

THE ARCHAEOLOGICAL SITE – POSSIBLE EVIDENCE ABOUT MULTHAZARD ANCIENT EVENTS

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ABSTRACT. The paper discusses the Cybele ancient temple discovered near Balchik in 2007 and the possible natural disasters that may have led to its destruction. This is the best preserved monument belonging to these ancient times, dedicated to the Mother Goddess – Cybele. The hypothesis for multi-disaster natural events that have occurred consequently is presented using both – archaeological and geophysical evidence – earthquakes, tsunamis and landslides as acting geodynamic forces, which caused the temple destruction and preservation. Most of the observations and discovered artefacts are interpreted as possible arguments for the tragic consequences of the events that have destroyed the temple.

Introduction

The discovery of temple of the ancient Goddess Cybele near Balchik in 2007 provoked an interest in the possible reconstruction of the end of active life of the ancient shrine. The temple is dedicated to one of the most popular cults during the ancient times. The possible reasons for the final moments of the temple activity are investigated.

After the ruins have been excavated, several possible explanations about the end of this temple were suggested: possible destruction by unknown (possibly the Goths) conquerors or another human impact; destruction caused by natural hazards; or destruction caused by both factors.

Our study of the ruins and discovered artefacts leads to the latter hypothesis – the destruction by a combination of several disastrous events taking place during the ancient times.

The archaeological findings and materials

The temple is in-antis – it is a rectangular building 8.50 m wide and about 12.00 m long; the entrance is facing South (Fig. 1). The temple is built on foundations sunken in the surrounding terrain, and it is made of crude stones, which are revealed and exposed on the North wall. A 1.20 m high rectangular stereobate is erected over the foundations. It is covered by tightly arranged stone slabs of a various size, linked to each other by a lead welding. There is a 50 cm-wide toichobate spreading all along the walls of the naos. The two sides of the entrance in the pronaos accommodate the basements of the columns that were previously holding the fronton.

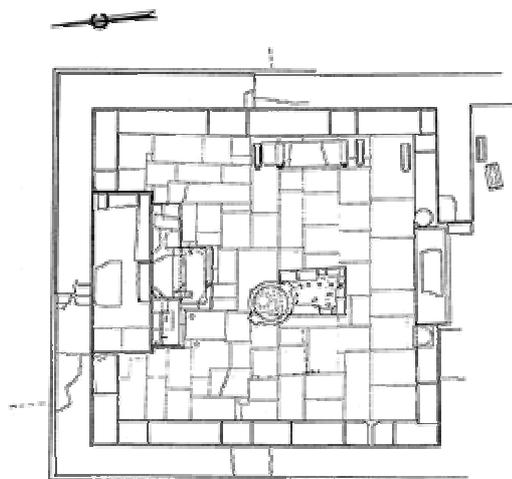


Fig. 1. Plan of the temple

The chosen building technique is opus pseudoisodomum. The walls are two-faced and two-rowed. They finish with an Ionian antablement, consisting of architrave, two friezes and a cornice. The architrave consists of three fasciae and the frieze with bucraniums and rosettes, joined by festoons, is made of one single block of stone. The second denticulus frieze and the cornice profile are also carved out of a single block. All stone slabs and blocks, which are used for the masonry and the architectural details, are made of the local limestone (the so-called Balchik stone, which is practically a shell-type limestone).

The temple had a two-sloped roof, covered with flat tiles of Corinthian type, and covering tiles of Laconian type, forming the so-called mixed roof system. In later periods (I-IV AD), some of the Hellenistic tiles were replaced.

The naos of the temple has a square shape, its size from the inside is 7.10 x 7.10 m, and its entrance faces South. The interior has changed with time. The latest artefacts were in use till 387 AD. However, a certain date of building and endowment of the temple can be argued only for a limited part of the articles – i.e. those carrying inscriptions.

In front of the Northern wall, exactly opposite the entrance, is the location of the aedicule. The only preserved part today is a three-step-podium. In front of the podium two segments of the fluted semi-columns were found, together with an Ionian capital, two volutes of a similar capital, and four fragments of Ionian antableman with fronton and devotional inscription. A relief-bust of the God Helios with a shining crown of sun rays is represented on the triangular tympanum of the fronton, amidst the heads of four horses (two from each side). The fronton finishes with a limestone acroterium with palmetto.

