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The Roman and Medieval Bridges over the Sava and Klausenstein Tower at Zidani Most

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Abstract

The paper presents some hitherto unconsidered aspects of the important crossing of the Sava at Zidani Most, where the river was first traversed by a Roman bridge on the *Celeia* (Celje)–*Neviodunum* (Drnovo pri Krškem) road. In 1224 a stone bridge was built on the same site, allowing Duke Leopold VI, called the Glorious (1195–1230), to connect the Styrian and Carniolan possessions of the House of Babenberg. This bridge, which appears on coins from the Brežice mint, was probably demolished before the end of the 15th century. The first part of the paper attempts to define the structural characteristics and position of the two bridges over the Sava, on the basis of reports on the remains of foundations, site plans from before and after the implementation of measures to improve navigability in the first half of the 19th century, painted views, and a bathymetric survey of the riverbed dating from 2009. Particularly important is a plan from 1807, which shows, in addition to the presumed remains of the central pier of the old bridge in the Sava immediately above the confluence with the Savinja, the church of St Giles (*Ægidius*), built in the early 13th century. The second part of the paper includes a topographical/archaeological survey of the medieval tower-like fortification called Klausenstein, which was built on a crag above the present-day railway station in order to protect Duke Leopold's bridge.

Introduction

In July 2009, as part of the preparatory phase of project planning for an assessment of the archaeological potential of the area of planned hydroelectric power plants on the central Sava, carried out by the ZVKDS Preventive Archaeology Centre and associates, an inspection was made of the location of the Roman and medieval bridges over the Sava and the Klausenstein fortification at Zidani Most (Fig. 1). Knowledge of the material traces of settlement and transport infrastructure in the narrow area of the confluence of the Sava and the Savinja in the more distant past is, for the most part, limited to data on a small number of chance finds, while no systematic field research has been carried out to date.

The area's character as a zone of passage is demonstrated by a collective find of bronze

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items (today lost), probably dating from the middle or late Bronze Age, discovered in the bed of the Sava during railway construction work just before the Second World War and subsequently taken into safe-keeping by an unknown railway engineer (Saria 1942, 93). The locality reached one of its peaks in the early period of the Roman Empire with the building of the bridge over the Sava as a key part of the road link between the administrative centres of southern Noricum (*Celeia*) and the westernmost part of the province of Pannonia (Neviodunum), which was probably established under Claudius, and the simultaneous construction of towpaths through the Sava gorge between Litija and Radeče (Gaspari 2009, 122–125). Topographical conditions and the line of the towpaths along the right bank of the Sava indicate the likelihood that the central part of the Roman settlement with its supposed navigation station was located in the environs of Trubarjev grič, which is where a nose of a relief oil lamp and a large bronze sewing needle were found (Vogrin 1986). Among the potential indicators of settlement of the limited available space along the northern access to the bridge are the find of a bronze coin (*as*) of Vitellius (AD 69; *FMRSl* I 322/3), which has not been more precisely localised, and a coin of Pupienus (AD 238), discovered by the Savinja between the former cement and oil factories (*FMRSl* I 322/4). A coin of Gallienus from the foundations of the bridge is proof that the structure was repaired in the last decades of the 3rd century, while conclusions could be made about the use of this route, or the passability of the bridge, even in the early 4th century (at least) on the basis of the youngest milestone from the archaeological site of Spodnje Gunte near Brestanica (Deschmann 1887, 85; cf. Petru 1982, 18).

The discontinuation of maintenance of the road system in Late Antiquity and the Migration Period first affected key parts of transport infrastructure, such as sections of the roadway in the narrows below Laško (still problematic even today) and the bridge over the Sava, which was probably destroyed by water damage or as the result of a preventive military action. At that time alternative connections over the hills between Celje, Laško and the Krško Basin gained importance, but finds from elevated locations such as Stražnik above Veliko Širje, Svinjski Rt above Radeče and Kincl above Čelovnik indicate that traffic along the old route did not entirely die out (Ciglenečki 2008, Fig. 1).

