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The Swinging of Spacetime

Since Einstein, physics no longer discusses space and time as separate entities. Spacetime is perceived as a single dimension. This notion existed even before Einstein, for it could be found in various works of fiction, for instance in Edgar Allan Poe's essay *Eureka* (1848) and Herbert George Wells' novel *The Time Machine* (1895). Today it seems that spacetime is a product of the modern age, even though the concept was known and used by our ancestors hundreds and even thousands of years ago (see Belaj 2007: 143–62). Spacetime was fundamental in their comprehension of the natural order on Earth and the universe. One must keep in mind that it was this concept that made it possible to design such an ingenious device as the sundial. However, the existence of the concept can also be shown through other less obvious examples, which are presented in this paper. In the region of the Mislinja valley the churches mark three important dates of the year (6 November, the winter solstice and 4 February = winter), while the entire spatial organisation represents a simple calendar depicting the winter and the birth of the young sun. At Brod in Bohinj we can observe how the sunrays touch the edge of the stove on 6 November. The sun then shines on the stove during the winter all the way to 4 February. Nearby there existed a wooden St. Catherine's wheel, which does not merely confirm the ancient concept of spacetime, but through its use clearly proves the possibility of time reversal. This possibility emerged during winter when spacetime stopped and began to swing.

The Mislinja valley

Puščava (i.e. "desert") is the name of a hill crest above

Stari Trg near Slovenj Gradec in northeastern Slovenia, which is capped with the remains of a mediaeval castle and the Church of St. Pancras on the southeast on Gradec hill. It was mentioned for the very first time in 1174 (Blaznik 1988: 332). The 1911 archaeological excavations on Puščava revealed a burial site with graves from various periods: early pre-historic, late antique and early mediaeval. On the mount in the midst of the burial site stood an exposed stone plateau (Pleterski and Belak 2002: Figure 7).

The graves have various orientations (Figure 1). One orientation matches Direction 3, defined by Puščava and the Church of St. Mary on Homec and has an azimuth (angle from true north) of

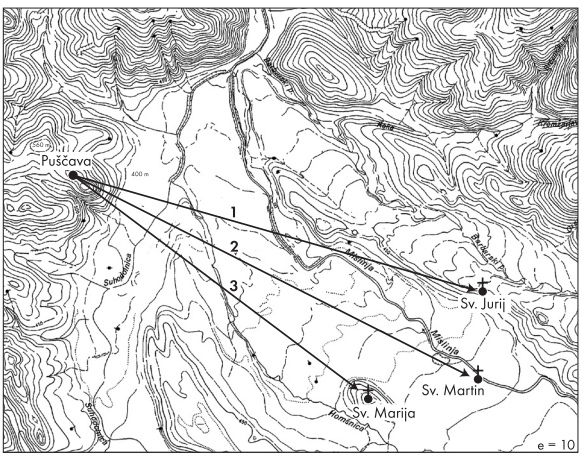

Figure 1. Slovenj Gradec. The directions leading from the burial site on Puščava across the three churches.

128°. The other orientation is in line with Direction 2, defined by Puščava and the Church of St. Martin in Šmartno with an azimuth of 117° (Pleterski and Belak 2002: 254–8). The azimuth of 128° faces towards the east of the Christmas sun and is typical for graves from the late Antique and early Mediaeval periods. Azimuth 117° is in line with the sunrise on 4 February and 6 November. Both dates are equally interesting. The first is the Catholic holiday of Candlemas (2 February), which substituted the Roman holiday of Lupercalia in 494. According to the Celtic calendar, 1 February also marks the beginning of spring. The second date, 6 November, lies between 1 November (the Celtic start of winter) and 11 November, the name day of St. Martin, who lived in the 4th century and to whom the church in Šmartno is consecrated (see: Eisenhut 1969; Kuret 1989: 92–101, 108–20, 524–37). If the explanations found in written sources are true and they state that St. Martin was a parish already in the second half of the 10th century and spread across a vast territory reaching

from Kotlje in the west, the Drava river in the north and all the way to Vitanje in the southwest (Skuk 1997: 9 ss), we have to ask ourselves why was it exactly this church that obtained such a central role. We know that the neighbouring Church of St. George in Legen was already standing around the year 900 (Strmčnik-Gulič 1994).

