

Celestial symbolism in the Vučedol culture

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ABSTRACT – *The article presents the Vučedol Culture conception of the world, as shown on their vessels, particularly the terrines and the vessels developed from them – referred to as censers. They had more of a ritual than a practical role. Particular attention is drawn to the pot with the calendar image.*

IZVLEČEK – *V članku obravnavamo pojmovanje sveta v kontekstu Vučedolske kulture, kot se kaže na njihovih posodah, še posebej na terinah in posodah, ki so se razvile iz njih – takoimenovanih kadilnicah. Te posode so imele bolj ritualen kot praktičen pomen. Posebno pozornost namenjamo posodi s sliko koledarja.*

KEY WORDS – *Vučedol; pottery; calendar*

INTRODUCTION

The right bank of the Danube River in eastern Croatia was settled by members of the Vučedol Culture at the beginning of the third millennium BC. This predominant cultural phenomenon (in the period between 2900–2400 BC) had a great influence on other contemporary cultures, and it also left behind considerable traces in the European heritage as a whole. Its high standards were first achieved through an economy related to stock-raising, and in later phases on mining and copper metallurgy based on a new revolutionary technological process – mass casting. The need for copper resulted in the expansion of the Vučedol Culture from its homeland of Slavonia into the broader region of central and southeastern Europe. Society became stratified, as is shown by the rich princely graves. It is increasingly clear that the inhabitants of Vučedol were not merely of Indo-Europeanised proto-Mediterranean ancestry, instead being the direct descendants of the Indo-Europeans.

The eponymous site of Vučedol has to date given the greatest contribution to reconstruction of the entire Vučedol Culture, but other important information has been offered by the finds from several sites in Vinkovci (*Hotel, Zvijezda*), and from Damić Gradina at Stari Mikanovci and Sarvaš near Osijek.

This article wishes to present the Vučedol Culture conception of the world, as shown on their vessels, particularly the terrines and the vessels developed from them – referred to as censers. They had more of a ritual than a practical role. The decoration on them is sometimes paralleled by that on smaller vessels. Shallow bowls sometimes also bear certain messages, but as a rule they present only part of the symbolism of the others. Chalices with a short pedestal are particularly interesting, most often decorated inside and outside, but with a completely different conceptual idea. They increasingly replaced the terrine form at the end of the Vučedol Culture. The terrines first lost their evolved ancient form (a long banded handle in place of a tunnel-shaped one, and this connecting the rim of the vessel with a rounded body in place of the usual sharply biconical edge), and soon afterwards their characteristic decoration.

The decoration on the vessels was made with grooved incisions, which is technically close to a slanted continuous slicing made by a large thorn (up to 3 mm in diameter) as an instrument. The incisions must have represented recognizable and clear symbols, as the empty spaces were carefully filled after firing with the crushed shells of snails or river shellfish, mixed in a base of natural resins.

It is interesting that the earliest pottery of the Vučedol Culture, discovered in several refuse pits at Vučedol itself, bears no traces of encrustation, and the first terrines have a continuously incised horizontal line immediately above the biconical break on the body of the vessel (Fig. 1).

At almost the same time, shallow or somewhat more emphasized contours appear above this line, such as could be used in elementary form of art to evoke some actual outlines on a horizon – isolated heights or mountains (Fig. 2, 3).

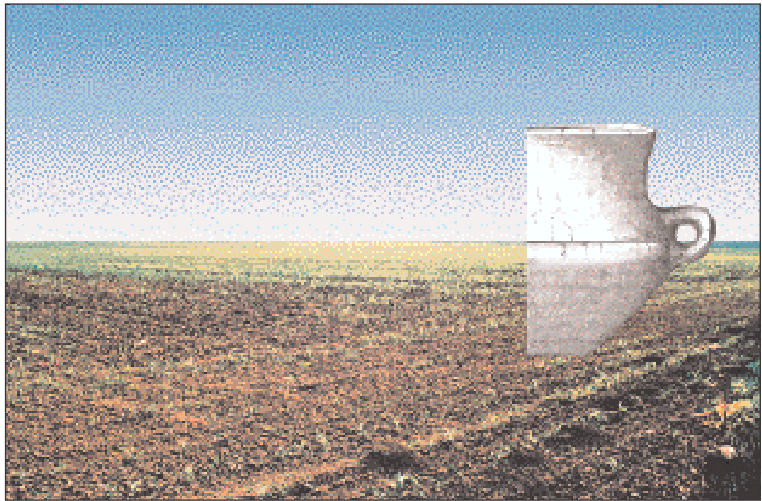


Fig. 1.

And God said: "Let the water under the heavens gather into one place and let the land appear!"...."

The Holy Bible, Genesis, 1, 9.

It seems like the first horizontal line denoted the lucid idea of delineating a horizon. This "pattern" was an interpretation or image of the world presented on pottery, where the widest part of the vessel – the biconical edge of the body – represented a division between the visible and invisible worlds, thus that section crying out for attention.

"Then running round the shield-rim, triple ply, he pictured all the might of the Ocean stream."

The Iliad, 18, 607-608

The visible part of the horizon was soon "canonized" into the classic Vučedol Culture, and was filled with a centimetre wide horizontal band with incised lattice-like lines, whether zigzag, oblique, or with impressed circles (Fig. 4, 5).

