What do the Cosmological Paintings in Old Romanian Churches Tell Us?

Marc Frincu

Abstract: While it is known that most pre-modern churches have a general east-west orientation there is much more that we can learn from their iconography which tells us a beautiful story of the Christian myths sometimes adapted through the eyes of the painter. Much of this art depicts cosmic bodies such as the Sun, the Moon, and the stars and planets, as part of the luminaries that make up our cosmos. Some of them are exhibiting anthropomorphic features giving us the impression they are actively involved in the liturgy watching on us from above. In recent years, scholars around Romania have started to uncover previously unknown scenes depicting geocentric, heliocentric, and even hybrid solar systems. They tell us a story of how scientific results were adopted by various religious cults and how they spread in the local communities. Like a modern-day movie projector, the dance of light has been incorporated in the architecture of churches and iconography allowing members of medieval parishes to experience the unfolding of the biblical scenes as the light progresses through the day and on specific days of the year corresponding to the celebration of important saints and events. Finally, iconography was used as part of the yearly calendar to inform illiterate community about the day of the year and its patron saint. All these paint a complex picture where astronomy was used as part of the religious ritual to emphasize not our place in the cosmos but rather the universe itself as a creation of God in which we are just a small part. They provide a rich source for historians of art and architecture as well for ethnographers in their quest for a better understanding of our past. This paper will provide an overview of these findings across Romania, starting in the medieval region of Moldova all the way to the 18th century Transylvania.

Context

In this paper 1 explore nine religious sites, one dating from the Neolithic period, the others spanning 500 years between the 15th and 19th centuries CE in what is now Romania, all telling parts of the story of how astronomy both shaped and was shaped by historical context (see Figure 1). The focus is on churches and the astronomical symbolism found in them which can be used not only to understand how astronomy was incorporated in

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religious edifices and practices, but also to trace the political and religious dynamics in place in the 500 period we cover.

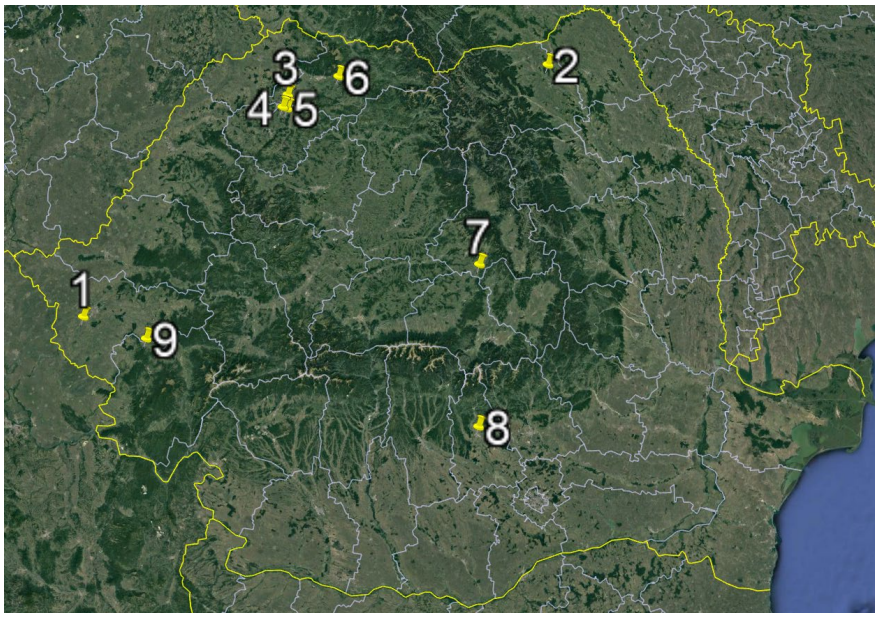


Figure 1. Location of the main sites discussed in this chapter (modified Google Earth image).

