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THE ARCHITECTURE OF THE TOWN WALL GATES AND TOWERS
IN BYSTRZYCA KŁODZKA BETWEEN THE FOURTEENTH
AND TWENTIETH CENTURIES

ARCHITEKTURA BRAM I WIEŻ MURÓW MIEJSKICH
BYSTRZYCY KŁODZKIEJ OD XIV DO XX WIEKU

Abstract

The results of research into two city gates, Kłodzka and Wodna (Water), and into the Rycerska (Knight's) Tower in Bystrzyca Kłodzka are discussed in this paper. The research into the architecture of the three structures helped review the chronology of transformations they were subjected to between the beginning of the fourteenth century and the second half of the twentieth century. The city walls, together with the two gates and the tower, were probably erected by Alderman Jakub Rücker in the first half of the fourteenth century. All the towers were probably raised and converted in the fifteenth century and in around 1568, they were topped with masonry pyramid cupolas. The work performed in the nineteenth century was aimed at restoring the damaged elements and at introducing bells to the Rycerska (Knight's) Tower. The conservation work conducted in the years 2013–2017 resulted in the restoration of the damaged details and in the enhancement of all of the structures' features of historical value.

Keywords: Silesia, architecture, city gates, Gothic, the Renaissance

Streszczenie

Artykuł omawia wyniki badań dwóch bram miejskich: Kłodzkiej i Wodnej oraz wieży Rycerskiej w Bystrzycy Kłodzkiej. Bazując na badaniach architektonicznych trzech obiektów możliwe było przeanalizowanie chronologii ich przemian w okresie od początku XIV do II połowy XX wieku. Przymuszalnie w pierwszej połowie XIV wieku wójt Jakub Rücker wznosił mury miejskie z dwoma bramami i wieżą. W XV wieku prawdopodobnie wszystkie wieże podwyższono i przebudowano a w około 1568 roku zwieńczono murowanymi ostrosłupowymi hełmami. Prace zrealizowane w XIX wieku miały na celu odtworzenie zniszczonych elementów oraz wprowadzenie w wieżę Rycerskiej - dzwonów. Podczas prac konserwatorskich zrealizowanych w latach 2013–2017 przywrócono zniszczony detal oraz wyeksponowano zatarte formy historyczne wszystkich obiektów.

Słowa kluczowe: Śląsk, architektura, bramy miejskie, gotyk, renesans

1. Introduction

Bystrzyca Kłodzka (*Habelschwerdt* in German, *Kladská Bystrice* in Czech) is situated in Kotlina Kłodzka, a basin north of Bohemia, near the Silesian boarder. It was situated on the trade route that linked Wrocław with Olomouc and Brno via Kłodzko. The date of the establishment of the town remains unknown because the establishment charter is lost. Therefore, the thesis advanced by Rafał Eysymontt that it was established in the second half of the thirteenth century [4, p. 265] seems to be probable. A record dated 4 July 1319 states that an aldermanship was established and that the city was surrounded by a wall by Alderman Jakub Rücker [1, No. 3929]. The original city had an oval plan that was elongated northwards. It was situated on a small upland and surrounded from the south and east by two rivers, the Nysa Kłodzka and the Bystrzyca. The medieval enclosure originally had two gates – Kłodzka in the north and Wodna (Water) in the south – in its north-east corner, it was strengthened with a fortified tower. In 1580, the Nowa (Wyszewicka) Gate [2, p. 113]¹ was built near the parish church. The first two gates referred to above and the Rycerska (Knight's) Tower have survived until the present time.

2. Description of Kłodzka and Wodna (Water) Gates and the Rycerska (Knight's) Tower

The Kłodzka Gate tower is situated in the north part of the town, on the west side of the present Stefan Okrzeja Street. It was erected on a 6.1/6.3 metre, square-like plan. The structure consists of a high cuboidal core and is topped with a low attic wall with an openwork balustrade, which surrounds a high plastered pyramid-shaped cupola. Up to a height of almost 19.7 metres, the elevations are unplastered and expose rough-stone and partly finished with ashlar bonding. The entrance is located in the basement of the east elevation. The naked wall of the former gateway can be seen above it; together with a roofing mark; the tower reaches a height of almost 12 m. above the present ground level. There are two narrow windows, of which the upper window is in place of the former doorway that led to a walkway. Other, stone-framed windows, were about 17.7 m above ground level, just beneath the walkway balustrade. There were two such windows on each of the elevations. The entire structure was topped with an octagonal pyramid cupola; an entrance to the walkway was located on the cupola's west elevation. From the north, there is the remnants of a chimney. In the pyramid finial, there is a forged iron spire, although this is lacking an ensign and a ball. The rainwater from the walkway is drained via four gargoyles, which are situated along the wall axes; three of these are made of stone and the northern most is made of metal. The tower is embedded into the buildings of the west frontage of St. Okrzeja Street (Fig. 1a, b).

The second of the city gates, Wodna (Water) Gate, is situated on the slope that falls down to the river in the south-east part of the establishment of the town. It was erected in a niche

¹ The gate can be seen on a plan view of Bystrzyca dated 1739 and that was published in 1862 [14, Table 19]. Item 3 shows a building covered with a gable roof (this may be the gate building) and a semicircular gateway. The gate was demolished in 1842 [2, p. 116].