The characteristics of the Ionian order, the techniques of construction and the pottery suggest that the construction of the building took place within the Hellenistic period, most probably around 280-260 BC. The architectural and the relief decorations, together with the paleographic specificity of the inscription on the antableman of the aedicule, also suggest Hellenistic date, and most probably the antableman was built in parallel with the temple or soon after. The aedicule accommodates the statue of the temple and the marble bench with richly decorated legs, as well as a panel with devotional inscription dated in the III c. BC.

A marble luterion is placed in front of the aedicule's podium, in the middle of the temple. To the South of the luterion, a second, smaller podium (perhaps a sacrificial altar), in the shape of uneven rectangle, was built later. Along the Eastern and the Western wall of the naos, 3.20 m long and 0.55 m wide stone benches are located. Some of the discovered architectural details and articles carry devotional inscriptions, which show that the interior of the temple was renewed by endowments.

More than ten totally or partially-preserved marble statues, most of which represent the Great Mother Goddess (Cybele), are found in the temple. Usually, the Goddess is wearing a long chiton and himation, she is seated on a throne and holds a tympanum with her left hand. With four of the discovered statuettes, a lion lies in the lap of the goddess (Fig. 2).

The main statue of the temple has a different iconography. Again, the Goddess wears a long chiton with a himation, flung over her left shoulder and lap, and she is seated in a throne, but she is also holding a fial with her right hand, while she has been previously holding a sceptre with the left one. The lion is not in the Goddess's lap, but is depicted in a relief – sat by the right side of the throne.

The discovered marble reliefs have various themes. A connection with the cult towards the Goddess Cybele can be seen in the marble aedicule, depicting the Mother Goddess;



Fig. 2. A statue of the Cybele – Mother Goddess

in another relief, which has been previously decorating the upper side of a marble slab, and which lists the participants in the religious union; as well as in a grave stone (stele) of a young man, posthumously given and devoted to Cybele by his father.

The relief portrait of God Helios, found on the tympanum of the aedicule fronton, is a sign of possible syncretism between this solar God and the Great Mother Goddess. Another relief, decorates the field of a rectangular marble frieze, and shows ten women with long garments, dancing (?) against each other or one after another. A similar image is found on a fragment of a marble vessel (baptismal font?), with a partially preserved image of two female figures. Two votive tablets of the Thracian horseman are also found, one of which, again, carries devotional inscription.

The inscriptions, found in the temple, are more than 20 (partially or almost totally preserved). All the texts, but two, are written in Greek. The earliest inscriptions, which undoubtedly are connected with the temple, are dated in the III c. BC. The majority are Hellenistic, but seven of them are from the Roman period. The latest text (and the only one in Latin), is dated to the first quarter of the IV c. AD.

The largest part of the inscriptions are the devotional, as well as the inscriptions, found on architectural details, statues, fundaments, benches and altars, or the inscriptions reporting for received endowments and offered services to the Great Goddess. The Goddess is named "The Sea Mother of Gods" (Meter theon Pontia), „The Sea Mother" (Meter Pontia), and in one of the cases – "The Sea Goddess" (Thea Pontia), while the temple itself is called The Metroon. The epithet "Pontean / Sea", and the principle connection between the Goddess and the Sea, is something that no one has come across before. In fact, it can be a new local interpretation of the essence and the character of the Mother Goddess. One of the inscriptions, devoted to the Goddess, defines Cybele statue as an image of the "Pure Mother" (Meter Kathare). The latest devotional inscription (in Latin) is carved on a silver statue fundament,

which was re-erected by the emperor Licinius (308-324 AD), by the unknown (so far) governor of the Scythia province Aurelius Speracianis.

The temple was also serving as a place, where the polis of Dionisopolis used to display the decrees, issued by the Council and the Parliament. The longest decree is dedicated to the Thracian Mocaporis, appointed by king Remetalk I for a strategia of a so far unknown strategia / region, who helped and supported Dionisopolis in peace, as in war, against "the common enemies from beyond the river Danube".

Another important type of documentation, found in the temple, is represented by the lists of the priests and the servants of the cult. From the early Hellenistic period, we have a preserved fragment of a list of Dionysius priests, and a catalogue of Cybele worshippers, containing 19 names. From the Roman times, a list of the Goddess's servants is preserved (listing Thracian, Greek and Latin names), together with a catalogue of 84 members (names of Greek, Asia Minor and Latin origin), belonging to a religious union, devoted to the Mother of Gods, which had the tradition to celebrate the Cybele cult every first day of the month.