In 1983, excavations at the Parța Neolithic settlement site (20km south of Timisoara, the largest city in Banat) unearthed a sanctuary dedicated to the fertility and fecundity cult (Number 1 in Figure 1) exhibiting potential solar alignments as well as one monumental statue with two twins/couple, one representing a pregnant woman and another a bull-headed figure facing either sunrise around the equinoxes or, maybe the rise of what was later identified as constellations of Gemini and Taurus during sunset at the autumn equinox[1]. The settlement was part of the Banat culture, which was

[1] Marc Frincu, 'Was the Parta Neolithic Sanctuary Astronomically Aligned?', *Journal of Mediterranean Archaeology and Archaeometry*, vol. 18, no. 4 (2018): pp. 43-51.

contemporary to the Vinča B1-B2 culture.[2] Nowadays the sanctuary has been initially reconstructed inside the National Museum of Banat in Timisoara and recently as a 1:1 replica inside a newly opened museum in the village it was discovered in over four decades ago. It stands as one of the earliest evidences of solar symbolism in present day Romania although earlier proofs may be found further south at the entrance of Danube in the Iron Gates gorges where the Lepenski Vir culture flourished at the end of the Mesolithic and where a possible alignment with a nearby mountain has been identified, making it the earliest evidence found to date in Europe.[3]

The constant symbol of the sun

The symbol of the sun can be found across time in various forms across Romania. Some of the earliest medieval evidence comes from the principality of Moldavia (now spanning over Eastern Romania, Moldova, and parts of Southern Ukraine) in the 13-14th centuries where it can be found in the coat of arms depicting a bull with a star between its horns and the crescent moon and sun on its sides. Coins issued in this period starting with voivodes Peter I (b. 1375 – d. 1391) and all the way to Alexander II (b. 1429 – d. 1455) clearly show this symbol.[4]

The solar symbolism in the region was not always expressed through written signs and symbols. On several occasions monuments' alignment with the sunrise or sunset at solstices marked its celebration especially during the Bronze Age. Examples include the large sites at Cornești-Iarcuri (Banat region) and Lăpuș-Podanc (Maramureș region) where solstitial alignments with distant peaks have been found through the work of Leonard Dorogostaisky.[5]

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[2] Gheorghe Lazarovici, Chis Oproiu, Iharka Szücs-Csillik, 'The Neolithic Shrine at Parta', Konkoly Monographs, vol. 4 (2022): pp. 7-17.

[3] Alexandra Bajić, Hristivoje Pavlović, 'The Summer Solstice Sun at Lepenski Vir', in Sonja Draxler, Max. E. Lippitsch, Gudrun Wolfschmidt, ed., *Harmony and Symmetry. Celestial regularities shaping human culture. Procs. of SEAC 2018 Vol. 1* (Hamburg: Tredition).

[4] Anon., 'Coin dating from the 14th century depicting Moldova's coat of arms', at http://romaniancoins.org/ro_asprokastru_tip2.html (accessed 17 October 2021).

[5] Leonard Dorogostaisky, 'Sub semnul Soarelui în Epoca Bronzului' (en.: Under the sign of the Sun in the Bronze Age), in Marc Frincu and Simina Frincu, ed., *Astronomia Strămunilor: arheoastronomie și etnoastronomie pe teritoriul României* (en.: Astronomy of the Ancients: archeoastronomy and ethnoastronomy in present-day Romania) (Szeged: JATEPress, 2018), pp. 111-160; Leonard Dorogostaisky, 'An archaeoastronomic case study: the site from

The solar projections of Stephen the Great

John Stephen III also known as 'the Great' ruled between 1457-1504 over Medieval Moldavia. He built 44 churches and monasteries. Among them the oldest one can be found in Pătrăuți (1487), present day Bucovina region (northern Romania). It is the only one preserved in its original form (Number 2 in Figure 1).

