made from the Mikes Manor House, along the alley that unites the three sites (Photo 9).



intrării propriu-zise în clădire. Rondoul este situat totodată pe aleea care unește cele trei castele; prin urmare, de aici, parcursul este posibil spre oricare dintre ele (foto 8-9). Una din ilustratele de care dispunem, de la sfârșitul secolului al XIX-lea sau începutul secolului al XX-lea (foto 2), semnalează de asemenea prezența rondoului în dreptul fațadei estice a castelului Mikes; la vremea respectivă, un rondou modelat sub formă de dâmb puțin proeminent, de suprafață relativ mare (cu diametrul ceva mai mic decât lungimea fațadei estice a castelului), în care se regăseau atât arbori cât și dispuneri ornamentale floricele, dar și alei pentru parcursul pedestru. Intrarea în castelul Mikes era acomodată, ca și în prezent, pe latura estică a clădirii, în axul fațadei simetrice, fiind semnalată de un rezalit central și intermediată printr-un pachet consistent de trepte făcând legătura dintre nivelul terenului și nivelul parterului (foto 2-3, 6).

În ceea ce privește castelul Nemes, după cum am văzut, se prea poate ca amplasamentul lui să fi fost pe vremuri accesibil direct dintr-unul din drumurile așezării, în cadrul unei suprafețe de teren situată la nord-est de limitele amplasamentului actual. Pentru moment, accesul la anexele castelului Nemes și la ruina acestuia este posibil dinspre castelul Mikes, de-a lungul aleii care unește cele trei amplasamente (foto 9).



■ **Foto. 10.** Grădina de iarnă/veranda de pe fațada vestică a castelului Mikes © Andreea MILEA, 2009
 ■ **Photo. 10.** Winter garden/veranda on the western elevation of the Mikes Manor House © Andreea MILEA, 2009

Castelele și relațiile lor cu amenajările exterioare

■ Cartarea Regatului Maghiar (1869-1887) (fig. 4), poziționând relativ clar clădirile castelelor, face trimitere, prin planimetriile reprezentate, la situația actuală a clădirilor, mai puțin în ceea ce privește castelul Nemes, acum ruinat.

Gravura de la sfârșitul secolului al XIX-lea sau începutul secolului al XX-lea (fig. 5), ilustrând latura estică a castelului Béldy Pál, sugerează și ea că pentru această clădire nu au avut loc transformări majore, din epocă până în prezent. Diferența cea mai notabilă apare la nivelul acoperișului castelului, pe vremuri un acoperiș înalt cu rupere de pantă de factură barocă, în prezent ceva mai scund și fără rupere de pantă (foto 5). Volumetria generală a clădirii s-a păstrat în schimb: un corp masiv central, de plan dreptunghiular, dezvoltat pe demisol și parter înălțat, flancat de două turnuri laterale și cu un pridvor adosat în axul fațadei estice. Pridvorul, accesibil prin trepte din ambele sale laturi și deschizând priveliștea spre zona de acces pe amplasament, este dispozitivul cel mai evident de relaționare a clădirii cu parcul. Cele două turnuri, expresive volumetric, nu se înalță de fapt mai mult decât corpul central, așa încât nu oferă puncte privilegiate de observație asupra împrejurimilor. Fațada vestică prezintă și ea un corp proeminent central, ca o replică dată pridvorului fațadei estice. În prezent, această proeminență este lipsită de veleități deosebite de relaționare a clădirii cu exteriorul. Pentru moment nu putem stabili dacă

The manor houses and their relationships with the landscape designs

■ The mapping of the Kingdom of Hungary (1869-1887) (Figure 4), positioning the manor houses relatively clearly, refers through the represented layouts to the buildings' present situation, except for the Nemes Manor House, which is currently in ruins.

The engraving from the end of the 19th or the beginning of the 20th century (Figure 5), showing the eastern side of the Béldy Pál Manor House, also suggests that no major alterations were carried out for this building, from the represented period to the present day. The most remarkable difference appears at the level of the roof, at the time a high Baroque mansard roof, at present lower and without a break in the slope (Photo 5). However, the general volume of the building was preserved: a massive rectangular central body, with a semi-basement and a raised ground floor, flanked by two lateral towers and with a porch adjacent to the eastern elevation. The porch, accessible through steps on its lateral sides and opening the view on the area of access to the site, is the most obvious device for the relationship

with the exterior. The two towers, expressive as volumes, are not actually higher than the main body, so they do not offer privileged points of observation for the surrounding areas. The western elevation also has a prominent central volume, as an answer to the porch on the eastern elevation. At present, this prominence is lacking in special devices for connecting the building with the exterior. As it was altered over time, we cannot decide for the moment whether it aimed at such a connection with the western area of the site, which is occupied by the park and opens on the Zizin River Valley.

The available postcards from the end of the 19th or the beginning of the 20th century (Photos 2-4) show some aspects of the Mikes Manor House from that period. This building does not seem to have undergone major alterations since then, either (Photos 6, 10). The building has a semi-basement and a raised ground floor, in a linear layout on a south-north direction. The eastern elevation (Photos 2, 3, and 6), housing the access to the manor house, has a rhythm provided by three strong jutties, a central and two lateral ones, with a depth that causes a break in the elevation, the building being perceived from this part of the site more like an alignment of three small volumes than as a larger compact one. Thus, the manor house appears well-integrated into the park, even if on this side there are no special architectural devices that connect the interior and the exterior of the building. The western side (Photos 4, 10) also lacks intermediary spaces but, as shown in the period image and as can be seen today, although in a degraded state, the building had in the western elevation's axis, apart from a prominence of the volume, a wooden light-structured extension, with ample glazing, a possible winter garden or veranda. Thus, even if the space is still closed, the visual connection between the interior and exterior is much stronger than in the other rooms, with ordinary windows. This possible winter garden opens on the former pond (Photo 11) and is directly accessible from outside through a large set of stairs.

Regarding the Nemes Manor House, the lack of period information and the ruined state of the building prevent us from pronouncing on the building's configuration.

Landscape design⁵

■ None of the historical military surveys offer clues on the landscaping of the parks; we notice at most graphic differentiations (colours, models) signalling

5 Taking into account the specifics of landscape architecture and of the elements with which it works, for the study of historical park landscaping elements we consider the following aspects to be of interest: the style of the park's landscaping; the delimitation of the areas with different characters; the compositional principles of the design; the placement of circulation routes, their hierarchy, and the treatment of the stepping surfaces; the placement of the vegetation, the height of the specimens and species used; the presence of ornamental buildings, of ornamental objects, and of outdoor furniture.

accest corp, alterat de altfel în timp, ar fi urmărit o astfel de relaționare spre zona vestică a amplasamentului, ocupată de parc și orientată spre valea râului Zizin.