Fig. 1. a) Bystrzyca Kłodzka, Kłodzka Gate's tower, view from the east (before conservation works) (photo by A. Legendziewicz), b) Bystrzyca Kłodzka, Kłodzka Gate's tower, view from the east (after conservation works)(photo by A. Marcinów)

between the city enclosure and the former alderman's tower enclosure. It was the setting of the entrance from the Czech side. The gate has a trapezium-like plan of 8.7/6.5 m.. The stone core is topped with an attic in the form of crenellations and with a high, plastered pyramid cupola. The almost 12-metre-high elevations with exposed, machined rough stone bonding have retained their plasterwork. There is a lancet recess along the south elevation's bay axis; it has a cut stone frame and originally housed a portcullis. Beneath, at ground level, there is a gateway; it is surrounded by two stone frames, of which one has shaped heads and arcades with bevelled edges. On the elevation, there are also two other window openings – the first is almost at the base of the portcullis recess arch, square in shape, framed in a stone with bevelled edges and has a sill and the second is narrow, rectangular and positioned above the lancet. The entrance from the direction of the city is located in the north elevation, around 6.5 m above the ground level. It's setting consists of an almost semi-circular archivolt that is based on two secondary posts. The entrance is preceded by stone steps; the steps are built on an arcade that is added to the tower wall. Above the stairs, almost along the bay axis, there are two stone-framed slot windows; the lower, square window is made of the second time used elements, the upper window is slot, stone-framed. On the west elevation, there is a reconstructed latrine bay that is based on two stone consoles. All the walls except for the west wall are topped with a brick attic in the form of crenellations. The tower is covered with a high pyramid-shaped cupola that has an irregular octagonal plan (Fig. 2a, b; 3 a, b).

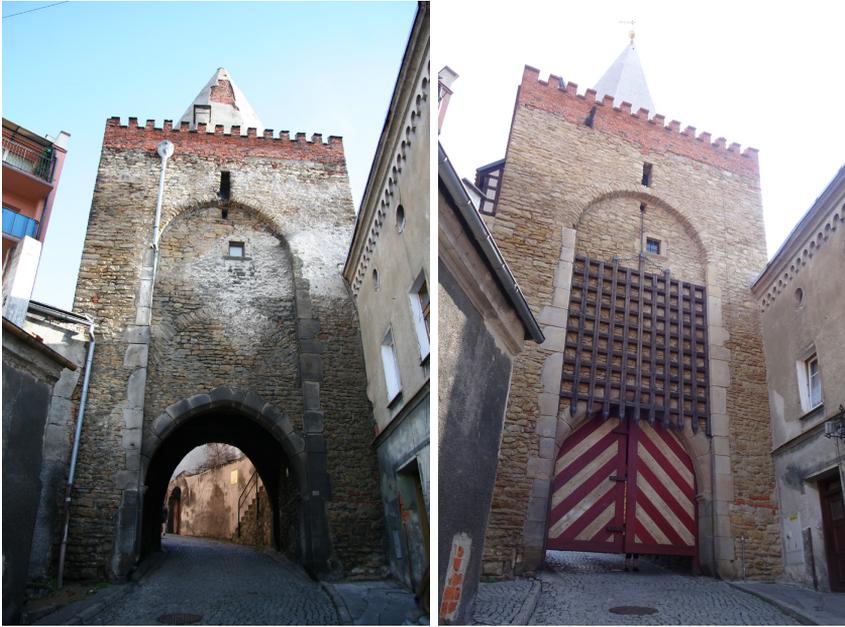


Fig. 2. a) Bystrzyca Kłodzka, Wodna (Water) Gate, view from the south (before conservation works) (photo by A. Legendziewicz), b) Bystrzyca Kłodzka, Wodna (Water) Gate, view from the south (after conservation works) (photo by A. Marcinów)



Fig. 3. a) Bystrzyca Kłodzka, Wodna (Water) Gate, view from the north (before conservation works) (photo by A. Legendziewicz), b) Bystrzyca Kłodzka, Wodna (Water) Gate, view from the north (after conservation works) (photo by A. Marcinów)



Fig. 4. a) Bystrzyca Kłodzka, Rycerska (Knight's) Tower, view from the south (before conservation works) (photo by A. Legendziewicz), b) Bystrzyca Kłodzka, Rycerska (Knight's) Tower, view from the north (after conservation works) (photo by A. Marcinów)

The Rycerska (Knight's) Tower is the last of the surviving towers. It is located in the north-eastern part of the enclosure, on the edge of the area that slopes down to the Nysa Kłodzka river. It was built in the place where the city hill sloped down steeply to the river. This is probably the endpoint of a dry moat that strengthened the enclosure's north and east segments. Adaptation work performed in 1843 resulted in the construction of inner stairs to the belfry and in the installation of two bells on the top floor. West of the tower, there is an arcade that links the tower with the building of a former evangelical church (at present, the Phillumeny Museum) [2, p. 113]. The tower has a 5.2/5.3 m square-like plan. It is topped with a low attic wall, of which a high polygonal pyramid cupola arises from behind.

Up to a height of almost 18.5 m, the elevations are not plastered and expose rough-stone and are partly finished with ashlar bonding. The entrance is situated in the south elevation's at the ground level. Above the entrance, at a height of around 6.2 m above the present ground level, there are two partly demolished consoles of a porch. Above the brackets, at a height of around 8.7 m above ground level, there is a stone-framed lancet entrance opening. Below the opening, at the sill level, there are two stone brackets. On the west elevation, there is the second opening, which is bricked in now and which led to the curtain wall; below it, there is a mark of a demolished wall. Small, rectangular slot openings were built in the elevations: one each on the south and east elevations and three on the north elevation. The tower's last storey is decorated with brick-framed, lancet biforium openings (Fig. 4 a, b).

The tower is topped with a low attic wall that terminates a stone slab walkway. From that level, the rainwater is drained via four stone gargoyles, which are situated along each elevation's bay axes. The structure is covered with a high pyramid brick cupola that is octagonal in plan and has a spear with a ball and a cross.

3. Discussion of sources, literature and iconography

The oldest record of the construction of the wall enclosure and of the gates appeared in a document issued by John of Bohemia on 4 July 1319. It confirmed that the town of *Habelswerde* had been surrounded with walls by Alderman Jakub Rückner [1, No. 3929]. The walls were first discussed by H. Lutsch, who pointed to the time of construction indicated in the above-mentioned record [10, p. 56]. The position was supported by F. Volkmer [17, p. 4] and E. Keyser [5, p. 769]. Similar results of the dating of the city fortifications, including that of the Kłodzka and Wodna (Water) Gates were also based on the 1319 record and quoted by T. Dziewulski [3], M. Przyłęcki [15, p. 99], K. Bartnik [2, p. 110], J. Pilch [12, p. 28; 13 p. 41], M. Ruchniewicz, S. Rosik, P. Wiszniewski [16, pp. 24, 28], R. Eysymontt, [4, p. 265] and A. Małachowicz [11, p. 37].