The strategic importance of the area was reflected once again with the construction of the medieval bridge, which coincides with a transformation in attitudes towards the road network as a response to the flowering of trade and transport over larger distances somewhere around the turn of the 13th century. The construction of the bridge over the Sava was ordered by Duke Leopold VI of Austria and Styria, known as the Glorious, in around 1222. When it was completed in 1224 he granted it privileges and an endowment for its maintenance (‘*conferet singulares immunitates lapideo ponti quem supra Savum prope ecclesiam s. Egidii construxerat*’). This remarkable example of medieval road infrastructure, which provided the House of Babenberg with a direct road connection between their Lower Styrian possessions and the important border area along the lower course of the river Krka in Lower Carniola (Kosi 1998, 185), is depicted on silver coins from the Salzburg mint in Brežice (Fig. 2), issued in the name of Duke Leopold and Archbishop Eberhard II at the completion of building (Fritsch 1971; Pogačnik 2008, Nos 143 and 144).

Simultaneously with the bridge, or not long before it, the late Romanesque church of St Giles was built on the flat area between the right bank of the Savinja and the left bank of the Sava (Orožen 1881b, 413; Rybář 1976, 217; Zadnikar 1982, 395–397, Mlinarič 1991, 228–229). In 1226 Berthold of Andechs, Patriarch of Aquileia (1218–1251), freed the church from the authority of the parish of Laško and endowed it with an income for the upkeep of the hospice for travellers bound over the bridge (Mlinarič 1991, 228). The church's connection with the river crossing is also indicated by the depiction of a deer on the commemorative coins mentioned above, despite the fact that the attribute of St Giles is the hind, which appears in almost all depictions of the saint. In the opinion of Wilhelm Fritsch, the substitution of a deer for a hind was nothing unusual in that period (Fritsch 1971). In the majority of historical sources the name of the church is directly connected with the bridge (*'de ponte', 'in ponte', 'ad Pontem'*; Blaznik 1988, 539), while in a document from 1331 the church is mentioned as *'Ecclesia sive Capella s. Egidii de Chlasenstein'*. In order to protect the bridge, the tower-like fortification of Klausenstein was built on a crag on the steep southern ridge of Širski hrib, completing the spectacular view presented by medieval Zidani Most. It is first mentioned in the land register covering the years 1265–67, together with a tower called *Freudenegg* near Hrastnik, which is also believed to have been built to oversee Babenberg possessions along the Sava in the Savinja region and was administratively subject to Laško. Both castles were at that time under the protection of Theoderic (Dietrich) of Stang. In October 1279 King Rudolph pledged Laško and the castles pertaining to it, including Klausenstein (*'castrum Chlovsenstein'*), to Count Ulrich von Heunburg, but in 1287 Rudolph's son Duke Albert (Albrecht) I, managed to get them back. In the early 14th century the Laško estates passed into the hands of the Dukes of Carinthia. In around 1328 or 1329 Duke Henry of Carinthia pledged the castles of Žebnik, Freudenegg and Klausenstein to Peter of Liemberg, his banker. After the estates passed into Habsburg hands (1335), the castles of Laško, Klausenstein (*vest Clawsenstein*), Radeče and Freudenegg were pledged to Frederick of Sannegg. The castle, which is mentioned for the last time in 1338 (*'Warte pei Chlusenstain', 'dacz der Warte gelegen pei Chlausenstain'*), is believed to have been demolished, along with the bridge, on the orders of the Counts of Cilli in their war against the Habsburgs in 1442 (Mlinar 1956, 70; Rybář 1976, 217, 228; Blaznik 1986, 342; Kos 2005, 277). The bridge was still standing in the first decades of the 15th century. This is confirmed by a mention in the report of the chaplain at the church of St Giles to Pope Martin V, written in around 1423, where it is referred to, no doubt inadvertently, as a bridge over the Savinja (*'prope pontem fluminis Sauune'*). The strategic importance of the crossing is evident from the same report, since the chaplain complains that 'armies frequently assemble there and wreak devastation' (Mlinarič 1991, 228). It is not possible to affirm when the bridge was actually demolished, since the mentions of the church of St Giles (Blaznik 1988, 539) in the years 1457–61 (*'bey der gamaurtten Prucken'*) and 1470 (*'S. Gilgen an der stainen Prukken'*) could be a reference either to the name of the place or to the actual bridge. It is however very probable that the demolition occurred before the end of the 15th century. In Valvasor's time the remains of the abutments and piers were evidently already too exiguous to find a place in the great polymath's descriptions of navigation in the Sava gorge.

