

■ Assessing Historic Timber Roof Structures

The article may be found on pages 2–9.

■ Evaluarea șarpantelor istorice din lemn

Articolul se poate citi în paginile 2–9.

■ Történeti fa fedélszerkezetek értékelése

A cikk a 2–9 oldalakon olvasható.

*built heritage*

YEAR II. • 8<sup>TH</sup> ISSUE

*patrimoniu construit*

ANUL II. • NUMĂRUL 8



*épített örökség*

II. ÉVFOLYAM • 8. SZÁM

*Transsylvania*

*Nostra*



6 423493 000106 17 lei

4  
2008

# Content – Cuprins – Tartalom



- 1** ■ Miloš DRDÁCKÝ  
Greetings \*\*\* Preambul \*\*\* Köszöntő
- 2** ■ Luc SCHUEREMANS – Lia MAGNUS  
Assessing Historic Timber Roof Structures  
*A Belgian viewpoint*  
\*\*\*  
Evaluarea șarpantelor istorice din lemn  
*Un punct de vedere belgian*
- 10** ■ BOTÁR István – GRYNÆUS András – TÓTH Boglárka  
„Új” módszer a történeti faszervezetek keltezéséhez  
*A dendrokronológiai kutatások kezdetei Erdélyben*  
\*\*\*  
A “New” Dating Method for Historical Wood Structures  
*The Beginnings of Dendrochronological Researches in Transylvania*
- 15** ■ Carl THELIN  
Medieval Roof Structures  
*Comparing Sweden and Romania*  
\*\*\*  
Șarpante medievale  
*Comparație Suedia - România*
- 20** ■ MAKAY Dorottya  
Barock fedélszerkezetek Erdélyben  
\*\*\*  
Baroque Roof Structures in Transylvania
- 29** ■ SZABÓ Bálint  
The Mechanics of Historic Roof Structures  
\*\*\*  
Mecanica șarpantelor istorice  
\*\*\*  
Történeti fedélszerkezetek mechanikája
- 31** ■ Imola KIRIZSÁN și Ioana RUS  
The Gothic Roof Structure of the Lutheran Church in Bistrița  
\*\*\*  
Șarpanta gotică a bisericii evanghelice din Bistrița  
\*\*\*  
A beszercei evangélikus templom gótikus fedélszerkezete

Transsylvania



Nostra

built heritage • patrimoniu construit • épített örökség

Financed by / Finanțat de / Támogató:



Revista apare cu sprijinul Administrației Fondului Cultural Național

■ Editor in chief / Redactor șef / Főszerkesztő: **SZABÓ Bálint** ■ Subeditor in chief / Redactor șef adjunct / Főszerkesztő-helyettes: **Vasile MITREA** ■ Editorial Committee / Colegiul de redacție / Szerkesztőbizottság: **BENCZÉDI Sándor** (RO), **Șerban CANTACUZINO** (GB), **Mircea CRIȘAN** (RO), **Rodica CRIȘAN** (RO), **Miloš DRDÁCKÝ** (CZ), **Octavian GHEORGHIU** (RO), **FEJÉRDY Tamás** (HU), **KIRIZSÁN Imola** (RO), **KOVÁCS András** (RO), **Christoph MACHAT** (DE), **Daniela MARCU ISTRATE** (RO), **MIHÁLY Ferenc** (RO), **Paul NIEDERMAIER** (RO), **Virgil POP** (RO), **Liliana ROȘIU** (RO), **Gennaro TAMPONE** (I) ■ Collaborators / Colaboratori / Közreműködők: **BALÁSSY Csaba**, **DEZSŐ Éva**, **Ioana CÂMPEAN**, **EKE Zsuzsanna**, **JAKAB Márta**, **Ioana RUS** ■ Layout Design / Concepția grafică / Grafikai szerkesztés: **IDEA PLUS** ■ Layout editor / Tehnoredactare / Tördelés: **IDEA** ■ Editorial general secretary: **TAKÁCS Enikő** ■ Contact: editorial@transylvanianostra.eu ■ Publisher / Editura / Kiadó: **SC. Utilitas SRL**. Str. Breaza nr. 14, Cluj Napoca, 400253 RO, Tel/Fax: 40-264-435489, e-mail: office@utilitas.ro ■ Publishing-house / Tipografia / Nyomda: **IDEA**, Cluj ■ Toate drepturile rezervate. Întreaga răspundere privind corectitudinea informațiilor revine semnatărilor articolelor. Este interzisă reproducerea integrală sau parțială a articolelor din revistă și preluarea fotografiilor, fără acordul scris al redacției. 2008 © Fundația Transsylvania Nostra ■ ISSN 1842-5631 ■ Printed in Oktober 2008 / Tipărit în octombrie 2008 / Nyomtatva: 2008. október.

