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Spatial development of the St. Michael Castle on the island of Ugljan

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Subject review

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In 1203, the Venetians built a fort on the island of Ugljan, above the town of Preko, opposite to the city of Zadar, so as to prevent reconstruction of the city demolished by the Crusaders. Based on scientific analysis of published papers, historical sources, and traces visible on the structure, the authors reveal new findings about the construction and transformation of St. Michael's Fort, while also presenting spatial reconstructions of the fort in characteristic historical phases.

Key words:

fort, fortification, Venetians, St. Michael, Ugljan

Pregledni rad

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Prostorni razvoj kaštela sv. Mihovila na otoku Ugljanu

Mlečani su 1203. godine izgradili kaštel na otoku Ugljanu, iznad Preka, točno nasuprot Zadru kako bi osujetili obnovu grada porušenog u križarskom razaranju. Na temelju znanstvene obrade do sada objavljenih radova, povijesnih izvora i tragova na samoj građevini autori iznose nove spoznaje o izgradnji i preobrazbi kaštela sv. Mihovila i daju prostorne rekonstrukcije u karakterističnim povijesnim fazama.

Ključne riječi:

kaštel, utvrda, Mlečani, sv. Mihovil, Ugljan

Übersichtsarbeit

Autori

Raumentwicklung des Kastells Hl. Michael auf der Insel Ugljan

Die Venezianer erbauten 1203 das Kastell auf der Insel Ugljan, oberhalb von Preko, direkt gegenüber Zadar, um den Wiederaufbau der während der Kreuzzüge zerstörten Stadt zu verhindern. Basierend auf der wissenschaftlichen Bearbeitung der bisher veröffentlichten Arbeiten, historischer Quellen und Spuren am Gebäude selbst tragen die Autoren neue Erkenntnisse über den Bau und die Umwandlung des Kastells Hl. Michale vor und geben eine räumliche Rekonstruktion in charakteristischen historischen Phasen wieder.

Katja Marasović, Rea Vidović

Kastell, Festung, Venezianer, Hl. Michael, Ugljan

1. Introduction

With its 263 m in height, St. Michael's Mount is the second highest point on the island of Ugljan. It is situated opposite to the city of Zadar, above the town of Preko, only 600 m away from the outer coast of the island. It was named after St. Michael Church which was built there in the Middle Ages. It boasts an exceptional strategic position offering good view of a great part of the Zadar area and its hinterland. That is why a mighty castle was built on its top in the early 13th century (Figure 1).

The objective of this paper is to ascertain the original appearance and transformations of St. Michael's Castle based on scientific analysis of published papers, historical documents, old photographs and drawings, and a detailed analysis of the existing condition. In the absence of an architectural survey document, the topographic survey from 2009 was used as the basis for analysis and reconstruction of this complex [1].

The paper is based on the conservation study prepared in 2015 by the same authors, and it constitutes its shorter version. The preparation of the conservation study was encouraged and funded by the Preko Municipality as a first stage of the systemic rehabilitation and revitalisation of St. Michael's Castle.



Figure 1. St. Michael's Castle on Ugljan (Photo: Boris Kačan)

1.1. Prior to castle construction

The oldest archaeological finds on St. Michael's Mount are a flint scraper and two stone flakes dating back to aneolithic age, which were found in the central part of the castle [2]. It has been considered for a long time that an Iron Age hillfort - with one line of dry stone defensive wall built using the megalithic technique - existed at this locality in the 4th century B.C [3]. However, after site inspection, archaeologist Vinko Madiraca found three lines of dry stone defensive walls of the hillfort as well as the remains of dry wall structures of rectangular and circular plan (Figure 2). The hillfort way of life came to an end after the onset of the Roman rule in the first century BC, and the St. Michael locality was abandoned for a while, as confirmed by the absence of archaeological material from that period [3]. However, this significant strategic position undoubtedly points to the existence of a Byzantine fortification from the time of Justinian's Reconquista of the Adriatic. This stronghold was a part of the

system of fortifications built along the entire Adriatic coast in the 6th century [4, 5]. The finding of a Justinian's gold coin in St. Michael's Castle [6], and a great abundance of Late Antique ceramics found in the zone of the Iron Age hillfort, indisputably attest to an intensive use of the locality at that time.



Figure 2. Dry stone defensive walls and structures at St. Michael's Mount (Vinko Madiraca) as shown on the photo taken in 1944 (Geodetski zavod d.o.o. Split)

The same period may be cited for dating a small water tank measuring 48 x 52 cm, 62 cm in depth, plastered with red watertight plaster (mixture of lime mortar and crushed brick), excavated in live rock of the plateau in the centre of the castle, at the position of the south wall of the medieval Church of St. Michael. This period might also be mentioned as the time of origin of a stone beam fragment with a roughly carved tendril ornament built into the western wall of the structure that is today situated at the central plateau (Figure 3). This element was earlier built into the portal of the Romanesque-Gothic church of St. Michael, as can be seen in the drawing by Salghetti-Drioli [8].



Figure 3. Late Antique stone fragment with a tendril motif (Photo: Vladimir Vidović)

1.2. St. Michael's Church

According to Bianchi and Kukuljević, it can be assumed that a church existed on St. Michael's Mount even before construction of a Benedictine monastery. In fact, these authors consider that St. Michael's Church, built in 988 by bishop Prestancius and his brother Madius de Columna in insula Postimiana, is not the church on the island of Pašman but rather the church on Ugljan as, at that time, Pašman and Ugljan were a single island called Postimiana [7]. Because of the lower sea level, Ugljan and Pašman were connected by a small isthmus until the Middle Ages, but a veritable sea passage was excavated not earlier than during the Austrian rule, between 1888 and 1891 [2]. Ostojić states that St. Michael's Church on Pašman was built in 1018 and consecrated in 1029 [7].