More than 151 coins are found during the excavations. The coins are either bronze or copper, and can be divided into three chronological groups: 1 – coins used in Dionisopolis till its inclusion within the boundaries of the Roman Empire (IV c. BC - the beginning of the I c. AD); 2 – coins from II-III c. AD; 3 – coins from the IV c. AD. The majority of the coins are dated to the IV c. AD, and most of them are produced within the second half of the century. The latest coins can most probably be dated in the time of Emperor Valent (364-378 AD). All the coins from the IV c. have been burnt.

Different pottery objects were also found (terracotta, lamps, and everyday vessels), together with fragments from various glass vessels (embalming vessels, cups, and jugs), glass beads, bone needles, and some metal articles (a bronze cone vessel, mirror frames, and jewellery fragments).

So far, this is the only temple of Cybele, ever discovered in the Eastern part of the Balkans, and it is the best preserved Hellenistic temple in Bulgaria as well. The inscriptions and the pieces of marble plastic arts, which are found in the temple, represent extremely important archaeological evidence, reflecting the religious and social life in Dionisopolis. As for numbers and diversity, this is the largest group of movable artefacts, connected to the cult of the Mother Goddess that has ever been found in a Cybele temple.

The seismic activity in the area

The area of North East Bulgaria is well known as an active seismic region by historical and recent investigations. The seismicity patterns during the historical times have specific behaviour. The collected information shows that this seismogenic source (called Shabla-Kaliakra and located partially on the land and partially in the sea) can produce very strong seismic events (the last one with M~7.0 in 1901), without any significant periodicity (Fig. 3; Table 1). Some descriptions collected recently show that several of these events, produced local tsunami effects (Christoskov, Tupkova-

Zaimova, 1979). The most reliable of them are as follows (Table 2 and 3).

I (III?) c. BC case –

IX-X tsunami intensity, Papadopoulos-Imamura (P-I) scale

"Ancient town Bisone (Greek colony) sank in the sea waters" (Strabo). A major earthquake (M~8), affected the town accompanied by huge slides and large inundation. "The whole" ancient city (most probable – the port and the coastal facilities and building) went under water. The remaining part of the town was moved on the top hills. Paleotsunami findings have been observed (Rangelov, 2004).

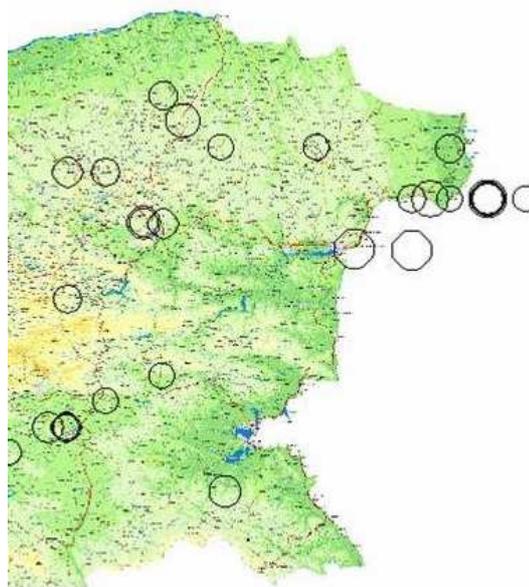


Fig. 3. Epicenters of M>5.0 earthquakes located at the region

Table 1

Seismic events located to the North-East seismogenic source – Shabla-Kaliakra

Year	Date	Time	Lat.E	Long.N	Depth, km	M
-50			43.4	28.4	20	7.0
543			43.5	28.3	20	7.6
1444	XI		43.2	28.1	20	7.5
1832			43.4	28.7	14	6.5
1858	I / 8	01:15	43.4	28.7	20	5.2
1869	I / 10		43.6	28.7		6.5
1870	V / 6		43.8	28.8		4.5
1892	XI / 15		43.8	28.7		3.5
1901	III / 29	23:00	43.7	28.6		3.0
1901	III / 31	07:10:24	43.4	28.6	14	7.2
1901	III / 31	11:05:00	43.4	28.1		3.0
1901	III / 31	11:30	43.6	28.8	25	5.0

543AD case –

VII tsunami intensity (P-I scale)

An earthquake (magnitude ~7.5), probable local tsunami, and activated landslides destroyed and buried the Cybele temple (this case in more details is under investigations in this study). Possible palaeotsunami findings are supposed. The ancient colony Dionisopolis moves up to the hills (Guidoboni, 1996).