The incrustation itself often covered the actual decoration in this horizontal band, as was discovered

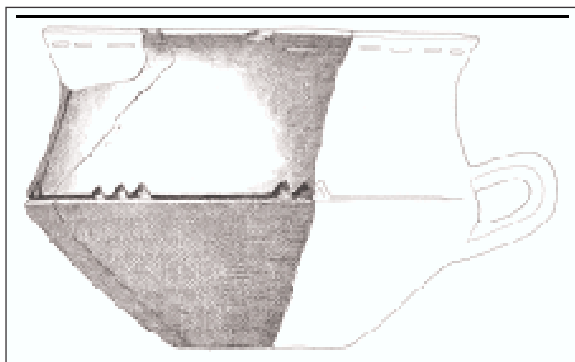


Fig. 2.

only when an external layer simply fell apart after cleaning a vessel removed from an archaeological layer. Even today, this decoration cannot be seen under certain encrusted sections. It is as if the incised decoration in this band was not of any particular importance, having already served primarily as a foundation onto which the encrustation could be applied.

Those pottery fragments recovered from greater depths, or those found under conditions meaning that they had not been exposed to constant freezing, preserved a red border along the white encrustation.

In the ancient Indo-European religion, and thus in many others, the idea is preserved of the Earth floating on the Ocean.

"... beyond famed Oceanus at the world's edge hard by Night"

Hesiod, Theogony, 275-276

In southern Mesopotamia they believed that all the springs, wells, streams, rivers and lakes received their water from an ocean of fresh water lying be-



Fig. 3.



Fig. 4.

low the land (Abzu or Apsu). The land was surrounded by the salty ocean – Tiamat.

(Black, 1992, 27).

Nonetheless the principle of the “canonized band”, which is only a millimeter or at most two above the biconical, widest part of the vessel, could be replaced only by two symbols that (in their actual and religious importance) exceed the contour of the horizon.

The first symbol that negates the horizon is an image of the Sun. It is always placed so that its centre lies on the biconical point (Fig. 6, 7). On small terrines, four suns are placed symmetrically as a rule. This position symbolically denotes the sun’s rise from the depths of the sea, where it was during the night. Dawn is the most important moment of the entire day, the moment when the darkness of night is overcome.

“The sun dipped, and all the ways grew dark upon the fathomless un-resting sea. By night our ship ran onward toward the Ocean’s bourne, the realm and region of the Men of Winter, hidden in mist and cloud. Never the flaming eye of Helios lights on those men at morning, when he climbs the sky of stars, nor in descending earthward out of heaven; ruinous night being rove over those wretches.

Odyssey, 11, 13–19

But while such a depiction of the sun can be seen to represent the daily battle of light and dark, where the Sun arising from the Ocean (Fig. 8) overcomes the dark (death), the next

symbol representing the constellation of Orion undoubtedly refers to the annual battle between light and dark.

Orion (Fig. 9, 10), shown with five stars, is incised on the biconical edge of the vessels, where the central one is always placed (it is depicted as larger, as three smaller stars from the belt of Orion are incorporated in it). Orion is the most dominant constellation

of the winter sky, and its belt (in Croatian known as “the Reapers”) fell below the horizon exactly at the spring equinox in 2800 BC. The disappearance of Orion (specifically the belt) from the heavens marked the end of winter, and the previously mentioned solar symbol on the horizon is celebrated the same day, but as the first day of spring. This day was the main annual visual clue for determining the year of Vučedol, more precisely representing the beginning of the New Year for the inhabitants of Vučedol.

The find from Vučedol that many interpret as a worshipper, is the only known graphic image of a human figure in the Vučedol Culture (Fig. 11). This figure is undeniably an anthropomorphous representation of Orion. The most important aspect of this is the conclusion that the inhabitants of Vučedol (like the Egyptian, the Greeks, etc.) perceived Orion as a human figure.



Fig. 5.

The part of a terrine that descends from the body and narrows towards the base was never decorated with incision and encrustation in the classical Vučedol Culture. But the jugs and the low chalices that developed from the terrines in the later phase of the culture were filled in the lower narrow section with exclusively zigzag or wavy lines, which in primitive painting always designate water or the mythic ocean in which the world floats (Fig. 12, 13). The depths of these waters are unknown to man, who knows only the flickering surface, but can only be conjectured in fear.

According to the cosmogony of Heliopolis (Egypt), the Sun evolved through its own power from Nun, the fluid and immobile, languid chaos.

Under the surface, in the depths of the ocean, was the void in which man definitely lost firm land under his feet and where he fell into a bottomless abyss – the realm of water, but also death.

The decoration on the low chalices on a single widened pedestal was made in a special way (Fig. 14). The upper edge of the vessel always denotes the horizon, as a series of wavy or zigzag decorations are often incised on its narrow rim. On the outside, the vessel as a rule is decorated with large zigzag line in negative, extending from the rim to the base, which at first glance look like some kind of flower with five or six petals. When the vessel stands on its pedestal, this exterior part displays the water on which



Fig. 6.

the Earth floats. The inner part of the vessel was filled with variously organized symbols that stand independently or in specially marked fields. They most commonly bear a recognizable symbolism of the Sun, its daily or yearly rotation, and we can hypothesize that this was the natural position of the vessel in which the firmament was reflected. But when the vessel is turned over as a lid, the vault of heaven is denied to the viewer, and the decoration of water or the ocean dominates on the outside. As the wavy line on the rim of the vessel shows the boundary of the visible horizon, it can perhaps be suggested that the horizon was reversed here, and that only with the vessel that it covered did it perhaps form a unit. Very frequently the pedestal of the chalice was made like a classic cross or a cross was incised and encrusted on the underside of its circular base (Fig. 15). This

was a perception of the Sun in the moment when it is entirely covered, under the horizon at the bottom of the Ocean, at night or in winter, or in the reversed position, as a lid, at the zenith of the diurnal or summer sky.

“Where is Surya now (after sunset) and which celestial region his rays now illumine?”
Rig-Veda I, 35, 7

“The nether waters formed not only the home of the evil spirits and the scene of fights with them, but that it was the place which Surya, Agni, Vishnu, the Ashvins and Trita had all to visit during a portion of the year.”