The transport situation and topographical circumstances, the relatively narrow and deep channel of the Sava in the area of the crossing, the fortification specially built to protect the

bridge and the lofty status of the person who commissioned it, together with the depiction on coins, confirm that Leopold's pons lapideus was, in architectonic and aesthetic terms, the most notable bridge and at the same time one of the most monumental secular structures of the late Romanesque or early Gothic period in Slovenia. Its construction, which in comparison to the wooden bridges more usual at the time required an enormously high initial investment to provide the necessary material and engage qualified craftsmen, would appear to confirm the symbolic/propaganda motives behind the Duke's investments in architecture in the newly acquired territories of Lower Styria (Wagner-Rieger 1976, 152; Rybář 1976, 216).

The bridge on the Sava through history: localisation and an attempt to define structural characteristics

The Roman bridge

The existence of a Roman bridge over the Sava at Zidani Most is proved by reports on the remains of stone abutments and piers and the coins found inside them. The earliest report relates to the year 1830 when 'Franz Skola, k.k. Navigations-Baubeamt' found a bronze *as* of Claudius (AD 41–45; FMRSl I, 322/2) in the remains of the abutment on the right bank. He reports the find in an 1836 letter to the Provincial Museum in Ljubljana, in which he also mentions that the remains of bridgeheads are to be found on both the Carniolan side and the Styrian side of the river (Müllner 1892, 52).

According to the statement of Karol Ripšeln, a parish priest from Videm, the remains of two stone piers and a 'bridge protector' which had represented an obstacle to river traffic were removed in 1834 when the water level was exceptionally low on the Carniola side (Müllner 1874, 94–95; Jarc 1880, 417). On this occasion several coins were discovered in the mortar. More detailed sources mention a Republican *denarius* from 43 BC (FMRSl I, 322/1) and an *antoninianus* of Gallienus (AD 254–268; FMRSl I, 322/5).

The masonry on the left bank of the Sava, of uncertain date, is mentioned in a report by Eduard Ritter von Heider, one of the designers of the first railway bridge. Heider says that during construction of a retaining wall along the Sava in 1845, his men encountered traces of *'unverkenbarenn Beton- oder Guss-Mauerwerkes ... nach allen Seiten unbegrenzt'* (Heider 1872, 2).

The ruins on the right bank were almost certainly affected by the first series of works to improve navigation (1737–38), which involved the blasting of rocks at the Mostovski slap (*'Steinernen Brückenschwall'*) a few hundred metres above the confluence (Pick 1910, Fig. 5; Umek 1986, 239). A relatively accurate depiction of the channel with the banks is provided by the Zidani Most situation map from 1807, which also shows the church of St Giles on the right bank of the Savinja above the confluence, residential and commercial buildings in the hamlet of Kurja Vas on the site of today's railway station, the Wetz (Beetz, Bec) farm on the other side of the Sava, and the paths that led along both banks to the

ford (Fig. 3). In an approximately 100-metre section of the left bank above the confluence, which is today entirely covered by an embankment and the vertical retaining wall of the railway, four brown-coloured aggregations of exposed bedrock are shown. The only thing the same colour on the opposite bank is a (rock?) shape jutting at least 15 metres into the channel in the form of semicircular promontory, exactly at the bend of the Sava towards the south, or in line with the right bank of the Savinja. Between the left bank and the promontory of this formation, the map shows a straight breach over 10 metres long and several metres wide. This is very probably a man-made canal designed to ease navigation past the obstacle. According to the plan, the other sections of the right bank were covered by sediments and large rocks. Two sets of obstacles are shown in the channel. These were evidently almost entirely below the surface of the river at the time the plan was drawn up. The first group includes two oblong shoals drawn between the right bank and the middle of the channel, around 100 metres above the confluence, roughly in line with the present-day reinforcement of the retaining wall mentioned above. The second group consists of one larger oblong obstacle and four smaller obstacles immediately above the aforementioned channel, in the middle of the channel or slightly towards the right bank. Just downstream, between the lower group of obstacles and the promontory on the right bank, the map bears the legend Feiler, which very probably means the remains of a pier of the Roman or medieval bridge.

