

# Analysis of Medieval Rotundas in the Former Kingdom of Hungary Considering Central European Corresponding Monuments

László Daragó<sup>1</sup>, Balázs Máté<sup>1</sup>, Géza Varga<sup>1\*</sup>

<sup>1</sup> Department of History of Architecture and Monument Preservation, Faculty of Architecture, Budapest University of Technology and Economics, H-1111 Budapest, 3 Műegyetem rkp., Hungary

\* Corresponding author, e-mail: [gezor22@gmail.com](mailto:gezor22@gmail.com)

Received: 06 March 2020, Accepted: 26 August 2020, Published online: 30 October 2020

## Abstract

In Central Europe, medieval rotundas are found in great numbers, with the subject strongly connected to the spread of Christianity amongst peoples living in the area. The aesthetics of pagan religions is still present, but they adapted to Christian functions. Thus, on the border of Eastern and Western Christianity, a new design was created.

This study introduces the features of round churches in the former Kingdom of Hungary from the 10<sup>th</sup> to 14<sup>th</sup> century and places them in the context of the Central European rotundas.

To examine the buildings, we considered aspects such as location, periods of construction, possible layout variations, functions and patron saints. The database we created regarding the rotundas in Central Europe was the foundation for the investigations. Using this analysis, the goal is to find underlying patterns, identify different groups of rotundas and provide an overview of the monuments, which could be used for further investigations in the topic.

## Keywords

rotunda, round church, Middle Ages, Central Europe, Kingdom of Hungary, data analysis

## 1 Introduction

This article examines the Central European round churches, focusing on those built in the Carpathian Basin, and by grouping them according to specific criteria, draws conclusions from the observations.

We call these central plan sacral objects round churches or rotundas. They were built during the Árpád era, from the 10<sup>th</sup> until the 14<sup>th</sup> century, the beginning of the gothic style, with the circle as the primary basis of their plan. They were usually built with a circular nave and a half-circle or horseshoe-shaped apsis connected to it, though many other layout variations can be found that originate from a circle. Concerning the common groups, it should be mentioned that churches that have a circular plan, are circular with niches, have a lobed plan, or have a polygonal nave with or without an apsis.

Rotundas played an important role in the architecture of the Hungarian Kingdom during the reign of the Árpáddynasty. These churches were among the first buildings of the state that served the Christian sacrality. Almost two hundred rotundas in the medieval territory of the country

are known. Even though most of the rotundas can be found on the territory of the Hungarian Kingdom, this architectural form shaped the history of the whole of Central Europe. A significant number of round churches were also built in the Duchy of Bohemia and the Polish Kingdom.

Including churches in this analysis that were built outside the Carpathian Basin is essential, to have a full picture of the characteristic features of the rotundas.

At first, these buildings were only built by royalty, later spreading among the clans and villages. During this process, they acquired many functions, which will also be touched upon in the essay.

## 2 Research into rotundas

### 2.1 Previous investigations

The topic of medieval rotundas has been examined by many art historians and archaeologists from Hungary and other Central European countries. In the following, the studies that were the basis of our investigation, are enumerated.

First, we would like to mention András Szilágyi's book from 2009. Following a detailed historical and architectural introduction, he collected every known rotunda from the former territories of the Hungarian Kingdom. It provides a brief description of all the listed central plan churches in the Carpathian-Basin. This list was one of the primary sources for our research (Szilágyi, 2009).

The following studies added different aspects to the subsequent work and helped to identify various characteristics of the rotundas for the analysis.

The first comprehensive Hungarian study on the topic was written by Vera Geveres-Molnár in 1972. She presented the important foreign rotundas and grouped those from the Kingdom of Hungary by various layouts, paying great attention to the origin of the form and emphasising the functional variations of the rotundas (Geveres-Molnár, 1972).

Károly Kozák (1984) presented the possible architectural effects of early Christian central plan churches on the rotundas and was the first Hungarian researcher who connected the Czech, Polish and Hungarian early rotundas to Moravian predecessors. However, this study only concerned central plan churches built in the 10<sup>th</sup> and 11<sup>th</sup> centuries (Kozák, 1984). In his other study (1976-77), he examined rotundas constructed from brick from the 12<sup>th</sup>–13<sup>th</sup> centuries, finding some connections between these round churches, especially lobed variations, and the architectural forms of the knight's orders (Kozák, 1976-77).

Furthermore, publications from Austria, Croatia, Czech Republic, Poland and Slovakia were also examined to understand individual buildings and to explore the connections. For example, we studied Maria Capra's writing on the Austrian ossuary (karners) (Capra, 1926). Publications by Firllet and Pianowski (2016), Illáš (2017), and Čiháková and Müller (2015) should also be mentioned. These were the most significant papers used for the study; however, many other sources, both Hungarian and English, were accessed for the work.

## 2.2 Research method

This research was conducted at the university (BUTE, Hungary) as we are currently architecture students. This article was preceded by two successful TDK essays, some results of which are presented below.

We collected and listed the rotundas found within the Hungarian Kingdom and Central Europe. We researched the printed and online literature, furthermore most architectural and archaeological sources, which mention these sacral buildings. András Szilágyi's "A Kárpát-medence Árpád-kori rotundái és centrális templomai" (Rotundas

and central churches of the Carpathian Basin during the Árpád era) was a significant help during the process as he had collected the rotundas already known by the time (Fig. 1) (Szilágyi, 2009).

We processed the collected churches in a database, indicating all crucial data. The data was analysed according to the chosen criteria; they were grouped by the time of construction, localisation, layout, the patron saint and the function. These are shown on diagrams and maps for ease of clarity and understanding.

We have to emphasise that, because of our limitations in understanding other Central European languages, we could collect proportionally more monuments from the Carpathian Basin than from the other parts of Central Europe. However, we do not think this influences the main spread of the rotundas as many of the monuments left out from the collection of other Central European territories maybe those hypothetical structures whose existence is only assumed based on historical papers or the names of places. Hypothetical rotundas of the Hungarian Kingdom are shown in a lighter colour on our diagrams. It is unlikely that one of the European territories "hides" an outstanding number of rotundas, though the difference between the number of rotundas in the Hungarian Kingdom and other territories may be smaller than shown in the diagrams (Table 1).