Figure 4. St. Michael's church and castle in the early 20th century [7]



Figure 5. West façade of St. Michael's Church in the mid 19th century (Crtež: F. Salghetti-Drioli) [9]

The church was located at the highest ground of St. Michael's Mount, at the very spot later taken by the Romanesque-Gothic church. According to T. G. Jackson, it was destroyed after the Venetians conquered the castle in 1346 [8]. According to Petricioli, the new Romanesque-Gothic church was built in the period when Petar Zadranin was abbot of the monastery (1340 – 1364) [9].

Two photographs (Figures 4, 6) and the drawings made by Salghetti-Drioli in the mid 19th century (Figure 5) bear witness

of the appearance of the Romanesque-Gothic church. Traces of mortar on the cliffs at the central plateau enable determination of the position of walls, and hence definition of approximate size of the church: 13 x 7 m, with a semi-circular apse 6 m in diameter. According to Benevenia, the church measured 13 x 6 m in size [10], while according to Bianchi it measured 20 x 8 m [11].

The style of the openings and furniture was gothic, while the semi-circular apse is typical for Romanesque churches. The roof was double-pitched with gable walls, and the bell cote was situated on top of the main façade. T. G. Jackson described the vault above the nave as a waggon vault [8], while Petricioli considers that the church proportions, and the steep gable, actually point to the existence of a gothic blunt vault [9]. A confirmation of Petricioli's assumption can be found on the Salghetti-Drioli drawing of the west façade of the church (Figure 5) where the top of this gothic vault can be seen by looking through the caved-in opening above the portal. The second church entrance was probably situated at the south side, where the access was enabled via the ramp mentioned by Benevenia. This ramp was situated exactly opposite to the stairs leading to the south wall of the castle [10].

At the very beginning of World War II, the castle and church were photographed from the air for the purposes of fascist propaganda [12] (Figure 6). The church was destroyed during an attack of Anglo-American airplanes in 1944, and its remains were razed to the ground by the Yugoslav navy in 1947 [9]. Its construction material now lies in a stone heap to the south of the plateau on which the church used to stand. Among other material, the heap contains numerous blocks of tufa from the former vault.



Figure 6. St. Michael's Castle, photo from 1941 [12]

1.3 St. Michael's Monastery

According to Ostojić, the St. Michael Benedictine monastery on Ugljan was formed in 1094 [4, 7] while, according to Bianchi, it was built in 1166 [4, 11]. It was founded by the Zadar-based Monastery of St. Chrysogonus, which is the oldest Benedictine abbey in Croatia. St. Michael Benedictine monastery gradually acquired a considerable estate [7] which is why the entire island used to be called for some time the island of St. Michael (Insula sancti Michaelis, Insula sancti Michaelis de Monte) [4, 13].

The position of the monastery can be assumed based on the plan view of St. Michael's Castle (Figure 7). In fact, the main east gate of the castle (currently walled up) is positioned in such a way to orient the main roadway to the south of the church, parallel with the south wall of the castle toward the west gate (currently also walled up). The space within the castle in front of the west gate, and the space in front of the donjon, was left free for defence purposes, and so it can only be assumed that the monastery was positioned to the north of the church. The monastery probably had the cistern which was situated along the northern wall of the castle. The fact that the castle wall leans onto the cistern is a proof that it existed before construction of the castle. The cistern remains that have been preserved to this day include peripheral walls and the beginning of the vault. This spot is currently also occupied by a cistern covered with a reinforced-concrete slab. Cisterns, bell tower, and monastery building, are mentioned in documents from 1347 [4, 13] and 1348 [4, 13] in which demolition of the castle is depicted. The bell tower is shown in the drawing of the castle made in 1716 by Cosmo Faventini. Bianchi considered that the abbey on Ugljan closed its doors in 1402 [7] and T.G. Jackson states that the monastery was abandoned in the period from 1453 to 1468 [8]. In 1421, the Venetian authorities ordered "that the military castellan be removed from St. Michael, and that the key of St. Michael be handed over to the abbot so that the divine service (mass) can be celebrated there" [7], which is a proof that by that time the monks no longer lived in the monastery.

2. St. Michael's Castle

After the Crusaders and Venetians plundered the city of Zadar in 1202, Zadrans started to attack Venetian merchant ships in the Adriatic Sea. To protect their merchants and prevent reconstruction of Zadar, Venetians sent ships and army, led by Dandolo's son Rainer, with the mission to build a stronghold on the island of Ugljan, situated opposite to the city of Zadar [14]. The castle was completed in 1203 around the monastery and St. Michael's Church [10]. Zadrans, who escaped from the city, elected the Šibenik Prince Domald as their prince, and they conquered St. Michael's Castle and reconstructed the city and its walls already in 1204 [14]. According to T.G. Jackson, St. Michael Castle was greatly damaged, and its Venetian defenders were taken prisoners, during the attack by Zadrans [8].