Tilak, 1903, 306



Fig. 7.

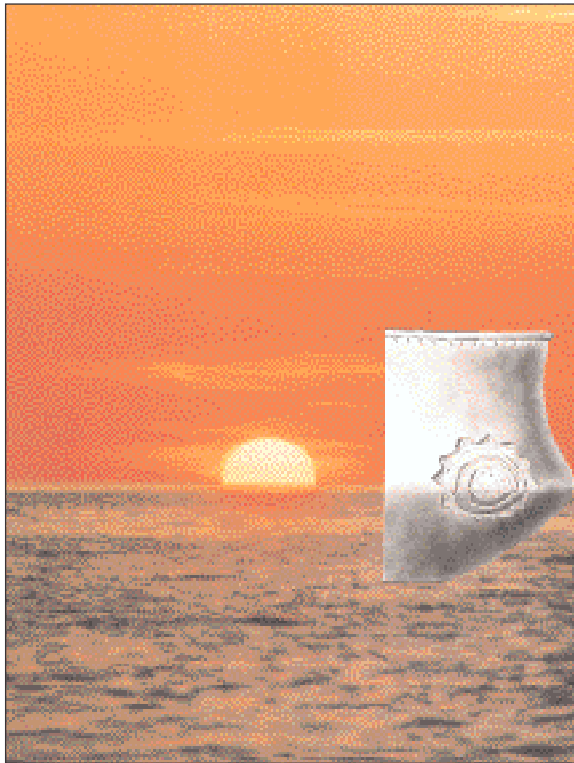


Fig. 8.

These vessels because of their decoration and symbolism of ornamentation were certainly used both as chalices and as lids, but they then served in converse ritual purposes.

“The nether world or world of waters was conceived like an the inverted hemisphere or tub, so that anyone going there was said to go to the region of endless darkness or bottomless waters.”

Tilak, 1903, 306

The terrines were most often up to 15 cm height, and were mainly decorated in the previously described manner. However, terrines beyond this size can be found, and even over 30 cm in diameter, which for a vessel with a single tunnel-like handle is entirely absurd. These large terrines as a rule are more richly decorated (Fig. 16). Most often seven or nine suns are drawn at the biconical break, but not evenly spaced, instead in groups (2+3+2 or 3+3+3). This marking of the Sun seven or nine times most probably described the number of sun months in a year.

“The sun drives in a carriage with seven wheels.”
Rig-Veda (I, 50, 8)

Dawn in a moderate climate belt, such as at Vučedol, is visible only for a short time in the east before it is replaced by the brilliance of the rising Sun.

“One year to a mortal is one day and one night to the gods: the day corresponds to the route of the Sun to the north, and the night its route to the south.”

Manu, I. 67

Dawn is a mortal, as is god of the spring equinox, and the decoration on the vessels can be interpreted as an annual human visual clue, or calendar. But just as the sun rises at dawn, at the end of the day it sets, which could be shown in the same manner - at the halfway point of the horizon.

“The sun is carried by the current of the heavenly waters towards their destination, i.e. towards the Ocean.”

Rig-Veda, VII, 49, 2

“Water and light come from the same source, and run in the same bed”, as is cited by J. Darmesteter in a note about Zend-Avesta, as the heavenly water awakens the heavenly bodies to movements, something like what would happen to a boat or any other object carried by the current of some river. The results of damming these waters would be quite serious, and the entire world would be thrown into darkness, into a winter fettered in ice.

Above the incised line on the body of the Vučedol terrine is the world horizon of living man. Numerous symbols are incorporated in this, which repre-

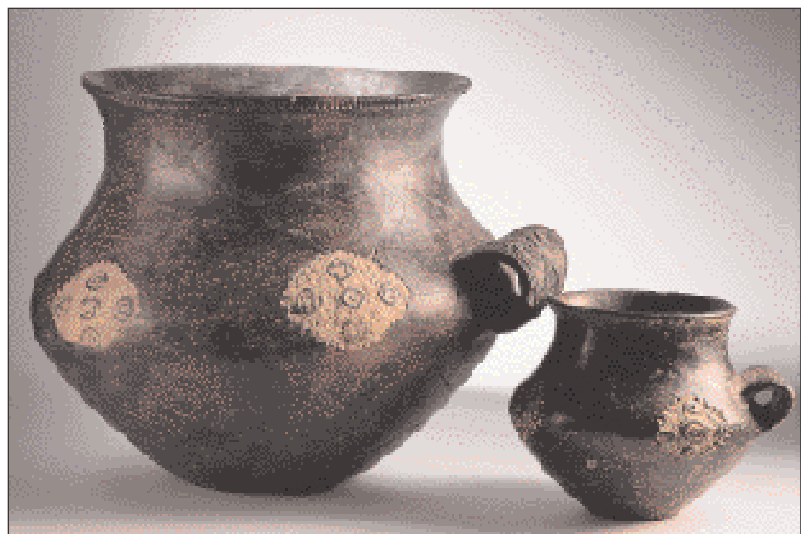


Fig. 9.

sent a firm orientation for man finding his way in time and space.

And God said, "Let there be a firmament in the midst of the waters, and let it separate the waters from the waters." And God made the firmament and separated the waters which were under the firmament from the waters which were above the firmament. And it was so. And God called the firmament Heaven.

The Holy Bible, Genesis 1, 6-8

And God said, "Let there be lights in the firmament of the heavens to separate the day from the night; and let them be for signs and for seasons and for days and years, and let them be lights in the firmament of the heavens to give light upon the earth."