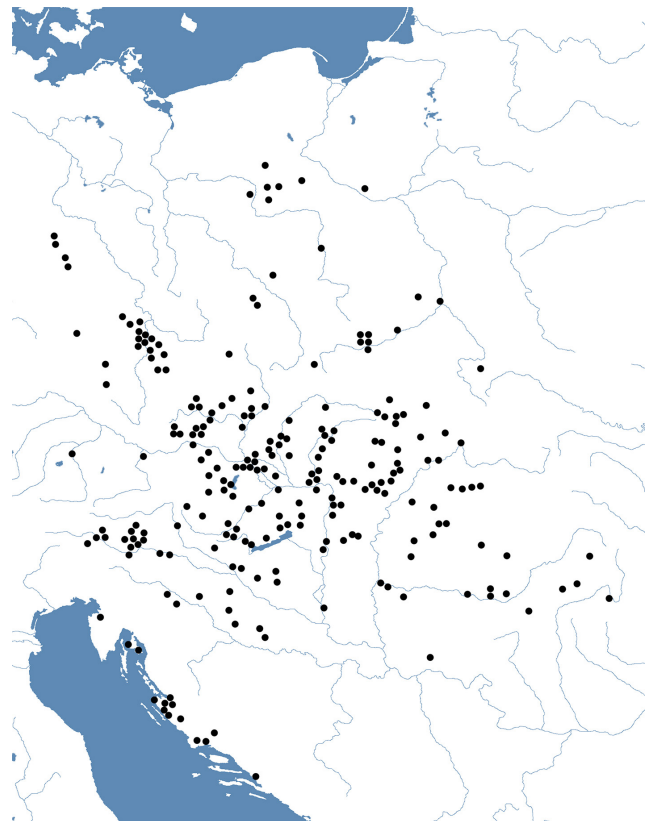


Fig. 1 Rotundas in Central Europe

**Table 1** Rotundas in Central Europe

Country	Location	Title	Century	Layout	Country	Location	Title	Century	Layout
A	Alt Pölla	-	-	circular	A	Scheiblingkirchen	St. Mary Magdolna	12 <sup>th</sup>	-
A	Bécsújhely	St. Nicolaus	-	hexagonal	A	Sirnitz	-	-	circular
A	Berg im Drautal	-	-	-	A	St. Lambrecht	-	-	1 apse
A	Bruck am der Mur	St. Ruprecht	-	-	A	St. Peter am Kammersberg	-	-	circular
A	Burgschleinitz	-	14 <sup>th</sup>	1 apse	A	St. Valentin bei Pottsehac	-	-	circular
A	Deutsch-Altenburg	St. Leonhard	13 <sup>th</sup>	1 apse	A	Szentmargitbánya	St. Margit	13 <sup>th</sup>	hexagonal
A	Döllersheim	-	-	circular	A	Thaya	St. Catherine	-	circular
A	Drosendorf	-	-	circular	A	Tigring	-	-	1 apse
A	Eggenburg	St. Nicolaus	-	circular	A	Tulln	-	-	1 apse
A	Enns Lorch	-	-	-	A	Unter-Aspang	-	-	hexagonal
A	Fallbach	-	-	circular	A	Waidhofen an der Thaya	St. Nicolaus	-	circular
A	Friedersbach	-	14 <sup>th</sup>	1 apse	A	Wullersdorf	-	-	circular
A	Gars-Thunau	-	-	1 apse	A	Zellerndorf	-	-	octagonal
A	Gmünd	-	-	circular	A	Zwettl	St. John the Baptist	14 <sup>th</sup>	1 apse
A	Gmünd in Kärnten	-	14 <sup>th</sup>	circular	CR	Bračević	-	-	1 apse
A	Grafensulz	-	-	circular	CR	Braznave	St. Nicolaus	9 <sup>th</sup>	6 lobed
A	Gross Globnitz	-	-	1 apse	CR	Brestovac kod Požege	St. Kozma and Damjan	-	1 apse
A	Gross Göbfritz	-	-	1 apse	CR	Bribir	-	10 <sup>th</sup>	6 lobed
A	Gurk	-	-	circular	CR	Budinjak	St. Petrunil	11 <sup>th</sup>	4 lobed
A	Guttaring	-	-	circular	CR	Gojlo	Holy Spirit	-	1 apse
A	Hadersdorf am Kamp	-	-	1 apse	CR	Ivandol - Njive	-	-	1 apse
A	Hainburg an der Donau	-	13 <sup>th</sup>	1 apse	CR	Iz Mali	Virgin Mary	10 <sup>th</sup>	1 apse
A	Hardegg	-	12 <sup>th</sup>	1 apse	CR	Kakma	-	-	6 lobed
A	Hartberg	-	12 <sup>th</sup>	1 apse	CR	Kašiću	-	9 <sup>th</sup>	6 lobed
A	Kismarton	St. Martin	13 <sup>th</sup>	hexagonal	CR	Krk	St. Donatus	10 <sup>th</sup>	other
A	Köflach	-	-	circular	CR	Krk	St. Krsevan	10 <sup>th</sup>	other
A	Kraig	-	-	circular	CR	Nin	St. Cross	11 <sup>th</sup>	other
A	Kühnring	-	-	circular	CR	Orljavac	St. Rokus	-	1 apse
A	Lasse	St. Catherine	-	1 apse	CR	Ošlje	-	10 <sup>th</sup>	6 lobed
A	Malta	-	-	circular	CR	Otruševac	St. Cross	-	1 apse
A	Maria Waitschach	-	-	octagonal	CR	Položaj Kladeščica	St. Kozma and Damjan	-	1 apse
A	Maria Worth	-	-	1 apse	CR	Prelog	St. Jakab	-	-
A	Metnitz	-	-	octagonal	CR	Pridraga	St. Michael	9 <sup>th</sup>	6 lobed
A	Mistelbach	St. Catherine	-	1 apse	CR	Rovanjska	St. George	10 <sup>th</sup>	other
A	Mödling	-	-	1 apse	CR	Samarica	St. Catherine	-	circular
A	Neukirchen an der Wild	-	-	octagonal	CR	Savar	St. Pelegrin	10 <sup>th</sup>	other
A	Pattendorf	-	-	-	CR	Skabrnja	St. George	10 <sup>th</sup>	6 lobed
A	Pernegg	-	-	1 apse	CR	Split	Holy Trinity	9 <sup>th</sup>	6 lobed
A	Petronell-Carnuntum	St. John the Baptist	-	1 apse	CR	Trogir	Virgin Mary	9 <sup>th</sup>	6 lobed
A	Pirstendorf	-	-	circular	CR	Zadar	Virgin Mary	10 <sup>th</sup>	6 lobed
A	Pottenstein	-	-	1 apse	CR	Zadar	St. Donatus	8 <sup>th</sup>	other
A	Pulkau	-	13 <sup>th</sup>	1 apse					
A	Salapulka	-	-	circular					

Country	Location	Title	Century	Layout	Country	Location	Title	Century	Layout
CR	Zágráb, Medvevár	St. Philip and James	12 <sup>th</sup>	octagonal	CZ	Rip	St. George	11 <sup>th</sup>	1 apse
CR	Zaton	St. Nicolaus	12 <sup>th</sup>	other	CZ	Sazava	St. Cross	11 <sup>th</sup>	other
CR	Zrinski Topolovac	St. Michael	-	1 apse	CZ	Šebkovice	St. Mary Magdolna	13 <sup>th</sup>	1 apse
CZ	Brno	Virgin Mary	10 <sup>th</sup>	1 apse	CZ	Stare Mesto	-	9 <sup>th</sup>	1 apse
CZ	Budec	St. Peter and Paul	9 <sup>th</sup>	1 apse	CZ	Stare Mesto	St. John the Baptist	13 <sup>th</sup>	hexagonal
CZ	Častohostice	St. Barbory	13 <sup>th</sup>	circular	CZ	Starý Plzenec	St. Peter and Paul	10 <sup>th</sup>	1 apse
CZ	Ceská Třebová	St. Catherine	13 <sup>th</sup>	1 apse	CZ	Štěpkov	St. Václáva	13 <sup>th</sup>	1 apse
CZ	Dobřichovice - Karlík	St. Martin	12 <sup>th</sup>	1 apse	CZ	Stonařov	-	13 <sup>th</sup>	1 apse
CZ	Holubice	Virgin Mary	13 <sup>th</sup>	1 apse	CZ	Tasov	-	13 <sup>th</sup>	-
CZ	Hrádek	St. Peter and Paul	11 <sup>th</sup>	1 apse	CZ	Týnec nad Sázavou	St. Václáva	11 <sup>th</sup>	1 apse
CZ	Hradešín	St. George	12 <sup>th</sup>	1 apse	CZ	Vranov nad Dyjí	-	13 <sup>th</sup>	circular
CZ	Kostelec u Křížků	St. Martin	10 <sup>th</sup>	1 apse	CZ	Vrapice	St. Nicolaus	12 <sup>th</sup>	1 apse
CZ	Levy Hradec	St. Clement	9 <sup>th</sup>	1 apse	CZ	Zborovy	St. John the Baptist	13 <sup>th</sup>	1 apse
CZ	Liboun	St. Václáva	13 <sup>th</sup>	1 apse	CZ	Žďárná	-	-	-
CZ	Loket	St. Anna	12 <sup>th</sup>	1 apse	CZ	Želkovice	St. Peter and Paul	13 <sup>th</sup>	1 apse
CZ	Lukov	St. George	13 <sup>th</sup>	1 apse	CZ	Znojmo	St. Kateřiny	10 <sup>th</sup>	1 apse
CZ	Lysá nad Labem	St. Desideria	11 <sup>th</sup>	-	CZ	Znojmo	St. Hypolita	9 <sup>th</sup>	1 apse
CZ	Mikulcice	-	9 <sup>th</sup>	2 apse	GR	Groitzsch	-	11 <sup>th</sup>	1 apse
CZ	Mikulcice	-	9 <sup>th</sup>	circular	GR	Halle an der Saale	-	12 <sup>th</sup>	-
CZ	Mikulcice	-	9 <sup>th</sup>	4 lobed (inner)	GR	Knautnaundord	St. Andrew	11 <sup>th</sup>	1 apse
CZ	Mikulov	-	-	-	GR	Perschen	-	13 <sup>th</sup>	circular
CZ	Moravské Budějovice	St. Michael	13 <sup>th</sup>	circular	GR	Petersberg	-	12 <sup>th</sup>	-
CZ	Nová Bystřice	St. Peter and Paul	12 <sup>th</sup>	1 apse	HU	Abasár	-	11 <sup>th</sup>	circular
CZ	Olomouc	-	10 <sup>th</sup>	-	HU	Abony-Mikelaka	-	-	-
CZ	Plaveč	Virgin Mary	12 <sup>th</sup>	1 apse	HU	Alag	Virgin Mary	12 <sup>th</sup>	1 apse
CZ	Pohansko	-	9 <sup>th</sup>	1 apse	HU	Apostag	Apostles	11 <sup>th</sup>	circular
CZ	Prague	St. Vitus	10 <sup>th</sup>	1 apse	HU	Bagodvitenyéd	St. Paul	13 <sup>th</sup>	1 apse
CZ	Prague	St. Wenceslas	11 <sup>th</sup>	1 apse	HU	Baj-Kovácsi	St. Peter	-	1 apse
CZ	Prague	St. Martin	11 <sup>th</sup>	1 apse	HU	Bercese	-	13 <sup>th</sup>	4 lobed
CZ	Prague	St. John the Baptist	11 <sup>th</sup>	1 apse	HU	Berekböszörmény	All Saints	-	circular
CZ	Prague	St. Vavřince	12 <sup>th</sup>	1 apse	HU	Biatorbágy	St. Cross	13 <sup>th</sup>	hidden
CZ	Prague	St. Cross	12 <sup>th</sup>	1 apse	HU	Boldva	St. Margit	12 <sup>th</sup>	1 apse
CZ	Prague	St. Longina	12 <sup>th</sup>	1 apse	HU	Bölske	-	12 <sup>th</sup>	circular
CZ	Prague - Dolní Chabry	St. John the Baptist	12 <sup>th</sup>	1 apse	HU	Börcs	St. Bertalan	-	-
CZ	Pravonín	St. John the Baptist	12 <sup>th</sup>	1 apse	HU	Cegléd-Mátévölgy	-	-	-
CZ	Přední Kopanina	St. Mary Magdolna	12 <sup>th</sup>	1 apse	HU	Cinkota	-	11 <sup>th</sup>	circular
CZ	Pustiměř	St. Pantaleon	12 <sup>th</sup>	1 apse	HU	Debrecen-Nagycsere	St. John	-	lobed (inner)
CZ	Řeporyje	St. Peter and Paul	12 <sup>th</sup>	1 apse	HU	Doba	-	-	circular
CZ	Reznovice	St. Peter and Paul	12 <sup>th</sup>	other	HU	Dunaújváros	-	11 <sup>th</sup>	-
					HU	Eger	-	11 <sup>th</sup>	1 apse
					HU	Eger	-	-	-
					HU	Esztergom	St. Stephan	10 <sup>th</sup>	circular
					HU	Esztergom	St. Lawrence	-	-
					HU	Fövenyes-Kerekegyháza	-	11 <sup>th</sup>	1 apse