General information about modernisation work on the walls in the fifteenth century was given by M. Przyłęcki [15, p. 99] and also by A. Małachowicz [11, p. 37]. The authors were not precise about whether the work also applied to the city gates and the Rycerska (Knight's) Tower or not. Of vital importance to considerations of modern transformations to the city fortifications is the information of 1568 concerning city brickworks, which is quoted by Z.

Dziewulski [3, p. 14]. The author links the existence of the brickworks with alterations to the gate towers and the Rycerska (Knight's) Tower. Similarly, K. Bartnik dated the cupolas of the two gate towers to the same year, and considered the Rycerska (Knight's) Tower finial as younger and dated it to 1608, although she did not refer to any source [2, p. 124]. The author mentioned unidentified work on the Kłodzka Gate in the nineteenth century [2, pp. 111–112]. The demolition of Bystrzyca Kłodzka fortifications commenced in 1840 in the opinion of some researchers [12 p. 28; 13, p. 41; 15, p. 99; 11, p. 37]. K. Bartnik dated the demolition of the Kłodzka Gate to 1843 [2, p. 116].

At the same time as the demolition of the Kłodzka Gate, the Rycerska (Knight's) Gate was converted to an evangelical church bell tower [2, p. 126; 2 p. 28; 13, p. 41; 15, p. 99; 11, p. 38]. The Water Gate was converted to a historical room in 1922 according to K. Bartnik [2, p. 124]. General information about fortification repair and maintenance work in the years 1960-62 was given by J. Pilch [12 p. 28; 13, p. 41]. A more detailed description of the work was given by M. Przyłęcki, who mentioned, *inter alia*, that the ceramic covering of the existing gate towers' cupolas had been supplemented at that time and that the Water Gate was adapted for tourist visits [15, pp. 99-101]. The information quoted by M. Przyłęcki was echoed by A. Małachowicz [11, p. 38]. The repair to the Kłodzka Gate in the years 1975-1977 and the Wodna (Water) Gate tower in 1985 was mentioned by K. Bartnik [2, p. 126]. Architectural research into fragments of the city walls, *inter alia*, the Kłodzka and Wodna (Water) Gates and the Rycerska (Knight's) Tower, was performed in 2010 [6; 7] and in 2014 [8].

Archive prints contribute to considerations of tower architecture to some extent. The oldest view plan of the city dates back to 1739 and was issued by F.A. Pompejus and O. Pompejus in 1862 [14, Table 19]. It shows the north-east view of the city that is surrounded by walls, where there are the Wodna (Water) and Kłodzka Gates and the Rycerska (Knight's) Tower. A simplified drawing of the enclosure is shown in the south panorama of Bystrzyca; it dates back to 1760 and it is an element of the frame of coloured copperplate engraving of a *Comitatus Glacensis* map [18, No. 36]. General views of the walls and three towers as of the end of 19th century and the beginning of the 20th century are documented by a few prints and postcards from that period [19; 20].

4. Research results – the Kłodzka Gate Tower

The oldest parts of the tower can be seen on the east and west elevations in the lower part of the stone core up to a height of almost 9.5 m above the present ground level and on the naked wall of a hoarding up to a height of almost 12 m above ground level. The parts include the gate tower, which has survived to a significant degree, and the gate building attached to it to the east, which was connected to the gate tower via internal passages. The original gate complex, which consisted of the tower and the gateway that adhered to it from the east, was probably constructed in the first half of the fourteenth century. This fact is confirmed by chronicles, which date the inception of the construction of fortifications in the city of Bystrzyca to 1319 [1, No. 3929]. The gate was probably around 12.5 m high and probably slightly higher than



the walkway that laid over the gateway. The form of the tower finial remains unknown due to the demolition of its upper part during a conversion that probably took place in the fifteenth century. The elevation was plastered by covering the irregular stone bonding with plaster mortar, it was then trowelled and probably white-washed. In the lower part of the tower, there was probably an unlit dungeon with inner dimensions of around 2.9/3.0 m. It was accessible via a hole in the floor of a shed-like structure at entry level, *i.e.* around 8.15 m above ground level. The stone framing of the lancet entrance to the tower has not survived to the present day, although its imprint can be seen from the inside of the tower. A door hinged in the doorway was blocked with a pocket lock; one such pocket has survived in the south reveal. The doorway recess was covered from the inside with a segmental vault that was built through the application of boarding; the imprints of boards can be seen in excessive mortar that must have flowed from between the stones. It is worth noting that the tower enclosure wall was around 160 cm thick in the basement (Fig. 5).

An almost two-metre-thick curtain wall adhered to the tower from the east; it probably had a ogive gateway that was preceded by a draw bridge over a dry moat. Above the bridge, there was a shed-like structure with embrasures, which was secured with almost three-metre-high stone breastwork. The gallery was covered with a gable roof, the shape of which can be seen on the tower elevation. The tower and the gateway were built of machined rough stone that was laid in about 70 to 90-cm-high layers. More carefully machined ashlar was applied to the corners (Fig. 1a, b).

The tower was raised and finished with crenellations, probably in the first half of the fifteenth century. The original enclosure was lowered to a height of 9.5 metres above ground level, and was then raised by almost 10 m. The upper (defensive) storey was built in the form of crenellations, the crenels of which were about 85cm wide and about 1m high on every elevation. The lack of traces of washing out and damage to the joint inside suggests that the storey must have been covered with a roof with a shape that is now unknown. The storey floor was built at a height of 17 m above the present ground level (Fig. 5).

Marks on the beam-framed floor at the level of 12.6 m above ground level confirm the division of the interiors into two levels. The lower storey included the entrance to the shed-like structure and the floor at the level of 8.15 m above ground level; it was lit through a north-facing slot window, the reveals and sill of which were carved in the wall in around 1319. The segmental vault above the window recess was made of wedge-shaped rough stone. Another north-facing window was built on the above storey. Both of the windows had their outer edges framed with stone. The walls were built of rough stone; the stone was sand-yellow and rusty in colour and was laid in 70 to 80-cm-high layers (Fig. 5).