Between 2003 and 2016 Father Gabriel Herea observed and documented the solar symbolism. Quoting his own words

> from time to time, rays of sunlight penetrated through the windows of the church and cut from everyday life fragments of the liturgical space that we have received as an inheritance from our ancestors. I started noticing such light projections from the first liturgies I carried out in the church.[6]

The church in Pătrăuți has an approximate east-west orientation along the nave with the eastern window being slightly off the main axis and to the south.[7] The reason for this strange placement will become obvious later. Father Herea documented several symbolic projections over the various painted scenes and architectural and ecclesiastic elements. They revolve around the main Christian celebrations, Christmas, Easter, and St. John's birth (21st June, which coincides with the Romanian midsummer pagan celebration of Sânziene (fairies)) and are related to the solstices and equinoxes. These projections do not always take place at sunrise or sunset. Various windows have been placed to capture the projecting sunlight throughout the day as it moves from one scene to another guiding it and unfolding to the viewer a movie made with medieval knowledge and means as Father Herea mentions throughout his book[8].

Cornesti-Iarcuri, Timis County, Romania', in Andrei Stavial, Dorel Micle, Adrian Cîntar, Cristian Floca, Sorin Forțiu, ed., *Arheovest*, (Szeged: JATEPress, 2013), pp. 863-878.

[6] Gabriel Herea, *The symbolic presence of the Sun at Patrauti* (Timisoara: Universitatea de Vest, 2020), p. 19. Available online at https://www.academia.edu/41674358/The_Symbolic_Presence_of_the_Sun_at_Pătrăuţi (accessed 17 October 2021).

[7] Herea, *Patrauti* ., p. 24.

[8] Herea, *Patrauti* p. 24*t*.

The study by Father Herea, one of the best photographically documented so far, further demonstrates the complexity of the illumination phenomenon we mentioned earlier that allowed parishioners to witness the unfolding of the scenes before their eyes as the sun progressed in the day. Sunlight represents the light of the projector that runs on the wall, by illuminating carefully positioned paintings, symbolic scenes related to the ruler, Jesus Christ, and the saints present in the paintings. The primary purpose of this light show has been lost, much like the astronomical ornaments of the traditional houses built in the region and elsewhere in Romania. But these light effects might have been used as a kind of initiation for those present there in medieval times. It is said that an image 'is' as many as a thousand words—a phrase equally valid even hundreds of years ago when most people could not read. So let us see next some insightful examples.

At Pătrăuți two important projections take place around the winter solstice (Christmas) and summer solstice (birth of St. John). The first starts by illuminating Christ's descent into hell and resurrection scene and ends with his birth in the Cave of Bethlehem[9]. The second is more complex. The first summer solstice projection[10] takes place at sunrise around the date of 24 June on the day of the Sânziene. This projection must necessarily be corroborated hermeneutically with two realities: (1) In order for this alignment to exist, the window of the altar was placed slightly to the south of the axis of the church; and (2) The symbolic relationship between the sun, Tsar John Stephen the Great, and Moldavia is confirmed by the heraldic sign of Medieval Moldavia. At summer solstice, Moldavia's ruler symbolically travels (as indicated by the beam of sunlight) to the altar table, which is the tomb of Christ and the gate through which He descended into hell. The second summer solstice projection[11] witnesses Christ's descent into hell and his resurrection.

These light projections illustrate that the Christian consciousness that had as its course and target Death and Resurrection with Christ already existed and had a strong impact on people living in the 15th century medieval Moldavia. In can undoubtedly be argued that Tsar John Stephen deployed the movement of sunlight to underscore its power and faith.

The zodiacs depicting the passage of time

[9] Herea, *Patrauti* , p. 34.
[10] Herea, *Patrauti* , p. 71.
[11] Herea, *Patrauti* , p. 72.

Zodiacs can be found in numerous churches including Voroneț (built be Stephen the Great in 1488 and called the *Sistine Chapel of the East.* See Figure 2), the Tismana monastery (built in the 14th century while the paintings were completed in the 16th century), Maramureș County), and in the church from Bârsana (1711) in the Maramureș region (northern Romania) where the following text can be found (approximate translation by the author):

> You Lord have created the days and the Sun. You have made all that is beautiful on Earth, and You have made the Spring and Summer and placed them on the world.