Country	Location	Title	Century	Layout	Country	Location	Title	Century	Layout
HU	Gencsapáti	-	-	other					
HU	Gyulakeszi	St. Francis	13 <sup>th</sup>	1 apse	HU	Nemesbük-Mihályháza (Kismarcs)	-	11 <sup>th</sup>	1 apse
HU	Hédervár	-	-	-	HU	Neszmély	-	-	1 apse
HU	Herencsény	St. Michael	13 <sup>th</sup>	circular	HU	Nyírbátor	Host of Christ	13 <sup>th</sup>	octagonal
HU	Hidegség	St. Andrew	12 <sup>th</sup>	hidden	HU	Nyírpalota	-	-	-
HU	Hortobágy-Papegyháza	-	11 <sup>th</sup>	hexagonal	HU	Öskü	St. Cross	11 <sup>th</sup>	1 apse
HU	Isaszeg	-	13 <sup>th</sup>	1 apse	HU	Pápoc	St. Michael	12 <sup>th</sup>	4 lobed
HU	Ják	St. James	10 <sup>th</sup>	1 apse	HU	Pásztó	St. Ladislaus	13 <sup>th</sup>	hexagonal
HU	Ják	St. James	12 <sup>th</sup>	4 lobed	HU	Páty-Nagykutya-hegy	-	-	-
HU	Kallósd	St. Nicolaus	13 <sup>th</sup>	1 apse	HU	Rábaszentmiklós	St. Nicolaus	13 <sup>th</sup>	1 apse
HU	Kapsszentjakab	St. James	13 <sup>th</sup>	octagonal	HU	Rákosszentmihály	-	-	-
HU	Karcsa	St. Margit	12 <sup>th</sup>	6 lobed (inner)	HU	Sály-Lator	St. Nicolaus	11 <sup>th</sup>	circular
HU	Kerekboldogasszony	-	-	-	HU	Sárospatak	St. Michael	11 <sup>th</sup>	1 apse
HU	Kerekegyháza-Fülöpszállás	-	-	circular	HU	Sopron	St. James	13 <sup>th</sup>	octagonal
HU	Kereki	-	-	-	HU	Szalonna	St. Margit	12 <sup>th</sup>	1 apse
HU	Kerekszenttamás	-	-	-	HU	Szamosangyalos-Jánosi	St. Margit	-	-
HU	Keszthely	St. Lawrence	13 <sup>th</sup>	1 apse	HU	Szanda-Péterhegy	-	-	1 apse
HU	Kisnána	All Saints	11 <sup>th</sup>	1 apse	HU	Székesfehérvár	St. Peter and Paul	10 <sup>th</sup>	other
HU	Kissikátor	St. Nicolaus	-	circular	HU	Szügy-Kosztolík-Tető	-	-	1 apse
HU	Kiszombor	St. Margit	12 <sup>th</sup>	6 lobed (inner)	HU	Tiszadada	-	-	1 apse
HU	Koroncó	-	-	-	HU	Vácszentlászló	St. Ladislaus	-	-
HU	Környe-Avas	-	13 <sup>th</sup>	1 apse	HU	Vasvár	Virgin Mary	11 <sup>th</sup>	1 apse
HU	Letenye-Csatár	St. Cross	10 <sup>th</sup>	1 apse	HU	Veszprém	St. Michael	10 <sup>th</sup>	1 apse
HU	Markotabögede	All Saints	-	-	HU	Veszprém	St. George	13 <sup>th</sup>	octagonal
HU	Mezőtárkány-Márkegyháza	-	-	1 apse	HU	Vésztő-Mágorhalom	-	10 <sup>th</sup>	other
HU	Miskolc-Avas	St. George	-	-	HU	Zámoly-Kerekszenttamás	St. Thomas	11 <sup>th</sup>	circular
HU	Miskolc-Tapolca	-	11 <sup>th</sup>	1 apse	HU	Zirc-Aklipuszta	-	-	1 apse
HU	Monostorapáti	-	12 <sup>th</sup>	6 lobed (inner)	PL	Cieszyn	St. Nicolaus	12 <sup>th</sup>	1 apse
HU	Móricz hely-Liszó Várhely	-	13 <sup>th</sup>	1 apse	PL	Giecz	-	10 <sup>th</sup>	circular
HU	Mosonmagyaróvár	-	-	lobed (inner)	PL	Gniezno	-	10 <sup>th</sup>	1 apse
HU	Nádasd	St. Martin	11 <sup>th</sup>	other	PL	Gromnik	-	11 <sup>th</sup>	2 apse
HU	Nagyatád-Boda-Bodvica	St. George	13 <sup>th</sup>	1 apse	PL	Grzegorzowice	St. John the Baptist	12 <sup>th</sup>	1 apse
HU	Nagyecsed-Sárvár	-	-	circular	PL	Kraków	St. Felix and Adaukt	10 <sup>th</sup>	4 lobed
HU	Nagykálló	St. Cross	-	1 apse	PL	Kraków	-	10 <sup>th</sup>	2 apse
HU	Nagykörös-Homolytápuszta	-	-	1 apse	PL	Kraków	-	11 <sup>th</sup>	1 apse
HU	Nagykörös-Homolytápuszta 2	-	14 <sup>th</sup>	-	PL	Kraków	-	10 <sup>th</sup>	1 apse
HU	Nagykörös-Ludaspuszta	-	-	4 lobed	PL	Kraków	St. Salvator	11 <sup>th</sup>	1 apse
HU	Nagykörös-Nyárkútrét	-	-	circular	PL	Lekno	-	-	1 apse
					PL	Ostrów Lednicki	-	10 <sup>th</sup>	other
					PL	Plock	-	10 <sup>th</sup>	1 apse

Country	Location	Title	Century	Layout	Country	Location	Title	Century	Layout
PL	Poznan	-	10 <sup>th</sup>	-	SK	Demény	St. Nicolaus	13 <sup>th</sup>	circular
PL	Prezmysl	-	10 <sup>th</sup>	1 apse	SK	Dévény	-	11 <sup>th</sup>	circular
PL	Prezmysl	-	11 <sup>th</sup>	1 apse	SK	Ducó	-	10 <sup>th</sup>	1 apse
PL	Sieradz	-	13 <sup>th</sup>	1 apse	SK	Egyházkarcsa	St. Margit	-	-
PL	Stronie	Virgin Mary	12 <sup>th</sup>	1 apse	SK	Garamsalló	-	12 <sup>th</sup>	1 apse
PL	Strzelinie	St. Gotthard	12 <sup>th</sup>	1 apse	SK	Gombaszög	-	13 <sup>th</sup>	octagonal
PL	Strzelno	St. Prokopa	12 <sup>th</sup>	other	SK	Gútor	St. Cross	13 <sup>th</sup>	octagonal
PL	Wislica	-	10 <sup>th</sup>	1 apse	SK	Haraszt	Holy Trinity	13 <sup>th</sup>	4 lobed
PL	Wislica	-	10 <sup>th</sup>	8 lobed	SK	Holics	-	13 <sup>th</sup>	octagonal
PL	Zawichost	St. Mór	12 <sup>th</sup>	other	SK	Horvátjáfalu	-	12 <sup>th</sup>	circular
RO	Algyógy	-	11 <sup>th</sup>	1 apse	SK	Ipolykiskeszi	St. Michael	12 <sup>th</sup>	1 apse
RO	Biharvajda	-	13 <sup>th</sup>	hidden	SK	Izdeg	-	-	-
RO	Csanád	Virgin Mary	11 <sup>th</sup>	1 apse	SK	Jalsó	Holy Spirit	12 <sup>th</sup>	circular
RO	Demus	St. Nicolaus	-	other	SK	Kisperlász	St. Anna	13 <sup>th</sup>	circular
RO	Fejéregyháza	-	-	-	SK	Kolozsnéma	Angels	12 <sup>th</sup>	circular
RO	Gyergyószentmiklós	St. Anna	13 <sup>th</sup>	4 lobed	SK	Körmöcbánya	St. Michael	13 <sup>th</sup>	circular
RO	Gyulafehérvár	-	10 <sup>th</sup>	1 apse	SK	Körmöcbánya	St. John the Baptist	13 <sup>th</sup>	circular
RO	Harasztkerék	-	-	-	SK	Kurima	Virgin Mary	13 <sup>th</sup>	1 apse
RO	Ilyéd	-	13 <sup>th</sup>	4 lobed (inner)	SK	Lándzsásótfalu	St. Mary Magdolna	13 <sup>th</sup>	octagonal
RO	Kerekegyháza	-	-	-	SK	Lócse	Holy Spirit	11 <sup>th</sup>	-
RO	Kerekegyháza	-	-	-	SK	Nagymihály	St. Michael	11 <sup>th</sup>	1 apse
RO	Kerekegyháza	Holy Spirit	-	-	SK	Nagypaka	St. Ladislaus	13 <sup>th</sup>	hexagonal
RO	Kézdiszentlélek	St. Stephan	12 <sup>th</sup>	other	SK	Nagysalló	-	13 <sup>th</sup>	-
RO	Kispeleske	St. Stephan	12 <sup>th</sup>	circular	SK	Nagyszombat	St. George	12 <sup>th</sup>	1 apse
RO	Kolozsmonostor	St. Nicolaus	13 <sup>th</sup>	6 lobed (inner)	SK	Nyitra	-	10 <sup>th</sup>	circular
RO	Köröspatak	-	-	-	SK	Nyitrasárfő	St. George	10 <sup>th</sup>	1 apse
RO	Nagyvárad	St. Ladislaus	-	-	SK	Podolin	Virgin Mary	12 <sup>th</sup>	octagonal
RO	Oroszhegy	St. Ladislaus	-	-	SK	Pozsony	St. Salvator	11 <sup>th</sup>	circular
RO	Pelbárthida	-	13 <sup>th</sup>	1 apse	SK	Pozsony	St. Nicolaus	11 <sup>th</sup>	circular
RO	Sebesvár	-	13 <sup>th</sup>	-	SK	Pozsony	St. Anna	12 <sup>th</sup>	circular
RO	Segesvár	-	-	-	SK	Pozsony	St. James	12 <sup>th</sup>	1 apse
RO	Szád	St. Michael	12 <sup>th</sup>	4 lobed	SK	Prakfalva	St. Ludmilla	-	-
RO	Szászkézd	-	-	-	SK	Selmecebánya	St. Michael	13 <sup>th</sup>	1 apse
RO	Szászorbó	-	-	-	SK	Somorja	-	-	1 apse
RO	Szászsebes	St. James	-	-	SK	Süvéte	St. Margit	13 <sup>th</sup>	circular
RO	Szászváros	-	-	1 apse	SK	Szakolca	St. George	12 <sup>th</sup>	1 apse
RO	Szeben	St. John	13 <sup>th</sup>	circular	SK	Szakolca	St. Anna	13 <sup>th</sup>	octagonal
RO	Székelyszáldobos	St. John	-	4 lobed	SK	Szepeshely	St. Martin	11 <sup>th</sup>	circular
RO	Székelyudvarhely	Heart of Jesus	13 <sup>th</sup>	4 lobed	SK	Szepeshely	St. Andrew	12 <sup>th</sup>	circular
SB	Bácsszentantál	St. George	-	1 apse	SK	Szepesmindszent	St. Kozma and Damjan	12 <sup>th</sup>	circular
SK	Abaszéplak	-	11 <sup>th</sup>	1 apse	SK	Szete	St. Ladislaus	13 <sup>th</sup>	circular
SK	Alistál	-	-	-	SK	Sztojany (Poprád)	St. Antal	13 <sup>th</sup>	octagonal
SK	Bagyan	St. Catherine	12 <sup>th</sup>	circular	SK	Trencsén	-	10 <sup>th</sup>	4 lobed (inner)
SK	Bény	Apostles	12 <sup>th</sup>	circular	SK	Túrocszentmárton	St. Martin	11 <sup>th</sup>	-
SK	Besztercebánya	St. Michael	13 <sup>th</sup>	circular	SK	Vágkeresztúr	St. Cross	12 <sup>th</sup>	1 apse
SK	Csütörtök	-	12 <sup>th</sup>	circular	SK	Zólyom	-	13 <sup>th</sup>	hexagonal
SK	Dejte	All Saints	12 <sup>th</sup>	hidden					



