

CELESTIAL CONNECTIONS AT THREE SETTLEMENTS FROM VINČA CIVILIZATION: PARȚA–TĂRTĂRIA– MOSTONGA. HOUSE AND BOAT

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Rezumat. Civilizația Vinča, cea mai veche civilizație neolitică din sud-estul Europei datează din 5700–4500 BC. Un număr mare de descoperiri similare fac ca această cultură să fie unică. Înregistrările arheologice dezvăluie faptul că primii oameni din civilizația Vinča au fost mult mai civilizați și creativi decât ne imaginăm, ei au avut contacte și cu alte civilizații. Am investigat trei așezări cunoscute, și anume Parța, Tărtăria și Mostonga. Aceste situri au conexiuni arheoastronomice. Studiul nostru scoate în evidență faptul că civilizația Vinča a fost o cultură preistorică avansată din punct de vedere astronomic.

Cuvinte cheie: Archaeoastronomy, Vinča culture, symbols, Spondylus shell, Tărtăria tablets.

1. Introduction

One of the first great transformations of human society was the transition from hunter-gatherer groups to sedentary agricultural communities during the Neolithic Age due to climate change. Neolithic people first settled at fertile soils near to the river valleys, which were attractive locations for the first civilizations because they provided drinking water, made the land fertile for growing crops, allowed for easy transportation etc. The largest Neolithic settlement in Europe, dating back around 8000 years was the Vinča civilization that spread across the territory of Bosnia, Serbia, Romania, Bulgaria, Montenegro, Macedonia, and Greece. In the following, we present three settlements namely Parța, Tărtăria, and Mostonga.

The Parța settlement (Banat culture), located on the right bank of the Timiș River at Parța (Timiș county, Romania)¹, was a large complex of buildings and a domestic settlement. In the center of the settlement was placed the Parța Neolithic Sanctuary² (Vinča A), which was a Neolithic religious shrine with an east–west orientation. Parța seems to have been an important economic social and religious center, where

¹ Lazarovici, Drașovean, Maxim, 2001.

² Szücs-Csillik, Maxim, 2017.

several tablets come from, as well as pots and other pieces with signs and symbols³.

At Parța were discovered three discoid tablets. Disc tablet 1 is symmetrically broken, maybe due to the existence of some holes for hanging. As for the signs on this tablet, we believe they suggest birds, which connect the sky with the ground (**Fig. 1a**). The discoid tablet 2 was recovered from the water. On this plate (**Fig. 1b**) we can observe 3 groups of signs which are frequent in the Danube script. Parța tablet 3 (**Fig. 1c**) is perforated and was probably worn around the neck. Such signs could render schematically the house⁴.

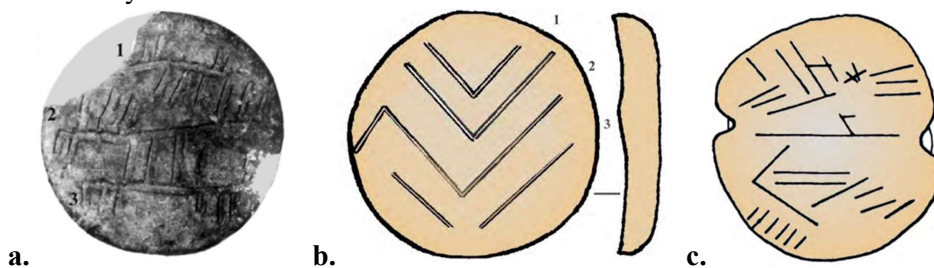


Fig. 1. Parța, three disc tablets with symbols.

In the northern part of Serbia, not far from the Danube, the meandering and marshy river Mostonga gave shelter and food to ancient inhabitants of the area. Sergej KARMANSKI published in 1977 an article about four uncovered graves in Mostonga (Vinča A), where on a female skeleton's chest an engraved Spondylus shell was found⁵. According to the excavator Karmanski⁶, six pictograms were incised on this ornament: two big fish (1, 2), a big fish which had been hooked (3), a picture of stars in the sky (4), a house standing on posts (in a marsh, 5) and a small ship with men pulling oars (6) (**Fig. 2**).