31st March 1901 earthquake and tsunami –

V tsunami intensity (P-I scale)

Earthquake of magnitude M=7.1 occurred in the sea. Large destruction in the epicentral area – more than 5 villages and small towns were affected; more than 830 houses damaged. Aftershock sequence lasted for more than 7 years. Land subsidence and landslides (probably submarine as well) occurred. Rockfalls were reported. A witness reported a sea level rise of about 3 meters at the port of Balchik, recognized as tsunami. This is the best studied and documented case (Ranguelov, Gospodinov, 1995).

The case of 7th May, 2007 –

V tsunami intensity (P-I scale)

The case occurred at the Northeast Bulgarian coast – nonseismic origin (possible underwater turbidities). Data about withdrawal and inundation are documented and collected – frequency of the phenomena (3-5 to 6-8 minutes). Data about the water peculiarities consequences – observed turbulences, currents and water boiling have been observed. Data about the consequences – moved boats, tetrapodes and other objects have been previously published (Ranguelov, 2007).

Table 2

The known events at the North Bulgarian Black Sea coast: the observed secondary effects and tsunami intensities

Time; parameters	Events and secondary effects	Tsunami intensity; Papadopoulos-Imamura (P-I) scale
(III-I?) c. BC multihazards event	Earthquake, slides, regional inundation	IX-X
543 AD multihazards event	Earthquake, slides, local inundation	VII
31 st March, 1901	Earthquake, slides, rockfalls, local inundation	V
7 th May, 2007	Nonseismic origin, only frequent water level oscillations	V

Table 3

The known tsunami generated events at the North Bulgarian Black Sea coast

Year	Lat.E	Long.N	Depth, km	M	Macro Int. [EMS]
I(III?) c. BC	43.4	28.4	20	8.0	IX-XI
543	43.5	28.3	20	7.6	IX-X
1901	43.4	28.6	14	7.2	IX-X
2007	43.1	28.6	0	slide(?)	-

The methodology of chronology reconstruction of the consecutive events

The field and labs investigations of the materials found inside and outside the temple have been used in a detailed study.

The methodology of reconstruction of the events that have lead to the destruction of the temple is based on the space relationships of the discovered natural and man-made findings:

- Sea sand layer mixed with red bricks on the floor of the temple. The layer is about 10-15 cm thick with black colour and composed of burned material (most probably – wood). Molluscs shells (well preserved, but fragmented) have been discovered in the layer. The most preserved parts are from the most popular black sea mollusc – *Mitilus galloprovincialis* (Kuneva-Abadjieva, 1960).

- A lot of fragmented and/or preserved marble artefacts (statues of the Goddess Cybele, the fronton, a big bowl, semi-columns, etc.) are located above and in the soil fill of the temple space. Some of them keep their original positions (for example chairs), some are broken (for example the marble plate with inscriptions) and some are preserved statues, bowl, etc. All these artefacts are mixed before being buried.

- After the excavations the preserved walls built from stones and bricks could be seen in a very specific position – the preserved parts are cut off like with scissors – all keep the same level. Under the walls the basement made of big stones is also preserved. The walls to the South and East are cracked and the bricks moved up-down. These movements could be generated by earthquake vibrations and/or slides movements.

A comparison of recent findings with ancient natural forces and events

As a result of investigations of the chronology and the artefacts position, a scenario table has been constructed (Table 4).

The application of the methodology described above helps to reconstruct possible scenario of the final moments of the temple life. The most logical chain of events looks like that:

- Burning phase. Possible fire from the roof could be the trigger caused by the burning rituals; earthquake which could trigger fire from the hall of the temple to the roof. It seems clear that the roof (probably built of wood) had burned and collapsed on the floor. This hypothesis is supported by the black layer and the red bricks found on the floor. The time of the fire is not possible to identify.

- Very soon after the fire, the floor had been flooded by sea water bringing the sand and shells. The sand comes from the sea and has typical sea origin. The grains, composition and the shells of molluscs support this hypothesis.

- It is very probable that this local tsunami had been generated by an earthquake. The list of known earthquakes leads to that one in 543 AD (Table 1). The effects of this earthquake could be the cracks visible on the walls on East and South segments.

- The fallen and broken marble plate with inscription is fully reconstructed – no missing parts, which means that this plate fell down and have been broken at once, and then immediately buried.