Country	Location	Title	Century	Layout
SL	Koper	-	12 <sup>th</sup>	-
SL	Libelice	St. Martin	12 <sup>th</sup>	1 apse
SL	Ljubljana	St. Peter	-	circular
SL	Mokronog	St. Michael	13 <sup>th</sup>	-

Country	Location	Title	Century	Layout
SL	Muta	St. John the Baptist	11 <sup>th</sup>	1 apse
SL	Nagyótlak	St. Nicolaus	13 <sup>th</sup>	1 apse
U	Gerény (Ungvár)	St. Anna	12 <sup>th</sup>	6 lobed (inner)

Although some small-scale collections have already been conducted by other researchers regarding a territory or a country, such an overall collection analysis has not yet been carried out. It is crucial to observe these buildings from such a perspective because, in Central Europe, it is apparent that they were not built independently from each other. The purpose of the statistical analysis is to map these connections regarding their features and to group the monuments along new categories.

### 3 Analysis

#### 3.1 Location

According to our current knowledge, there are more than three hundred rotundas in Central Europe. In Subsection 3.1, the territorial distribution of the round churches is examined. The focus is mainly on the Hungarian Kingdom, but great attention is paid to other historical Central European territories such as the Kingdom of Poland, Kingdom of Bohemia and the Duchy of Austria. Similarly, the surrounding areas – of Dalmatia and Saxony (eastern territory of present Germany) – where the same corresponding monuments are also found- was included (Čiháková and Müller, 2015).

From the collected data, it is possible to conclude that these structures were built in the highest numbers in the Hungarian Kingdom. Comparing the numbers of rotundas in the rest of Central Europe with the rotundas in the Carpathian Basin, almost one-third of the examined buildings are located in the Kingdom of Hungary, making it significant both architecturally and culturally.

Moreover, great importance should be attributed to this type of central church as they were significant buildings of Christian architecture in every Central European Kingdom.

Other historical states also contain numerous round churches. However, it should be noted that the construction periods vary considerably; this is covered in the following section (Subsection 3.2). Quantitatively, there are less than half the numbers of rotundas in other kingdoms compared to the Kingdom of Hungary. According to our current knowledge, the Kingdom of Bohemia has the second-highest number of rotundas with 54 building.

The Dalmatian territories have the smallest number of central churches (19 buildings) compared to other Central Europeans regions. Many factors affected the numbers of rotundas in different regions (Fig. 2). The following sections (Subsections 3.2 and 3.3) outline the construction periods and layouts and how they vary across Central Europe (Szilágyi, 2009).

It is notable that the appearance of a relatively new function (karner-ossuary) was responsible for the high numbers of Austrian rotundas. The low numbers along the Dalmatian coastline could be explained by an isolated layout form that is connected to early Christian buildings that are not common in other Central Europeans countries. The typical types of rotundas are rare in this region.

Furthermore, from the map, some variations can be seen, such as rotundas around Prague and Cracow. For example, in Prague and its 30 km radius surroundings, there are 20 rotundas, which is the most frequent in this regard. Additionally, examining the rotundas inside the Kingdom of Hungary, we can also identify smaller groups. These may indicate a point of origin of this form or the activity of a masonry workshop.

The quantitative distribution of the rotundas can also be examined in respect of the current borders of the countries (Fig. 3). If the buildings are organised from

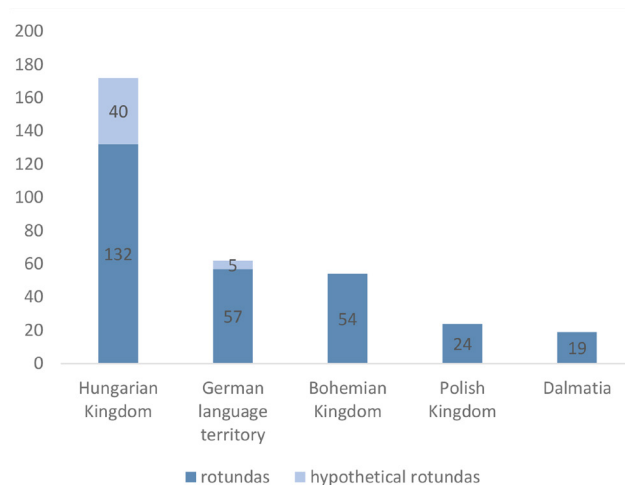
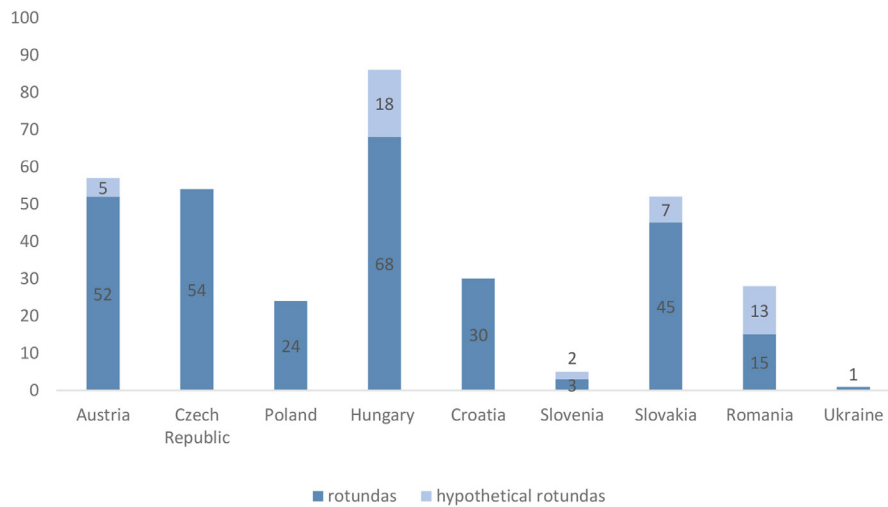


Fig. 2 Distribution of the rotundas in the territories of historical kingdoms



**Fig. 3** Distribution of the rotundas in current states of Central Europe

this perspective, then almost 100 rotundas can be found in Hungary. In other states, Austria has 57 and the Czech Republic with 54 rotundas (Čiháková and Müller, 2015). They are closely followed by Slovakia, where 53 rotundas have been built to our current knowledge. This number is remarkable, as it confirms former Upper-Hungary (Slovakia) as having the most rotundas in the regions of the Kingdom of Hungary (Görföl and Kovács, 2011).

Transylvania, Romania has 28 round churches, which is a relatively small number in the Hungarian Kingdom. In the regions of the current Hungarian state, 46 rotundas can be found in Transdanubia, 28 in the Great Plain and 16 in the Northern Mountains. However, these numbers do not show the density of the rotundas, which is accounted for in Fig. 4.

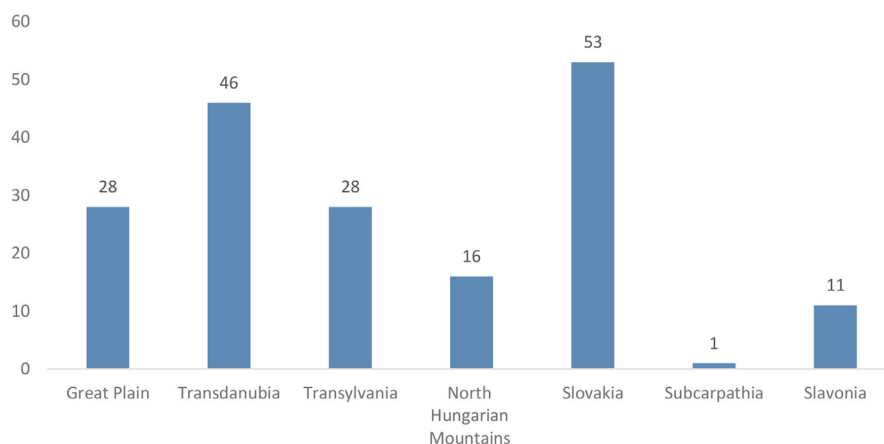
The Great Plain was a sparsely populated, large area, so it is not surprising that rotundas are rare there. Transdanubia has approximately 1.01 per 1000 km<sup>2</sup> with the densest region, the Northern Mountains, at 1.19 rotunda per 1000 km<sup>2</sup>.

### 3.2 Period of construction

As has been mentioned, the rotundas were built during the 9<sup>th</sup> to 14<sup>th</sup> centuries in Central Europe. Subsection 3.2 categorises the monuments according to their construction dates. However, in most cases, the exact time of construction is not known; in which case, the century is determined by the literature used for analysing the rotundas.

From the 10<sup>th</sup> and 11<sup>th</sup> centuries, approximately 40–40 rotundas are known. These could be found evenly across in the regions; although, there are few rotundas in Poland from the 11<sup>th</sup> century. We have collected data regarding 53 rotundas from the 12<sup>th</sup> century and 59 from the 13<sup>th</sup> century. A significant number of these can be found within the Kingdom of Hungary (Fig. 5). In addition, we examined 52 rotundas whose construction period is unknown; most of these are also located in the Carpathian Basin (Szilágyi, 2009).