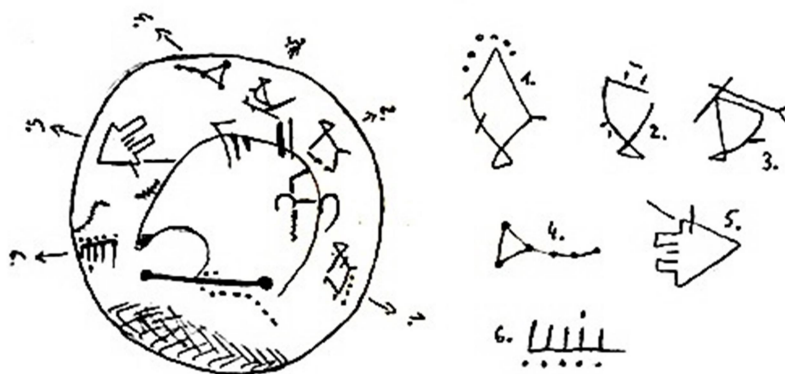


Fig. 2. The inner side of the Spondylus shell with engraved mythogram from early Neolithic (Serbia), six symbols interpreted by Sergej KARMANSKI.

³ Lazarovici *et alii*, 2002; Lazarovici *et alii*, 2011; Chevalier, Gheerbrant, 1996.

⁴ Lazarovici *et alii*, 2011; Lazarovici, 2003.

⁵ Anthony, Chi, 2009.

⁶ Karmanski, 1977.

In the area of Tărtăria, the valley of the River Mureș is large and incorporates several old riverbeds. During periods with a lot of rain, some of these areas become marshes. After the modern regularization of the river, these areas are used for agricultural purposes. Although agriculture was more prehistoric during the Neolithic, the presence of intensely used axes, starting with the Vinča



Fig. 3. The round tablet from Tărtăria (position seen when wearing).

A level, suggests the presence of a practical community. This conclusion is also supported by the analysis of ceramic categories found in this area⁷.

In 1961, Nicolae VLASSA discovered three clay tablets at Tărtăria⁸. They could belong to the Danubian civilization, which describes an agrarian society in central and eastern Europe⁹. Some think that the symbols are fragments of a system dubbed the Old European Script. Few researchers suggested that the symbols may have been used as marks of ownership or at religious rituals. Several authors have linked the signs on the tablets with the signs on the sky (constellations)¹⁰.

2. Astronomical point of view

“Give me a fixed point and I will move the whole world” is a well-known quote of Archimedes, the Greek mathematician. Everything in the night sky is moving, just at different speeds. One cannot find a fixed point. The Sun, the Moon, the planets and the stars appear to be slowly moving from East to West, but that’s the Earth rotating (without Earth’s rotation we could see the “proper motions” of these objects). The fastest would be the Moon (about one degree¹¹ in two hours), and then the Sun (about one degree in a day), then the planets (one degree per days to weeks), then the stars (one degree in about 300 years for the fastest star, much slower for others).

Moreover, we notice also that as the stars move through the sky, they stay in the same patterns, called constellations. A given pattern of stars can change its shape¹² for a very long period (more than fifty thousand years). Different cultures marked in different ways the constellations. For a better communication about patterns, astronomers have agreed on a set of official constellations, many of them originated with the ancient Greeks¹³. Some of the constellations are easy to identify, while others are obscure and difficult to recognize. Constellations are helpful in navigation (position in

⁷ Lazarovici *et alii*, 2011.

⁸ Vlassa, 1962; Lazarovici *et alii*, 2011.

⁹ Merlini, 2008; Maxim *et alii*, 2009.

¹⁰ Záhonyi, 2011; Lazarovici *et alii*, 2011, p. 167-174, 243/245.

¹¹ To get an approximate measurement, one can use his hands, the width of his little finger tip, also held at arm's length, is about one degree.

¹² In principle, the shape of a constellation can be rotated during one night or a year. For example, the Cassiopeia constellation shape can be W or M.

¹³ Burl, 1981; Roy, 1984; Rogers, 1998; Gurshtein, 1993.

space) and to tell time by the stars (position in time)¹⁴.

Ancient astronomical alignments probably satisfied astronomical, religious, and social functions. Ancient calendars, set by observations of the Sun and Moon, were important for agricultural societies, in which the harvest depended on planting at the correct time of year¹⁵. We know, that the plane of the Earth's orbit is called the ecliptic. Hence, the Earth orbits the Sun, the Sun is also on the ecliptic. Thus, the Sun appears to us to move around the sky on the ecliptic. The Moon and the other planets move on the ecliptic too. The ancients, observing the Sun and Moon apparent motion on the sky, could determine the ecliptic using the constellations¹⁶.