In almost all cases the zodiac and luminaries are depicted on the so-called scroll *of time* forming an important eschatological component related to the passage of time and to the end of days. The scroll of time appears in many Orthodox texts as representing the flow of time from the creation to the end of days and used to record everything that has or will happen. Here are some verses from a poem named 'I say Bethlehem, but I also say Golgotha'[12] (translation by the author): '*I wish that thy birth can bring me / only the clear skies / but the scroll of time, a manger and a cross / Brings face to face, two border stones'*.

According to Father Herea, the motive behind the absence of the scroll of time in later images can be found in that the representation has become pure astronomical losing its eschatological meaning.[13], However, this is not always the case as there are examples from 20th century churches where the scroll is clearly present. Examples include the Church from Ip (Sălaj County built in 1999) and the church from the Prislop monastery (built in 1995; the paintings were finished in 2000).[14]

There are however also exceptions, found in later painted scenes such as the one from the Lainici Monastery (19th century) in the Oltenia region (west of Wallachia and in southern Romania).

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[12] Ana Haz, 'Zic Betleem, zic și Golgota' (en.: I say Bethlehem, but I also say Golgotha), https://www.resursecrestine.ro/tipareste-resursa/117988 (accessed 17 October 2021).

[13] Gabriel Herea, Facebook comment on the group 'Simboluri astronomice în ornamentica tradițională românească' (en.: Astronomical symbols in Romanian traditional ornaments), 4 June 2021.

[14] Anon. 'The Prislop Monastery' at https://prislop148.ro/ (accessed 18 June 2022).



Figure 2. The zodiac from Voroneț Monastery (Courtesy of Dimitrie Olenici).

The mixed zodiacs

The Transylvania region of Romania, as well as Hungary and Slovakia, contains numerous Protestant churches that replaced older catholic churches as Martin Luther's reform entered the region starting with the 17th century. Examples from Transylvania can be found in the church from Mugeni (Bogoz in Hungarian; 1742 for the painting) and at Inlăceni (Enlaka in Hungarian; 1668 for the painting) whose ceilings contain several wooden cassettes with paintings, some believed to represent a mixed zodiac. Each figure has been analyzed by the Hungarian art historian Gábor Pap, who believes them to symbolize various aspects of the Christian religion mixing astrology, astronomy, and religious beliefs[15] (see Figure 3 left which represents in Pap's interpretation the 'Messengers from Canaan' and depicts a mixture between Gemini – the people, Balance – the hats, and Aquarius – the grapes). His interpretation is however not accepted by all researchers as is the case of Mirel Matyas who investigates the symbolism found in churches in the region.[16] Mirel believes that the cassettes contain simple biblical scenes with personified or anthropomorphic characters.

[15] Isabella Beatrice Madarász, 'Bisericile cu tavan casetat' (en.: Churches with wooden cassettes), in Marc Frincu and Simina Frincu, ed., *Astronomia Strămoșilor: arheoastronomie și etnoastronomie pe teritoriul României* (en.: Astronomy of the Ancients: archeoastronomy and ethnoastronomy in present-day Romania) (Szeged: JATEPress, 2018), pp. 221-235.

[16] Mirel Matyas, Email message to the author, October 1, 2021.

