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Fortification of the southern and eastern perimeter of the early Gothic predecessor of today's Malá Strana

ANNOTATION

The early Gothic fortification of the town below the Prague Castle ceased to meet the city development and the requirements for reliable military protection already a hundred years after its construction. With the construction of new walls in a new route in the mid-14th century, the earlier ramparts were deprived of the reason for their existence. Several centuries of their gradual liquidation are completed by the efforts of several generations of researchers to obtain and present an idea of the ramparts' structure, building form and development and to protect the archaeological remains from destruction. Each line of the city fortification has its own specifics. In the west, the profile of the fortification, published a year ago, is the only one preserved. The southern line is the most affected by demolitions and reconstructions, only fragments remain. The better-preserved eastern line, but less accessible and different to the others opens chronological questions. The authors focused on gathering the maximum available information about the southern and eastern fortification lines, supported by building history surveys and, in recent decades, archaeological research. Newly published evidence of the city fortification pattern, obtained by archaeological methods, was critically examined and supported with new findings. Parameters of the fortification structure on all three sides of the city are compared, also taking into account the eastern fortifications of Prague Castle.

SUMMARY

Medieval Prague was a conurbation formed in the 13th century by two and from the 14th century by four separate towns. The earliest high medieval legal town was the Old (Greater) Town of Prague on the right bank of the Vltava, the centre of which was the Old Town Square. After the completion of its fortification (1230s–1250s), Ottokar II of Bohemia issued in 1257 the establishment of a medieval legal town also on the left bank of the Vltava, in the area below Prague Castle. He decided to completely change the local area with a very ancient settlement tradition and turn it into a rich contemporary modern city. He named it the New Town below Prague Castle (*Nova civitas sub castro Pragensi*) with the Malostranské Square in its centre. Over time, however, the town lost its name and today it is known as Malá Strana. Construction of fortification around the New Town below the Prague Castle presumably continuously followed the construction of the Old Town fortifications in the 1250s. Nevertheless we lack written evidence in this respect, with the exception of a 1253 note about the fortification of the Johanniter commandary in the south-eastern neighbourhood of the city, and a 1278 account describing the parameters of the new ditches on the west and east sides. The area of the early Gothic town is the historical centre of today's Malá Strana quarter. During the later expansion of the city in the mid- 14th century under Charles IV the fortification lost its importance and declined. Its remains are now very rarely found by building historical and archaeological surveys during the rebuilding of houses within the Prague Monument Reserve. The new information is the result, in particular, of rescue archaeological excavations consistently carried out by the Prague office of the Heritage Institute during all construction work in the last 30 years.

The early Gothic New Town below Prague Castle had the shape of an irregular trapezoid with an area of 17.5 hectares. The city was defined by stone walls, which were 152 m long in the west, 534 m in the south, 494 m in the east, and in the north the outer wings connected to the castle fortifications (Fig. 3). The lengths of the arms of the fortification are measured on the map, but in reality, on the steeply sloping terrain, the fortification was longer. The first more comprehensive idea of the profile of the fortification was obtained only recently, in the years 2011–2018, by rescue archaeological excavation on the grounds of house No. 192/III in Thunovská Street on the western side of the city. This discovery was published last year (Čiháková/Müller 2021), analysing the components of the fortification – the rampart, the gate tower, the Zwinger, the Zwinger wall, the ditch in the form of 1278, the bridge over the ditch – and also their construction technologies. The remains were discovered under a rock block, in the Theatine convent garden, which could not be divided into building plots after the 18th century due to its poor accessibility. The rest of the fortification was, however, in a normal development area and its remains are very fragmentary. This new paper presents a comprehensive range of all discovered remains of the 13th century fortifications on the southern and eastern sides of the city, namely the remains of the main wall, ditch, gates, possible buildings in front of the gate and the only demonstrable tower so far. It was cylindrical in shape (Fig. 53, 57), the other two towers are later, probably from the first half of the 14th century (No. 271 and 56).

The course of the early Gothic wall is more or less known, except the long line of the south-eastern perimeter of the city, where the line of the wall is difficult to depict east of Karmelitská Street and south of Letenská Street. Assumingly the city and the Johanniter commandary were two separate entities, both fortified, even against each other. The discovery and direction of the ditch in No. 292 proves that the ditch of the city was connected to the ditch of the commandary, and the city wall most likely joined the commandary wall (Fig. 20). The structure of the early Gothic fortification is slowly beginning to take shape due to the increase in archaeologically obtained information and it seems that it could be uniform around the entire enclosure. Three sides of the city perimeter with a total length of 1,180 m were fortified by the city main wall, a ditch, the area between the main wall and the ditch (berm/Zwinger), and probably by the outer wall as another height obstacle. Part of the defences were also the means to pass through the fortifications - gates and bridges (including the mouth of the bridge over the Vltava River), or their forecourt.

The construction of a rampart wall with more or less regularly appearing flanking towers, whether square or round (cf. Fig. 2) has not been confirmed. The early Gothic wall was built at the time of the city establishment in the 1250s and 1260s as a 1.9–2 m wide wall of opoka quarry masonry with a core of large stones only inconsistently joined by lumps of mortar, with numerous air gaps and many clean stone faces without mortar. The wall foundations descend in hewn steps. On the southern side, where the slope is gentler, the steps are higher (more than 7 m) than on the steep Hradčany slope (2–2.5 m high steps in the west). The foundation masonry is relatively shallow (0.4–0.6 m, in No. 249 in the west 0.8 m); regardless of the quality of the bedding conditions it was often founded on the upper part of anthropogenic stratigraphy and not on a geological base. The faces of the stone wall are more or less vertical, only the inner face of the wall in trench S5 in the background of the convent is significantly widened by 6° from the vertical. We do not have the original height parameters of the wall; the highest fragment with a height of 8.15 m was documented in the Thunovská area in the west of the city.