Some groups could be established if the period of construction is taken into consideration. These rotundas are



**Fig. 4** Distribution of the rotundas in the Kingdom of Hungary



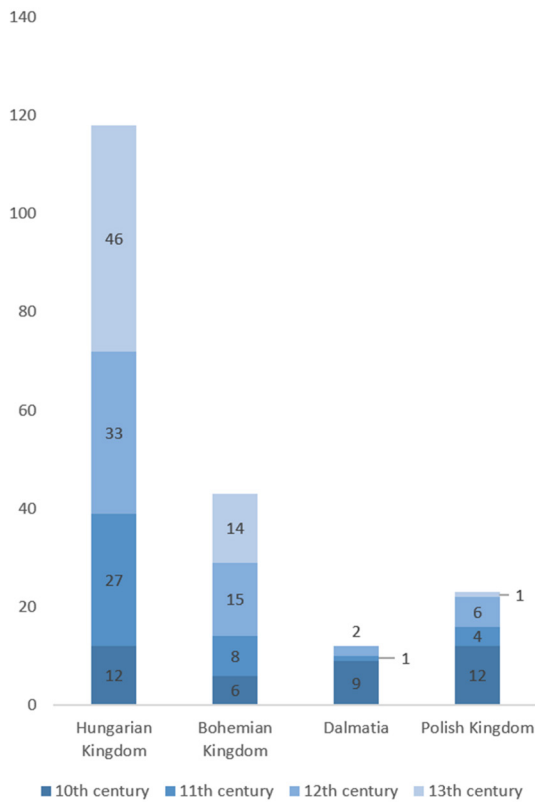


Fig. 5 Dispersion of the rotundas considering the time of construction

separated from the rest. The rotundas of the first group are along the Dalmatian coastline. Proportionally, this is where most of the early rotundas can be found, mostly from the 9<sup>th</sup> and 10<sup>th</sup> centuries (Fig. 6). Nevertheless, it is important to note that these monuments are separate from the rest not just because of their early construction period but also because of their layout variation, which will be explored in the next section (Subsection 3.3) (Illáš, 2017).

The territory of the Moravian Principality is another place where many early rotundas were built. Built in the 9<sup>th</sup> century, six central plan churches are known alongside

the Morava and Thaya rivers. These rotundas were built during the missionary of Saint Cyril and Methodius. In 862, the brothers were sent to Moravia by Emperor Michael III at the request of Prince Rastislav. The construction of the central churches in Mikulcice, Stare Mesto and Pohensko are likely connected to this missionary work (Fig. 7). The first rotundas of Bohemia could also be related to the Christianisation of the Slavs. According to the legends, Methodius baptised Bořivoj I. During his reign, the first stone churches of Bohemia were built in Levy Hradec and Budec, which were rotundas (Tóth, 1991).

The third, somewhat isolated group of rotundas are in Poland. There are mostly palatine chapels from the end of the 10<sup>th</sup> century. These rotundas were usually built together with a palatine building. Central plan churches in these kinds of complexes make up nearly half of all known rotundas in Poland (Bukowska, 2010; Rodzińska-Choraży, 2018).

From later times, the Karner buildings could be considered a significant new group. These were built in high numbers from the 13<sup>th</sup> century mostly in the eastern parts of Austria. However, they can be found in the southern parts of the Czech Republic and also in Slovakia and West-Hungary.

In the territories of the Hungarian Kingdom, there are 45 rotundas from the 13<sup>th</sup> century, 31 from the 12<sup>th</sup> and 26 from the 11<sup>th</sup>. In addition, 11 rotundas were probably built in the early 11<sup>th</sup> or the late 10<sup>th</sup> century (Fig. 8). The number of rotundas increased until the 14<sup>th</sup> century; however, this continual increase in the number does not mean increasing importance and popularity. As time progressed, the proportion of central plan churches' drastically reduced compared to the longitudinal layout churches. The golden age of rotundas likely started under the reign of Prince Géza and his son St Stephan I and stretched to the early rulers of the Árpád Dynasty (Szilágyi, 2009).



Fig. 6 Disposition of early Dalmatian rotundas

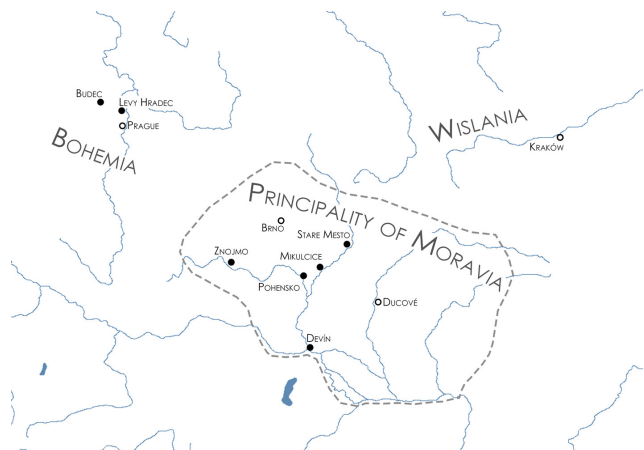


Fig. 7 Disposition of early Moravian rotundas

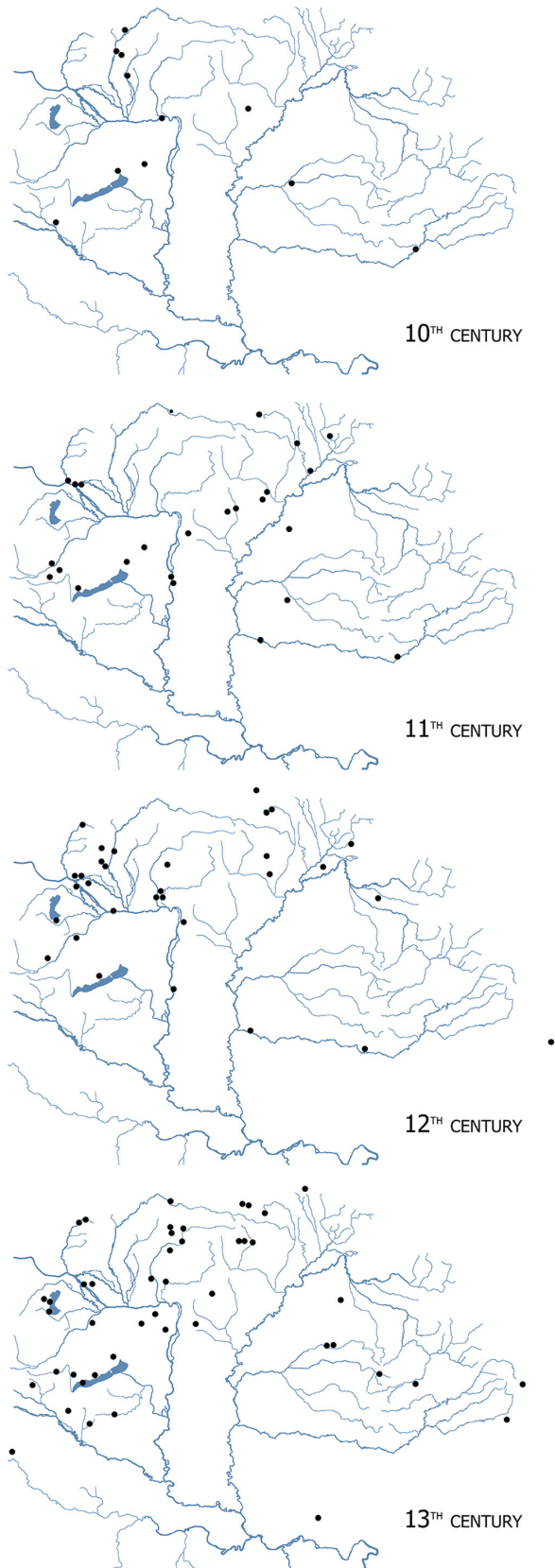


Fig. 8 Disposition of the rotundas in the Kingdom of Hungary considering the time of construction

Some archaeologists assume that the early rotundas located in Upper-West-Hungary (Ducové, Trenčín, Nitrianska Blatnica) were built by the Moravians because there are tombs near the churches that can be dated back to the Moravian period. However, there are also tombs from the Árpád-dynasty period. It is possible that Hungarians started to use the churches that had already been built by the Moravians or that Hungarians built the rotundas on the sites of older Moravian settlements (Kozák, 1984).

The remaining rotundas were built from the 10<sup>th</sup> and 11<sup>th</sup> century in the Kingdom of Hungary in the central territories of the sovereign and the clans. The Kingdom's first cathedrals were usually built next to the round churches in the centres of the principalities such as Veszprém, Eger and Gyulafehérvár. While, next to the rotundas, in the local centres of the genus, Benedictine abbeys were settled (Abasár, Ják, Vésztő-Mágorhalom, Miskolc-Tapolca).

The North Hungarian Mountains – where the Kabar tribes lived – are an important location for rotunda constructions in the 11<sup>th</sup> century. Seven rotundas can be found here from this period.

Some 17 rotundas were built in Slovakia and another seven in the Northern parts of Hungary in the 12<sup>th</sup> century. The karners appeared in West-Hungary and the mining towns of Upper-Hungary in the 13<sup>th</sup> century, while central parish churches were also built in other parts of the Hungarian Kingdom. From these, the rotundas in Southern Transdanubia stand out. Here, the supposed masonry workshop of Kallósd probably built four rotundas as parish churches in the 1260s (Valter, 2005).

### 3.3 Layout variations

There are many layout variations of rotundas, which are specified below. As already mentioned, the main criterion, from our point of view, alongside which we determine a central plan church as a rotunda, is that its layout is strongly connected with a circle - it originates from it. Therefore, we do not include the complex central spaces like the church of Szekszárd as rotundas.

The most widespread layout version in the examined group of rotundas is the round nave with one half-circle or horseshoe-shaped apsis. Nearly half of the rotundas (102), whose layout we know, have such a plan. There are considerable numbers in the Czech Republic, where – apart from a few examples of round plan-rotundas near Austria – this is the only version to be found (Figs. 9 and 10).

It is noteworthy that this version did not exist in Mikulcice, where the earliest rotundas were found.



Fig. 9 Layout variations (from left to right): One apse, circular, four-lobed, four-lobed (inside) six-lobed (inside), octagonal, hexagonal, hidden, other

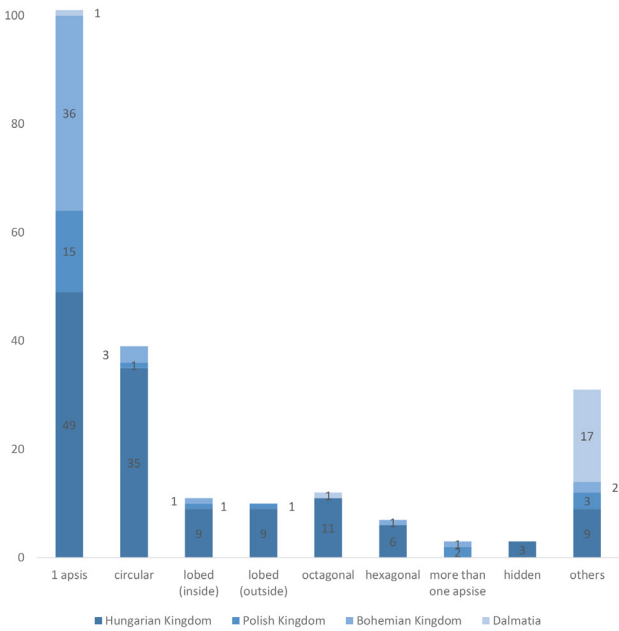


Fig. 10 Distribution of the rotundas considering their layouts in Central Europe

In contrast, this is the only type to be found in the villages around Mikulcice (Stare Mesto, Pohansk, Znojmo).