The aforementioned directions and dates of sunrises can be confirmed through field observation (for which I would like to thank my colleague Saša Djura Jelenko). 6 November and 4 February are the dates that lie 45 days before and after the winter solstice and the time between them represents the three months of winter (Figure 2). Therefore these churches mark three important dates of the year,

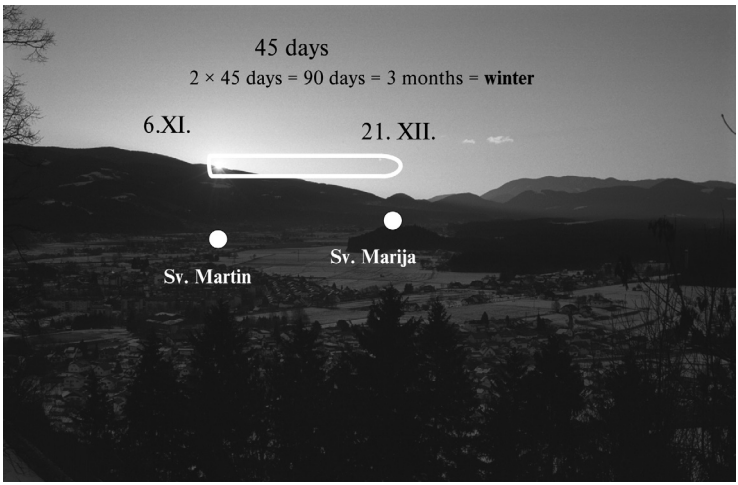

Figure 2. Mislinja valley, the path of the sun across the winter horizon; from the standing point on Gradec, the eastern part of the Puščava ridge (Photo: Saša Djura Jelenko).

while the entire spatial organisation (the paved elevation at the burial site – an observation point?, St. Mary, St. Martin) represents a simple calendar depicting winter and the birth of the young sun.

The direction from Puščava to St. Mary with an azimuth of 128° has a parallel axis that runs across the Church of St. Martin. Most of the churches in the Mislinja valley stand on this axis or in its vicinity (Figure 3). Numerous routes still run along this axis, and even more can be found parallel or at a right angle to it. This system also nicely incorporates the settlements from Roman times (Figure 4), which indicates that there is a possibility that this spatial system was known already in Roman times (at the latest).

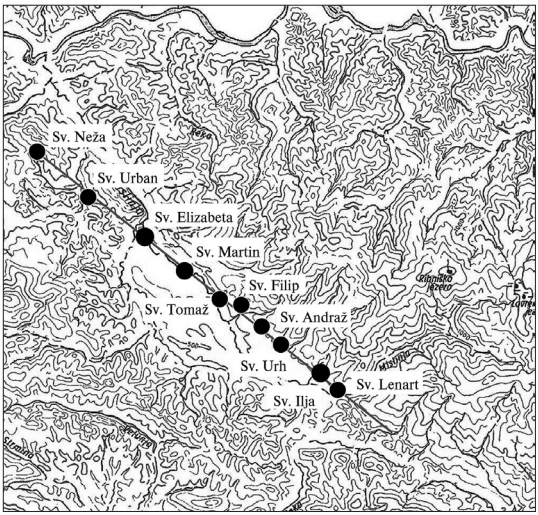

Figure 3. Churches in Mislinja valley along the Christmas line.