## Luc SCHUEREMANS, Lia MAGNUS

### Assessing Historic Timber Roof Structures. A Belgian Viewpoint

**Abstract:** The load bearing capacity of timber roof structures is looked at based on visual inspection, on site material investigation and structural analysis. This article focuses on the extent in which current European standards and guidelines are useful in the assessment of the actual safety, reflecting experience from several case studies. Attention goes to the applicability of standards for safety assessment of historical structures, limitations of numerical tools in the structural analysis, the impact of lack of knowledge, material data, geometry and other information.

**Keywords:** building structure, structural analysis, roof structures, diagnosis, conservation techniques, non-destructive testing, tests.

### Evaluarea șarpantelor istorice din lemn. Un punct de vedere belgian

**Rezumat:** Capacitatea portantă a șarpantelor de lemn este analizată pe baza examinării vizuale, a unei investigații materiale pe teren și a unei analize structurale. Prezentul articol examinează măsura în care standardele și principiile folosite la ora actuală în Europa sunt utile în evaluarea siguranței efective, reflectând experiența ce decurge din mai multe studii de caz. Sunt urmărite cu atenție: aplicabilitatea standardelor pentru evaluarea siguranței structurilor istorice, limitările instrumentelor numerice în analiza structurală, impactul lipsei de cunoștințe, date materiale, cunoștințe de geometrie și alte informații.

**Cuvinte cheie:** structura clădirii, analiză structurală, șarpante, diagnoză, tehnici de restaurare, testări neinvazive, teste.



Illustration: Intervention techniques applied in Belgium  
Ilustrație: Tehnici de intervenție aplicate în Belgia

**BOTÁR István, GRYNAEUS András, TÓTH Boglárka**

**„Új” módszer a történeti faszerkezetek keltezéséhez. A dendrokronológiai kutatások kezdetei Erdélyben**



Illusztráció: A szászkézdi erőtemplom védelmi szintjének belső nézete (2006.)

Illustration: The interior view of the Saschiz, fortified church's defensive level (2006)

*Kivonat:* A dendrokronológia, mai ismereteink szerint, faszerkezetek, régészeti faleletek esetében a legpontosabb keltezési lehetőséget nyújtó módszer. Az eljárásnak több évtizedes múltja van az Egyesült Államokban és Nyugat-Európában. Erdélyben, ezzel szemben, a dendrokronológia alkalmazása még újdonságnak számít, holott a terület műemlékállománya és a hiányos írott adatolás már régóta indokoltá tette volna használatát, amely famegmunkáló műhelyek elkülönítésére és a középkori erdőhasználat rekonstrukciójára is alkalmasak lennének.

*Kulcsszavak:* műemlékek, faszerkezet, fedélszerkezet, keltezés, keletezési módszerek, dendrokronológia, Erdély.

**A “New” Dating Method for Historical Wood Structures. The Beginnings of Dendrochronological Researches in Transylvania**

*Abstract:* As far as we know nowadays dendrochronology is the most accurate method for dating archaeological wood finds. The method has been used for decades in the USA and in Western Europe. On the other hand, the application of dendrochronology is considered a relatively new method in Transylvania, though the number of historical monuments and the scarce written sources would have justified its use long ago, this data being also suitable for the delimitation of woodworking workshops and reconstruction of forest management in the Middle Ages.

*Keywords:* historic buildings, timber structure, roof structure, dating, dating techniques, dendrochronology, Transylvania.

**Carl THELIN**

**Medieval Roof Structures. Comparing Sweden and Romania**

*Abstract:* The paper presents parts of a research project carried out in 2006 and 2007. The aim of the project is to make comparisons between Swedish and continental European historic roof structures and their development. The project was initiated by the possibility to do post-doctoral research at the technical university of Cluj-Napoca in Romania. In the paper a comparison between Swedish and Transylvanian medieval roof structures is presented.

*Keywords:* historic buildings, mediaeval architecture, timber, timber structure, structural surveys, roofs structure, comparative analysis, historical surveys, Sweden, Transylvania, Romania.