A record of the city brickworks dates back to 1568 [3, p. 14]. The gate tower finial was probably altered in or close to that year; the alteration consisted in the introduction of an octagonal pyramid brick cupola with an attic, which is indicated by the identified building material and the shape of the cupola. The fifteenth-century roof was then demolished up to the crenel level. Rough stone pillars were erected on the highest floor in the corners and behind the merlons. Half-brick thick segmental arches were built between the pillars. The side walls of the pillar were shaped as embrasures and a set-off was made at the height

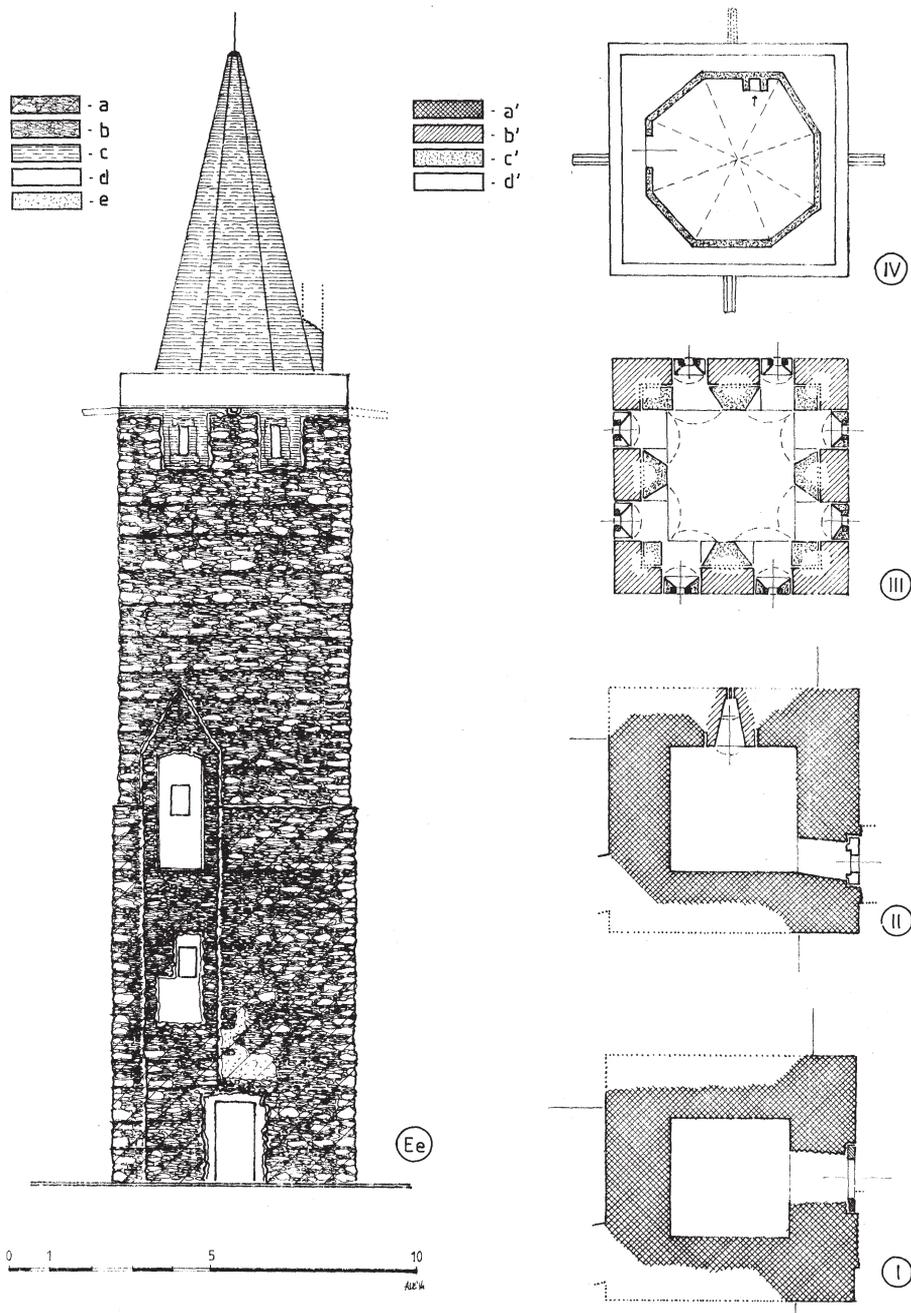


Fig. 5. Bystrzyca Kłodzka, Kłodzka Gate's tower, eastern elevation (Ee) and projection of dungeon levels, defensive, entrance and bypass of the helmet (I–IV) with chronological wall stratification (signs: a, a' – Gothic walls from the 14th century; b, b' – Gothic walls from the 15th century; c, c' – Renaissance walls from around 1568; d, d' – walls from the 20th century and unrecognized walls; e – elevation plasters (drawn by A. Legendziewicz)