Furthermore, for an agricultural community in Neolithic was very important to know the beginning and ending of seasons. The midway between the Equator and the North Pole¹⁷ crosses Romania. Thus, as we know, in the mid-latitudes are four seasons and four important crossing points between them: vernal and autumnal equinoxes, when the Sun crosses the celestial equator from south to north or vice-versa, and summer and winter solstices, when the path of the Sun in the sky is farthest north or farthest south in the Northern Hemisphere¹⁸. Therefore, an agricultural community was very interested to know the exact time of equinoxes and solstices, mainly the beginning and the ending of the agricultural year, which corresponds with the vernal equinox and the autumnal equinox.

For thousands of years, the spring equinox has long been celebrated as a time of rebirth and abundance by many countries and cultures around the world¹⁹. We know that during a year the rising or the setting Sun describes a solar arc on a horizon²⁰. They use markers to determine the exact East and West positions and the solstice points. When the Sun rose on the marked East position (moving from SE to NE direction) then they celebrated the spring equinox, and vice-versa, when the Sun rose on the marked West position (moving from NE to SE direction) then they celebrated the autumnal equinox, the ending of the harvest.

Among other things, in the early period, preserving knowledge by oral tradition, they could realize that equinoxes shifted and that the star closest to North Celestial Pole changes (ancient knowledge of precession of equinoxes²¹).

Yet, by comparing the Spondylus shell from Mostonga (Serbia) with the round tablet from Tărtăria (Romania), we detected two similar symbols (the house and the boat), which direct us to an astronomical interpretation, to an astronomical message from the round tablet, and consequently also from the Spondylus shell²².

¹⁴ Maxim, Szücs-Csillik, 2003.

¹⁵ Szücs-Csillik, Comşa, 2017.

¹⁶ See the 13 constellations of the zodiac (Kelley, Milone, 2011).

¹⁷ 45 degree north latitude.

¹⁸ Barlai, 2010; Rotblum 2019.

¹⁹ Sweatman, Tsikritsis, 2017.

²⁰ Szücs-Csillik, Comşa, 2018.

²¹ Earth's *precession* was historically called *precession of the equinoxes* because the equinoxes moved westward along the ecliptic relative to the fixed stars, opposite to the motion of the Sun along the ecliptic (Hughes, 2005).

Through observations repeated and marked every clear night over time, some people in Neolithic from these Vinča civilization's areas drew conclusions about the movement of the sky. Their conclusion was inscribed on the round tablet. The message highlights the astronomical knowledge, which they deduced from their observations.

On the left part of the Spondylus shell and the left part of the round tablet from Tărtăria (Fig. 2), one can find the house and the boat symbols (Fig. 4).

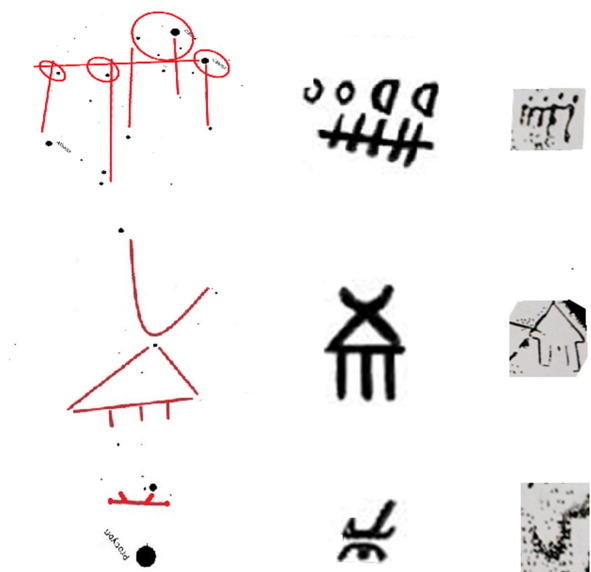


Fig. 4. a. Stars' patterns in *Gemini*, *Cancer* and *Canis Minor* constellations; b. Three symbols on Tărtăria round tablet; c. Three symbols on Spondylus shell from Mostonga (boat, house).

Examining the house and the boat symbols as the *Gemini* and *Cancer* constellations, we can observe a similar pattern on the Tărtăria round tablet and the Spondylus shell from Mostonga. Moreover, the *Canis Minor* constellations' stars pattern one can note on both archaeological finds.