The Holy Bible, Genesis 1, 14-15

On the large Vučedol terrines, a zone with a depiction of the heavens extends from the horizon to the upper rim of the vessel (Fig. 17). This is divided by vertical boundaries (usually two parallel lines) into 4 or 6 fields. Constellations are most often shown in these fields. Orion was present in almost all combinations, and the Pleiades, Cassiopeia, and some planetary symbols also appear. The terrines with such a decoration offer their illustrated message of an individual story about the fate of the deceased next to which they were usually placed. Although it is not something that is easy to admit, the decoration on them is closely related to views of the situation in the graves in which they are most often found, in-



Fig. 11.

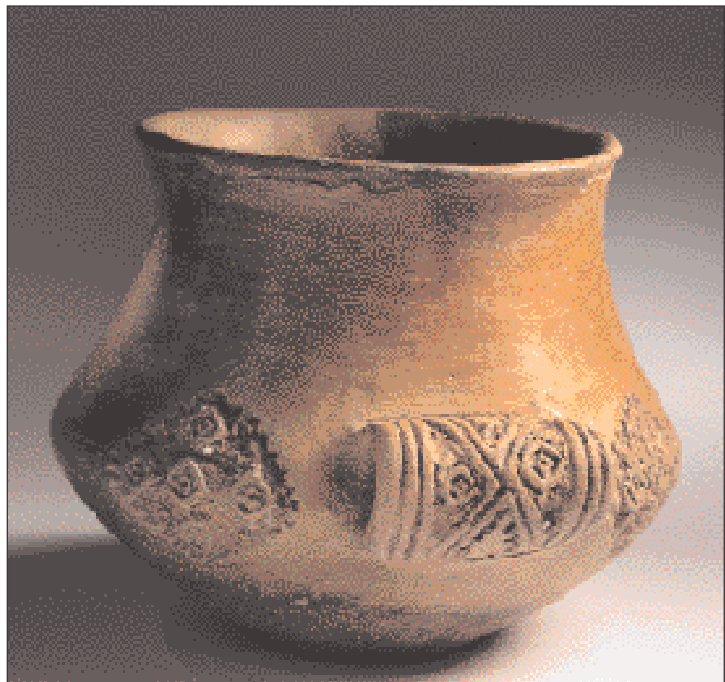


Fig. 10.

cluding human victims. In this manner the heavenly drama was equalized with the human fate.

The determination of the seasons can best be perceived in the positions and relations between certain symbols that undoubtedly mark the constellations significant for individual parts of the year.

In comparison with the Sumerian-Babylonian, Egyptian, Chinese, Indian, and other ancient calendars, the constellations can be clearly defined, and the zones or belts into which some vessels are divided exhibit larger annual units. The constellations that denote individual seasons were shown at the moment of twilight, as the first landmarks of the evening sky (Orion, Gemini, Pegasus, the Pleiades, Cassiopeia, Cygnus). Naturally, the very common symbolism of the Sun (without a single depiction of the Moon) shows the complete displacement of lunar symbolism, which is an Indo-European trait.

Particular attention is drawn to a low pot with a gentle profile in an S-shape, found in 1978 during excavations at the Vinkovci-Hotel site, in a pit of the late classic Vučedol Culture (Fig. 18). It was quite damaged on one side, and the ancient break indicated that it had had a role even in a broken state, as the pit



Fig. 12.

was mainly filled with unbroken vessels. It was divided into four horizontal fields, and the lower one was preserved in its entire extent, containing 12 equal squares. They are clearly delineated, and every other one has an incised and encrusted, precisely formed mark (Fig. 19).

In the first, upper zone, which is proportionally worse damaged, squares can be recognized in the following sequence.

❶ Empty square, the Sun, empty square, Orion, empty square, the Sun, empty square... This belt undoubtedly evokes **spring**, according to the previously mentioned terrines that bore the Sun or Orion on the horizon. This is the beginning of the season when the Sun, on the 21st of March 2800 BC set around 5:27 PM, and the Belt of Orion - in Croatia known as “Reapers”, in Upper Germany it has been often the Magy or the Three Kings (*Allen 1963,316*) - set with the first twilight. This is the only zone on this pot where the Sun appears, as it was necessary to emphasize particularly that Orion was passing, visible in the very fact that the Sun is shown. This is more a depiction of the triumph of the arrival of the first day of spring - the equinox - than spring itself.

The year at Vučedol began with the spring equinox, when the Sun symbolically supplanted the most impor-

tant winter constellation of Orion. To be more exact, that night Orion’s Belt appeared a short while for the last time in the winter sky, disappearing for several months. This chance circumstance, noted by the inhabitants of Vučedol, today no longer exists because of the course of time (precession), helped them in determining the first day of the new year, but also in coordinating the number of days in their year (unknown to us) with the actual number of days of the yearly revolution of the Earth around the Sun.

The second, lower belt shows **summer**, without too many dominant stars.

❷ Empty square, the Pleiades, empty square, Cygnus, empty square, Cassiopeia, empty square, the Pleiades... Cassiopeia in the form of the letter W is particularly interesting. In this period it was not a circumpolar constellation, and at the summer solstice it rose at the setting of the Sun, at 8 PM. Cygnus (like the cross of St. Andrew) is high above the eastern horizon. The circular symbol is not typical for several stars (6) in the Pleiades, but it is difficult to record them all in such a small space, so it is most likely, as was the case in Babylonian (*Gossmann 1950.279*) and Vedic astronomy (*Santillana 1969.157*) that Mars was their planetary representative. The Pleiades appeared only at 1 AM in the morning.

“When the Pleiades born of Atlas rise before the sun, begin the reaping; the ploughing, when they set.”