Table 4
Scenario of destruction and conservation of the Cybele temple, Balchik

Disaster/Effects and consequences	Influence factor	Consequences	Observed effects	Time of occurrence
Fire on the roof	Burned roof	Roof collapse	Burnt layer on the floor, mixed with red bricks	The first disaster (unknown time, but later than IV c. AD)
Earthquake	Strong vibrations	Partial destruction of the temple, Falling of the fronton and the plate with the descriptions. May be some destructions of the walls and the decorations	Cracks in the walls, fallen and broken plate with inscriptions. Many other artefacts on the floor – fallen and broken parts of the roof, etc.	Next disaster event simultaneously with (or after) the fire
Tsunami	Powerful inundation from the sea to the land	Flooding, destruction of the building and the interior. Sand deposition by the water income and mud due to the water backward	Layer of sea sand and molluscs shells on the floor; depositions	Probably immediately after the quake. (Possible variant is another later tsunami of nonseismic origin)
Landslide	Permanent and/or episodic fulfillment of temple ruins by deposits, slides and erosion	Fulfillment of the preserved part to the level of the remaining walls. More materials from the building and the decorations collapsed over. Mixture of the materials inside the building	The conservation of the covered site together with all artefacts by the soil. Mixed parts of the materials from the construction and the decorations	Triggered by the earthquake, followed tsunami and/or not connected to them; activation of the slides and erosion of the hill located next to the upper part of the temple
Terrigenous processes (erosion and running waters by rain, snow melting, etc. (together with the activation of the slides))	Deposition of the terrigenous materials around and over the temple and on the ruins	Buried of the preserved part of the temple	Well preserved part of the temple with all artefacts in it	Permanent acting element during the time, which covered and conserved all the remains

▪ Then the whole temple had been buried under the layer of deposits, also brought at once, because the whole lower part of the temple with the artefacts and the walls are preserved totally. The most probable explanation is that this burial process is due to a landslide or to some not very fast, but also not very slow process (like erosion depositions for example). That is why these parts (from the walls and the marble) have not been used for some kind of further construction around the temple (as the ancient practice was). The burying process has been fast enough to preserve the walls and artefacts, and not slow enough to the same reason.

The only natural process with such physical characteristics is landslide, which also added its force for the mixture of the artefacts inside the temple. The area is famous with active landslides of Pleistocene Age and the materials inside the temple are absolutely similar to the surrounding materials sliding down permanently.

Conclusions

The discovered Cybele temple, the investigations of its ruins and the artefacts collected have been studied and analysed with a focus on the consecutive events that have affected the temple during its last days of existence (Fig. 4).

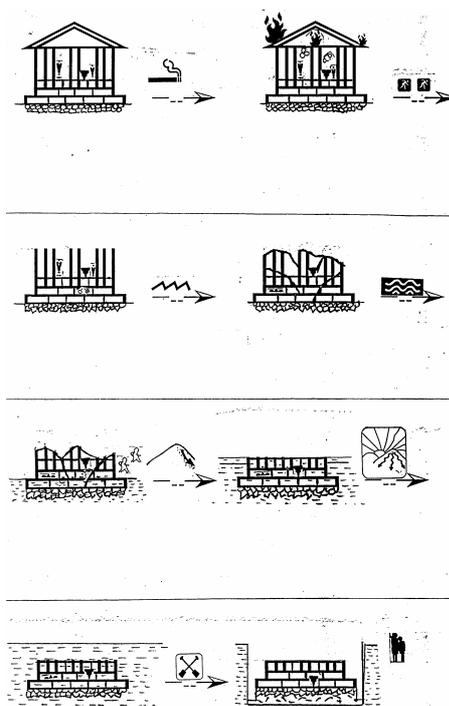


Fig. 4. General reconstruction of the scenario of the Cybele temple's destruction and preservation

The natural environment includes the activity of several geodynamic factors – earthquakes, landslides, erosion, tsunamis, strong winds and storms, which are typical for this area. This shows that there are many impact possibilities at the Cybele temple and it has been destructed by a complex of acting natural phenomena displaying disastrous character. They had negative effects on the monument – on one side – destruction of the ancient building. On other side these natural forces preserved the remains to the present time and from any human impact.

The analytical study of the temple itself, the discovered artefacts and their temporal and spatial positions and displayed effects on the walls, floor and surrounding environment, help the reconstruction of history and events development. Thus the conducted research strongly supported the hypotheses that this temple has been destroyed and buried by possible consecutive hazardous events – fire, earthquake, tsunami, landslides, surface erosion and deposition, etc.

The hypothesis of the active natural geodynamic forces, which destroyed and preserved this famous temple, needs of course, improvement and details refining. The study of the existence, destruction, burying process and excavation of such a brilliant ancient cultural monument needs deeper

investigations. To preserve and to display it for the next generations is our primary duty.

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