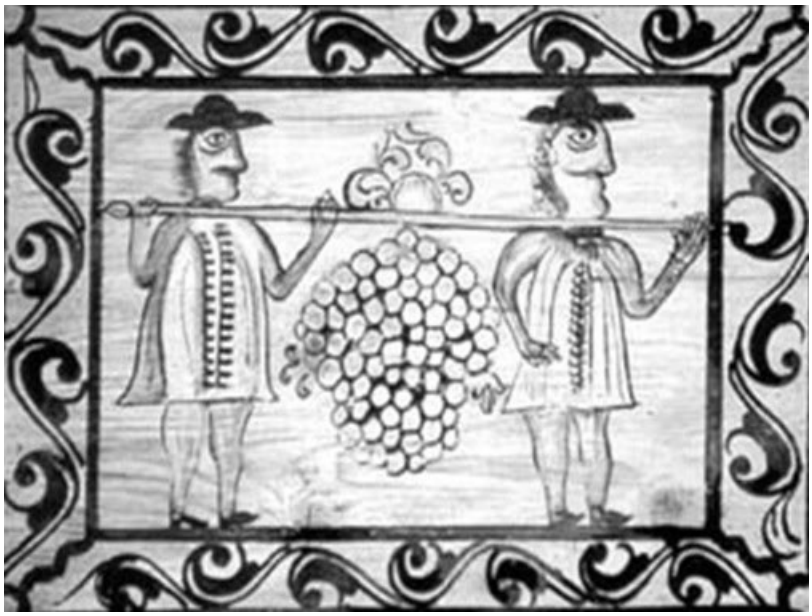


Figure 3. The 'Messengers from Canaan' (modified image used by Madarász in her article and reproduced with permission from the editors).

A calendar for the illiterate

While zodiacs were used to represent time in ecclesiastic scenes across churches, there was another calendar representation of the days in the year which had a more practical meaning as found in the Royal Church from Târgoviște (Walachia region) built in 1585 by Petru Cercel. The current paintings date from 1702 (location indicated by Number 8 in Figure 1). The entrance ceiling contains a total of 365 images of saints, representing a religious calendar for the illiterate people of the era. At the time it was the easiest way of letting people know what saint is celebrated in a particular day of the year and it probably remained so for centuries to come as the level if literacy in Romania was low even 100 years ago, with about 61% of the population being illiterate (a higher proportion being found in rural areas: 65%) back in 1912[17]. It should be noted that at that time, the Kingdom of Romania was formed only of the historical regions of Wallachia and Moldavia. Transylvania, Bucovina, Banat, and Bessarabia being under foreign rule. Except Bessarabia (where over 80% of the

[17] Florin Marius Pavelescu, *The Romanian Teaching System between 1917-2017*, (Bucharest: The Romanian Academy, 2018), pp. 3-4.

population was illiterate), these regions were characterized by a lower level of illiteracy, with a little under 60% of population unable to read or write.

Solar system models in Transylvanian churches

We now move away from zodiacs and their meaning and depiction in old churches and focus on a more abstract representation of the universe, the solar system models. At first it may appear strange that such astronomical concepts can be found inside religious edifices. The sky can be envisioned as comprised of two parts: the physical world in which our world resides and the spiritual realm of God from where He oversees all things. As such it is not surprising to find mixtures of both in religious paintings sometimes intermingled and sometimes clearly separated as in the case of the church in Bulgari where besides the geocentric cosmological model, we notice a cartographic depiction of earth as well. Recent research led by Guyla Miholcsa and Mirel Matyas has shed light on several solar systems representations within 18th century churches in Transylvania and Maramureș.[18] These are found in Ulciug, Bulgari, Domnin, Surdești (all Greek-Catholic wooden churches; Numbers 3-6 in Figure 1), and in Oclad (Reformed church; Number 7 in Figure 1). They paint a story of how the heliocentric theory might have spread in the region driven by the Protestant reform and how the Catholic church reacted through new hybrid geocentric models as it will presented next.

Some depict geocentric solar systems. The following words surround the depiction from Ulciug: *skies*, *from above*, *the seven*. The word 'seven' can be interpreted as the seven theological skies comprised of the seven known celestial bodies with planet Earth in the middle according to the geocentric model supported by the Catholic Church. Unfortunately, only three celestial bodies are still visible and there is no clear indication of what

[18] Gyula Miholcsa, 'Revoluția copernicană în Transilvania' (en.: The Copernican revolution in Transylvania), in Marc Frincu and Simina Frincu, ed., *Astronomia Strămbunilor: arheoastronomie și etnoastronomie pe teritoriul României* (en.: Astronomy of the Ancients: archeoastronomy and ethnoastronomy in present-day Romania) (Szeged: JATEPress, 2018), pp. 259-267; Mirel Matyas, 'Modele cosmologice în bisericile de lemn sălăjene' (en.: Cosmological models in the wooden churches from Salaj county), in Marc Frincu and Simina Frincu, ed., *Astronomia Strămbunilor: arheoastronomie și etnoastronomie pe teritoriul României* (en.: Astronomy of the Ancients: archeoastronomy and ethnoastronomy in present-day Romania) (Szeged: JATEPress, 2018), pp. 237-258.