The round churches of the Dalmatian coast are different from the others we have examined. The typical small central building of early Dalmatian Christianity was the rotunda with six foils (10 examples). The origin of this type leads back to the foiled buildings of Antiquity, as the constant existence of Christianity can be assumed on the coast of the Adriatic Sea during the entire Pre-Romanesque period. Besides this form, the one with one apse and some other small central church types also appear, but their number is quite insignificant compared to the six-foiled types. According to some researchers, the Christianisation led by St. Cyril and St. Methodius took place at this time, presumably when the coast of the Adriatic Sea was under the influence of the Bulgarian Kingdom (Szilágyi, 2009).

More than a third of the rotundas whose layout we know are from the one apse version in the Hungarian Kingdom. This type was built during the entire Árpád era and across the entire Kingdom, although it was dominant only in the

10<sup>th</sup> and the 11<sup>th</sup> centuries; later, other layout variations also became widespread. The plan of 39 supposed rotundas are not known, their existence was assumed by researchers based on recordings or village names.

This variation could be grouped further by examining the relationship between the nave and the apse. We can distinguish three different versions. First, the half-circle apsis, where the centre of the apsis' circle is further in the direction of the nave from the centre of the wall contour. Second is the horseshoe-shaped apsis, where the centre of the apsis' circle is not towards the nave (as the first version), but to the apsis. The third version is the stretched apsis, where the centre of the apsis' circle is outside the wall contour.

Rotundas with a simple round layout spread in the northern part of the Carpathian Basin. Some of them are from the early period, from the 11<sup>th</sup> century. These can be found in the western part of former Upper-Hungary (Dévény, Pozsony) now Slovakia, or they were palace chapels in royal centres (Nyitra, Esztergom); although, this type was widespread in the 12<sup>th</sup> and 13<sup>th</sup> century, often in the Karner architecture of Upper-Hungary.

Within the lobed rotundas, there are three different sub-groups. First, the rotundas with six foils: among other territories, they can be found in the Hungarian Kingdom, where we currently know of five examples. Researchers usually connect these churches to Armenian architecture or Dalmatian rotundas. Their particular attribute is that they look like a simple rotunda from the outside and their foils can only be discovered from the inside. The second version of these rotundas has four lobes, which can also only be discovered from the inside.

The third type is the group of foiled rotundas, whose foils can be seen from outside. There are nine examples known with four foils in the Hungarian Kingdom. These were all were built in the 12<sup>th</sup> and the 13<sup>th</sup> centuries. There are four such rotundas in Transylvania, which may form a group because of their similarities, while the rotundas of Ják and Pápoc can also be connected.

Central plan churches with polygonal layouts appeared at the same time as the gothic groined vault. Octagonal and hexagonal plans were rather characteristic of the northern

part of the Hungarian Kingdom. They were typically Karner or memorial chapels (Veszprém) or possibly parish churches (Kaposzentszjakab, Nyírbátor) by function (Fig. 11).

The group of the "hidden" rotundas should also be briefly mentioned. This type externally looks like a longitudinal church, but they have a circular nave inside. We know of two such rotundas (Dejte, Hidegség).

Some central churches are included in this group of the rotundas, but they are transitions between them and other central churches whose space is too complex to group them. In these transitions, we can still observe the influence of a circle in their layout within the other characteristics (Székesfehérvár, Kézdiszentlélek).

Apart from these, the other central plan churches built in the Carpathian Basin cannot be considered rotundas. Their layout typically shows Eastern influence and is less connected with the circle (Fig. 12).

### 3.4 Patron saints of rotundas

To explain why attention should be paid to the patron saints of the rotundas while researching the topic, the notion of patron saints needs to be clarified. Generally, both the notions "patron saint" and "title" are used when referring to the name of the church.

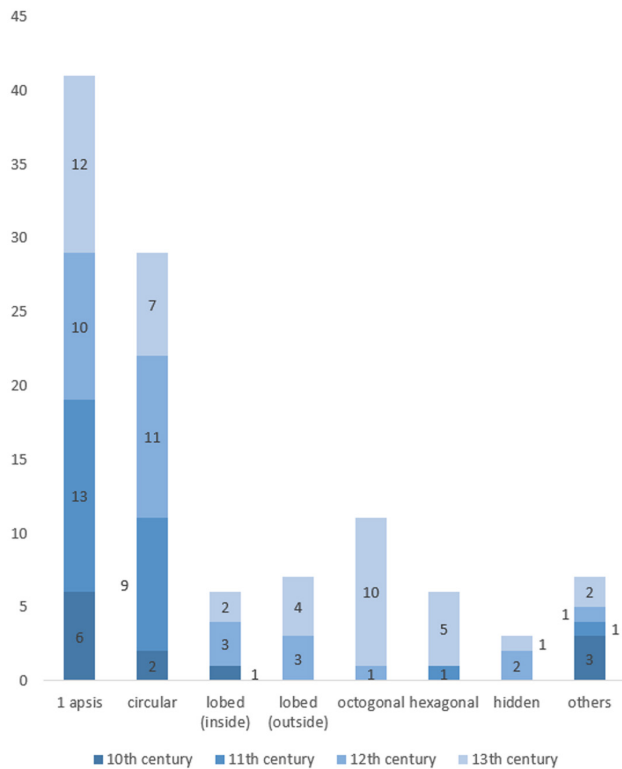


Fig. 11 Distribution of the rotundas considering their layouts in the Kingdom of Hungary

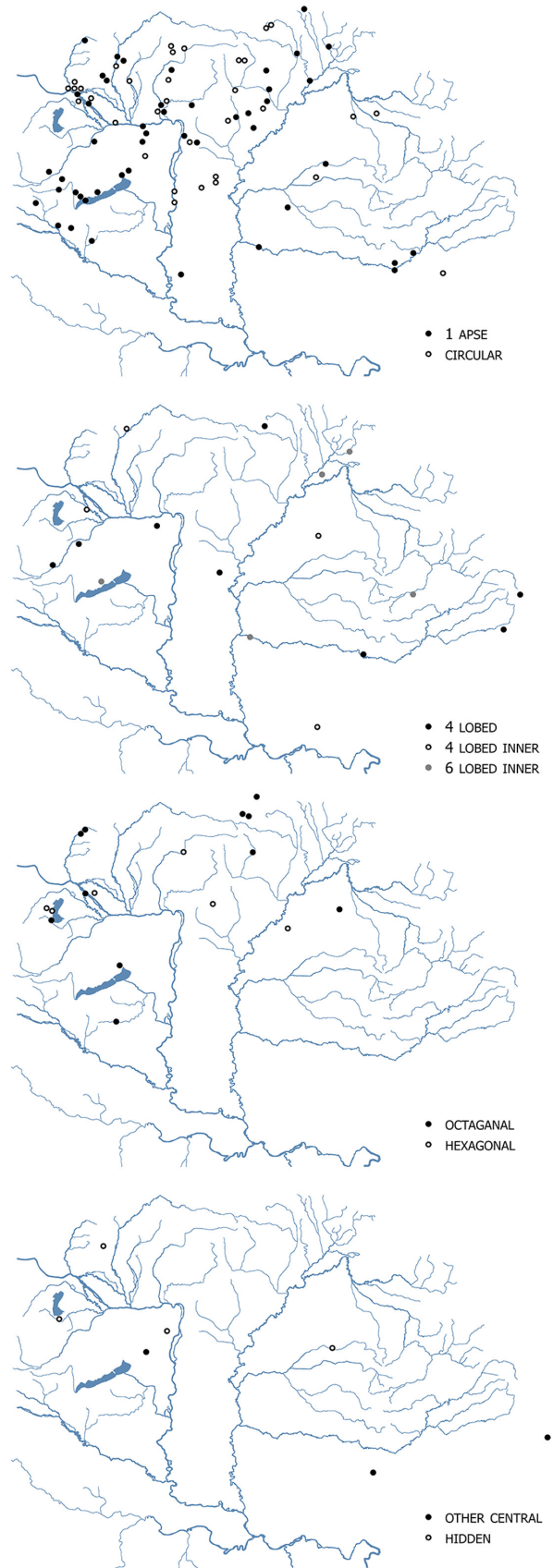


Fig. 12 Disposition of the rotundas in the Kingdom of Hungary considering the layout variations



It helps to understand why it is important when examining the title of rotundas if we consider why a church was named in a particular way. This subject has already been covered by other researchers, including Béla Kovács and András Mező (Kovács, 1990; Mező, 1996). Kovács collected and statistically analysed the patron saints of the Middle Ages in the Hungarian Kingdom and concluded the reasons why those particular titles were used (Kovács, 1990). According to Mező, who researched the same topic, the titles of the medieval churches relate to the town or city where they are located.

There is no particular rule in the law of the church that describes what a church or a chapel should be named (Mező, 1996). Nevertheless, Mező gathered some factors that could influence the selection of the patron saint. One of the most determinant circumstances was the obligation to celebrate the day of certain saints – the list of whom could be found in the law of King László I. From the data Kovács collected, the title was chosen from this list in 80 per cent of the cases; however, this law could only influence those rotundas that were built in the second half of the 11<sup>th</sup> century. Among other reasons, he also mentioned that choosing a patron saint could be affected by the personal patron of the founder of the church, which mostly happened in the case of royal constructions (for example, St. Stephen, the protomartyr). The saints most respected by the royal family could also be determinative factors (the patron saints, chosen by King St. Stephen: Holy Mary, St. Martin, St. George), which is also true for monastic foundations (St. Benedict). Also, owning a significant relic could be decisive in the selection. It can be seen in the case of St. George: this title became famous after King St. Stephen returned with some relics of the saint from his Bulgarian campaign (Csanád). It should also be highlighted that the immigrant population brought patron saints from their home country (Mező, 1996).