The next mention of the castle as castrum S. Michaelis de monte dates back to 1345 when the Venetians besieged Zadar. The castle was then held by Zadrans and, although the Venetians used great military power to conquer it, the castle managed to resist for a

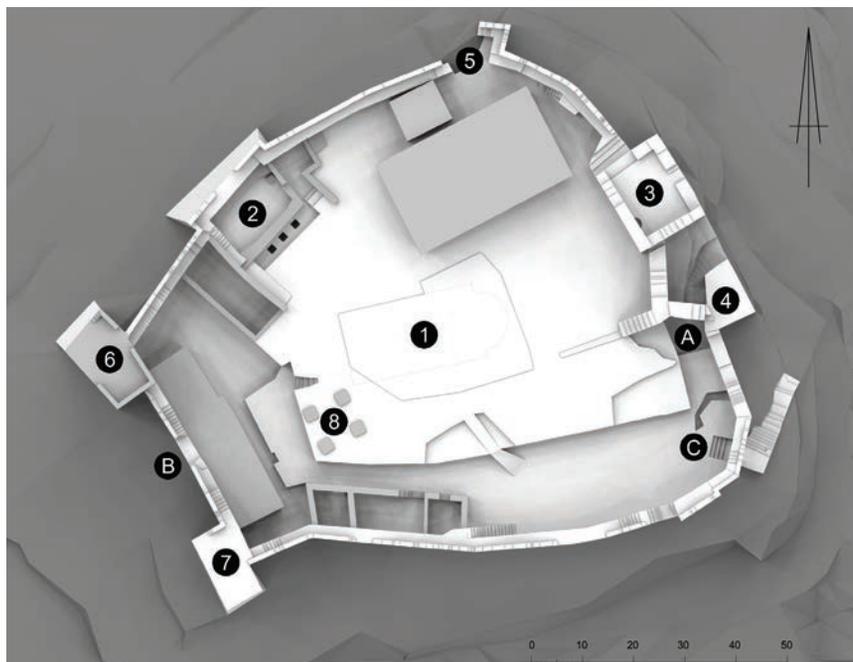


Figure 7. Plan view of St. Michael's Castle: 1. Position of St. Michael's Church, 2. Monastery cistern, 3. Donjon, 4. South-east tower, 5. North-east tower 6. North-west tower, 7. South-west tower, 8. Television aerial pedestal, A. Main gate of the castle, B. West gate, C. New gate (authors)

long time but, finally, fell to attacks in the following year of 1346 [4, 16, 10]. The Venetians initially planned to keep 100 soldiers in the castle, but that number was first reduced to 50, then to 30 and, finally, to as little as 16 soldiers [4, 10]. However, due to high cost of keeping soldiers in the fortification, and because of fears that the fort may fall into the enemy's hands, the Senate was approached on several occasions in 1347 and 1348 with the proposal to destroy the castle and its properties, other than the monastery and church, and later only the church would be spared. These proposals were not accepted and, when the decision was finally made in 1350 to destroy the castle, it was never realised [4].

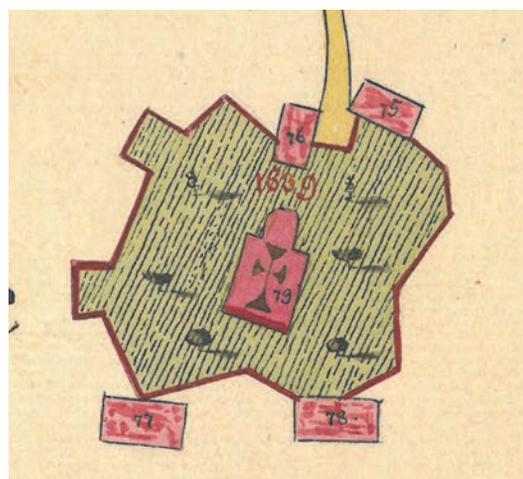


Figure 8. St. Michael's Castle on the cadastral plan from 1829 [20] (National Records Office in Split, Collection of maps for Dalmatia, Signature HR-DAST-152)

After the castle, following peace negotiated in 1358, was regained by Zadrans, they immediately started with its reconstruction, as the castle had suffered great damage during the two sieges [8]. In 1361, Hungarian king Louis I provided funds for its renovation and sent in 1366 an envoy to check whether the rehabilitation work was done [10]. In the same year, Elisabeth, the princess of Senj, left 400 ducats for remedial work on the castle [17]. It is written in a document dating back to 1367 that Zadrans stonemasons Krešul and Mihovil were to complete the work on St. Michael's Castle [4]. A contract on the extension and renovation of the fort's main tower was concluded in 1393 with Zadrans woodworkers, brothers Bilša and Grgur Bilšić [17].

Renovation of the castle by Zadrans took more than four decades to complete. However, when in 1409 the entire region of Dalmatia fell to the Venetian rule, the castle lost its strategic role and, as already mentioned, the military castellan was ordered to leave St. Michael's Castle [7]. Since that time, the castle was mainly used as an observation point [4].

According to cadastral records from 1829, St. Michael's castle and church were state-owned during the Austrian rule (Figure 8). Towers were marked as rubble and, besides the church, there were no other structures in the castle. Its interior was used by yeoman Simeone Lantana as a vegetable garden with grapevines, olive trees and fruit trees. Later on, the place was used by an Austrian military reconnaissance unit [7] and, between the two world wars, the castle was used by Yugoslav army as an observation point toward Zadar, which was at that time under Italian rule [9]. After World War II and until 1960s the site hosted a Yugoslav navy unit and, after they abandoned the castle, it became a favoured destination, often visited by the locals and tourists [9]. Before the Homeland War, a TV aerial was installed in the castle, which is why an approach road leading all the way to the fort's east gate was built. During the same war, the south and north walls of the castle were heavily damaged by Yugoslav army planes targeting the TV aerial [9].

2.1. Castle walls

The St. Michael's Castle is a stronghold of irregular, trapezoidal plan and its contours follows natural configuration of the terrain. It measures 58 x 52 m in size and is protected by strong walls and five towers. The main tower (donjon) is situated at the northeast side of the castle. Immediately next to donjon, on its south side, there is a smaller tower of trapezoidal plan, and between them the castle entrance where steep stone stairs lead to the main castle gate that is currently walled up.