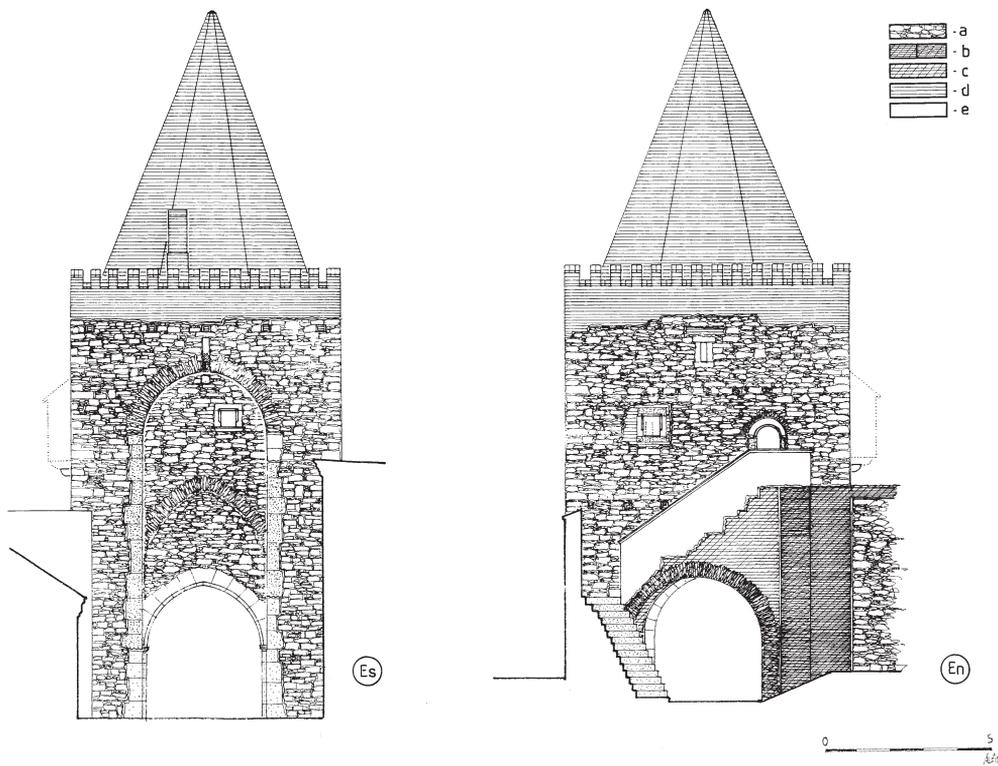
of the window sills. Simple stone framing was applied to the embrasures. Arches were used to increase the height of the tower's enclosure by two brick layers and to place the ceiling beams on. An 8.7-m-high, half-brick-thick octagonal brick cupola was built above. A rectangular entrance to the gallery that surrounds the cupola was built to the west and a fireplace with a furnace for heating the guard room was built to the north. The cupola finial included a spire with a ball and an ensign that have not survived. An attic was built around the cupola; it took the form of stylised crenellations. The rainwater from the walkway was drained via four simple stone gargoyles that were installed along the bay axes; three gargoyles have survived (Fig. 5).

The gate building, together with the draw bridge, was demolished and the dry moat was backfilled probably in the nineteenth century [15, p. 99]. The enclosure wall was partly removed and flushed with the tower elevation. The doorway was bricked and its stone reveal was removed. The attic wall was repaired and its crenellations were demolished. The brick cupola was plastered.

The wooden beam floors and stairs were probably added in the years 1974-1975 when the tower was adapted to an observation deck. An entrance was built in the basement and a window opening was made above it to supply light to the storey that was added inside the former dungeon. The attic wall was converted through the application of block bonding, building material recovered from demolition and new machine bricks. The wall height was increased because an openwork forged balustrade was added [15, p. 101].

5. Water Gate

A quadrilateral with a height of around 12 m above the present ground level is the oldest part of the tower that has survived. It was built of machined rough stone and of carefully arranged cut stone in the corners. Among the identified parts, there is a fortified masonry tower that has survived to almost its full height. It has a recess where a portcullis was installed, and it has four windows and an entrance, as well as relicts of walkway imprints and of a wooden finial structure. The construction of the enclosure walls, together with the city gates, commenced around 1319 [1, No. 3929]. The masonry part of the tower was about 12 m high and was probably almost two storeys higher than the curtain. There was a gateway in the basement of the tower. The gateway was covered with an ogive vault. The barrel was built of stone similar to that used for building the walls. The stone was laid on a timber centring the boarding of which left its imprints in excessive mortar. The gateway was surrounded by two slightly sharp lancet stone frames. The south gateway was designed as an archivolt with bevelled edges. It was based on moulded heads and was preceded by a lancet recess where a portcullis was installed. The opening was closed with a double door. The door was probably of a rocker and board construction; its upper mandrel was put in a wooden beam and the lower mandrel was put in a stone bearing at the level of the cobbled floor. The door was blocked from the inside by placing at least two beams in pairs of pockets that were made in the walls on either side of the gateway. The basement walls are around 2 m thick (Fig. 6, 7).



In the south elevation, there was a lancet recess where a portcullis was installed. A square

Fig. 6. Bystrzyca Kłodzka, Wodna (Water) Gate, south elevation (Es) and north (En) with chronological wall stratification (signs: a – Gothic walls from the 14th century; b – Renaissance walls (tenement house adjacent); c – Baroque walls from the 18th century; d – walls from the 19th century; e – walls from the 20th century (drawn by A. Legendziewicz)

window with a bevelled framing was built in the upper part of the recess to light the guard room. Above the window, almost at the top of the lancet, there was a small hole to pull the portcullis chain, and above the hole, there was a slot window. The vertical edges of the portcullis recess were shaped with neatly machined cut stone. On the city side, the elevation contained two entrances, one to the tower and the other to the walls. Segments of the curtain were probably linked via a wooden shed-like structure that was supported by brackets, the seats of which have survived. The tower was accessible from the walkway level via an opening, the stone elements of a bevelled-edge archivolt of which have survived. Both of the pillars might have looked similar. The guard room was lit through a slot window that was built almost along the same bay axis as the present window, a stone sill of which has survived; above this, there is another slot window. While the east elevation is devoid of decorative elements, the west elevation contains a latrine bay, two stone consoles of which and an outline of a bricked entrance opening have survived. The building material technology applied may indicate that the tower elevations were plastered or trowelled in Gothic times. The Wodna (Water) Gate finial probably consisted of a wooden

shed-like construction (a hoarding), which was built at a height of around 12 m above the present ground level. The structure was based on wooden consoles that were fastened to the wall. The hoarding contained embrasures and it probably surrounded the wall coping from three directions – the east, the south and the west – which is indicated by the imprints of the consoles' wooden beams in the upper part of the stone wall face. The whole structure was probably covered with a short ridge hip roof [9, p. 71-103] (Fig. 8).