Ilustratele de care dispunem, de la sfârșitul secolului al XIX-lea sau începutul secolului al XX-lea (foto 2-4), ne prezintă unele aspecte ale clădirii castelului Mikes în epocă. Nici această clădire nu pare să fi fost supusă unor transformări majore de atunci până în prezent (foto 6, 10). Clădirea se dezvoltă pe demisol și parter înălțat, într-o dispunere lineară pe direcția sud-nord. Fațada estică (foto 2-3, 6), de acces în castel, este ritmată de trei rezalături puternice, unul central și două laterale, a căror profunzime produce o rupere de scară, clădirea fiind percepută din această parte a amplasamentului mai degrabă ca o aliniere de trei volume mici decât ca un volum compact de mai mare dimensiune. Astfel, clădirea castelului apare bine integrată în parc, chiar dacă pe această latură nu există dispozitive arhitecturale deosebite de relaționare între interior și exterior. De altfel, nici latura vestică (foto 4, 10) nu prezintă spații de intermediere dar, așa cum imaginea de epocă ilustrează și așa cum este vizibil și în prezent, chiar dacă într-o stare degradată, clădirea dispunea în axul fațadei vestice, dincolo de o proeminență a volumului, și de o extindere pe structură ușoară de lemn, cu vitraje ample, o posibilă grădină de iarnă sau verandă. Astfel, chiar dacă spațiul este în continuare închis, legătura vizuală dintre interior și exterior este mult mai puternică decât în celelalte spații, prevăzute cu ferestre comune. Această posibilă grădină de iarnă este îndreptată către fostul iaz (foto 11) și este accesibilă direct din exterior printr-un pachet amplu de trepte.

În ceea ce privește castelul Nemes, lipsa de informații din epocă dar și starea ruinată a clădirii ne împiedică să ne pronunțăm în privința configurației clădirii.

Amenajarea exterioară⁵

■ Niciuna dintre ridicările topografice militare istorice nu oferă indicii privind amenajările parcurilor; observăm cel mult diferențieri grafice (culori, modele) semnalând probabil caracterul particular al utilizării suprafețelor sau regimul de proprietate. Astfel, prima ridicare topografică militară a Imperiului Habsburgic (1763-1787) (fig. 1) reprezintă grădinile cu caracter deosebit (probabil prin mărime, utilizare) suprapunând suprafețelor verzi un model grafic de arbori. Cea de-a doua ridicare topografică militară a Imperiului Austriac (1806-1869) (fig. 2) recurge la hașurare, dar și la modele grafice de mici circumferințe (arbori) și fire (iarbă); cea de-a treia ridicare topografică militară a Austro-Ungariei (1869-1887) (fig. 3) reia această convenție grafică, iar cartarea Regatului Maghiar (1869-1887) (fig. 4) revine, lipsindu-se de culoare, la convenția grafică din prima ridicare topografică militară prin semnalarea grădinilor cu un model de arbori.

Gravura de la sfârșitul secolului al XIX-lea sau începutul secolului al XX-lea (fig. 5) ne indică grija pentru plantare în zona de acces a amplasamentului castelului Béldy Pál. Arbori sunt plantați la uliță, în exteriorul incintei, dintre care doi puiți cu suporturi încadrează poarta. În dreptul pavilionu-

5 Luând în considerare specificul arhitecturii peisagere și a elementelor cu care ea lucrează, pentru studiul amenajărilor parcurilor istorice considerăm că sunt de interes următoarele aspecte: stilul amenajării parcului; delimitarea zonelor cu caracter diferit; principiile compoziționale la care s-a recurs în amenajare; dispunerea traseelor de circulație, ierarhia acestora și tratarea suprafeței de călcare; dispunerea vegetației, înălțimea exemplarelor vegetale și speciile întrebuintate; prezența construcțiilor ornamentale, a obiectelor ornamentale și a mobilierului de parc.



■ **Foto 11.** Vedere spre partea vestică a parcului castelelor Mikes și Nemes; aici, în dreptul urmei denivelate a fostului iaz © Andreea MILEA, 2009
 ■ **Photo 11.** View on the western area of the Mikes and Nemes Manor Houses' park; here, next to the uneven trace of the former pond © Andreea MILEA, 2009



■ **Foto 12.** Vedere din dreptul fațadei vestice a castelului Mikes către anexele premergătoare castelului Nemes © Andreea MILEA, 2009
 ■ **Photo 12.** View from the western elevation of the Mikes Manor house on the outbuildings preceding the Nemes Manor House © Andreea MILEA, 2009

lui porții abundă vegetația arborescentă și/sau arbustivă. În dreptul fațadei estice a castelului Béldy Pál observăm o dispunere compactă de vegetație de mai mică înălțime, posibil arbustivă sau floricolă. În dreptul fațadei sudice apar plantații, aparent regulat, câțiva arbori de mică înălțime, posibil puieti. Iar dincolo de clădirea castelului, spre vest, se înalță o masă aparent densă de vegetație, probabil arbori masivi. În imagine se remarcă siluetele svelte, putem presupune, a doi plopi; unul în uliță, altul în parc. Dispunerile vegetației (libere, pitorești, dar ordonându-se în imediata vecinătate a clădirii castelului) ne îndeamnă să presupunem că amenajarea ar fi urmărit caracteristicile stilului romantic,⁶ poate mixt.⁷ Desenul nu ne oferă indicii despre posibila existență a vreunui tip de pavimentare a aleilor; cea care se desprinde din uliță, cel puțin, pare a fi, la fel ca și ulița, din pământ bătut. La uliță, în apropierea intrării, se întrezărește o bancă. Situația actuală nu definește o amenajare intenționată (foto 5). Amplasamentul este în cea mai mare parte înierbat, cu o vegetație arborescentă răsfirată în diferite ponderi pe suprafața sa.

Ilustratele de la sfârșitul secolului al XIX-lea sau începutul secolului al XX-lea (foto 2-4) ne oferă informații privind amenajările în apropierea clădirii castelului Mikes. Identificăm astfel: rondoul din dreptul intrării în castel (foto 2), prezentat deja la *Amenajările de acces*; straturile ornamentale floricole dintre rezaliturile fațadei estice (foto 3); straturile înierbate și plantate cu puieti de arbuști ornamentali, susținuți cu ajutorul unor pari, în apropierea fațadei vestice (foto 4). În toate cele trei ilustrate se întrezărește în fundal vegetația arborescentă masivă, îmbinând exemplare foioase cu conifere (posibil castani, plopi, molizi). De asemenea, aleile vizibile în aceste ilustrate par a fi cel mult prunduite. În timp ce în dreptul fațadei estice aleile par a fi la nivel cu straturile înierbate, rondoul din dreptul intrării este înălțat sub forma unui dâmb lin, iar straturile din apropierea fațadei vestice par a fi situate la un nivel inferior față de nivelul aleilor. Ca elemente decorative se remarcă cele două urne plantate, situate la baza parapetelor care delimitează treptele de acces în castel (foto 2-3), urne în prezent dispărute. Caracteristicile semnalate ale fostei amenajări ar încadra-o în stilul mixt de amenajare peisagistică. În prezent, amenajările

probably the particular character of land usage or property forms. Thus, the First Military Survey of the Habsburg Empire (1763-1787) (Figure 1) shows the gardens that are special (probably through size or use), superposing a graphic model of trees over the green areas. The Second Military Survey of the Austrian Empire (1806-1869) (Figure 2) uses hatching, but also graphic models of small circles (trees) and blades (grass); the Third Military Survey of Austro-Hungary (1869-1887) (Figure 3) uses once again this graphic convention, and the mapping of the Kingdom of Hungary (1869-1887) (Figure 4) goes back, not using colour, to the graphic conventions of the First Military Survey, signalling the gardens with a tree model.