Despite these points, little or nothing is known regarding the names of many rotunda churches as frequently their existence is extrapolated from historical data. However, the confirmed data allows a description of the main tendencies. Titles are only shown where they have been given to at least two rotundas.

Examining which titles the European rotundas were given, we can see that the most popular saints were Holy Mary, St. Michael and St. George. There are 11 churches with each of these titles. St. Nicholas should also be mentioned, which title was given to 10 churches (Figs. 13 and 14). Regarding the round churches in the Hungarian



Fig. 13 Disposition of the most frequent patron saints of the rotundas in Central Europe

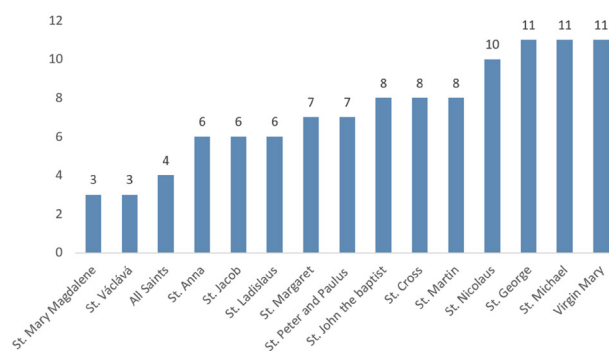


Fig. 14 Distribution of the most common patron saints of rotundas in Central Europe

Kingdom, we find that Holy Mary is only the 4<sup>th</sup> most common title (Figs. 15 and 16). It is surprising not only because in Europe, she is the most frequent patron saint, but because she is the most popular regarding all the Hungarian churches in the Middle Age (Kovács, 1990).

Regarding Hungarian rotundas, the patron St. George can be found among the earliest 10<sup>th</sup> century examples, as well as later, from the 12<sup>th</sup> century. That King St. Stephen acquired some of the relics of St. George may explain this;

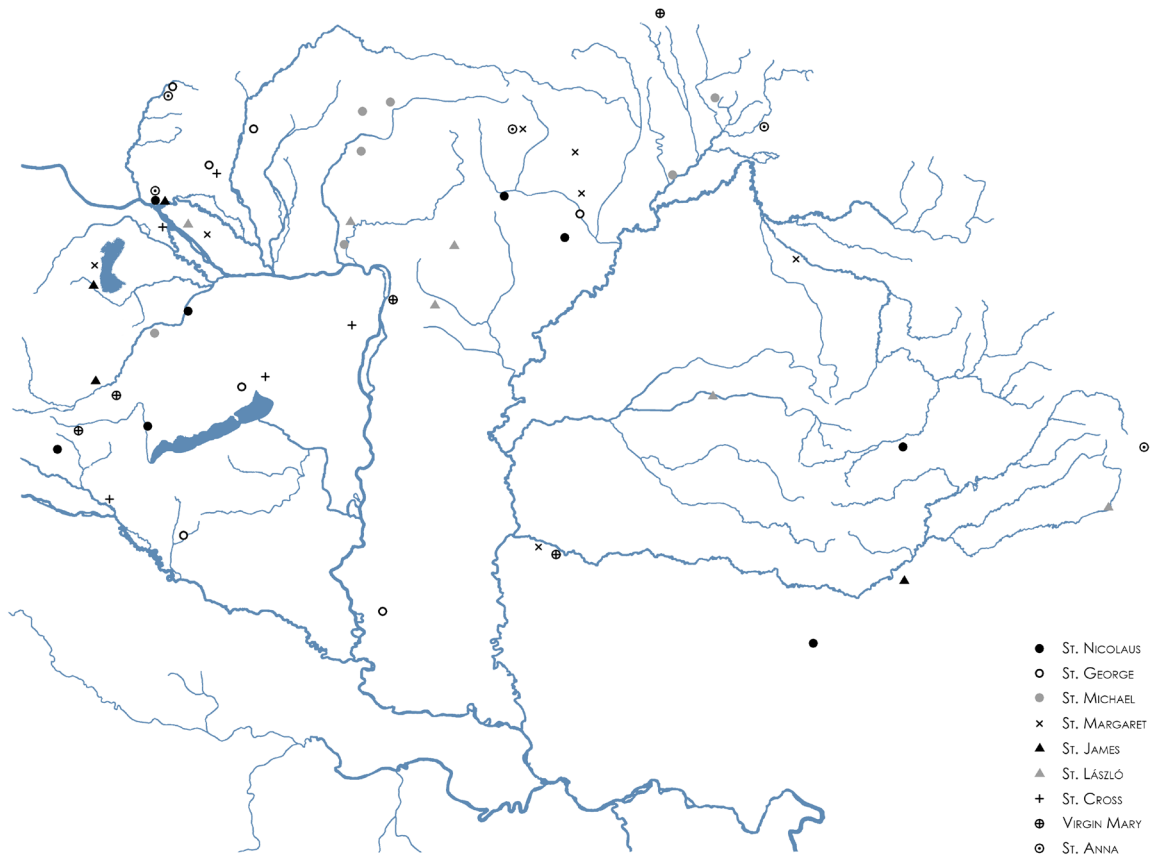


Fig. 15 Disposition of the most frequent patron saints of the rotundas in the Hungarian Kingdom

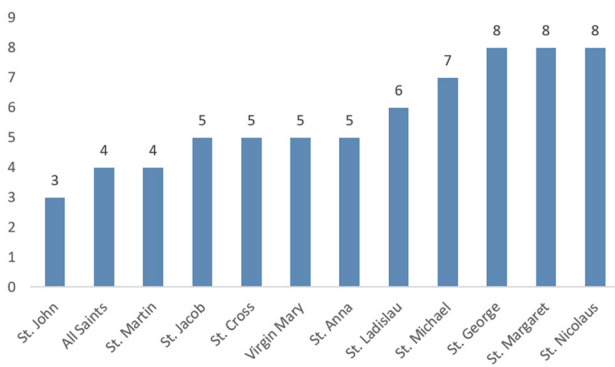


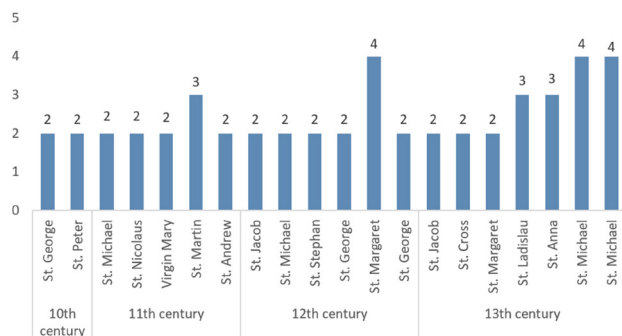
Fig. 16 Distribution of the most frequent patron saints in the Hungarian Kingdom

similarly, he appears on several royal symbols (banners, coronation cloak, crown). St. Michael, as a popular title, appeared continuously from the beginning of the 11<sup>th</sup> century. Even in the 13<sup>th</sup> century, many rotundas were built with this title, mostly in the northern part of the Hungarian Kingdom. We should also acknowledge St. Nicholas' popularity as a title. It appears not only in the 11<sup>th</sup> century but again in the 13<sup>th</sup> century, in the latter case, on an outstanding

number of churches. St. Nicholas lived in Asia Minor in the 4<sup>th</sup> century and was most revered in the Byzantine Church. The popularity of this title may be connected with the Bulgarian campaign of King St. Stephan (Kovács, 1990). Interestingly, the usage of this patron saint spread again in the 13<sup>th</sup> century; we can assume this was connected to the influence of the Crusades. Consequently, we can see the possible connection of St. George and St. Michael to Eastern Christianity. Beside these saints, we should also mention the title Margaret of Antioch as St. Margaret was also a popular patron saint of the rotundas. Regarding this title, it should be noted that while it is first among the rotundas, it is only placed 14<sup>th</sup> among all the medieval churches. The respect of this saint could have spread because of the campaigns to the Holy Land (Fig. 17).

Looking at the influence of the Crusades on the selection of patron saints, it is possible to connect the title All Saints – which was popular in the Hungarian Kingdom – to the presence of the Crusaders. Additionally, the spread of the title St. John the Baptist could be connected to the Order of St. John.





**Fig. 17** Distribution of the most frequent patron saints in the Hungarian Kingdom considering the construction period

### 3.5 Functions of rotundas

When it comes to the functions of the rotundas, it is difficult to imagine any common liturgical purpose behind their formation. Due to the complexity of the spatial organisation (often both central and axial) and to the relatively small size of these churches, they could not have been convenient for any of the common uses of a church. Nevertheless, we can assume probable functions based on the historical environment, the archaeological findings, and architectural consideration.

In Christianity, central plan churches have usually been used as mausoleums with memorial function or as baptistery chapels. This is true for early Christian architectures, such as the Lateran Baptistery in Rome and the Holy Sepulchre in Jerusalem. The function of royal representation also appears in central plan churches in early medieval times, for example in the Byzantine architecture or Charlemagne's chapel in Aachen. However, these buildings could also be connected to the memorial function (Buzás and Kovács, 2014; Geveres-Molnár, 1972).

The early Central European rotunda's functions are unknown, only hypotheses exist. Most of the Moravian rotundas have tombs inside and around the building, so the memorial function seems acceptable (Kozák, 1984). However, many researchers assume the baptistery function based on archaeological findings. Furthermore, we think that the early rotundas could also be parish churches because frequently, these were the first stone buildings in the town. Consequently, it is possible that the early central churches were multifunctional. This hypothesis is also supported by the fact that the most widespread layout type has central and longitudinal elements as already mentioned (Máté and Varga, 2018).

The rotundas as royal chapels appeared in the Kingdom of Hungary and Poland during the 10<sup>th</sup> and 11<sup>th</sup> century. These rotundas had some unique features. Most of these churches were built in the royal settlements of the kingdoms and together with a residential building. These simple stone houses were probably royal palaces for the rulers or the bishops. This makes the royal representation even more significant. It is also important to note that these sites usually become the first bishoprics in the kingdoms. Over time, the cathedrals were raised above, or next to the rotundas, this is why all of these early rotundas are only known from archaeological findings. Examples for these kinds of churches are in Gneizno, Przemyśl, Veszprém, Eger, Gyulaféhevár (Fig. 18) (Gerevich, 1990; Kertész, 2011; Kozák, 1984).