In the 1845 plan of Zidani Most drawn during preparations for construction of the Vienna–Ljubljana railway line (Heider 1872, Tab. 2), the above obstacles and presumed pier in the middle of the channel are already missing, but it should be remembered that, apart from the left bank, the Sava was not the focus of the surveyors' interest. As a result the oil painting by Bernhard Fiedler (Moškon 1974, 326–327), painted when the railway bridge was completed in 1849, offers the most information. In the foreground of the scene, painted from a position on the right bank of the river, the artist has depicted the aforementioned promontory with the canal, while in the middle of the river channel, in the rapids, the remains of the reef with the supposed pier are hinted at (Fig. 4).

The Roman bridge-builders selected a location in the axis of the road along the right bank of the Savinja, where the channel of the Sava was limited to less than 65 metres and rocky reefs enabled optimal construction directly onto the bedrock. The flat area between the Sava and the Savinja (198 metres above sea level) and the terrace on the right bank (195 metres) lie, in this section, at between 6 and 10 metres above the median water level (approx. 189 metres above sea level) in the time before the dam of the Vrhovo hydroelectric plant was built. On the left bank, until the building of the retaining wall in the 19th and 20th centuries, inclined carbonate strata were exposed, while the right bank in what is presumed to be the axis of the bridge is still today characterised by a vertical step of compact conglomerate 4–5 metres high and around 20 metres long. The large broken-off blocks of conglomerate indicate that the channel was once narrower than today, and that remains of a bridge should probably not be expected on this bank.

Multi-beam sonar measurements carried out by Harpha Sea company on behalf of the Centre for Preventive Archaeology on 25 November 2009 show a rock barrier around 100

metres long at a height above sea level of 185–186 metres, in other words at a depth of 4.7–5.7 metres below the level of the dam, which is bounded upstream and downstream by sections of the channel up to 4 metres deeper. The bathymetric model with precision of 0.2 m shows that in the presumed axis of the bridges the highest parts of the river bed lie at a height above sea level ranging from 185.26 metres to 185.5 metres, while the surface of the Sava before damming lay at 187.0 metres above sea level (Fig. 5).

In view of the width of the channel and existing data, we may conclude that the Roman bridge stood on two or three piers built on reefs in the channel and was supported by abutments on either bank. Owing to the relatively narrow channel and the considerable average flow (177 m^3/s) over many years and occasional exceptionally high flow rates (over 2000 m^3/s), it is probable that the wooden or stone superstructure with the roadway ran at the level of the bank terraces or higher. The highest documented water level, recorded on 10 October 1700, when the water reached a height of around 200 metres above sea level (Heider 1872, 2), clearly explains the presence of the Gallienus coins in the lower parts of the piers or abutment, since even in Antiquity floodwaters razed the bridge to its foundations at least once. By contrast, extremely low flow rates (min. 30.1 m^3/s) facilitated the building of the foundations of the piers and abutments in dry conditions, since with the depths indicated above, the highest parts of the river bed reached above the surface of the water.

The medieval pons lapideus

Material remains of the medieval bridge over the Sava are not mentioned in literature. The bridge is believed to have crossed the river at the same point as the Roman bridge, and its builders are believed to have used the old foundations or simply to have rebuilt the bridge. In the former Mediterranean provinces of the Roman Empire, quite a number of stone bridges from the late Republican and early Imperial periods continued to serve their function more or less undamaged in the Middle Ages and later (O'Connor 1993, 63–131; Whitney 2003, 81–118). Given the more difficult conditions for construction and maintenance, the rarity of comparable arched structures in environments with more extreme climatic and hydrological conditions is understandable and limited to (supposedly!) Roman bridges in the Alpine valleys of northern Italy (*ibid.*, 87–95) and a few other areas. Documented examples of the more or less continuous use of principal crossings over lowland watercourses in continental Europe and the British Isles between Antiquity and the Middle Ages mainly involve partial reconstructions of Roman bridges of the combined type, with stone piers and a wooden superstructure. Such bridges could, without much difficulty, be made serviceable following a collapse or the destruction of parts of piers or elements of the roadway, as is believed to be the case with the crossing of the Drava at Ptuj between Breg and Vičava (see Gaspari 2001). Among surviving medieval arch bridges in neighbouring areas believed to be of pre-medieval design, we would highlight the bridge with two openings over the river Plitvica at Jalkovec near Varaždin, which is mentioned in 1209 as a *pons muratus* (Katanić, Gojković 1972, 24–28).