The engraving from the end of the 19th or the beginning of the 20th century (Figure 5) shows the care for landscaping in the access area of the Béldy Pál Manor House. Trees are planted on the street, outside the enclosure, of which two supported saplings frame the gate. The vegetation, both trees and shrubs, is abundant next to the gate pavilion. In front of the eastern elevation of the Béldy Pál Manor House we notice a compact planted area with a smaller height, possibly shrubs or flowers. Next to the southern elevation there are several smaller, apparently regularly-planted trees, possibly saplings. Beyond the manor house building, to the west, there is an apparently dense vegetation mass, probably massive trees. We notice the svelte silhouettes, we can suppose, of two poplars; one in the street, another in the park. The layout of the vegetation (free, scenic, but more ordered near the manor house) leads us to assume that the design followed the characteristics of the Romantic⁶ or maybe mixed⁷ style.

6 Pentru o prezentare detaliată a caracteristicilor stilului peisager sau romantic de amenajare a grădinilor, a se vedea publicația lui Ana-Felicia ILIESCU (2003, 56-58).

7 Pentru o prezentare detaliată a caracteristicilor stilului mixt de amenajare a grădinilor, a se vedea publicația lui Ana-Felicia ILIESCU (2003, 64).

6 For a more comprehensive description of the characteristics of the landscaped or Romantic garden design style, see the publication of Ana-Felicia ILIESCU (2003, 56-58).

7 For a more comprehensive description of the characteristics of the mixed garden design style, see the publication of Ana-Felicia ILIESCU (2003, 64).

The drawing does not offer clues on the possible existence of a pavement for the alleys; the one branching out from the street, at least, seems to be made, like the street, of beaten earth. A bench can be seen on the street, near the entrance. The present situation does not define an intentional landscaping (Photo 5). The site is mostly overrun by grass, with trees dispersed to different degrees.

The postcards from the end of the 19th or the beginning of the 20th century (Photos 2-4) offer information on the landscaping elements near the Mikes Manor House. We identify: the round lawn in front of the entrance to the manor house (Photo 2), already presented in the *Access elements* section; the ornamental flowerbeds between the eastern elevation's jutties (Photo 3); the lawns planted with ornamental tree saplings supported by poles near the western elevation (Photo 4). In the background of all three postcards we can see the massive trees, combining deciduous and coniferous specimens (possibly chestnuts, poplars, spruces). Also, the alleys visible in these postcards seem to be gravelled, at most. While next to the eastern elevation the alleys seem to be at the level of the lawn, the round lawn in front of the entrance is raised as a small hill, and the beds near the western elevation seem to be lower than the alleys. We notice as ornamental elements the two planted urns, missing at present, placed at the base of the parapets that border the steps to the manor house entrance (Photos 2 and 3). The mentioned features of the former landscaping would fit it in the mixed landscaping style. Currently, the mentioned elements are missing or degraded. As we have already seen, the round lawn (Photos 6 and 7) has lost its ornamental character, being defined only by its layout and by the presence of trees; the ornamental beds in front of the eastern and western elevations were lost (Photo 6), and the site is mostly wild (Photo 12). Trees and shrubs are abundant, especially near the manor house. Tall specimens of spruce can be found even today, as shown in the period postcards. The trace of a former pond can be identified through a depression in the terrain, to the west of the manor house (Photo 11), accompanied here and there by weeping willows. The alleys were asphalted over time.

Regarding the Nemes Manor House, the lack of period information and the wild state of the site prevent us from making assumptions on the possible former landscaping.

Conclusion

■ The Béldy Pál, Mikes, and Nemes Manor House ensembles have lost, over time, most of the park landscaping they may have had. Several tree specimens have survived, especially around the Mikes Manor House, and the trace of the former pond is still legible on the site. The manor houses are in different states at present: while the Béldy Pál Manor House, regaining its function, recently went through a rehabilitation process that ensured its continuity over time, the Mikes and Nemes manor houses are in an advanced state of degradation.

amintite sunt degradate sau dispărute. După cum am văzut deja, rondoul (foto 6-7) și-a pierdut caracterul ornamental, fiind definit doar prin delimitarea suprafeței sale și prin prezența arborilor; straturile ornamentale din dreptul fațadei estice și vestice s-au pierdut (foto 6), iar amplasamentul este în mare parte sălbătic (foto 12). Vegetația arbustivă și arborescentă abundă, îndeosebi în preajma clădirii castelului. Exemplare înalte de molid există și în prezent, așa cum ilustrau și fotografiile de epocă. La vest de clădirea castelului este identificabilă, printr-o depresiune în teren, urma unui fost iaz (foto 11), însoțită pe alocuri de sălcii pletoase. Aleile au fost, cu timpul, asfaltate.

În ceea ce privește castelul Nemes, lipsa de informații din epocă dar și starea sălbătică a sitului ne împiedică să ne pronunțăm asupra posibilităților foste amenajări.

Concluzie

■ Ansamblurile castelelor Béldy Pál, Mikes și Nemes au pierdut în timp, în cea mai mare parte, amenajările de parc pe care le vor fi avut. Câteva exemplare vegetale arborescente au supraviețuit, îndeosebi în preajma castelului Mikes, iar urma fostului iaz este încă lizibilă pe amplasament. Clădirile castelelor se prezintă la ora actuală în condiții diferite: în timp ce castelul Béldy Pál, redobândindu-și funcțiunea, a trecut recent printr-un proces de reabilitare, asigurându-i-se astfel continuitatea, castelele Mikes și Nemes se află într-o stare avansată de degradare.

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■ Irina LECA¹

Proiectul *Sustainable protection and promotion of Art Nouveau heritage in the Danube Region (2017-2019)*

■ *Cuvinte cheie: proiect transnațional, patrimoniu construit, Art Nouveau, regiunea Dunării.*

■ Armonizând dorința de modernizare cu o exuberanță a expresiei artistice, posibilă datorită inovațiilor tehnologice de la finele secolului al XIX-lea, stilul Art Nouveau și-a lăsat amprenta în majoritatea orașelor europene și nu numai. Divers prin numeroasele sale ipostaze, fiecare dintre ele specifice arealelor culturale în care s-au manifestat, dar unitar prin coerența principiilor artistice și a mesajului, acest curent a reprezentat un punct de cotitură în istoria artei și arhitecturii. La nivel european, vorbim de un prim moment de sincronizare arhitecturală, din Marea Britanie și până la granița cu Imperiul Otoman. În regiunea Dunării, sub influența Secessionului vienez, acest curent a devenit o trăsătură reprezentativă a multor orașe ce făceau parte, la finalul secolului al XIX-lea, din Imperiul Austro-Ungar, acestea având caracteristici similare din punct de vedere arhitectural și urbanistic.