Hesiod, Works and Days, 383–384

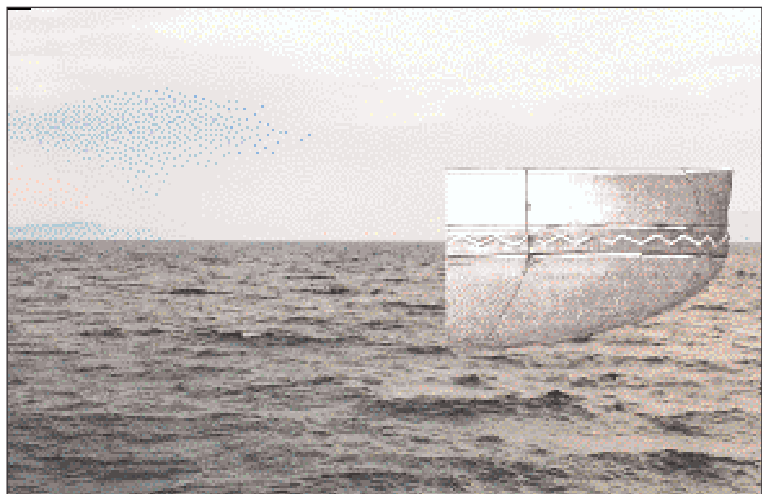


Fig. 13.

Autumn is shown in the third belt.

③ The Pleiades, empty square, Gemini, empty square, the Pleiades, empty square, Pegasus/Pisces, empty square, the Pleiades... In 3000 BC, the Pleiades rose at 7 PM, and Gemini (two diagonally placed stars) around 8:30 PM. The large constellation that is today divided into two, Pisces and Pegasus, was most often depicted on the Vučedol vessels as two diagonally overlapping squares, although there are also other artistic variants (checkerboard). Examples for this analogy can be found in Santillana (1969, 434), including Sumer and Babylonia, Roman Zodiac of Dendera (Egypt), as well as rather recent drawings from the Guinea Coast in Africa, Sumatra, and the New World. This constellation at 8 PM was high in the heavens and practically at its culmination.



Fig. 14.

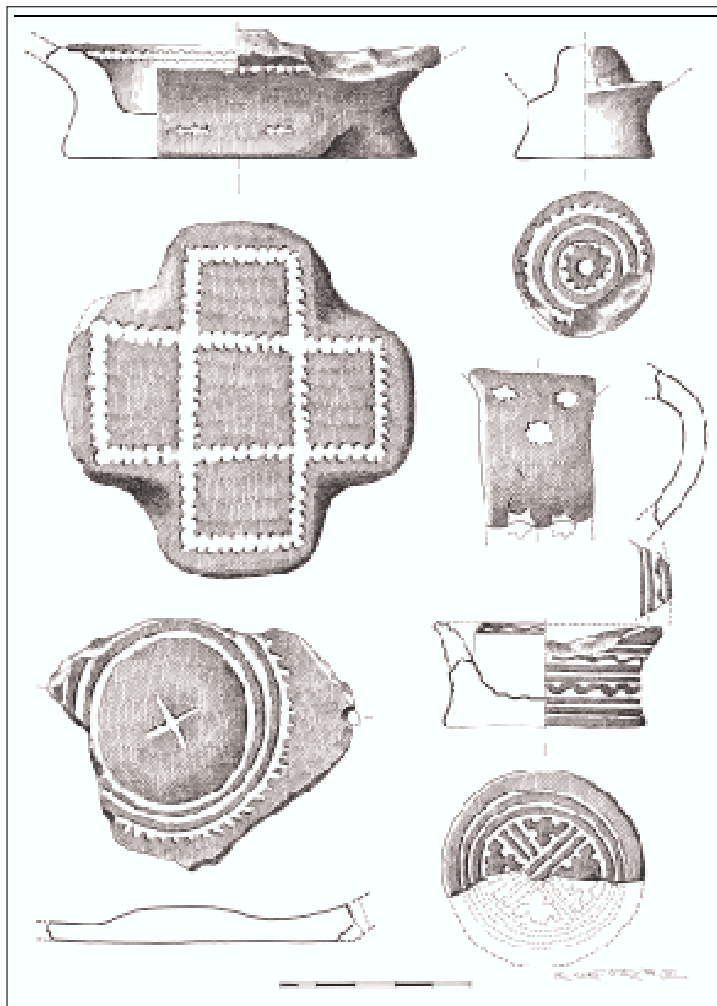


Fig. 15.

The **winter** sky in the lowest belt is particularly interesting. This is not merely because of the fact that the vessel in this section was entirely preserved with 12 squares, but also because of the separate constellations of the especially attractive winter firmament.

④ Empty square, Cassiopeia, empty square, Pegasus/Pisces, empty square, Orion, empty square, the Pleiades, empty square, Pegasus/Pisces, empty square, Gemini. It is extremely interesting that in the depiction of the winter sky, Pegasus/Pisces is shown twice, but Orion, as the dominant constellation of the winter sky and practically its symbol, only once. Pegasus/Pisces set at 9 PM on the 21st of December in 3000 BC. Cassiopeia can be seen in winter in a perpendicular position in comparison to its summer appearance. The already well-known constellation of the Pleiades was directly above the heads of the inhabitants of Vučedol.