Good support for a reconstruction of the medieval stone bridge at Zidani Most is provided

by the stylised yet plausible reproduction on commemorative coins dating from 1224 (Fig.g 2) and surviving Romanesque and early Gothic bridges in the Iberian Peninsula and the neighbouring regions of south-west France (Figs 6–8). The reference to comparisons from these regions is not coincidental, since it is known that the Babenbergs took western European religious and secular architecture as models in their construction projects (Wagner-Rieger 1976, 150–152). In the case of the bridge over the Sava, we cannot exclude the influence of the participation of Leopold VI in the Spanish *Reconquista* and the Albigensian Crusade against the Cathars in Languedoc in 1212 (Riley-Smith 2001, 88).

The depiction on the coins shows a four-arched bridge with a massive central pier to which two large semicircular arches of equal or similar dimensions are attached, and two equally strong lateral piers which, together with the abutments, supported the smaller outer arches. Round or vertical apertures are indicated in the middle of the central and right piers and, at the level of the roadway, narrow horizontal and vertical lines which may signify flood openings. At either end of the bridge stands a tall tower topped with battlements.

The bridge piers probably had the pentagonal or hexagonal ground plan usual for the period, which relieved the pressure of the water on the pier and diverted floating timber. Likewise the triangular cutwater and the rounded or triangular shape of the pier on the downstream side would have helped reduce eddies, which would otherwise have weakened the foundations (Brangwyn, Sparrow 1915, 262; Whitney 2003, 92; Harrison 2007, 80–81).

The Romanesque and early Gothic arch bridges of the northern Mediterranean, continental Europe and the British Isles often had a less favourable ratio of width of pier to span than the stone bridges of the Roman period, where the width of the pier was usually approximately one third of the span of the arch (O'Connor 1993, 164–165, Fig. 133). Although some medieval bridges were built with slenderer piers, the free flow of water was usually restricted to between two thirds and four fifths of the width of the channel, which meant a relatively fast flow and, consequently, greater risk to the structure. Precisely because of the prevailing massiveness, theoretical discussions in the pre-industrial era tended to treat medieval bridges as a qualitative reduction of the bridge-building of Antiquity. This is undoubtedly wrong, if only from the point of view of the spans achieved and the durability of the structures (Harrison 2007, 149–154). Not even modern bridge construction, which favours very large gaps between piers, has established universal rules in determining ratios between pier width and apertures.

Taking into account the profile of the channel of the Sava, which at the median water level is less than 65 metres wide at this point, we may conclude on the basis of the above that the total breadth of the three piers of the medieval bridge over the Sava was between 11 and 22 metres. Having obtained the width of the individual piers (4–8 metres), we could estimate the span of the main arches at 14–18 metres, and that of the side arches at 6–10 meters. The sum of the height of the central pier, which was at least equal to its width, and

the heights of the central arches (approx. 7–9 metres) indicates that the highest part of the roadway ran at least two metres above the level of the banks. In this case access to it would have been along sloping ramps supported by the side arches, while if the span or height of the central arches differed, the bridge would have had a hump (apex) – although judging from the depiction on the coins this is less probable.

The danger represented by high water levels or floods led the architects to incorporate large flood openings in the anchorages of the arches above the piers, although some authors doubt their effectiveness (O'Connor 1993; Whitney 2003, 100). The primary function of the different-shaped apertures was to reduce the static load of the structure. Like cavities, they reduced the load on the piers by reducing the mass of the filling material between the spandrels (Čelić, Mujezinović 1998, 40–41).

In view of the typical construction methods of the period, there is no doubt that the piers and arches of the bridge at Zidani Most were built of carefully cut stone blocks which, in order to ensure the resistance of the structure to the action of vertical forces and lateral expansion, were connected to each other by lead-sealed wrought-iron clamps. The stone used for construction was most likely to have been solid and compact Lithothamnion limestone from the nearby quarry on the right bank of the Savinja. The sequence and processes of construction of the piers, arches and roadway, including the choice of the necessary material, ascertaining the solidity of the bedrock for the foundations, the use of shuttering, and so on, probably did not differ significantly from the process of building the road bridge over the Savinja six hundred years later (1824–1826), as shown by the conditions of the contract between the commissioning entity and the building contractor (Orožen 1964, 125–127). According to 18th-century theory, arch rings of appropriate thickness and powerful abutments capable of withstanding the horizontal pressure of the arches were the key to constructing stable arches (Harrison 2007, 126).