On the west side of the castle, there are two rectangular towers. They are positioned in the same plane and are parallel to the towers situated in the east. The second gate of the castle, smaller in size, is situated between the two towers. This gate probably served for evacuation in emergency situations and is today also walled up. The third gate, the only one that is presently in use, was probably built by cutting the wall in the period between the two world wars because the dilapidated donjon posed threat to the main entrance. This gate is not presented in the drawings by F. Salghetti-Drioli from the mid-nineteenth century (Figure 17), but can be seen on the photo from 1941 (Figure 6).

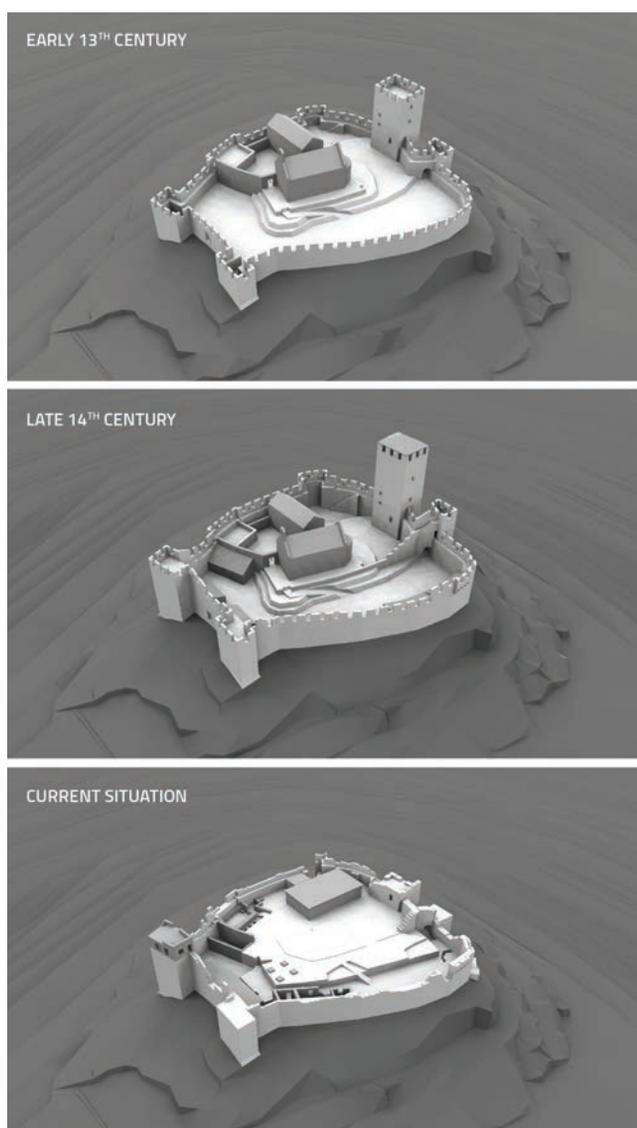


Figure 9. Assumed spatial development of St. Michael's Castle



Figure 10. False brattice at the southeast side of the castle (authors)

Thanks to the curved plan of the north-side wall, it accommodates yet another tower that is used for side protection. Between this tower and the north-west tower, the defence wall protrudes outwards by 90 cm in the length of 8.5 m, which precisely corresponds to the length of the earlier mentioned monastery cistern. At the south-side wall, which is also of curved plan, there is a cantilever element (Figure 10) similar to brattice that is normally used for vertical protection of sensitive parts of the castle, such as gates or corners, and for side protection of walls. However, this cantilever element protrudes by only 40 cm from the wall, which is insufficient for placing side loop holes, and the arcades supporting this element do not have bottom openings for defending the wall in vertical direction, which is a proof that this is not a brattice. It might well be that this cantilever element was used only to extend the area of the chemin-de-ronde at this position.

The bottom parts of the walls and towers of the castle are made of large-size ashlar blocks about 50 cm in height, while higher parts were made of smaller-size ashlar blocks. They are generally vertical, i.e. only the protruding part of the north wall at the cistern position was originally built in slope (scarpa). The slope of the north-west tower was added at a later time.

The walls of the castle, measuring 135-145 cm in width, ended at the top part with the chemin-de-ronde and crenellation. The chemin-de-ronde and the parapet are almost fully preserved, while two merlons at the north wall under the north-west tower (Figure 11), and two merlons at the west wall, are the only remaining elements of the crenellation. However, thanks to old photos and drawings by F. Salghetti-Drioli, the disposition of openings of the entire crenellation can be reconstructed to a great extent. As was usually the case, there was a vertical arrow loop at every other merlon of the crenellation, such as the one that is partly preserved at the north wall, while stone-made perforated cantilevers (rechioni) that carried the wooden or leather-made shutter (mantelet), were situated on both sides of the crenellation opening. Only one of them, albeit cut out, is preserved to this day at the west façade of the castle. The railing of the chemin-de-ronde was made of wooden beams fixed to perforated stone cantilevers protruding from the wall under the floor of the chemin-de-ronde. Some such cantilevers with a square hole have been preserved at the south and west-side walls (Figure 12).



Figure 11. Opening and two merlons of the north-wall crenellation, damaged arrow loop is visible at the left-side merlon



Figure 12. Perforated stone cantilevers – supports for the wooden railing (authors)

The walls of the castle are the highest at the west side where their height – together with the crenellation – amounts to 12 m, while wall height reaches about 9 m at other sides of the castle. Their height is additionally emphasized by stepped cliffs on which the castle was erected.