We consider that the round form of the Tărtăria tablet and the Spondylus shell suggest the circular motion (i.e. wheel). In our opinion the *Sun cross* symbol on the Tărtăria round tablet (Fig. 3) represents the wheel of the year, wheel of life, four elements etc.; the *horizontal line* could stand for dividing line between the upper and the lower world or between sky and earth etc.; the *vertical line* could depict left-right, eastern-western parts, North-South etc.; the *top left part* we consider the *Cancer* and the *Canis Minor* constellations²³; the *bottom left part* we believe represented the *Gemini* constellation; the *top right part* we suppose to be the *Sagittarius* and *Scorpius* constel-

²² See Szücs-Csillik *et alii*, 2018a; Szücs-Csillik *et alii*, 2018b; Szücs-Csillik *et alii*, 2019.

²³ We believe that the *Gemini* constellation is only alone in a quarter due to the brightest stars, and in the other quarters are two constellations to show exactly the position.

lations; the *bottom right part* seems to be the stellar patterns from *Aquarius* and *Capricornus* constellations²⁴.

From our point of view, some people from Old European civilization, who observe the sky permanently and noticed the equinoxes and the solstices, marked that the vernal equinox is between *Gemini* and *Cancer* constellations, and the autumnal equinox is between *Capricornus* and *Aquarius* stars patterns. They drew their knowledge on a round tablet marking the time position on the precessional cycle.

These objects (the engraved Spondylus shell from Mostonga, the round tablet from Tărtăria and the tablets from Parța, and the astronomically orientated shrine) point out that on these lands lived an ancient civilization with great thinkers²⁵ from an astronomical point of view too. The sacral connection of these three places is given by the divine, supreme symbol of the Spondylus shell found in the female graves at Tărtăria and Mostonga, and at Parța settlement too.

From these facts, one may conclude that these three settlements, namely Parța, Tărtăria, and Mostonga, had sacral-celestial connections, and few wise people immortalize their knowledge about the sky, using the sacral amulets at religious rites.

3. Conclusions

Comparing the symbols from the round tablets from Tărtăria with the symbols engraved on the Spondylus shell from Mostonga we found two similar symbols (house and boat), namely the stars groups from *Cancer*, *Gemini*, *Canis Minor* constellations.

Investigating these constellations, we realized that around 6000 BC they are near to the vernal equinox, which marks the beginning of spring when the Sun crosses the equator from south to north.

Moreover, we could identify at the Tărtăria round tablet some stars groups around the autumnal equinox (the opposite pole of the vernal point), more precisely the stars groups from the following constellations: *Aquarius*, *Capricornus*, *Sagittarius*, *Scorpius*. Additionally, we will also explore deeply these signs in future research.

A Neolithic society, dealing with agriculture or hunting, needed to mark seasons by observing the Sun movement on the sky, by detecting solstices and equinoxes and by notating the position and the time of the important seasonal transitions. Further, the well-known precession of the equinoxes, when the equinoxes moved westward along the ecliptic relative to the fixed stars, can be attributable to vernal and autumnal point positions.

On the other hand, Neolithic people had numerous religious rites related to the climate and crops, for example, they performed rituals for the Sun to rise. Thus appeared the places of worship and the priests, priestesses.

Consequently, the female priest (in whose grave was found the tablets), priestess from Tărtăria (*Milady*), who could be a high sacral personage, could know the secrets of precession (the vernal and autumnal points are moving points in time).

²⁴ Szücs-Csillik *et alii*, 2019.

²⁵ Wise men or sages in ancient times were the first that observed and interpreted the world they lived in and set the basis of Vinča civilization thinking (Maringer, 1977).

Moreover, in our opinion, chronologically the tablets are dated around 6000–5500 BC (astronomical point of view due to the precession of equinoxes). Besides, the significance of the round tablet is great, because it represents the first evidence that a Neolithic culture, namely the Old Danubian civilization knew about the precession of the equinoxes.

The purpose of these signs is important, the message from the round amulet from Tărtăria – according to Szücs-Csillik – could be we are in that period when the vernal point is between *Cancer* and *Gemini*, and the autumnal point is between *Capricornus* and *Sagittarius*. For this reason, in our judgement, the round amulet was used to determine the time position on the axis of our universe's time.

For that reason, the round tablet from Tărtăria demonstrates that Neolithic Age Europeans had advanced knowledge of astronomy.

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