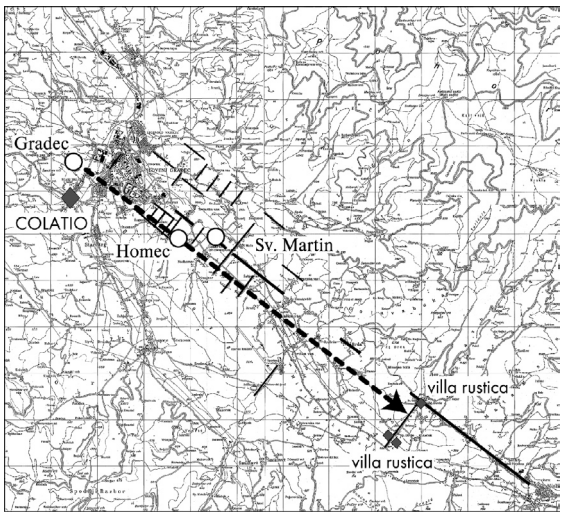

Figure 4. Mislinja valley. Direction with the azimuth of 128° and the terraces of today's routes that are parallel or at a right angle to it.

Bohinj, Brod, the Museum of Dr. Janez Mencinger.

As regards its contents, a similar juncture of spacetime as found in the landscape of the Mislinja Valley can also be found at Brod in Bohinj (in northwest Slovenia) in a single house. Here stands the house which is today the home of the museum of the writer Dr. Janez Mencinger. The house itself has been modified on a number

of occasions and the room with the stove and the windows obtained its current appearance in the 19th century (I would like to thank Jože Čop, the keeper of Bohinj's tradition, for this information). It is the neighbouring house to the supposed place of a St. Catherine's wheel (see below). Here we can observe how the sunrays touch the edge of the stove on 6 November. The sun then shines on the stove during the winter all the way to 4 February (this fact can be observed and verified this year). Of course, this was not merely a domestic space-time calendar. We can imagine that according to the ancient tradition and the understanding of magic the contact of the sunrays and the stove (see: Šprajc 2006: 107) transferred the power of the fire onto the weakened winter sun. The ritual context is also emphasised by the house mark found on the iron shackles of the stove (Figure 5), which should be understood in the context of the tradition of the St. Catherine's wheel (see below).

Figure 5. Brod in Bohinj. The sign on the stove in the museum of Dr. Janez Mencinger.

The St. Catherine's wheel in Brod, Bohinj

The old inhabitants can still recognise the various remains of the rituals from the time "when the St. Catherine's wheel still spun". In the old days people waited in fear to see how the wheel would spin, and their greatest fear was whether the wheel would start spinning at all and if it did, whether it would continue to spin evenly. These worries lasted for weeks, and they called it "the period between St. Catherine and St. Veronica" (Čop 2006–7: 1–2), i.e. from 25 November to 4 February.

[Below I present logically parallel fragments from numerous different stories that emerged between February 2006 and January 2007 in conversations with Joža Čop, of Brod 24, born in 1923, the former owner of the ironworks that have already disappeared]:

– My father's life motto: "You should know that you should not take revenge, because the St. Catherine's wheel keeps an eye over this, and this wheel could also hit you."

– They used to say that St. Catherine had a holy wheel and that the holy St. Catherine's wheel spun. The ironworks also made a wheel and it used to be known as the St. Catherine's wheel. The spokes were lined with boards in the form of a swastika. On one side the swastika was painted black and on the other it was painted red.

– The wheel was a part of the ritual. The main thing was that it spun in one direction or the other. There were two water influxes so it could spin in both directions. The water came from the Šémenca and Kreménca streams. The paddles were made so that they could catch water from both sides.

– It was important to observe when the water ran from one side and when from the other. If there was a serious issue or something dreadful happened they always came to see which direction the wheel was spinning.

– They had to spin the wheel on a specific date. If there was no water, if the winter was so harsh that the water froze, they cut a path into the ice. To cut up the ice they used an old bronze axe. According to the legend it had a round hole. The ice was cut as if they were digging a trench. The axe was kept in the mill, but it disappeared during the First World War. When the wheel was freed from the ice it was ritually spun by hand three times.