It is especially significant that not a single season contained the particularly conspicuous constellation of the northern sky, Ursa Major (the Great Bear, the Big Dipper), not even when certain sym-

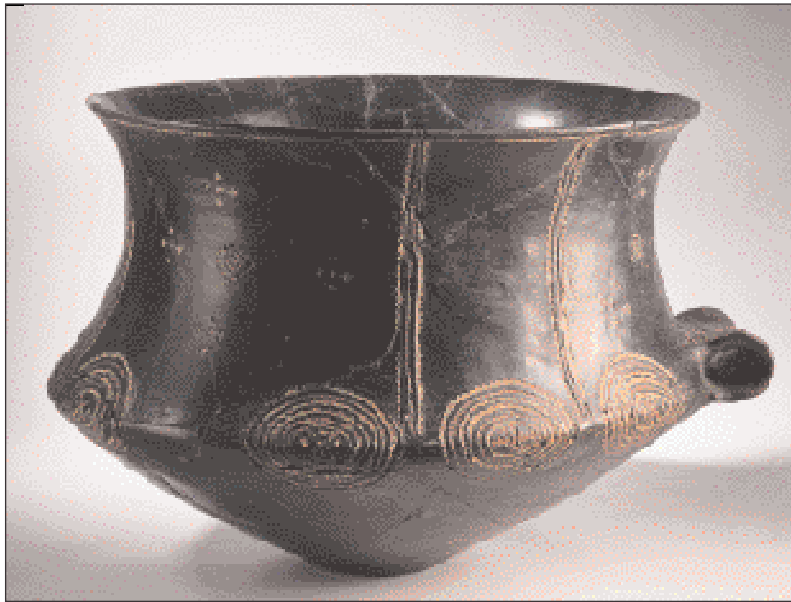


Fig. 16.

bols are repeated in the same row. The reason most of all must lie in the fact that this constellation was permanently in the skies throughout the entire year (circumpolar), and thus it was not significant to the people of Vučedol in terms of the calendar, although they probably knew of it.

This calendar recognized four seasons and 12 possible weeks within them, i.e. three months. There was space in the upper belts for 13 squares, but this space was probably occupied by a small protrusion. In any long-term observation of the phases of the moon, the ancient peoples concluded that they take somewhat longer than 29.5 days. Thus it can be hypothesized that the month, like that of the Egyptians, would have had 30 days. We could attempt to prove this with the explanation that one month was divided into two decorated fields (theoretically each 8 days) and two undecorated (each 7 days). Thus a year would have 360 days, and it would be necessary to add days, just as in the early Egyptian system, to the full so-called tropical year. Perhaps somewhere around the hypothesized protrusion was something used to add a certain number of days, but we can only guess at this. Nonetheless. There was yet

another annual super-control, and that was the setting of Orion's Belt on the horizon at the spring equinox, when a yearly correction to the calendar could be performed.

It has already been mentioned that on the varied vessels of the Vučedol Culture, the decoration was conceived in different ways. There are vessels entirely filled with only one astral sign (such as Orion, Cygnus, Pegasus, Cassiopeia), or a combination of two symbols. But it is not unusual to find several artistic solutions for a single sign, even on the same vessel. Orion, in addition to the usual rhombus with five stars,

with the central the largest (but not necessarily), also appears as a clepsydra or hourglass figure.

Along with the pot with the calendar image, yet another exceptionally interesting vessel was found – a “censer-rattle” (Fig. 20). This is another typical Vučedol terrine surmounted with a shallow vessel. During the first washing after its discovery, one section of its completely closed lower section came apart, and three stone balls were found within the hollow section. They meant that this “censer” was at the same time a rattle.

The lower part of the vessel was undecorated except for symmetrically arranged perforated holes. Through the entire series of these small circular openings in the closed lower section, scented grasses and herbs could be lit and inserted, to smoke or burn after oil and a wick were added to the upper section, as this upper part bears all the characteristics of a lamp.

Above the biconical break (horizon) is an encrusted band filled with zigzag lines and 8 vertical hourglass shaped figures. Above this horizontal band, in the

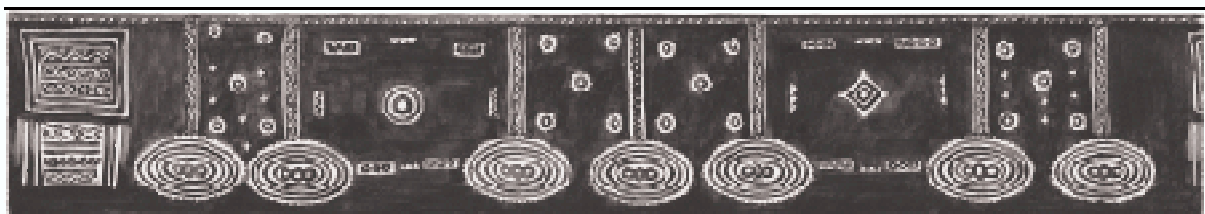


Fig. 17.