**Medieval Roof Structures. Comparing Sweden and Romania**

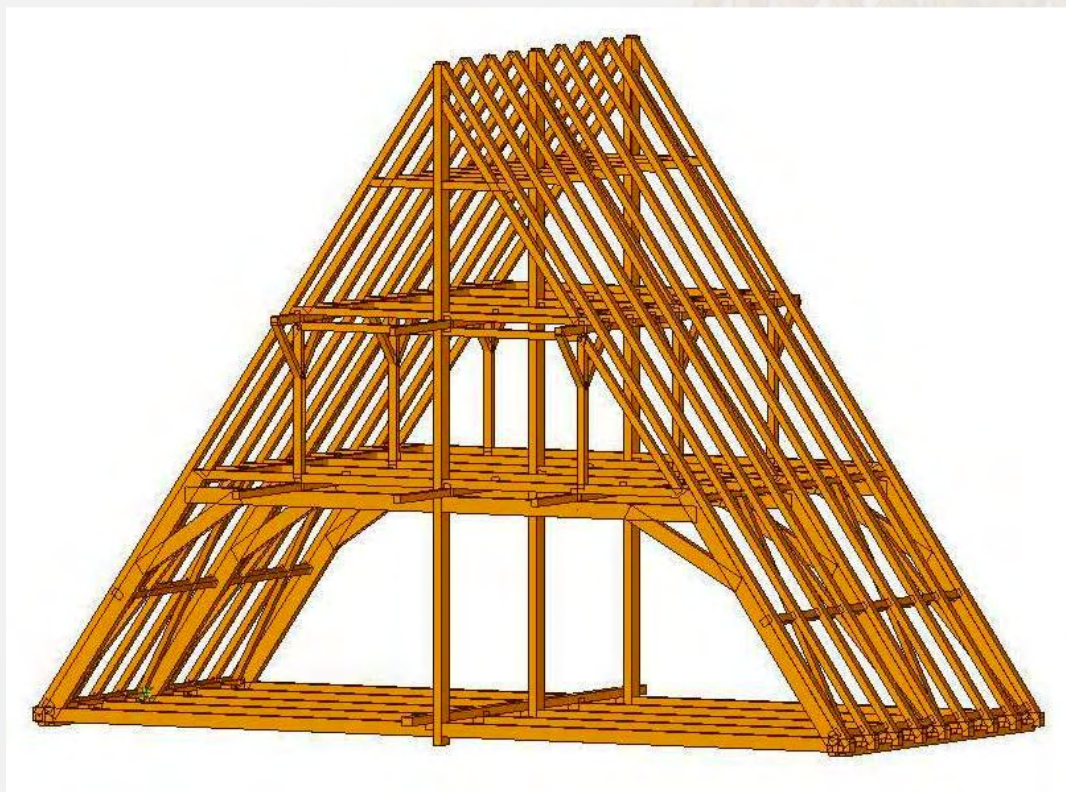
*Abstract:* The paper presents parts of a research project carried out in 2006 and 2007. The aim of the project is to make comparisons between Swedish and continental European historic roof structures and their development. The project was initiated by the possibility to do post-doctoral research at the technical university of Cluj-Napoca in Romania. In the paper a comparison between Swedish and Transylvanian medieval roof structures is presented.

*Keywords:* historic buildings, mediaeval architecture, timber, timber structure, structural surveys, roofs structure, comparative analysis, historical surveys, Sweden, Transylvania, Romania.



Illustration: The Gothic roof structure of the Rogslösa Church,  
Östergötland, Sweden

Ilustrație: Șarpanta cu caracter gotic a bisericii din Rogslösa,  
Östergötland, Suedia



Illusztráció: A kolozsvári farkas utcai református templom hajójának fedélszerkezete. 3D-s számítógépes modellezés

Illustration: The roof structure of the nave of the Calvinist Church in Kogălniceanu St. in Cluj. 3D computer model

## MAKAY Dorottya

### Barokk fedélszerkezetek Erdélyben

*Kivonat:* Erdély a nyugat-európai építési rendszer keleti bástyája. Fedélszerkezetek tekintetében a nyugat-európai rendszer keretében a kontinentális, történeti ácsszerkezetek terjedtek el, elsősorban német, illetve Habsburg-osztrák közvetítéssel. A barokk fedélszerkezet Erdély területén későn, a XVIII. században vált általánossá, és hosszan tovább élt még a XIX. században is. A jelen cikk meghatározza a barokk fedélszerkezetek jellegzetességeit, bemutatja ezek kutatását Erdélyben, valamint egy tipológiát igyekszik összeállítani, amely alapként szolgálna egy adatbázis létrehozásánál.

*Kulcsszavak:* műemlék, barokk építészet, szerkezeti felmérés, fedélszerkezetek, terminológia, tipológiai elemzés, tipológia, adatbázis, Erdély.

### Baroque Roof Structures in Transylvania

*Abstract:* Transylvania is the most Eastern border of the Western European construction system. Considering the roof structures within the Western European system, the historic carpentry structures that spread in the area were the continental ones, being mainly transmitted from Germany and the Habsburg Austrian Empire. The Baroque roof structures became generally used in Transylvania only in the 18<sup>th</sup> century and they continued to be built in the 19<sup>th</sup> century as well. The article defines the characteristics of baroque roof structures, it presents their research in Transylvania, and respectively it tries to pin down a typology, which could act as basis for creating a database.

*Keywords:* historic buildings, baroque architecture, structural surveys, roof structures, terminology, typological analysis, typology, databases, Transylvania.