Inside the tower, there were probably three rooms. These would have been separated from each other with wooden floors, accessible via ladders. The room accessible through a portal from the direction of the city was used as a guard room; from that room, there was access to the latrine bay. It was lit through two stone-framed window openings: the square, south-facing opening in the portcullis recess, and the slot, city-facing opening. The above storey

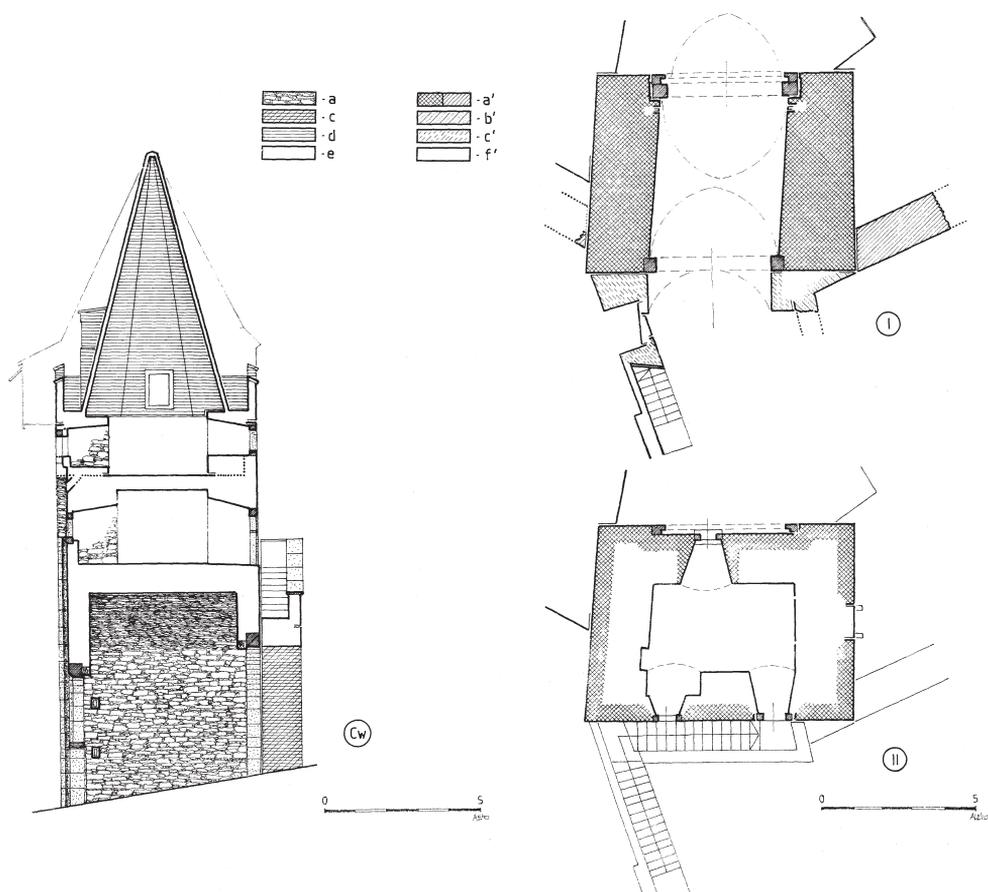


Fig. 7. Bystrzyca Kłodzka, Wodna (Water) Gate, crosssection with a view to the west (Cw) and projections of passage and guardhouse (guardroom ?) levels (I, II) with chronological wall stratification (signs: a, a' – Gothic walls from the 14th century; b, b' – Renaissance walls (tenement house adjacent); c – Baroque walls from the 18th century; d, d' – walls from the 19th century; e, e' – walls from the 20th century; f – unrecognized walls (drawn by A. Legendziewicz))

probably contained a mechanism for drawing a portcullis. Light entered through two slot openings situated along the south and north bay axes. The last storey was surrounded by the hoarding and performed a defensive function. Every window was situated in a recess and covered with a segmental arch. The inner walls were whitewashed. The tower was built of machined rough stone and the corners were made of more carefully machined cut stone.

The information about the city brickworks [3. p. 14], the analysis of building material and of the shape of the cupola dated back to 1568 and lead to the conclusion that the tower finial must have been converted at that time. The existing Gothic hip roof and the hoarding were replaced with a masonry pyramid cupola surrounded by an attic in the form of crenellations with 4 crenels (Fig. 6, 7).

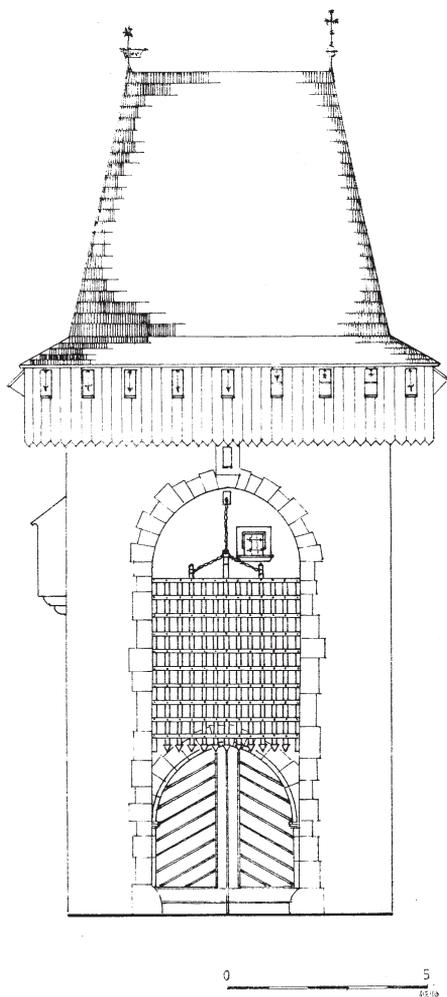


Fig. 8. Bystrzyca Kłodzka, Wodna (Water) Gate, reconstruction of the form of the Gate tower with the wooden hoarding from the 14th century (shape of the roof, its covering, – hypothetical) (drawn by A. Legendziewicz).