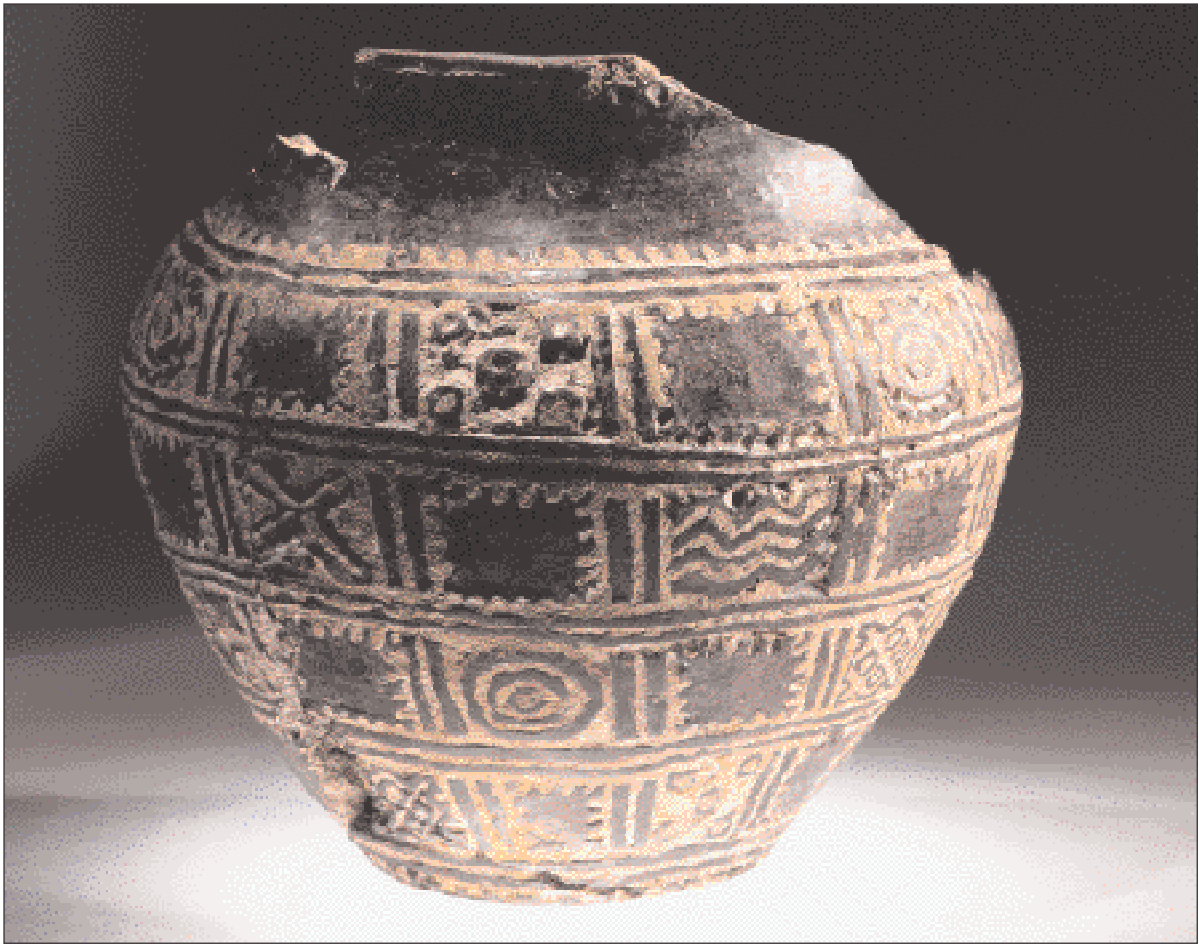


Fig. 18.

area that shows the sky on the terrine vessels, there are 8 perpendicularly divided fields with symbols of Venus, according to analogies on other Vučedol vessels, and three small holes like those in the lower part. There are four symbols of Venus.

The upper section, where the lamp was added above the terrine, contained some kind of attached lid with a wide opening in the centre. This had five marked fields also containing symbols of Venus. Four fields

had 3 and one had 2 signs, for a total of 14 Venus symbols.

The relation is interesting between the five fields in the lid of the censer and the eight segments in its lateral section. A ratio of five to eight related to Venus was also noted in the Venusian calendar of the Mayans from the Central American region, known as the Dresden Codex (*Carlson 1984:224*). This explains that five synodical orbits of Venus around the

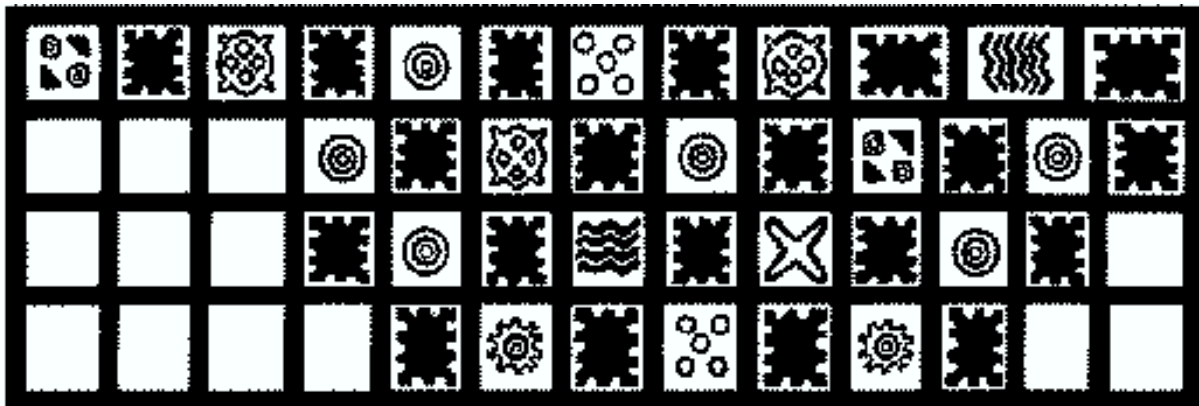


Fig. 19.



Fig. 20.

Sun agree exactly (to the day) to eight revolutions of the Earth around the Sun ($5 \times 584 = 2920 = 8 \times 365$). The ratio of the speed of the orbits of Venus and the Earth around the Sun is 5:8, and this corresponds to the relations of the censer segments.

Thus this censer was above all an important instrument in the correction of the annual lagging of the Vučedol calendar, as despite how many days the latter had, there were problematic days in a year that could not be accurately corrected even with the setting of Orion's Belt below the horizon.

Along with Venus, the planetary symbol for Mars can also be recognized, which, as was noted before, can sometimes serve as a replacement for the Pleiades.

Some terrines, but also small amphorae from the final phases of the culture, merely have incised parallel zigzag lines in the position above the horizon, which undoubtedly indicates the major problem of interpreting the astral or heavenly waters and the manner in which they arrive in the upper sphere, i.e. the firmament and bring fertility to earth.