Devenit în doar câteva decenii desuet, raportat la realitățile de după Primul Război Mondial, Art Nouveau-ul a deschis drumul către simplitatea calculată a curentelor arhitecturale ce au urmat. Din deceniile următoare și până azi, moștenirea acestui curent a rămas într-un con de umbră. Recent însă, după mai bine de 100 de ani de la apogeul său artistic, valorile curentului Art Nouveau încep să fie recunoscute, în context cultural european. Clădirile Art Nouveau sunt parte din identitatea orașelor și a comunităților lor, iar autoritățile încearcă să găsească soluții prin care acest patrimoniu construit să devină o resursă.

Este și cazul Primăriei Oradea, care, conștientizând potențialul numeroaselor clădiri construite în stil Secession de a fi parte din identitatea orașului, a inițiat un proiect ambițios care își dorește să definească uneltele necesare pentru protecția și promovarea durabilă a acestui patrimoniu, prin strânsa cooperare între 10 parteneri² din opt țări. Proiectul în ansamblul său urmărește să studieze și să pună în valoare patrimoniul construit Art Nouveau din zona Dunării.

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The Project *Sustainable protection and promotion of Art Nouveau heritage in the Danube Region (2017-2019)*

■ **Keywords:** transnational project, built heritage, Art Nouveau, Danube Region

■ Harmonising the desire for modernisation with an exuberance of artistic expression, possible due to the technical innovations from the end of the 19th century, Art Nouveau has left its mark on most European cities and beyond. Diverse through its many instances, each of them specific to the cultural areas in which they had manifested, but homogeneous through the coherence of its artistic principles and message, this style represented a turning point in the history of art and architecture. At a European level, we are talking about a first moment of architectural synchronisation from Great Britain to the borders of the Ottoman Empire. In the Danube Region, under the influence of Viennese Secession, this movement became a representative feature of many cities that were part, at the end of the 19th century, of Austria-Hungary, having similar characteristics from an architectural and urban planning point of view.

Becoming outdated in only several decades, in relation to the realities of the period after World War I, Art Nouveau opened the road for the calculated simplicity of the subsequent architectural styles. From the following decades until today, the heritage of this style remained in obscurity. Recently, however, after more than 100 years since its artistic height, the values of Art Nouveau begin to be recognised in a European context. Art Nouveau buildings are part of the identities of cities and their communities, and the administration searches for solutions to transform this built heritage into a resource.

This is the case of Oradea Municipality, which, acknowledging the potential of the many buildings in Secession style to be a part of the city's identity, has initiated an ambitious project that wishes to define the necessary tools for the protection and sustainable promotion of this heritage, through the close cooperation of

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10 partners² from eight countries. The project in its whole aims to study and promote the Art Nouveau built heritage in the Danube area.

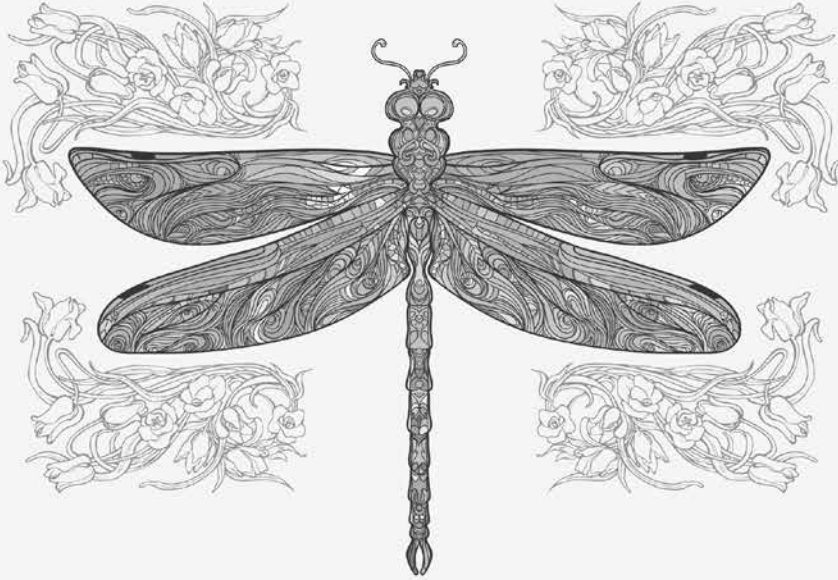
The partners carry out a series of actions and develop measures to cover the entire sphere of heritage protection: inventory, conservation, theoretic measures, legislation, public policies, strategies, and promotion actions – to create an example of good practices in the preservation and promotion of built heritage. Within the research and learning component, the partners develop a series of studies (art history, urban planning), courses and workshops (urban planning, plastering, museology) dedicated to conservation specialists. The partners aim to digitise Art Nouveau heritage, through an online repertoire of representative buildings, that will be completed during 2019. In this regard, the consortium conducts an on-site research of Art Nouveau buildings, the first evaluation of the preservation state of this built heritage in the Danube Region. The research is carried out throughout the project, the collected material being completed with images and archive plans.

As speciality partner in this project, one of the main roles of the National Heritage Institute (INP) is the development of tools for public authorities: the *Strategy for the Protection and Promotion of Art Nouveau Built Heritage* and the *Transnational Methodology for Public Administration for the Inclusion of Art Nouveau Heritage Conservation in the Context of Urban Development*. Both documents will be created through the close collaboration with all parties interested in the management of this heritage, from government institutions to local authorities, civil society, and citizens. The strategy will be an instrument for an integrated and harmonised approach at a transnational level, also aiming to create and strengthen a cooperation framework for built heritage conservation within the Danube Region, to optimise the protection of this heritage and to synchronise this protection with the processes of modern urban development. The strategy also approaches the increase of the touristic potential of Art Nouveau built heritage.


To this end, INP organised, in April 2018, a series of workshops in Oradea, Timișoara, and Bucharest, which brought together both representatives of the national public authorities, as well as specialists in fields related to built heritage, representatives of civil society, and owners and managers of Art Nouveau buildings. A series of

² Oradea Municipality, Romania – Lead Partner; Museum of Applied Arts, Budapest, Hungary – IMM; Urban Planning Institute of the Republic of Slovenia, Ljubljana – UIRS; Austrian Museum of Applied Arts / Contemporary Art, Vienna – MAK; Museum of Arts and Crafts, Zagreb, Croatia – MUO; Szeged and Surroundings Tourism Nonprofit Ltd., Hungary; National Academic Library and Information System Foundation, Sofia, Bulgaria – NALIS; City of Subotica, Serbia; Republic Institute for Protection of Cultural Monuments, Belgrade, Serbia; National Institute of Heritage, Bucharest, Romania – INP. Associated partners: Réseau Art Nouveau Network, Brussels, Belgium; Ministry of Regional Development and Public Administration, Bucharest, Romania; International Council for Monuments and Sites – ICOMOS Romania.