A detailed analysis of stone structure of the castle walls has revealed traces of an earlier lower chemin-de-ronde at the east wall, to the south of the south-east tower. This points to the existence of an older structural phase of the castle (Figure 13). The traces appear in form of joints or changes in the masonry work techniques. At the point of wall damage, immediately next to the south-east tower, the layers of material used to close the former crenellation and build the new one can clearly be seen. This vertical extension of defence walls can be dated to the second half of the 14th century when Zadrans conducted the mentioned castle rehabilitation works. At that time, the walls were raised by 3 to 4.5 m. Unlike the previous one, this new chemin-de-ronde was not horizontal but elevated at the south-east (at the point where the earlier mentioned false brattice was built), at the north-west and south-west towers, and at the wall connecting these two towers.

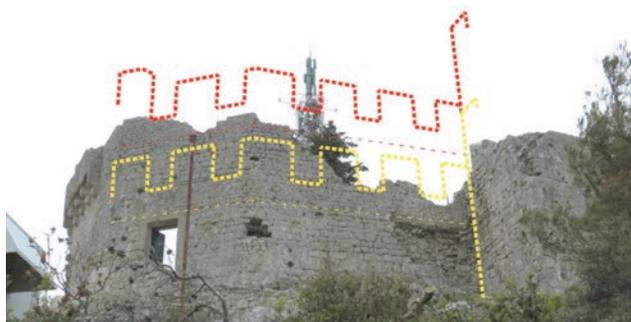


Figure 13. Two phases of crenellation at the south-east part of the castle

An interesting defence wall extension detail can be seen to the east and west of the south-east tower, and in the north-west and south-west tower. In fact, the wall from the interior was not extended vertically like in other parts of the castle, but protrudes slightly in form of a gently curving arch. This was probably done to obtain a greater width of the chemin-de-ronde. The same detail

can be seen in Split, on the medieval strengthening of the north wall of Diocletian's Palace, to the east of the north-west tower, above a medieval staircase leading to the chemin-de-ronde.



Figure 14. Cantilever part of the defence wall next to donjon and S-E tower

In St. Michael's Castle, there are three stairways that lead to the chemin-de-ronde: one at the south wall of the castle, the second at the north wall, and the third to the south of donjon [9] that leads to the south-east tower. Out of this third staircase, only several blocks have been preserved at the connection with the east wall. However, this staircase can be seen on old photos and drawings (Figure 4). It was placed along the wall traversing the central part of the castle, i.e. along the south line of the rocky central plateau where the church was situated. Just like in the lower part, this wall was not fused with the east wall of the castle, but rather the masonry connection can be seen only above the floor level of the first-phase chemin-de-ronde. It can therefore be concluded that it was erected, together with the staircase, in the second phase of castle construction.

2.2. Main tower of the castle (donjon)

The main tower (donjon) measuring 8.3 to 7.1 m in size, and its main façade faces the city of Zadar. It has been preserved up to about 10 m in height (measuring from the lowest level of the terrain) while, before demolition, it measured about 23.5

m in height. Its accurate reconstruction is made possible thanks to drawings by F. Salghetti-Drioli from the mid 19th century [9], photographs of west façade from 1913 from Brunelli's book [19] (Figure 15), and the south-façade photograph from the Ostojić's book [7] (Figure 4).



Figure 15. West façade of donjon in early 20th century [19]



Figure 16. West façade of donjon (authors)

When the dilapidated donjon posed threat to human lives, Yugoslav navy had to blast it in 1947, and the remaining rubble was used to cover the main entrance to the castle [9].

The interior of the tower is currently filled with rubble up the top of the opening at the west façade in which the bell is now situated (Figure 16). Stone cantilevers of the floor structure protrude from the wall at the height of this fill material. The fact that the cantilever is not placed at the very corner at the south-west side of the tower, as is the case at the opposite wall, points to the existence of staircase precisely at that corner. The frame of the opening at the west façade has not been preserved but its rectangular shape and the relieving opening above it can be seen in an old photograph. It can be determined by rectification of the photograph that this opening was no more than 145 cm in height. The opening is positioned precisely below the cantilever of the floor structure and, considering its small height, it can be concluded that it was positioned higher than the floor of the room.

Donjon is the last line of defence of a fortification. It is the dwelling place of a captain and the place from which the captain