– The wheel on the mill (which also had a swastika) was spun every year when the sun shone on the image of St. Blaise on the corner of the stove in the mill. This happened on the day of St. Blaise. When the image was covered in sunlight they let the water onto the wheel, even if the water was scarce and they had to help with their hands. However, at this stage they did not start the grindstones.

Discussion

St. Catherine is one of those legendary saints the existence of whom can not be proved, similar to St. Barbara and St. Margaret. Today it seems that these saints replaced older pagan gods. St. Catherine's patrocinium in Slovene lands was documented already in 1291 in Ptuj (Blaznik 1988: 159).

According to the legend she was a martyr from Alexandria, and she was supposedly killed on a wheel with knives at the beginning of the 4th century after winning a dispute with 50 philosophers. After she was killed she was also beheaded. This is why she is depicted with

a wheel and a book. The tradition of worshipping her was brought to Europe by the Crusaders, and it gained in popularity in the 12th century. Her name day is 25 November. According to legend all wheels had to remain still on this day. The spinning mills did not spin, the flour mills did not grind, and drovers did not drive (Kuret 1989: 121–3; Dubois 2000).

The Bohinj story relates to the former ironworks that stood alongside the Šemenca stream, north of the Sava river and the route from the village of Savica to the village of Brod. The exact location of the St. Catherine's wheel is not known, but it is highly likely that it was located to the south of the house that was then turned into the mill, which means that it was northwest of the museum of Dr. Janez Mencinger. It is also possible to logically reconstruct the orientation of the wheel. The Kremenca and Šemenca run from the northeast towards the southwest. This was also the orientation of the pillar next to which the wheel used to stand. We know this because the pillar was later included into the wall of the mill, and the orientation of the mill is known and is in line with the direction of the current house. We can imagine such a flow of water at which the Šemenca stream split into two just northwest of the wheel. One part ran past the wheel, while the other ran onto the wheel where it joined the Kremenca, which most likely ran down a channel onto the wheel from above. In this way the Šemenca would spin the wheel from underneath in one direction, while the Kremenca would spin it from above in the other direction. The strong flow of the Šemenca would beat the weaker flow of Kremenca.

The space, the wheel and the ritual spinning is full of symbolism that we will only touch briefly due to the lack of space. The words of Jože's father make it quite clear that the St. Catherine's wheel is also a wheel of destiny. The wooden wheel next to the former ironworks showed the effects of weather and geological activity (earthquakes). Even more important was the ritual spinning of the wheel, which helped to establish natural harmony (finding the equilibrium and the mean). This was a clear example of imitational magic, which tries to cause a specific development of events by performing an event the elements of which are in one way or another similar to the desired result. In this sense the magic processes are similar to scientific processes (see: Šprajc 2006: 107), and the water St. Catherine's wheel in Bohinj was a tool for harmonizing the forces of nature, an excellent apparatus for which the people from Bohinj should be admired. However, with this the symbolism of the wheel is far from finished. Undoubtedly there is symbolism on the level of numbers, but we will not deal with this in this text. Let

us quickly draw attention to the swastika, which is nothing other than a geometrical composition of four animal heads (usually horse or bird) around a common axis and centre. It is a two-dimensional representation of the sky, the sun's circle, the movement of the sun (Čausidis 2005: 352–4, 20). In this way the four heads also represent the four sides of the sky.

However, because there were two swastikas on the wheel (Figure 6), oriented in opposite directions and of different colours, red and black, we are witness to the most elementary and oldest symbolic

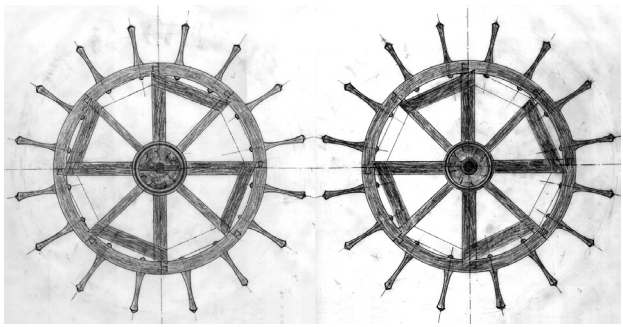

Figure 6. Bohinj. Drawing of the St. Catherine's wheel. Left – the side with the red swastika (drawn from behind), right – the side with the black swastika. Drawn by Jože Čop from memory in November 2006. Not to scale.