Sustainable protection and promotion of
ART NOUVEAU
 heritage in the Danube Region



A stream of cooperation



1.206.795,15 € ERDF
 195.330 € IPA
 Project cofunded by European Union funds (ERDF, IPA)

Partenerii derulează o serie de acțiuni și dezvoltă măsuri ce acoperă întreaga sferă a protecției patrimoniului: inventariere, restaurare, măsuri teoretice, legislație, politici publice, strategii și acțiuni de promovare – pentru a crea un exemplu de bună practică în conservarea și promovarea patrimoniului construit. În componenta de cercetare și învățare, partenerii dezvoltă o serie de studii (istoria artei, urbanism), cursuri și ateliere (urbanism, tencuieli, muzeologie) dedicate specialiștilor în restaurare. Partenerii își propun digitalizarea patrimoniului Art Nouveau, prin intermediul unui repertoriu on-line de clădiri reprezentative, care va fi finalizat în cursul anului 2019. În acest sens, consorțiul desfășoară o cercetare în teren a clădirilor Art Nouveau, prima evaluare a stării de conservare a acestui patrimoniu construit din regiunea Dunării. Cercetările se desfășoară pe întreg parcursul proiectului, materialul colectat fiind completat cu imagini și planuri din arhive.

Ca partener de specialitate în acest proiect, unul dintre principalele roluri ale INP este dezvoltarea de instrumente pentru autoritățile publice: *Strategia pentru protecția și promovarea patrimoniului construit Art Nouveau* și *Metodologia transnațională pentru administrația publică pen-*

tru includerea conservării patrimoniului Art Nouveau în contextul dezvoltării urbane. Ambele documente vor fi realizate prin strânsa colaborare cu toate părțile interesate în managementul acestui patrimoniu, de la instituții guvernamentale la autorități locale, societate civilă și cetățeni. Strategia va fi un instrument pentru o abordare integrată și armonizată la nivel transnațional, având de asemenea scopul de a stabili și întări un cadru de cooperare pentru conservarea patrimoniului construit în regiunea Dunării, de a optimiza protecția acestui patrimoniu și de a sincroniza această protecție cu procesele dezvoltării urbane moderne. Strategia abordează de asemenea și creșterea potențialului turistic al patrimoniului construit Art Nouveau.

În acest sens, INP a organizat în aprilie 2018 o serie de ateliere în Oradea, Timișoara și București, care au reunit atât reprezentanți ai autorităților publice naționale, cât și specialiști în domenii conexe patrimoniului construit, reprezentanți ai societății civile și proprietari și administratori de clădiri Art Nouveau. La finalul atelierelor, au fost identificate o serie de măsuri necesare și fezabile la nivel național și transnațional pentru protecția și promovarea patrimoniului Art Nouveau și pentru creșterea implicării în astfel de demersuri. Aceste priorități vor fi corelate în perioada următoare cu rezultatele atelierelor derulate de partenerii din alte țări și vor sta la baza documentului strategic, care va fi finalizat în cursul anului 2019.

Atât *Strategia*, cât și *Metodologia* pentru administrațiile publice, vor avea la bază și rezultatele cercetărilor în urbanism și istoria artei, componente ale proiectului coordonate de UIRS, respectiv IMM. În ceea ce privește componenta de urbanism a proiectului, INP, în colaborare cu biroul de arhitectură Planwerk, au prezentat partenerilor în cadrul atelierelor o serie de studii de caz privind patrimoniul Secession din principalele orașe din centrul și vestul țării: Miercurea Ciuc, Cluj-Napoca, Arad, Târgu Mureș și Timișoara.

Ultimele două au fost detaliate în cadrul studiului ce va fi publicat în volumul dedicat patrimoniului construit Art Nouveau în context urban, editat în cadrul proiectului de UIRS. Studiul analizează contextul istoric al apariției clădirilor Secession în cele două orașe, situația curentă și influența lor în contextul dezvoltării urbane istorice și actuale, alături de oportunități de valorificare. Studiul identifică o serie de probleme, aplicabile clădirilor și spațiilor publice, precum neutilizarea, utilizarea necorespunzătoare, reabilitarea neconformă, incertitudinea regimului de proprietate sau fragmentarea excesivă, alături de lipsa unei viziuni sistematice și integrate privind reabilitarea acestui patrimoniu.

Studiul realizat în cadrul proiectului va putea servi la fundamentarea scenariilor de dezvoltare viitoare, care ar putea să se bazeze pe un principiu general valabil: acela de a înapoia acestor ansambluri de clădiri și, în consecință, spațiului public din jurul lor, rolul de a articula diferite părți dintr-o anumită structură urbană. Astfel de articulații funcționale și vii ar putea atunci să genereze reînnoirea urbană și să o propage mai departe către periferie, contribuind la o continuitate funcțională-spațială dorită în întregul oraș. Studiul ar putea crea, de asemenea, cadrul pentru scenarii ce combină intervenții punctuale cu intervenții în rețea, armonizate cu un cadru legislativ și administrativ pentru protejarea patrimoniului Secession.

De asemenea, pentru România, strategia și metodologia se vor baza și pe rezultatul cercetărilor de teren realizate de INP pentru repertoriul digital. Aceste cercetări vizează identificarea în teren a clădirilor construite în acest stil ce sunt incluse în Lista Monumentelor Istorice, fie individual, fie ca parte a siturilor și ansamblurilor, precum și a altor clădiri ce nu sunt clasate. Curentul Art Nouveau a cunoscut, pe teritoriul României, expresii diferite, motivate de realitățile politice și culturale de

measures were identified at the end of the workshops, necessary and feasible at national and transnational levels for the protection and promotion of Art Nouveau heritage and for an increased involvement in such initiatives. These priorities will be correlated in the next period with the results of the workshops conducted by partners in other countries and will form the basis for the strategic document, which will be finalised in 2019.

Both the *Strategy* and the *Methodology* for public administrations will be based also on the results of research in urban planning and art history, project components coordinated by UIRS, respectively IMM. Regarding the urban planning component of the project, INP, in collaboration with the Planwerk architecture firm, presented to the partners during the workshops a series of case studies regarding Secession heritage in the main cities of the country's central and western areas: Miercurea Ciuc, Cluj-Napoca, Arad, Târgu Mureș, and Timișoara.