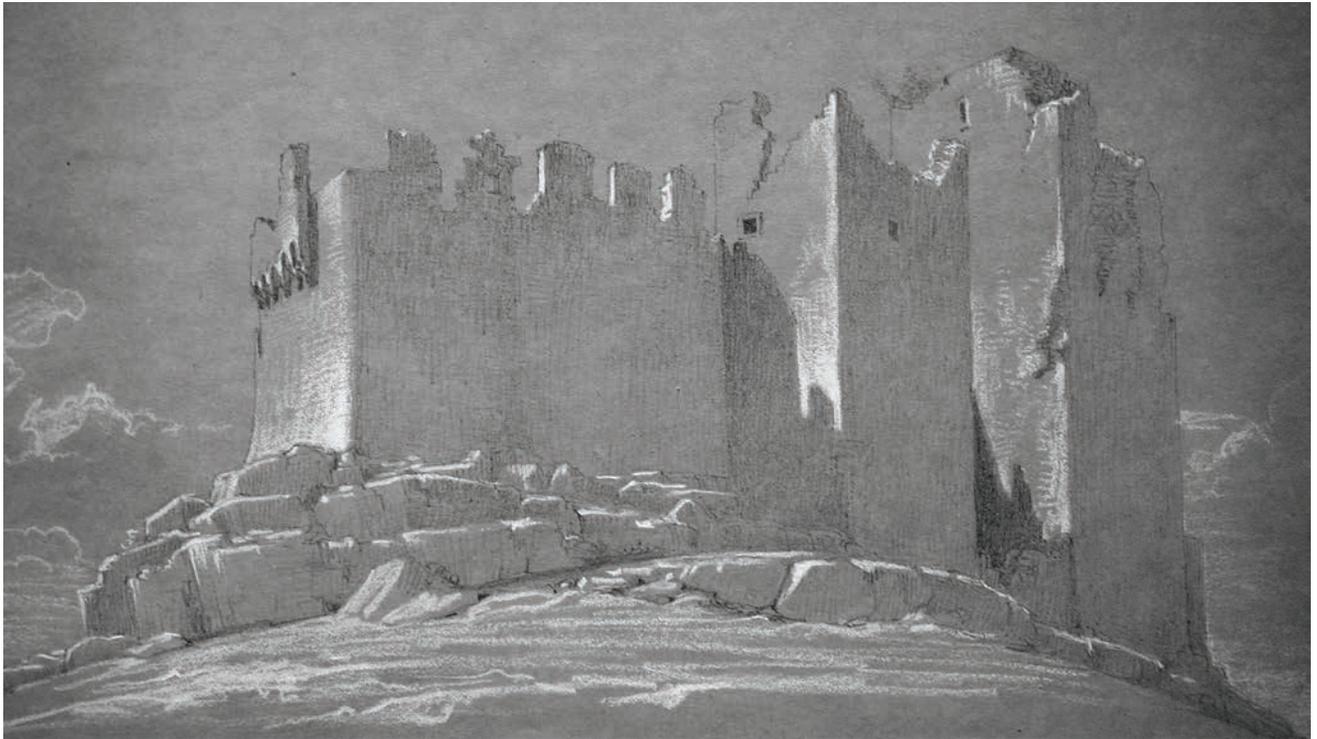


Figure 17. Eastern part of St. Michael's Castle in mid 19th century (crtež: F. Salghetti-Drioli) [9]

issues defence-related commands. In case of a long-term siege, the donjon must have its own source of water, i.e. a cistern or a natural spring. The cistern was always situated at the lowest level of the tower, and was covered with vault, which is why oftentimes the donjon is accessed via a ladder or a bascule bridge at the first level, which is also more favourable in a defence situation. The existence of a cistern at the ground level of the donjon is confirmed by Benevenia [10] and T. G. Jackson [8]. One of the drawings by Salghetti-Drioli [9] shows a gothic vault at the top of the donjon. In the late 19th century Benevenia describes St. Michael's Castle and mentions the vault at the top of the donjon that carried a terrace with two masonry benches [10]. This is obviously the vault built based on the contract from 1393 [17] in which it is stated that the main tower has to be raised by 5 m, and that the following has to be built: three floor structures paved with brick, the vault and – above it – an impermeable terrace, cantilevered toilet with two openings, 3 m of crenellation with a hipped roof above the crenellation. According to old photographs and drawings, all these activities were carried out. The hipped roof of the tower can be seen on the map of the Zadar and Šibenik area drawn by M. Pagani in 1525.

According to the contract [17], the interior of the tower measuring 5 to 6.3 m in plan, where the captain lived, had to be partitioned, probably to accommodate new stairs leading to the terrace. The same contract mentions a moveable bridge at the bottom gate of the tower. However, there are no traces of bridge support around the opening at the west wall of the donjon, nor are there any openings for bridge-lifting chains. The distribution of tower windows can be reconstructed using old

photographs and drawings. Holes in facades spaced at regular 1.5 to 2 m intervals, as shown on photographs, are supports for the mason's scaffold.

2.3. Southeast tower

The southeast tower is trapezoidal in form and measures 5 x 5.5 m in plan. As already stated, together with the donjon, it closes and controls the main gate to the castle. Presently, only 7 m of this tower have been preserved, i.e. the structure until the terrace above the vault under which there is a cistern covered with watertight mortar. The top surface of the terrace is covered with the same watertight mortar, and the square opening of the cistern is situated in the middle of this area.

Small windows at the east façade and south façade of the tower, as shown in the drawings by Salghetti-Drioli (Figure 17) prove that an additional storey, topped by a terrace with crenellation, existed above the cistern vault (Figure 14). However, as the walls of this castle were built in two phases, it can be assumed that, in the first phase, the tower had only the crenellation above the terrace over cistern and that, later on, due to vertical extension of the castle, it was also elevated by one storey. This assumption is backed by the fact that the level of the first phase of the chemin-de-ronde to the north of the tower is the same as the level of the terrace above the cistern.

2.4. Northeast tower

The northeast tower is positioned at the point where north wall is changing direction, so as to ensure its protection. It is 7.5 m in

width, and it protrudes by three meters from the line of the wall. It used to be over 9 m above the terrain level and was open toward the interior of the castle, and did not have a floor structure or terrace on top. It is known that towers built as a part of a defence system, castle, or city, were open on the back side, so that they could be supervised in case they are captured by the enemy [18]. The north tower is just slightly elevated above the fort's defence wall level and, judging from old drawings and photographs, it had three crenellation openings on the external wall and a loophole in the west merlon of the crenellation, and also one crenellation opening in each of the side walls. Originally, it was three meters lower. Today it is heavily damaged. Its west corner is completely demolished while the east one is heavily damaged so that a full cave-in may be imminent.