In the eighteenth century, the wooden shed-like construction that linked the east and west segments of the curtain must have been demolished. Two-flight stone stairs were built in place of the structure; the stairs led to the tower entrance directly from street level. The construction was based on a semi-circular arcade and was added to the tower elevation, partly obscuring the frame of the gateway from the direction of the city. The upper flight was secured with a masonry balustrade. The arcade was built of rough stone, which was laid on timber centring.

The tower, or rather its finial, was subjected to repair, probably in about the middle of the nineteenth century. The Renaissance attic, the cupola, and the stair balustrade were demolished, probably due to them being in a poor state of repair. A new attic took the form of stylised crenellations with thirteen low crenels to the north, east and south; a simple wall was built to the west. The stone balustrade was probably replaced with a new brick balustrade covered with stone plates that might have come from a Baroque balustrade. The two elements described above were built of brick recovered from demolition – which was in the Renaissance format – and of new brick or roofing tiles in places. The Renaissance cupola was replaced with a new version, the shape of which was probably similar to the previous cupola. Material similar to that of the attic and balustrade was applied. Unfortunately, the elevation plastering was removed completely, probably while the work was performed. Almost all of the cut stones in the portcullis recess framing were removed, leaving just two in the east, and the portcullis itself was probably removed, together with the pulling mechanism. The openings from the direction of the city were also transformed by replacing both of the entrance pillars and by enlarging the guard room window. A stone slab floor was laid at the cupola base and the rainwater was drained via a riser which was installed on the south elevation (Fig. 6, 7).

The repair was conducted owing to the arrangement of a historical room in the tower in 1922. The elevation was covered with rough, coarse-grained, rough-cast plaster; the portal pillars and lower fragments of the portcullis recess frame were replaced on the south elevation. In 1985, Bystrzycka Spółdzielnia Rzemieślnicza [*Bystrzyca Craftsmen's Cooperative*] subjected the tower to further repair, and after completion, it arranged an exhibition of guild members' work in the tower rooms. The cupola and inner walls were covered with cement plaster at that time. A new cement joint was made in the basement belt and the brick balustrade at the entrance was replaced with a rough stone joint.

6. The Rycerska (Knight's) Tower

The oldest parts of the tower can be seen on the north elevation, in the lower part of the stone core to a height of almost 8.5 m above the present ground level. Among the identified parts, there is a fortified masonry tower, which has survived almost completely. The tower is open towards the city, it is topped with merlons and has passages to the curtain wall on its east and west sides. The original fortified tower was probably erected in the first half of the fourteenth century, which is indicated by a source reference that states that city fortifications were built in around 1319 [1, No. 3929]. This look-out tower has a rectangular plan of around

5.2/3 metres; it protrudes the wall thickness from the curtain wall face and is built of ashlar. It is as high as the curtain wall and its height is almost 8.5 m above the present ground level. One rectangular crenel was built in its high breastwork finial, along the bay axis (Fig. 9).

In the first half of the fifteenth century, the open fortified tower was transformed into a regular tower by increasing its height. The enclosure wall was closed up from the city and its outline had a square-like plan of around 5.3/5.2 m. The existing structure was raised by over 10 m and topped in an unknown way. The newly erected and added parts of the elevations were moderately decorated. There were at least three stone-framed slot openings on the north elevation; the lowest opening was integrated with the existing crenel between the merlons. On the city-facing south elevation, there is a lancet doorway; it is 8.7 m above the present ground level and it is framed with a simple stone portal. The doorway was accessible via external stairs or ladders and a porch situated about 6.2 m above the ground level and based on stone consoles. It is worth noting that similar consoles were installed beneath the platform before the doorway. The entrances to the curtain's shed-like structure were left on two side elevations. The stone-framed slot window was built on the east. The layout of openings on the last storeys that has partly survived remains unknown (Fig.9).

There must have been at least five storeys in the tower; the storeys were separated with wooden floors with beams which rested on set-offs. The lowest storey probably contained a dungeon; prisoners were likely to have been lowered into it via a hole in the floor [9, pp. 71–103]. The dungeon was unlit. Above it, there was a walkway that provided access to curtain wall segments. Light entered the tower from the north through a slot opening, or through a crenel between the merlons. The opening head was made of overlapping stone slabs. The higher storeys were probably accessible via ladders. The second floor was also accessible via an opening from the direction of the city. The door was probably blocked with a pocket lock beam that was situated in the east reveal. Natural light came into the room through two openings from the east and from the north; the opening heads were also made of stone slabs. On the last floor that has survived as a whole, there were slot openings from the north and from the south. The building material and technology applied suggest that the tower elevations might have been plastered in Gothic times.

The Rycerska (Knight's) Tower finial was probably altered in around 1568, as was the case with the two gates described above [3, p. 14]. A high pyramid masonry cupola was erected in place of an unknown Gothic finial and attic in the form of crenellations with three crenels was built at the base of the cupola. The cupola was linked with the tower via a semi-circular arcade that was based on moulded consoles when an evangelical church was built in the years 1821–1822. The arcade was located in the place of the demolished city wall curtain [15, p. 99-101] (Fig. 4a, b, 9).