The latter two were detailed in the study that will be published in the volume dedicated to the Art Nouveau built heritage in urban context, edited within the project by UIRS. The study analyses the historic context of the emergence of Secession buildings in the two cities, the current situation and their influence in the context of historic and current urban development, along with enhancement opportunities. The study identifies a series of issues, applicable to buildings and public spaces, such as lack of use, inappropriate use, inappropriate rehabilitation, uncertainty concerning ownership or excessive fragmentation, along with a lack of systematic and integrated vision regarding the rehabilitation of this heritage.

The study conducted within the project will serve to substantiate future development scenarios, which could be based on a generally valid principle: to return to these building ensembles and, consequently, to the public space around them, the role of articulating different parts of a certain urban structure. This type of functional and living articulations could then generate an urban renewal and transfer it further to the periphery, contributing to a functional and spatial continuity, desired in the entire city. The study could also create a framework for scenarios that combine isolated interventions with interconnected ones, harmonised with a legislative and administrative framework for the protection of Secession heritage.

Also, for Romania, the strategy and the methodology will be based on the field research carried out by INP for the digital repertoire. These researches aim to identify in the field buildings in this style included on the List of Historic Buildings, either individually or as part of sites and ensembles, as well as others that are not listed. Art Nouveau has known different expressions in Romania, motivated by the political and cultural realities at the beginning of the 20th century. From the Austro-Hungarian Secession in the west of the country, to that of Hungarian inspiration in the centre of Transylvania, to the exuberant Art Nouveau of the Casino in Constanța, the style variations offer the chance to discover an especially rich heritage, unfortunately little known and appreciated. Also, keeping in mind its relatively young age, the in-

stances of this style were not protected or researched enough until now, the buildings suffering heavy damages in the last decades, especially at the level of authenticity of materials and concept. Through all the project's activities, INP aims also at a better understanding and protection of the Art Nouveau built heritage at national level, through the harmonisation of the protection practices with global trends regarding community involvement and broadening the understanding of the notion of heritage, in order to overcome bureaucratic barriers.

Another important point of the project is the World Art Nouveau Day, on June 10, date established in 2013 to celebrate the memory of two great representatives of the style – Antonio GAUDI and Ödön LECHNER. Each year, various events are organised worldwide to bring back to the public's attention the people and works of art that marked this style, as well as the stories and values of Art Nouveau heritage. In Romania the event was first marked through this project, in 2017. In Oradea the Municipality organised guided tours, exhibitions, video projections, while INP organised events in Bucharest, Timișoara, Târgu Mureș, and Constanța. Within the two editions, the public in Timișoara, Târgu Mureș, and Constanța was able to participate in guided tours of the main Art Nouveau buildings in each city, organised with help from local partners.

In addition, in the context of the inclusion of the Constanța Casino in the Europa Nostra's *7 Most Endangered* Programme, at the initiative of the ARCHÉ Association, INP organised in Constanța the conference *Conservation and Reactivation of Built Heritage*. Reuniting international experts in the field of built heritage conservation and European funding, the event brought to the attention of the public and local authorities examples of good practices, where heritage became once again an identity and economic resource for the community, such as Victor HORTA's Museum and studio in Brussels, the Synagogue in Subotica, as well as other examples in the Netherlands and Romania, examples meant to be an inspiration for the future solutions for the adaptive reuse of the Casino.

The project, halfway through its implementation period, is already showing results, especially in the sphere of public involvement and awareness raising regarding Art Nouveau heritage values. The research, cooperation, and promotion activities will continue after the end of the project, but 2019 still remains a key moment for the finalisation of the strategic tools, also important at national level in the context of the 2020 List of Historic Buildings and of the feasible high priority measures for a better conservation of built heritage in Romania.

The project *Sustainable protection and promotion of Art Nouveau heritage in the Danube Region* is financed through the Danube Transnational Cooperation Programme (DTP), a financing tool of Interreg aiming to improve the implementation of regional development policies and programmes in the Danube area. In the desire to reach a high and homogeneous level of territorial integration, the DTP Programme acts as a vector and a pioneer in transnational policies.

la începutul secolului XX. De la Secessionul de factură Austro-Ungară din vestul țării, la cel de inspirație maghiară din centrul Transilvaniei și până la Art Nouveau-ul exuberant al Cazinoului din Constanța, variațiile stilului oferă ocazia descoperirii unui patrimoniu deosebit de bogat, din păcate puțin cunoscut și apreciat. De asemenea, având în vedere vechimea relativ mică, ipostazele acestui curent nu au fost până acum protejate sau cercetate îndeajuns, clădirile suferind grave distrugerii în ultimele decenii, mai ales la nivelul autenticității materialelor și conceptului. Prin toate activitățile proiectului, INP are ca obiectiv și o mai bună cunoaștere și protecție a patrimoniului construit Art Nouveau la nivel național, prin armonizarea practicilor de protecție cu tendințele globale privind implicarea comunităților și lărgirea înțelegerii noțiunii de patrimoniu, pentru a depăși barierele birocratice.

Un alt punct important al proiectului este Ziua Mondială Art Nouveau, 10 iunie, dată stabilită în 2013 pentru a celebra memoria a doi mari reprezentanți ai stilului – Antonio GAUDI și Ödön LECHNER. Anual, la nivel mondial se organizează evenimente variate care reaud în atenția publicului oamenii și operele ce au marcat acest curent artistic, precum și poveștile și valorile patrimoniului Art Nouveau. În România, evenimentul a început să fie marcat, prin proiectul de față, în 2017. În Oradea, Primăria a organizat tururi ghidate, expoziții, proiectii video, iar INP a organizat evenimente în București, Timișoara, Târgu Mureș și Constanța. În cadrul celor două ediții, publicul din Timișoara, Târgu Mureș și Constanța a putut participa la tururi ghidate ale principalelor clădiri Art Nouveau din oraș, organizate cu ajutorul partenerilor locali.

De asemenea, în contextul includerii Cazinoului din Constanța, la inițiativa Asociației ARCHÉ, în programul *7 Most Endangered* al Europa Nostra, INP a organizat la Constanța conferința *Conservarea și reactivarea patrimoniului construit*. Reunind experți internaționali în domeniul conservării patrimoniului construit și finanțării europene, evenimentul a adus în atenția publicului și a autorităților locale exemple de bune practici în care patrimoniul a redevenit o resursă identitară și economică pentru comunitate, precum Muzeul și atelierul lui Victor HORTA din Bruxelles, Sinagoga din Subotica, precum și alte exemple din Olanda și România, exemple menite a fi o inspirație pentru viitoarele soluții de refuncționalizare a Cazinoului.

Proiectul, aflat la jumătatea perioadei de implementare, oferă deja rezultate, mai ales în sfera implicării publicului larg și a creșterii conștientizării valorilor patrimoniului Art Nouveau. Activitățile de cercetare, cooperare și promovare vor continua și după încheierea proiectului, însă 2019 rămâne în continuare un moment cheie pentru finalizarea instrumentelor strategice, importante de asemenea la nivel național în contextul Listei Monumentelor Istorice din 2020 și a măsurilor prioritare fezabile pentru o mai bună conservare a patrimoniului construit din România.