2.5. Northwest tower

The northwest tower measures about 5.5 to 8 m in plan and it is today the highest of all towers in the castle. It rises 15.5 m above the lowest level of the terrain, not counting the concrete terrace above it. It can be assumed that its height equalled the height of the defence wall in the first phase of castle construction. Originally, it was open toward the interior of the castle, as it can clearly be seen that the wall toward the castle was built at a later date (Figure 18). In the late 14th century, the height of the castle was increased by building above the first-phase *chemin-de-ronde* the earlier mentioned protruding wall with curved section. This wall was topped with blunt vault. The opening toward the castle interior was bridged with a blunt arch. At its top, the tower obtained a terrace with a crenellation. In the early 20th century, when the castle was used by the Yugoslav military as a lookout station focusing on the city of Zadar [9], a brick observation post with reinforced-concrete floor structures was built above the crenellation of this tower. This observation post was not positioned at the highest tower of the castle (*donjon*), as the latter was at that time already in a very poor state of repair.

2.6. Southwest tower

By its structure, the southwest tower is similar to - although a bit smaller than - the northwest tower. It measures about 3.8 by 7.4 meters in plan. In the first phase, this tower was as tall as the castle wall and was later extended by a protruding wall segment of curved section. In this case, it was topped with stone slabs forming a false ceiling (Figure 19). Just like in the northwest tower, the opening toward the castle interior was bridged with a blunt arch. Almost none of the crenellation at the terrace level has been preserved. The original cistern topped with barrel vault and situated below the ground floor has been preserved. It was probably converted in the 20th century to a septic tank, and was topped with lavatory for soldiers. The south wall of the castle was pierced to enable drainage of the septic tank content. The existence of a similar cistern can be assumed in the northwest tower as well.

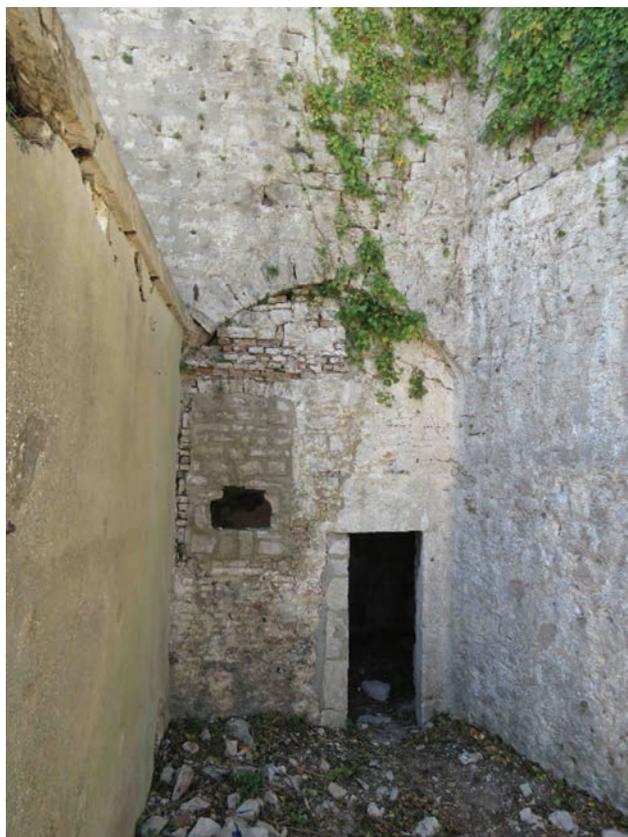


Figure 18. Walled up opening at the S-W tower



Figure 19. False ceiling at the S-W tower

2.7. Structures in the interior of the castle

In addition to St. Michael church and monastery, the castle also accommodated the facilities used by the military. It seems that the earliest military habitations were made of wood. In fact, castle demolition documents from the second half of the 14th century mention, among other items, some wooden structures but without offering a more detailed description [13].

In the contract written in 1400 [17], Nikola Arbusanić covenants to build two stone houses, covered with tiles roof, for two captains, containing two rooms with two fireplaces. The first house was built opposite the main entrance to the castle, and the other near the stove on the north side. In addition, twelve smaller houses were built for the soldiers (*pro famulis*), in two parts (*bipartitas*), with tile roofs and with chimneys. Each of the houses had one bed (*lecteria*). Although ruins of these houses were not presented in the cadastre from 1829, their remains were described by Benevenia and T. G. Jackson in the late 19th century [8, 10]. Some of these remains have been preserved to this day.

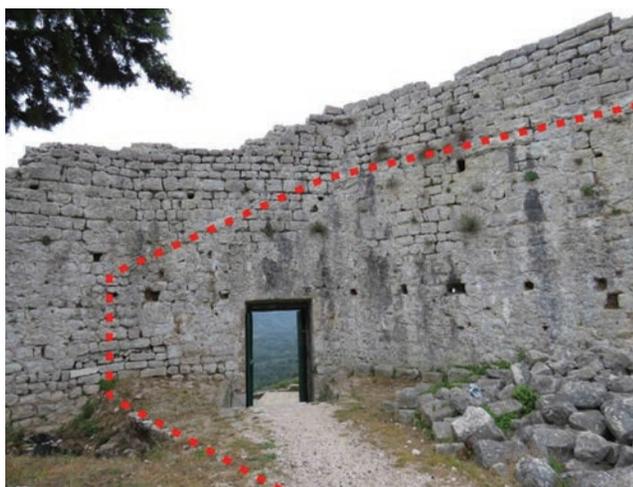


Figure 20. Captain house traces at the southeast part of the castle, in the zone where new castle gate was subsequently pierced

The traces of the first captain house next to the south wall of the castle, opposite the main entrance, were already observed by Petricioli, who assumed that the house was a two storey dwelling [17]. However, based on the holes for beams of the horizontal wooden structure in the south wall, and stone cantilevers that carried a single pitched roof, it can be concluded that this was a single storey house measuring 3.5 m in height up to the eaves of the roof (Figure 19). It extended all the way to the staircase leading to the south wall. This house was followed by the second house placed along the south wall. Its existence is

confirmed by the holes of the beams for the horizontal wooden structure in the south wall of the castle, within the rubble of structures that were built here during the second world war. This is probably the area in which the houses for soldiers, mentioned in the contract from 1400, were situated. According to the same contract [17], the house for the second captain was to be built more to the north, near the stove. It can be assumed that it was situated to the west of the medieval monastery cistern, at the very spot that is currently occupied by the debris of military structures.