The decision to convert the tower into a belfry was taken in connection with the construction of an evangelical church west of the tower in the years 1821–1822 [15, p. 99]. Therefore, the Renaissance masonry copula together with the attic and parts of the enclosure walls up to around 15 m above the present ground level were demolished. Lancet biforium openings were along the bay axis of each of the elevations to mark the space for a pair of bells. Before installation, the construction of the tower was strengthened through the introduction

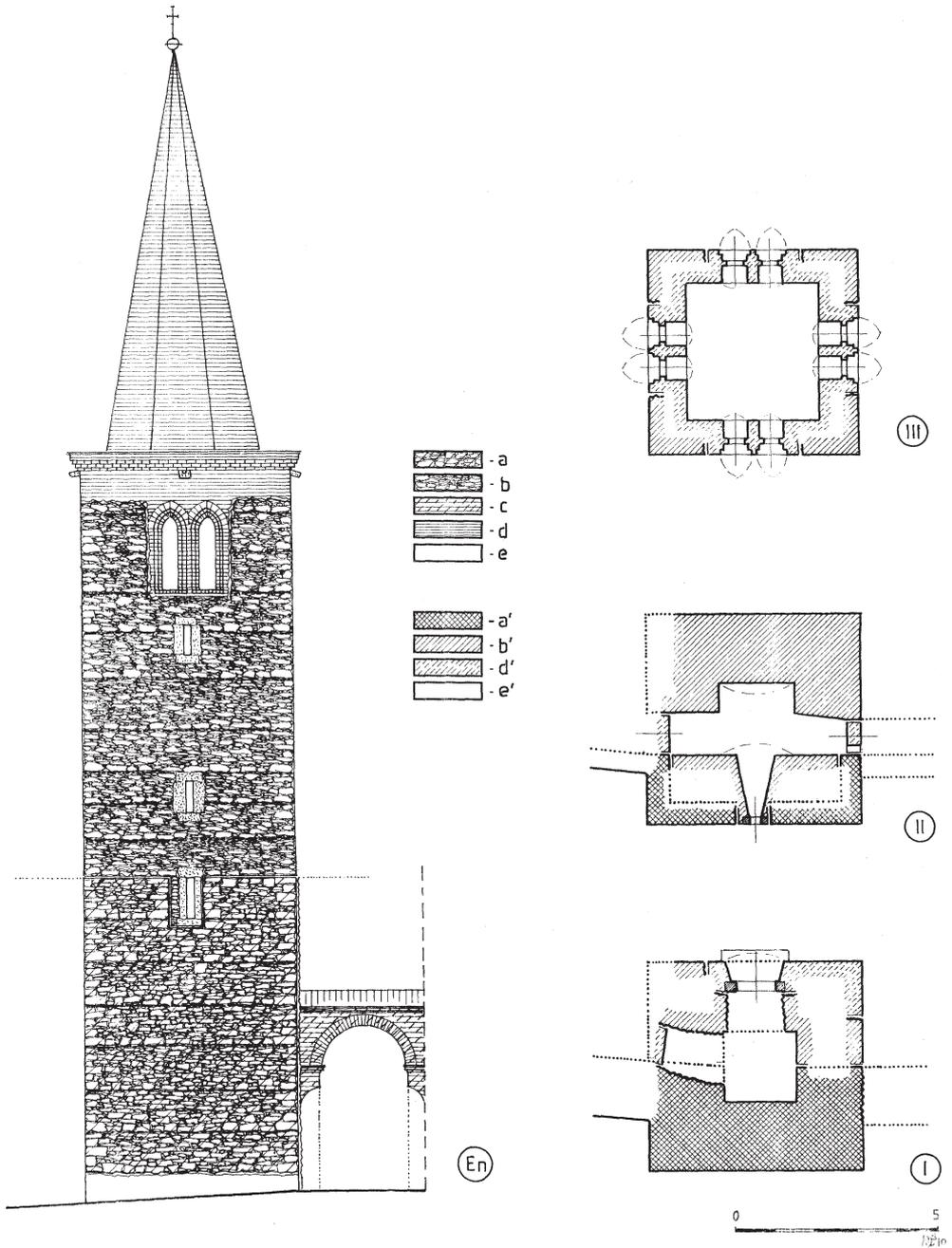


Fig. 9. Bystrzyca Kłodzka, Rycerska (Knight's) Tower, north elevation (En) and projection of dungeon levels, sentry porch and bells (I-III) with chronological wall stratification (signs: a, a' – Gothic walls from the 14th century; b, b' – Gothic walls from the 15th century; c – Baroque walls; ; d, d' – walls from the 19th century; e, e' unrecognized walls (drawn by A. Legendziewicz)

of two masonry vaults: at the former walkway level (at a level of 5.5 m) and above the entrance level (at a level of 8.7 m). Moreover, the window openings on the highest Gothic storey that had survived were blocked, as were the entrances to the curtain's shed-like structure. Owing to the construction of a belfry and stairs, two entrances were made in the tower's basement: one of them was rectangular, recessed, covered with a segmental arch and accessible at street level; the other was from the building that was attached to the tower from the east (Fig. 9).

The most significant alterations were applied to the finial and attic, which – as we mentioned above – were demolished. After the biforium openings were built, the walls were made higher to around 18.5 m and topped with a simple brick cornice. The tower was topped with a masonry pyramid cupola that had an octagonal plan; a stone slab walkway was built around it and restricted with a low attic wall. The cupola was topped with a cross and a gold-plated ball. The rainwater from the walkway floor was drained with four stone gargoyles that were installed along each axis of the elevation. The fifth gargoyle was installed near the roof of the building that was attached to the tower from the east. Relicts of the elevation plastering, which can be seen on the 1739 city view plan issued by F.A. Pompejus and O. Pompejus in 1862 [14 Table 19; 19], must have been removed at the same time.

The only work taken up on the Rycerska (Knight's) Tower in the postwar period consisted of the covering of the cupola with cement plaster and covering of the attic wall with a ceramic material. Moreover, the east entrance to the residential building was altered and a grate was introduced at that time.

7. Summary

The research into the architecture of the Bystrzyca Kłodzka enclosure wall towers that have survived allowed the authors to partly identify the towers' original forms that dated back to the beginning of the fourteenth century. It also enabled the authors to follow through the transformation that were made in the fifteenth century and in the second half of the sixteenth centuries as well as in the eighteenth and nineteenth centuries. Based on research, we know that the entrance at the Water Gate was secured with doors and portcullises, with the latter being installed in specifically shaped recesses and equipped with runners and crowned with a porch and wooden hoardings. The Kłodzka Gate and the Knight's Tower were made higher. Brick build cupolas were introduced on each of the towers during the Renaissance. The findings were used as source material for designing the restoration of all three towers. The conservation work performed in the years 2013-2017 restored the towers to their historical form and the partly damaged architectural details to their former glory

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