they might represent. Contrary to what is found in Ulciug, in Bulgari the sun and moon are clearly visible as well as Jupiter and Saturn. The sun is clearly depicted with rays orbiting Earth. The same words as in Ulciug can be seen here as well.

These geocentric models make us question the extent of the spread of heliocentrism in the region two and a half centuries following its introduction by Nicholas Copernicus in (1543) the 16th century.

Tracing the spread of heliocentrism

250 years after Copernicus, the reformed church in Ocland was still the only one in the 18th century Transylvania depicting the heliocentric model (painted in 1771 under the supervision of Mezei Mihály). (See Figure 4 for details.)

The reason behind the friction between geoecntric and heliocentric models lies in the Habsburg empire's occupation of the region around the 1700's and attempting to reclaim for the Roman Catholic church those congregations that had become protestant since 1518. During this period the Orthodox church was particularly impacted, leading to the creation of the Greek-Catholic church, encouraging the spread of geocentric models in e Greek-Catholic churches built in the same period as the examples from Ulciug and Bulgari.

As the Orthodox church was being assimilated in a new Greek-Catholic church, it is possible that some reformed students went to study in the West and brought back with them knowledge of the heliocentric system, reflecting this in the paintings from Ocland. The representation was probably one of the first instances the heliocentric model was used anywhere in Transylvania as it predates the first philosophy (1772) and physics (1777) books in the Hungarian language.[19]

The counter reform of Riccioli

The Catholic church fought back the spread of heliocentrism through its own counter reform spearheaded by the Jesuit order. As such, we find in two places (Domnin and Surdești) the hybrid model, based on that of

[19] Miholcsa Gyula, 'Revolutia Copernicana in Transilvania' (en.: The Copernican Revolution in Transylvania), in Marc Frincu and Simina Frincu, ed., *Astronomia Strămunilor: arheoastronomie și etnoastronomie pe teritoriul României* (en.: Astronomy of the Ancients: archeoastronomy and ethnoastronomy in present-day Romania) (Szeged: JATEPress, 2018), pp. 259-267.

Tycho Brahe, proposed by the Jesuit monk Giovanni Battista Riccioli (1598-1671) who studied philosophy at the University of Parma.

Riccioli was a teacher in Mantua and Bologna where he also constructed an astronomical observatory. He rejected the Copernican theory despite recognizing his genius and as a result published *Almagestum Novum* (1651) which is considered one of the fundamental Jesuit works. In it he compared several cosmological models, including his own, based on the one proposed earlier by Tycho Brahe, the last of the major naked-eye astronomers. Brahe's own model was a counter solution to the heliocentric model as he could not reconcile the Copernican theory with the perfection of the Aristotelian physics. In Riccioli's model the Earth is orbited by the Moon, Sun, Jupiter, and Saturn, all the other orbiting the Sun.

By looking at the two paintings in Domnin (Figure 4) and Surdești one theory suggests that the painting in Domnin is a copy after the one in Surdești as it is among the few in the region built in the so called Maramureș style and is also less detailed. According to Matyas, a copy after Riccioli's work probably existed in Maramureș which would explain why the representation in Domnin is older than the one in Surdești.[20]



Figure 4. Riccioli's hybrid solar system from Domnin, Sălaj county (left) and the heliocentric system from Ocland, Harghita County (right) (Images used with the permission by their authors Mirel Matyas and Gyula Miholcsa).