Cantilevers at the west wall of the castle, above the existing one-storey house that was built here after World War I, prove that military structures were situated at this spot as well, of course without blocking the west gate. As already mentioned, the consoles were used as supports for a single pitched roof.

The rubble of structures that are currently situated within the castle is totally overgrown with weeds and can not be thoroughly analysed in order to determine the time of construction and occupancy of such structures.

After World War II, a single storey house was built on the plateau to the north of the position of St. Michael's Church. At that time, the house was probably used by the Yugoslav army, and now it houses the TV aerial. A smaller accessory structure is situated behind this house.

3. Conclusion

St. Michael's Castle, built seven centuries ago, is a valuable fortification architecture monument of Dalmatia, mainly because of its monumentality, harmonious shape, solid construction, and rich history. During its tumultuous life, it experienced destruction, but also a number of repairs and extensions. The most recent destruction occurred during the Homeland War. Its historic and architectural value is further enhanced by the striking beauty of its elevated position, offering a full view of the wider Zadar area. It was used already in the neolithic and, during the Iron Age, it accommodated a big hillfort with three rows of dry stone walls. Archaeological finds confirm that the locality was intensively used in Late Antiquity, and point to the existence of a Byzantine fortification during the Justinian's reign. St. Michael's Church, after which the locality was named, dates back to the early Middle Ages, and a Benedictine monastery of the same titular was built next to this church in the 11th or 12th century. In the 13th century, the Venetians built a fortification around the monastery so as to control the city of Zadar and protect its mercantile fleet. Systemic archaeological and historic preservation research, to be conducted prior to planned renovation works, will certainly result in significant findings from various historical periods, which will enhance even more the value of this significant locality.

REFERENCES

[1] Geodetski snimak je izradio Darko Oreč, ing. geod. iz tvrtke NAVIGATOR d.o.o. iz Zadra

[2] Vidović, V.: Pregled povijesti otoka Ugljana od prapovijesti do srednjega vijeka, Zadarska smotra 3-4, (2007.), 1-4, (2008.), 1-4, (2009.) (Zbornik Otok Ugljan), Zadar, 2012., pp. 289-313.

- [3] Batović, Š.: Zadarska smotra 3-4, (2007.), 1-4, (2008.), 1-4, (2009.) (Zbornik Otok Ugljan), Zadar, 2012., pp. 215-288.
- [4] Sorić, S.: Kaštel sv. Mihovila na otoku Ugljanu, *Ars Adriatica*, 2 (2012), pp. 85-97.
- [5] Gunjača, Z.: Kasnoantička fortifikacijska arhitektura na istočno jadranskom priobalju i otocima, *Obrambeni sistemi u praistoriji i antici na tlu Jugoslavije, Materijali*, XXII, Novi Sad, pp. 124-134, 1986.
- [6] Vežić, P.: Zadar na pragu kršćanstva, Zadar, 2005.
- [7] Ostojić, I.: *Benediktinci u Hrvatskoj*, sv. 2, Split., 1964.
- [8] Jackson, T. G.: *Dalmatia, the Quarnero and Istria*, Oxford, 1887.
- [9] Petricioli, I.: Kaštel Sv. Mihovila na Ugljanu u crtežima Franje Salghetti-Driolija, *Prilozi povijesti umjetnosti u Dalmaciji*, 37 (1997/1998), pp. 343-354.
- [10] Benevenia, L.: *L' Abazia ed il castello di Monte S. Michele d'Ugliano*, *Anuario Dalmatico*, I, Zadar, pp. 185-258, 1884.
- [11] Bianchi, C. F.: *Zara cristiana*, sv. 2, Zadar, 1879.
- [12] Štrmelj, D.: Novi prilozi proučavanju kaštela Sv. Mihovila na otoku Ugljanu, *Ars Adriatica*, 5 (2015), pp. 89-94.
- [13] Ljubić, Š.: *Listine o odnošajih između Južnoga Slavenstva i Mletačke republike: Knjiga III od godine 1347 do 1358*, Zagreb, 1972.
- [14] Novak, G.: *Presjek kroz povijest grada Zadra*, Grad Zadar, Zadar, pp. 7-76, 1966.
- [15] Klajić, N., Petricioli, I.: *Zadar u Srednjem vijeku do 1409.*, Zadar, 1976.
- [16] Gortan, V., Glavičić, B., Vratović, V., Karbić, D., Kurelac, M., Ladić, Z.: *Obsidio, Opsada Zadra, Monumenta spectantia historiam Slavorum meridionalium*, 54 (2007).
- [17] Petricioli, I.: *Tri srednjovjekovna dokumenta o radovima u kaštelu Sv. Mihovila na Ugljanu, Radovi Filozofskog fakulteta u Zadru*, 26 (1987) 13, pp. 156-177.
- [18] Marasović, K.: *Kaštel Cipiko u Kaštel Starome*, *Prostor – znanstveni časopis za arhitekturu i urbanizam*, 19 (2013) 1(41), pp. 30-41.
- [19] Brunelli, V.: *Storia della città di Zara dai tempi più remoti sino al MDCCCXV compilata sulle fonti da Vitaliano Brunelli, Parte prima - Dalle origini al MDCCCXV*, Venezia, 1913.
- [20] *Državni arhiv u Splitu, Arhiv mapa za Dalmaciju Signatura HR-DAST-152*