The Hungarian heads of clans took the rotunda's forms and functions from the royal towns and built their own in their centres. These central buildings can be found all over the Kingdom, for example, in Ják, Abasár, Miskolc, Vésztő. The representational function is plausible for these rotundas, but many were probably used as a memorial chapel for the lord of the territory. There were also stone residential buildings near the rotundas, which could be the palace for the head of the clan. In nearly every case, a Benedict Abbey was founded in local centres during the 11<sup>th</sup> or 12<sup>th</sup> century (Kertész, 2011).

In time, the importance of the rotundas decreased as new Romanesque churches were built next to them. The purpose of the monks in the abbey was to pray for the salvation of the lord and his family. This supports the theory that the rotundas probably contained the tomb of the head of the clans.

The round churches built in the local centres could also have had the function of a parish church, with rotundas already appearing among the conventional parish churches in the villages in the 11<sup>th</sup> century. The famous rotunda of Öskü is a good example for this or the round church that stood by the fort of Kísnána, which was probably the parish church of a village called Egyházasnána (Buzás and Kovács, 2014; Szilágyi, 2009). Here, we can see the same building form, but without the representation of the head of the clan or the need for burial. No graves have been found in the rotundas, nor are there palaces of the clan or abbeys next to the round churches.

A new building spirit appears in rotunda architecture at the end of the 12<sup>th</sup> and in the 13<sup>th</sup> century. The building timeline suggests this church type is already in the minority compared to the longitudinal form by this time, which is why it is interesting as to what could have caused



**Fig. 18** Rotundas in the royal and local centres of Central Europe

a peak in their number. A possible explanation may be the influence of the crusaders. The central concept of the era was formed by the wars of the crusaders and the associated knights. We have already noted when observing the titles of the rotundas, that the patron saints connected to the

crusaders were popular at this time. In the case of certain rotundas, there is an actual connection between the builder and the crusades (Karcsa), in some others, we can only presume it from the circumstances (Gerény, Kolozsmonostor, Kiszombor, Kallósd, Süvete, Keresztúr (Fig. 19), Szalonna,



**Fig. 19** Vágkeresztúr (Križovany nad Dudváhom), Slovakia, St. Cross Rotunda



**Fig. 20** Nagytótlak (Selo), Slovenia, St. Nicolaus rotunda

Nagytótlak (Fig. 20), Bagodvitenyéd). We can, however, assume that the rise in the number of rotundas occurred due to the influence of central plan architecture brought home by the crusaders from the East (Máté and Varga, 2019). Although, instead of the form used by the crusaders following the Holy Sepulchre church in Jerusalem, they used the available central form, the rotundas. These rotundas were also parish churches, and perhaps they were also used as local "pilgrim churches of the Holy Land".

Before the building spirit of erecting new rotundas had ended, a new function and a partly new form appeared at the end of the 12<sup>th</sup> century: the Karner. It was used for the burial ceremony as it was a funeral chapel and an ossuary. This function is not far from those of the rotundas; the burial of nobles was a part of these chapels' role for a long time. The difference is that when this function reappeared, it served as a burial place for the common people. There is also a novelty in the form; these chapels have two floors. The upper floor, which is on the ground, is the burial chapel and serves memorial functions, while the other level, below ground, serves as an ossuary. The majority of the Karners were built in Austrian territory, we know of only a few examples in the Hungarian Kingdom (Selmečbány, Körmöcbánya, Nagyszombat, Sopron).

After the 13<sup>th</sup> century, we do not find any new rotundas. The explanation for this could be that the function became obsolete. There were so many Christians by this time that the rotundas became inadequate due to their small size.

Besides, the original ideology likely died, which was one of the primary purposes these churches were built instead of the longitudinal type.

#### 4 Conclusion

This study has taken new perspectives and placed previous results in a new context by dealing with the known list of all medieval rotundas in the Kingdom of Hungary and the region of Central Europe. We conclude that this significant number of central plan churches can be considered as strongly related buildings in this region of Europe.

Many aspects of the rotundas point to equal eastern and western influences. For example, the most widespread layout types can be seen as a transition between a longitudinal and central spatial organisation, where the apse gives a definite axis to the circular nave while it keeps its centrality.

Something similar can also be stated about the titles of the rotundas; with many eastern and western patron saints associated with them. St. Peter, Paul and probably also St. Gregory could be considered as western, St. Nicholas and St. Michael as eastern. This leads us to believe that both branches of Christianity have had considerable effects on Central Europe, a pattern that is repeated in the other examined aspects.

The study has identified new groups and connections through the examination of Hungarian rotundas, and their comparison with other Central European rotundas. These observations revealed new relationships among the

rotundas in regards to the regions, period of construction and the hypothetical functions.

The topic of medieval rotundas is a relatively well-documented subject in many Central European countries; however, the ongoing archaeological excavations show that the topic cannot be considered closed. Newly found rotundas continue to challenge art historians and architects to rethink and if necessary change the previous hypotheses about the origins and spread of the rotundas.

This study could be the basis for new research on the topic of rotundas considering either smaller groups or singular churches. It is essential to include the Romanesque rotundas as a Central European feature and to explore the architectural connections of every single building not

just in the country where it was built, but within the entire list of monuments in Central Europe.

In providing a comprehensive analysis of the topic, it is hoped that this study has covered the vast majority of rotundas in Central Europe and provided a basis for further research on the connections and patterns discussed.

### Acknowledgement

This work was supported by the ÚNKP-19-2 New National Excellence Program of the Ministry for Innovation and Technology.



### References

- Bukowska, A. (2010) "The Origins of the Christianity in Poland. Actual Research on Church Archaeology", In: *Die Christianisierung Europas: Entstehung, Entwicklung und Konsolidierung im archäologischen Befund*, Bergisch Gladbach, Germany, pp. 449–468.  
<https://doi.org/10.13140/2.1.1841.7448>
- Buzás, G., Kovács, O. (2014) "Középkori várak" (Medieval Castles), Mátyás Király Múzeuma, Visegrád, Hungary. (in Hungarian)
- Capra, M. (1926) "Die Karner Niederösterreichs, Ein Beitrag zur Entwicklungsgeschichte des Karners", (The karners of Lower Austria, A study regarding the history of the development of the karners), PhD thesis, University of Vienna. (in German)
- Čiháková, J., Müller, M (2015) "Malostranský kostel sv. Václava v geometrickém světě středoevropských rotund" (Lesser Town Church of St. Wenceslas in the geometric world of Central European rotundas), *Ročník*, 31(1), pp. 2–109. (in Czech)
- Firlet, J., Pianowski, Z. (2016) "Familia ecclesiae in the towns of the Wawel Castle and the Prague", History Museum in Gniezno, Gniezno, Poland.
- Gerevich, L. (1990) "Towns in Medieval Hungary", Akadémia Kiadó, Budapest, Hungary.
- Geveres-Molnár, V. (1972) "A középkori Magyarország rotundái" (Rotundas of Medieval Hungary), *Művészettörténeti Füzetek* 4, Akadémia Kiadó, Budapest, Hungary. (in Hungarian)
- Görföl, J., Kovács, L. (2011) "Középkori templomok Dél-Szlovákiában" (Medieval churches in southern Slovakia), Nap kiadó, Dunaszerdahely, Hungary. (in Hungarian)
- Illáš, M. (2017) "Niektoré predrománske rotundy v Dalmácii v kontexte otázky pôvodu veľkomoravských rotund" (Some Pre-Romanesque Rotundas in Dalmatia in the Context of the Question of Origin of the Great Moravian Rotundas), In: *MHS. Ročenka MNK 2011–2016*, Brno, Czech Republic, pp. 119–178. (in Slovak)
- Kertész, Zs. (2011) "Kolostorok, monostorok nevei Magyarországon a korai ómagyar korban" (Names of monasteries and churches in Hungary in the Old Hungarian era), BA thesis, Debreceni Egyetem. (in Hungarian)
- Kovács B. (1990) "Magyarország középkori patrocíniumai" (Medieval patrons of Hungary), *Agria-Az Egri Múzeum Évkönyve*, 25–26, pp. 407–419. (in Hungarian)
- Kozák, K. (1976-77) "Téglából épített körtemplomaink és centrális kápolnáink a XII-XIII. században" (Brick circular churches and central chapels in the 12th-13th centuries), *A Móra Ferenc Múzeum Évkönyve*, 1, pp. 49–89. (in Hungarian)
- Kozák, K. (1984) "Közép-Európa centrális templomai (IX-XI. század)" (Central Churches of Central Europe (9th-11th centuries)), *Veszprém Megyei Múzeumok Közleményei*, 17, pp. 107–144. (in Hungarian)
- H. Tóth, I. (1991) "Cirill-Konstantin és Metód élete, működése" (Life and operation of Cyril-Constantine and Method), *JATE Bölcsészettudományi Kar és Szlav Filológiai Tanszék*, Szeged, Hungary. (in Hungarian)
- Máté, B., Varga, G. (2018) "Kelet és Nyugat határán, Az árpád-kori rotundák eredetkutatása" (On the border of East and West, Research of the origins of Árpadian rotundas), TDK paper, BME. (in Hungarian)
- Máté, B., Varga, G. (2019) "Kelet és Nyugat határán, Az árpád-kori rotundák kapcsolatai Európa építészetében" (On the border of East and West, The relations of the Árpadian rotundas in the architecture of Europe), TDK paper, BME. (in Hungarian)
- Mező, A. (1996) "Magyarország patrocíniumi helységnevei (11-15. század)" (Places named with patron saints in Hungary (11th-15th centuries)), PhD theses, ELTE. (in Hungarian)
- Rodzińska-Chorąży, T. (2018) "Some Remarks on the Design of two Residential Complexes in Poland from the End of the 10<sup>th</sup> Century. St. Augustine, Boethius and the Concept of *Palatium*", *Hortus Artium Medievalium*, 24, pp. 271–281.  
<https://doi.org/10.1484/J.HAM.5.115955>
- Szilágyi, A. (2009) "A Kárpát-medence Árpád-kori rotundái és centrális templomai" (Rotundas and central churches of the Carpathian Basin during the Árpád era), *Semmelweis Kiadó*, Budapest, Hungary. (in Hungarian)
- Valter, I. (2005) "Árpád-kori téglatemplomok Nyugat-Dunántúlon" (Árpadian brick churches in Western Transdanubia), *METEM*, Budapest, Hungary.