The anthropomorphic sun and moon

The sun and moon have long been depicted with human characteristics. Examples can be traced as back as the medieval church of Visoki Dečani (1350; modern day Kosovo) and the Svetitskhoveli Cathedral (11th century; Georgia). In the case of Decani, the anthropomorphism is

[20] Mirel Matyas, Email message to the author, 1 October 2021.

explained by the mixture of Christian and local traditions where as Dragana Van de Mortel Ilić writes,

> the Sun and Moon were aided by 'servants of the God' up to the sky and back on a daily basis, and that these servants also woke up all the stars at night" with 'man […] reaching God via planets with souls..[21]

They seem, she adds, to illustrate the cosmological character of Christ'.[22]. In this sense they were similar to the geocentric, heliocentric and hybrid models, or zodiac representations found elsewhere.

Throughout the Banat and Maramureș regions of Romania we can observe such depictions with the personifications of the sun and the moon placed to the right and left of some divine character as seen in Figure 5 in the painting from the ceiling of the wooden church in Valea Mare (1800; Caraș-Severin County; Number 9 in Figure 1). Similar examples can be found in Porț (Sălaj County) and Budești (Maramureș County). In some cases, the moon is personified as a man, a tradition with possible German roots since in the German language the word for 'moon' is masculine. While in most cases the sun is at the right of the character in others it is not. The sun-moon duo can also be said to represent the divine-human or light-dark duality, the sun symbolizing God while the moon Man. The sun illuminates the moon which reflects its light, similarly to how God shines his glory on Man (imprinting it) who in turn reflects it upon others.

[21] Dragana Van de Moortel-Ilić, *'*An Examination of the Images of the Sun and the Moon in the Visoki Dečani Monastery in Kosovo*', Culture and Cosmos*, vol. 21, no. 1 (2017): pp. 301-319.

[22] Dragana Van de Moortel-Ilić, *'*An Examination of the Images of the Sun and the Moon in the Visoki Dečani Monastery in Kosovo*', Culture and Cosmos*, vol. 21, no. 1 (2017): pp. 301-319.



Figure 5. The anthropomorphic sun and moon on the ceiling of the wooden church from Valea Marea, Caraș-Severin County (Image by the author).

Keeping the tradition

- Most of the examples presented here span the period between the 14th and 19th centuries. However, this does not mean that newer ones cannot be found. The tradition is kept throughout Romania with wonderful examples from the 20th century found in churches and cathedrals. Two examples include: The zodiac from the Greek-Catholic church in Turda (1839), painted between 1965-1966 by Cornel Cenan. It resembles the Visoki Dečani depiction of the sun and the moon but instead of orienting them both in the same direction they seem to move away from each other.
- The zodiac from the Ploiești Cathedral (1990) which is depicted on the floor in front of the altar.

I have painted in this chapter a story spanning millennia with a focus on the last 600 years where numerous astronomical representations can be found scattered in churches around present-day Romania. They show that astronomy served the church in postulating a perfect cosmos with abstract notions being represented through imagery that would either unfold a complex story by incorporating the light from the sun as an image of Christ; or use common knowledge (the zodiac) to depict eschatological concepts such as the passage of time and the coming of the Judgement Day. Eventually the religious component was partially dropped in favor of a pure astronomical representation (the zodiac without the scroll of time).

The reasons for this are unclear and further studies are needed to shed light on the matter. The cosmos was incorporated through depictions of the perfect world with planet Earth initially in the center of the solar system, later as the religious reform gained momentum as a hybrid and ultimately heliocentric model. This evolution allows researchers to trace the spread of heliocentrism in Transylvania as driven by the reform. Finally, the anthropomorphic depictions of the luminaries help complete the picture of similar representations in the Balkans and nearby in the Orthodox world where local traditions mix with Christian ones to create a unique representation of the divine.

Existing studies are just scratching the surface and represent few pieces of the puzzle with more examples uncovered as researchers start focusing on the topic of astronomical symbolism in churches across Romania. Father Herea has uncovered new potential solar projections in other churches built by Stephen the Great, and researchers in Transylvania and Banat started investigating the practice of having sundials on Catholic churches and not on Orthodox ones.