Proiectul *Sustainable protection and promotion of Art Nouveau heritage in the Danube Region* este finanțat prin programul de Cooperare Transnațională Dunărea. Acesta este un instrument de finanțare al Interreg care urmărește îmbunătățirea punerii în aplicare a politicilor și programelor de dezvoltare regională în zona Dunării. În dorința de a atinge un nivel înalt și omogen de integrare teritorială, programul DTP acționează ca un vector și un pionier în politicile transnaționale.



In memoriam Gheorghe Sion

(† March 24, 2018)

(†24 martie 2018)

(† 2018. március 24.)

■ Another departure, painful and difficult to accept, marked the spring of 2018. The death of Ghighi SION – as we all called him, without exception – struck his friends and relatives like lightning.

He dedicated his entire life to historic buildings, working since 1968, after graduating the “Ion Mincu” Architecture Institute, at the Historic Buildings Directorate, as a restoration architect, project chief, and then as the head of the design team of the National Cultural Heritage Directorate, his superiors being Ștefan BALȘ and Virgil ANTONESCU. Among his friends were architects Nicolae DIACONU and Ioana GRIGORESCU.

After the abusive abolition of the Historic Buildings Directorate in 1977, Ghighi SION worked within the Economic Directorate of National Cultural Heritage, where his work focused on aspects regarding the records on historic buildings and the approval of their restoration projects. Among the works he was involved in during this period, we mention only Putna Monastery, the Princely Courts of Bacău, collaborations on restoration projects such as the Arbore Church ensemble or the church of the Soveja Monastery.

Moreover, he represented the living memory of historic buildings, knowing the archives of the old Historic Buildings Commission and Directorate like none

■ Primăvara anului 2018 a mai înregistrat o plecare, dureroasă și greu de acceptat. Vestea morții lui Ghighi SION – așa cum, fără excepție, îl numeam cu toții – a căzut precum un fulger peste prieteni și apropiați.

Întreaga sa viață a dedicat-o monumentelor istorice, lucrând din anul 1968, după absolvirea Institutului de Arhitectură “Ion Mincu”, la Direcția Monumentelor Istorice, ca arhitect restaurator, șef de proiect și apoi ca șef al atelierului de proiectare al Direcției Patrimoniului Cultural Național, magistrii săi fiind Ștefan BALȘ și Virgil ANTONESCU, iar printre apropiați, arhitecții Nicolae DIACONU și Ioana GRIGORESCU.

După abuziva desființare a Direcției Monumentelor Istorice din 1977, Ghighi SION a lucrat în cadrul Direcției Economice și a Patrimoniului Cultural Național, unde activitatea sa s-a îndreptat spre aspectele privind evidența monumentelor istorice și avizarea proiectelor de restaurare ale acestora. Printre lucrările în care s-a implicat în această perioadă numim doar Mănăstirea Putna, curțile domnești de la Bacău, colaborări la proiecte de restaurare ca ansamblul bisericii Arbore, biserica Mănăstirii Soveja.

Mai mult decât atât, el a reprezentat memoria vie a monumentelor istorice, cunoscând ca nimeni altul arhivele vechii Comisiuni a

■ 2018 tavaszán egy újabb fájdalom és nehezen elfogadható távozás tanúi voltunk. Ghighi SION – ahogyan kivétel nélkül mindannyian nevezтік – halálának híre villámként csapott le barátai és hozzátartozói körében.

Egész életét a műemlékeknek szentelte. A Ion Mincu Építészeti Intézet friss diplomásaként 1968-tól dolgozott a Műemlékek Igazgatóságán, először műemlék-restaurátor építészként, vezető tervezőként, majd pedig a Nemzeti Kulturális Örökség Igazgatósága tervezői irodájának vezetőjeként. Mesterei Ștefan BALȘ és Virgil ANTONESCU voltak, valamint közeli barátai Nicolae DIACONU és Ioana GRIGORESCU építészek.

A Műemlékek Igazgatóságának 1977-i önkényes megszüntetését követően Ghighi SION a Gazdasági és Nemzeti Kulturális Örökségi Igazgatóságon dolgozott, ahol munkássága során a műemlékek nyilvántartására, valamint ezek helyreállítási terveinek jóváhagyására összpontosított. Az ebben az időszakban elvégzett munkái közül most csak a putnai kolostort és a bákói fejedelmi udvart említjük, valamint közreműködéseit olyan helyreállítási tervekben, mint például az arborei templomegyüttes, valamint a sovejai kolostor temploma.

Ráadásul a műemlékek élő emlékezetét képviselte, hiszen mindenkinél jobban ismerte a régi

other, supporting, in the difficult years between 1978 and 1989, any initiative for the conservation and restoration of historic buildings, or for the continuation of some of the abolished Directorate's abandoned sites. We will not be able to forget his support for the restoration attempts of the Chioarului Fortress.

With the re-establishment of the National Committee and Directorate for Historic Buildings, Ensembles and Sites, Ghighi SION found again his place and purpose within the new institution. His role was essential in the development of the new List of Historic Buildings, Ensembles and Sites from 1991-1992. The enrichment of the List of Historic Buildings was possible only due to his preservation and enrichment of the old lists from 1977-1989, its length of increasing more than four times.

Together with his wife, architect Anișoara SION, he had an excellent collaboration with archaeologists, an unmatched understanding and ability to interpret their findings. We cannot forget his contribution to the clarification of the characteristics of fortifications in general and the courses he held at the "Ion Mincu" University of Architecture and Urbanism in Bucharest as a guest professor, deciphering for the students the heritage significance of the remains discovered in archeological excavations.

In 1994, with the new and unfair dissolution of the National Committee and Directorate for Historic Buildings, Ensembles and Sites, Ghighi SION had the strength to stay with most of his colleagues and take over the leadership of the Design Centre for National Cultural Heritage – the daring task of piloting an institution of research, conservation and restoration of historic buildings, living on his own income resulted from the implementation of conservation and restoration projects, under the conditions of the new economy. It was a radical transformation, an unforgettable experi-

Monumentelor Istorice și a Direcției, susținând orice încercare din anii grei, 1978-1989, de conservare și restaurare a monumentelor, de continuare a unora din șantierele abandonate ale desființatei Direcții. Nu vom putea uita sprijinul dat pentru încercările de restaurare de la cetatea Chioarului.

Odată cu reînființarea în anul 1990 a Comisiei Naționale și Direcției Monumentelor, Ansamblurilor și Siturilor Istorice, Ghighi SION și-a regăsit locul și rostul în cadrul noii instituții, rolul său fiind esențial în alcătuirea noii Liste a Monumentelor, Ansamblurilor și Siturilor Istorice din anii 1991-1992. Numai grație păstrării și îmbogățirii de către el a vechilor liste în anii 1977-1989, s-a putut realiza substanțiala îmbogățire a Listei monumentelor istorice, numărul acestora mărindu-se de peste patru ori.