Two vessels, found in a late Vučedol culture grave of a "duke" in Mala Gruda, the Tivat Field (*Parović-Pešikan 1971*), bear ornaments depicting water both, above and below the horizon (Fig. 21, 22).

These disturbed waters negating the horizon symbolize Death itself.

"I am on my way to kind Earth's bourne to see Okeanos, from whom the gods arose....."

Homer, The Iliad 14, 200–201

"I might easily lull another to sleep-yes, even the ebb and flow of cold Okeanos, the primal source of all that lives."

Homer, The Iliad 14, 245–246

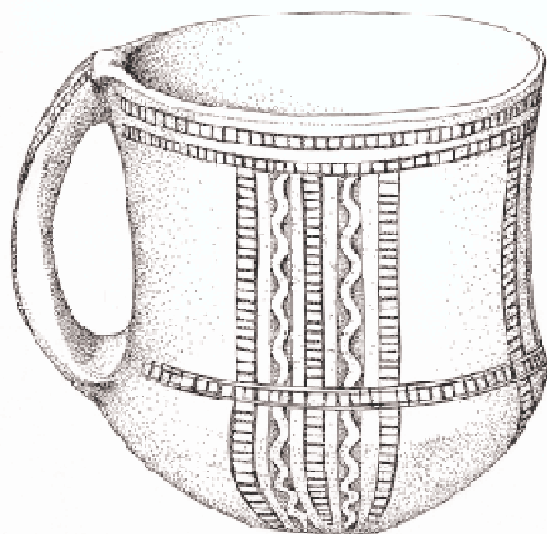


Fig. 21.

Much else can be told by the broken fragments of vessels with solar motifs on them, as the Vučedol inhabitants separated them from the superfluous remaining empty sections of the vessel by careful breaking. This newly created object was then perforated with two holes and worn as some kind of amulet.

All data was tested using computer simulation, as the firmament was shifted because of what is known as “precession”, and the North Star from 3000–2500 BC was the star Thuban (the brightest in the constellation of the Dragon).

In this manner it is possible to reconstruct the creation of something distinctive in the world, what could be called a completely astral calendar. The beginnings of this earliest European, but also Indo-European, calendar can be tied directly to the period after 3000 BC. The calendar-pot and censer are typologically earlier than the beginning of the late phase of the Vučedol Culture (the context in which they were found), and according to the ¹⁴C dates received from analysis at the “Ruđer Bošković” Institute in Zagreb, this stratum was dated earlier than 2500 BC.

The ancients believed that time were the heavenly mills, grinding us all to dust. If this grindstone could

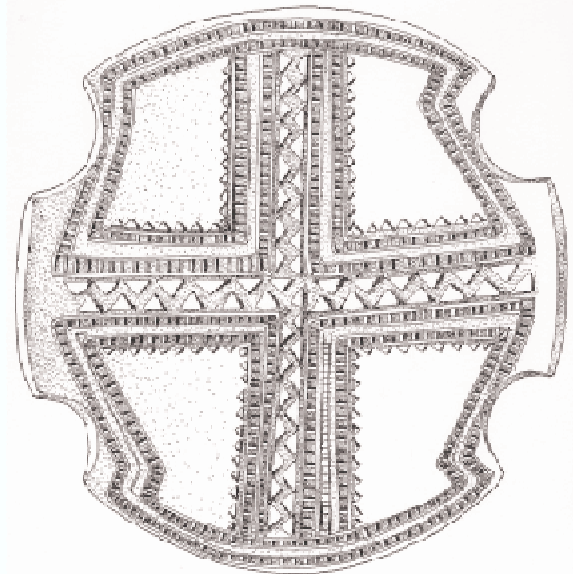


Fig. 21.

not be controlled, various cultures at least attempted to foresee it through measurement. The fixed signs on this mill were constellations (later the signs of the Zodiac), and the fateful, relentless, inexorable grinding was proven by the Sun, the Moon, and the planets (Mercury, Venus, Mars, Jupiter, and Saturn), which, carried by the currents of the heavenly waters, incessantly change their position.

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REFERENCES

- ALLEN R. H. 1969. *Star names, their Lore and Meaning*. Dover Publication Inc., New York.
- BLACK J. and GREEN A. 1992. *Gods, Demons and Symbols of Ancient Mesopotamia*. British Museum Press, London.
- THE HOLY BIBLE 1953. Thomas Nelson and Sons, New York.
- CARLSON B. J. 1984. The Nature of Mesoamerican Astronomy: A Look at the Native Texts. In E. C. Krupp (ed.), *Archeoastronomy and the Roots of Science: 211–252*.
- DURMAN A., OBELIĆ B. 1989. Radiocarbon Dating of the Vučedol Culture Complex. *Radiocarbon, Vol. 31, No. 3: 1003–09*.
- GOSSMANN P. F. 1950. *Planetarium Babylonicum*.
- HESIOD 1989. *Works and Days*. Translation by M. L. West. Oxford University Press, Oxford.
- HOMER 1985. *The Iliad*. Everyman's Library, Random House, UK, Translated by R. Fitzgerald.
1955. *The Odyssey*. The World's Classics, Translated T. E. Shaw, Oxford University Press.
- KRUPP E. C. 1984. Egyptian Astronomy: A Tale of Temples, Tradition, and Tombs. In E. C. Krupp (ed.), *Archeoastronomy and the Roots of Science: 289–320*.
- PAROVIĆ-PEŠIKAN M., TRBUHOVIĆ V. 1971. Fouilles des tumulus de l'âge du bronze ancien dans la plaine de Tivat. *Starinar 22: 129–144*.
- SANTILLANA G., DECHEND M. 1969. *Hamlet's Mill*. Gambit Inc., Boston.
- TILAK B. G. 1903. *The Arctic Home in the Vedas*. Kesari, Poona City.