dualistic division of mankind: left – right, east – west, male – female, day – night, life – death, etc. It is true that red and black often have the same symbolic value, but in this case they are undoubtedly opposites. This is not only confirmed by the opposite direction of spinning, but also by the use of the water from two streams. As regards the streams I should note that the Šemenca, with its German name of *Tójfebosar* (*Teufelswasser* [devil's water]) runs from under Šemeč and is supposedly named after the ancient Bohinj goddess Šemina, who is connected with darkness, death, and the underworld. Thus the dying received it to drink. The Kremenca runs from under Kremenek and was considered to have healing powers, thus it was drunk by the sick and the newborn were washed in it (information provided by Jože Čop). The streams therefore appear to be live and dead water. There is also some other evidence in the Slovenian tradition for the idea of using separate rivers in connection with the dead and the living. The fairy tale about *kresna noč* [Midsummer's Eve] was recorded by Janez Trdina in southeastern Slovenia in the 19th century: In the Gorjanci mountains there were two nearby springs. The left one was *midnight water*, which killed everything, and the right one was midday water, which healed and made everything alive (Trdina 1981: 10). It should

be mentioned that looking from the valley, the Šemenca is the left-hand stream and the Kremenca the right-hand one.

The dead water most probably spun the black swastika, and the live water the red one. The wheel took care of the movement of the sun across the sky and the underworld, helped it return to the east, and at the same time helped the transformation from life to death and from death to life, all of which is in line with the old Bohinj beliefs in reincarnation. The vast documentation (not published, Archives of the Institute of Archaeology, Ljubljana, Slovenia) on this demands special treatment, however, at this stage I will only mention enough information to enable the understanding of the operation of the St. Catherine's wheel. This therefore linked the two opposing poles, and we should not forget that water played the role of the third linking force of nature.

It is not known when the St. Catherine's wheel was made and erected. From oral tradition we can conclude that it existed at the beginning of the 18th century, therefore it is at least 300 years old. It seems that when the St. Catherine's wheel was moved a part of its ritual functions were transferred to the wheel of the new mill, and thus it is highly likely that the St. Catherine's wheel was also spun on 3 February, on the name day of St. Blaise. Even though the mill at Šemenca no longer stands, the memory of the rituals has been preserved in the neighbouring house which used to house the blacksmith's that was a part of the mill. Today this is the home of the museum of the writer Janez Mencinger.

St. Catherine's day on 25 November is roughly around the beginning of winter. On that day the wheels in the mills stop. This period ends with the end of winter, when the wheels need to be set into motion once again on 3 February, the name day of St. Blaise. The fact that St. Catherine denotes this time period is also confirmed by two sayings about weather: The weather of St. Catherine remains throughout January. St. Catherine's day does not lie if it shows January's weather (Kuret 1989: 124). If we observe the worship rituals of St. Catherine in remote places and by chance pick Spanish Galicia, we can notice that they also worship St. Catherine and her wheel (I would like to thank Mirjam Mencej for this information). The circumstances of her worship and the use of her name show that she is not merely a saint. Her links to water and the image of an independent woman as well as a man who lives as a woman are obvious, and Candlemas on 2 February is also an important holiday (Rey-Henningsen 1994: 197–9). St. Blaise and Candlemas denote the same date – the end of winter.

The Bohinj St. Catherine's wheel does not merely confirm the

ancient concept of spacetime, it clearly proves the possibility of time reversal, which is a topic also discussed by Emily Lyle in this publication. And this possibility emerged during winter when spacetime stopped and began to swing.

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