Împreună cu soția sa, arhitecta Anișoara SION, a avut o excepțională colaborare cu arheologii, o neasemuită înțelegere și capacitate de interpretare a descoperirilor acestora. Nu vom putea uita contribuțiile sale la lămurirea unor caracteristici ale fortificațiilor în general și cursurile făcute la Universitatea de Arhitectură și Urbanism „Ion Mincu” din București ca profesor invitat, descifrând în fața studenților semnificația monumentalistică a vestigiilor descoperite în săpături arheologice.

În anul 1994, odată cu noua și nedreapta desființare a Comisiei Naționale și Direcției Monumentelor, Ansamblurilor și Siturilor Istorice, Ghighi SION a avut puterea să rămână alături de cei mai mulți dintre colegii săi și să preia conducerea Centrului de Proiectare pentru Patrimoniul Cultural Național – temerara sarcină de pilotare a unei instituții de cercetare, conservare și restaurare a monumentelor istorice, trăind din propriile venituri rezultate din realizarea proiectelor de restaurare și conservare, în condițiile noii economii. A fost o transformare radicală, o experiență de neuitat, iar meritul

Műemlékek Bizottságának és az Igazgatóság levéltárait, illetve az 1978–1989 közötti nehéz évek során minden igyekezte a műemlékek megőrzésére és helyreállítására irányult, valamint a megszüntetett Igazgatóság által abbahagyott helyreállítási helyszínek munkálatainak folytatására. Nem feledkeztünk meg a kővári vár helyreállítási kísérleteinek támogatásáról sem.

A Műemlékek, Épületegyüttesek és Helyszínek Nemzeti Bizottsága és Igazgatósága 1990-i visszaállításával Ghighi SION újonnan megtalálta helyét és rendeltetését az új intézményen belül, és létfontosságú szerepet játszott az 1991–1992-es új Műemlékek, épületegyüttesek és helyszínek listájának létrehozásában. Csakis az vezethetett a Műemlékek listájának jelentős gazdagításához, amelynek terjedelme így több mint négyszeresére nőtt, hogy a régi listákat 1977 és 1989 között megőrizte és gazdagította.

Feleségével, Anișoara SION építészettel együtt kivételes együttműködést létesített a régészekkel, összehasonlíthatatlan megértéssel és a régészeti feltárások értelmezésével. Hozzájárult az erődítések jellemzőinek általános tisztázásához, valamint nem felejthetjük el a bukaresti Ion Mincu Építészeti és Urbanisztikai Egyetemen vendégtanárként tartott kurzusait sem, ahol tisztázta a diákoknak a régészeti ásatásokban felfedezett leletek jelentőségét.

1994-ben, a Műemlékek, Épületegyüttesek és Helyszínek Nemzeti Bizottsága és Igazgatósága újbóli és igazságtalan megszüntetésével, Ghighi SION bátorságát tanúsította az, hogy kollégái körében maradvá átvette a Nemzeti Kulturális Örökség Tervezési Központjának az irányítását, felvállalva egy műemlékek kutatására, konzerválására és helyreállítására irányuló intézmény merész vezetési feladatát, eközben pedig a saját, konzerválási és helyreállítási terveiből származó bevételeiből élt az új gazdaságban. Ez egy radikális átalakulás és egy

ence, and his merit in those years is undeniable, especially ensuring the continuity of some the sites abandoned once more.

From 2002 he worked at the National Heritage Institute and remained close to his colleagues until the last moment of his life.

However, his great achievement is the project of the Suceava Fortress. The site, started in 1962 under the coordination of architect Nicolae DIACONU, then of Virgil ANTONESCU, was taken over from 1974 by Gheorghe SION, as chief architect. Here he worked closely with Mircea MATEI and Paraschiva Victoria BATARIUC – who has also left us recently – who conducted the archaeological research, which allowed him to always polish the restoration project.

Descendant of one of the old Moldavian boyar families, the “SIONEȘTI”, it was natural that the restoration of the Seat Fortress of the country’s rulers, but also of the Suceava Princely Court, was to be the project of his soul, to which he devoted almost half a century of his life.

At the news of his end, the city of Suceava watched, lighted in the night.

May God rest your soul!

Raluca IOSIPESCU
Sergiu IOSIPESCU

lui din acei ani este incontestabil, în special prin asigurarea continuității unora dintre șantierele din nou părăsite.

Din 2002 a lucrat în Institutul Național al Patrimoniului și a rămas alături de colegii săi până în ultimul moment al vieții.

Dar marea sa înfăptuire este proiectul Cetății de scaun a Sucevei. Șantierul început în 1962 sub coordonarea arhitectului Nicolae DIACONU, apoi a lui Virgil ANTONESCU, a fost preluat din 1974, în calitate de arhitect șef, de către Gheorghe SION. Aici a colaborat îndeaproape cu Mircea MATEI și Paraschiva Victoria BATARIUC – plecată și ea de curând dintre noi – care au efectuat cercetările arheologice, ceea ce i-a permis să șlefuiască mereu proiectul de restaurare.

Descendent al uneia din vechile familii boierești ale Moldovei, SIONEȘTI, a fost firesc ca restaurarea Cetății de scaun a domnilor țării, dar și a Curții Domnești de la Suceava, să fie proiectul sufletului său, căruia i-a consacrat aproape o jumătate de veac din viața sa.

La vestea sfârșitului său, cetatea Sucevei a străjuit, luminată în noapte.

Dumnezeu să te odihnească!

Raluca IOSIPESCU
Sergiu IOSIPESCU

felejtetetlen élmény volt, és érdeke ezekben az években is tagadhatatlan, különösen egyes, ismét elhagyott helyreállítási helyszínek folytonosságának a biztosításában.

2002-től a Nemzeti Örökségvédelmi Intézetben dolgozott, és kollégái körében maradt életének utolsó pillanatáig.

Viszont legnagyobb megvalósítása a sucevai fejedelmi vár helyreállítási terve volt. A munkálatok 1962-ben indultak Nicolae DIACONU, majd Virgil ANTONESCU építészek vezetése alatt, Gheorghe SION 1974-ben vette ezt át főépítészként. Itt szorosan együttműködött a régészeti kutatásokat végező Mircea MATEI-jel és Paraschiva Victoria BATARIUC-kal – aki a közelmúltban ugyancsak eltávozott közülünk –, amely lehetővé tette számára, hogy állandóan pontosítsa a helyreállítási tervet.

A moldvai régi bojárcsaládok egyikének, a SIONEȘTI család lezármozottjaként természetes volt, hogy az ország uralkodói székhelyeként működő vár, valamint a sucevai fejedelmi udvar helyreállítási terve a szívéhez nőtt, amelynek szinte fél évszázadot szentelt életéből.

Eltávozása hírére Suceava vára az éjszakában kivilágítva őrködött. Isten nyugosztaljon!

Raluca IOSIPESCU
Sergiu IOSIPESCU