Among the possible analogies to the stone bridge over the Sava, we have chosen three examples of medieval bridges with two more or less equal central openings. The oldest of them is the *Pont du diable (Pont du gour noir)* over the river Hérault in the Languedoc-Roussillon region of France. The bridge is 65 metres long and 4 metres wide and was built between 1025 and 1031 (Fig. 6). The two main semicircular arches have a span of 16 metres and are accompanied on either side by smaller arched openings. The horizontal roadway runs 18 metres above the surface of the river (Prade 1988, 202–203). The *Pont-Vieux de Brassac* was built over the river Agout (Midi-Pyrénées) in the 12th century. The bridge, which is 52 metres long, has two main pointed arches (13.77 and 13.20 metres) and smaller arches at either end (3.95 and 3.60 metres; Fig. 7). Viewed from the side, the 2.25-metre-wide roadway runs in a gentle curve (*ibid.*, 366). The youngest comparison we have chosen is the *Pont du Belcastel* in the *département* of Aveyron (Midi-Pyrénées), built over the river Aveyron in the 15th century (Fig. 8). The spans of the five pointed arches of the 57-metre-long bridge measure 5, 6.5, 10.5, 10.5 and 7 metres respectively. The roadway, which has a trapeziform side view, has an inclined central section to which ramps ascend on either side.

Watchtowers, either on the bridge itself or at the ends, as depicted on the commemorative coins, can be seen on the 12th century *Pont de Besalú* over the river Fluvià (Catalonia), the 12th-century *Puente Viejo de Balmaseda* (Basque Country), the 13th-century *Pont d'Orthez* (Pyrénées-Atlantiques), the 14th-century *Puente Frias* (Burgos, Castile-Leon) and the *Pont Valentré* on the river Lot at Cahors (Midi-Pyrénées), dating from the first half of the 14th century. Although it is possible that the seal-cutter used some artistic licence in his depiction of the bridge over the Sava on the coin, the existence of towers is very likely. Besides symbolically emphasising the military ambitions of its builders, towers gave the bridge the character of a fortification and in the practical sense enabled the garrison that manned them to control movements on the bridge and limit access after sunset or during the day, as necessary (Brangwyn, Sparrow 1915, 272–282). The relatively narrow roadway, which in the case of the bridge over the Sava was probably not more than 3–4 metres wide (see Harrison 2007, 145), combined with portcullises at the tower gateways, gave the garrison a tactical defensive advantage.

The practical skills and knowledge of specialised theory (*scientia*) required for the design and construction of arch bridges were, in the Middle Ages, the domain of guilds and associations of craftsmen who conserved the architectural tradition of Antiquity. In the 14th century the most respected masons of England are mentioned as the builders both of bridges and of important religious buildings. This may be concluded even from the dimensions of the largest church vaults, which however do not reach the size of the arch spans of bridges (Harrison 2007, 130). The architect of the bridge over the Sava perhaps belonged to one of the bridge-building fraternities (*Frères du pont, Fratres pontis*) that were first documented in southern France shortly after the mid-12th century and were later active in other parts of Europe too. Under the patronage of the Church, the members of bridge-building fraternities also provided for the upkeep of hospices and the care of travellers, in particular pilgrims (Thurston 1907).

Klausenstein

The position of the fortification was first determined by Ignac Orožen on the basis of the name used by locals (in the corrupted form *Klauenstein*) for the tall crag on the ridge directly above the confluence of the two rivers, a name that also appears in cadastral maps from the mid-19th century. 'The longer I gazed at that crag before my departure, the more it seemed to me that I could still see something of the old walls,' wrote Orožen in 1881. More specific was Franz Schumi, who writes about a cliff without superficial traces of a fortification and reports on finds of stone from walls and a brick chanced upon by farmers digging for treasure. He linked the name of the watchtower in its 'impregnable eyrie' to the suitability of its position for controlling and protecting or closing (*'clausura'*) the passage between Styria and Carniola (Schumi 1884–1887).

In 1903 a footpath was built up to the crag, offering passengers a way to pass the time while waiting for the train. A romantic view of the ruins of the castle also appears in drawings on contemporary postcards.

The summit of a crag of Triassic dolomite (OGK Celje), which lies at a height of between 290 and 300 metres above sea level, is surrounded on three sides by vertical cliffs up to 30 metres high. Access to it (without climbing) is only possible via a steep traverse from the south side. At the foot of the cliff above the traverse is a small hollow, while in the approximately 6-metre-high north wall is a natural vertical opening. The summit, which is today covered by young beeches and oaks, was once completely bare (Fig. 9). The area of the summit is 44 metres (SW–NE) by 22 metres (NW–SE). There are few flat areas amidst the rocky crests and projections where we could expect to find the remains of architecture, particularly in the narrow north-eastern section. The only larger flat areas with sediments are the prominence on the lowest, south-western section of the summit and a slightly higher-lying section in the middle of the upper ridge, which has undoubtedly been artificially reshaped. In this section there is a rectangular structure, cut into the rock, of unknown depth and measuring roughly 4 x 3 metres (Fig. 10). The visible height of the sides is today 1.7 metres, although local people say that before the Second World War, when German soldiers transformed it into a machine-gun position and partially filled it with large stones, it was slightly deeper and, apparently, sounded hollow inside. It may be that these are the remains of a water reservoir above which a tower combining a residential and a defensive function was built.

Although no traces of walls or mortar are to be seen anywhere on the surface, there is no doubt that this is the location of the medieval fortification in question. This is confirmed by fragments of medieval pottery found at the top of the crag and on its southern slope. Particularly notable is the fragment of the mouth of a ceramic pot made of reddish-brown to grey fired clay with admixtures of fine sand (Fig. 11), which was found in the profile of the small flat area north of the aforementioned structure. Profiling places it in the 13th–14th century (Gutjahr, Tiefengraber 2004, 452), which corresponds to the period in which the fortification is believed to have been in use. Very similar fragments appear among the ceramic material from Žamerk (*Salenburg, Saldenberg*) Castle on the hill known as Stari Grad (Old Castle) above Loka pri Žusmu in the Soteljsko area, which was built in the second half of the 12th century and abandoned considerably before 1458 (Guštin *et al.* 1997, Figs 6: 64; 7: 74, 77).

Assuming that the crag has not been significantly damaged in the last half-millennium by earthquakes and other natural occurrences, of which there are no traces on the partially karstified surfaces, we can conclude that the summit did not allow the construction of anything more than a small tower. The dimensions of the aforementioned remains and available surfaces indicate a square or rectangular ground plan with outer walls shorter than 10 metres, which is less than the usual tower structures of the High Middle Ages in Slovenia (see Guštin *et al.* 1997, 65; Gaspari, Nadbath 2008, 328). It is evident that it was not the seat of a feudal lord but merely a watchtower with accommodation for a small group of armed men. It follows from this that the assumptions about the church of St Giles as a castle chapel are unfounded, as already concluded by Kos (2005, 277, note 187).

In 1934 the local Sokol organisation erected a monument to King Alexander I of Yugoslavia to the west of the structure mentioned above. The concrete base of this monument,

complete with inscription, is still standing. During the Second World War there was a second German machine-gun position on the lower prominence, which commands a fine view. The trench (one metre deep and several metres long) cut into the rock here was part of this position. Bombing raids by the air forces of the National Liberation Army and the Allies on 3 and 4 January 1945 hit the position on Alexander's Peak (the name given to Klausenstein by the members of the Sokol organisation).

Conclusion

The confluence of the Sava and the Savinja with the stone bridge and the church, watched over by guards in Klausenstein tower, undoubtedly offered one of the most characteristic and spectacular views of the Middle Ages in Slovenia. Existing data on the material traces of the Roman and medieval crossing over the Sava, the remains of the related infrastructure and evidence of settlement are still relatively scant. Planned developments, however, offer an opportunity to implement problem-oriented research procedures to verify recorded findings on the location of the bridge and assumptions about the Roman settlement in the vicinity of Trubar's Hill and about the Klausenstein tower.

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