The early Gothic fortification incorporated a wall built with the technology typical of Romanesque buildings, partially preserved on the eastern side of the city. A wall with an ashlar inner face and of quarry lined masonry on the outer face was preserved between the northern end of the Palfy Palace No. 158/III and the Feldovský House at the southern end of the Valdštejn Palace No. 17/III. The second section further south on the terrace of Vojanové sady (Vojan Gardens) and in No. 58/III, also includes the remains in No. 60/III and the Romanesque Judith Tower next to the bridge (Fig. 36, 37, 62). Into the southern section, the Romanesque Judith bridge opened into the area, which was probably enclosed from the north by the “palace” of the bishop’s court, frontally by an ashlar wall in No. 58/III and to the east by an approximately 23 m high tower now called Judith. The width of the ditch in the west was 6 m (10 Czech cubits) at the bottom in the first phase, which was the foundation trench into the rock, and more than 14.1 m at the highest and widest point. In the second phase, i.e. after the construction of the walls, the width of the ditch was between the walled faces at the bottom 4.44 m (7.5 cubits), at the widest point more than 12.2 m. The depth of the ditch slightly exceeded 5.4 m. The bottom was not paved with the exception below the gate on the Castle Steps, where the ditch bottom was 10 m deep and 14 m deep next to the vertical wall. The outer edge of the ditch in the Thunovská area was (in the only measurable place) at a distance of 26.3 meters from the outer face of the main wall, the space in front of the fortification was divided between the width of the ditch (14.1 + x, or elsewhere 12.6 + x m) and the width of the Zwinger. The ditch on the eastern side of the castle, built at the same time as the western ditch, was wider than 12.3 m with the escarp face 0.6–0.9 m thick, a depth of 5.6+x m at the site of the Lobkovicz Palace, and a depth of 9.5 meters in front of the entrance to the castle near to the Black Tower. On the southern side of the city, between the Johanniter commandary and the settlement of Obora, the ditch looks different; the escarp wall is missing. Its width can only be estimated to around 18 meters; the depth exceeded 5.9 meters. On the opposite side of the city, in the east, the presence of a Zwinger is not explicitly confirmed. On the eastern side of the castle, the distance between the ditch and the Romanesque main castle wall is slightly more than 7–9 meters. On the eastern side of the city, the greatest distance of 6.8 m between the ditch and the reconstructed line of the wall is behind the church of St. Thomas, where it passes through the cylindrical tower. On the southern side of the city, in the sloping, dense urban development, reconstruction possibilities of the real state from the mid-13th century are very sporadic. Since the escarp wall is missing here, the Zwinger with Zwinger wall was probably not applied here. According to excavations in the palace No. 259/III, the width of the berm between the wall and the ditch can be considered to be around 9 meters.

Current research works with the idea that the city was entered through three main gates: Písek gate in the east, Újezd gate in the south and Strahov gate in the west. These main gates were complemented by several minor gates allowing pedestrians to pass through – the minor gate in the Palfy Palace No. 158 (until 1595; Fig. 29B), in Letenská Street next to the Augustinian monastery near St. Thomas (Fig. 50), in Saská Street in the southern neighbourhood of the bridge - all in the direction from the east, and the gate in No. 259 in the SW corner of the square (Fig. 14, 15, 17A). The gates in No. 158 and 259 stand in places where traditional, early medieval passages through wood-clay fortifications can be situated. Later written evidence and other contexts indicate that all these gates allowed in the 13th century the passage of wagons. Together with the gates in No. 192 and the gate on the Castle Steps to the west, the original city probably had 10 gates, although their usage at the same time cannot be

confirmed (certain succession of the earlier gate in No. 192 and on the Castle Steps; possible succession of the gate in No. 158 and Písek gate).

By combining the fortifications of Prague Castle (the seat of the Bohemian king), the New Town below Prague Castle and the Johanniter commandary, a compact fortress enclosed by fortification was established on the left bank of the river (Fig. 62). The western side was further strengthened by another large ditch protecting the castle in particular, and therefore left out of this article on the fortifications of the city.

The author presumes that the eastern ashlar wall (Fig. 29, 30, 35–43) belongs to the 1st construction phase of the stone city wall. Most likely, it was built during the reign of a strong monarch, which was not a period of disputes between the rapidly changing successors of King Vladislaus II (i.e. in the period 1172–1197). Assumingly, it was constructed after the completion of Prague Castle fortifications (approx. 1185), but at such a close time when the aesthetic and technological similarity of Romanesque towers and especially the Black and Judith Towers was still required. Within the presumed time interval, Ottokar I of Bohemia (1197–1230) suits more as the builder of the eastern rampart than King Vladislaus. Presumably, unlike Vladislaus II, he would not consider the eastern wall as a background to the stone bridge, but rather as the beginning of a wider, but unfinished, construction project. This could have been the planned fortification of the left-bank conurbation. The plans could be changed by the rising concentration of wealthy residents on the right bank of the river in the territory of the later Old (also known as the Greater) Town, also increasing as a result of the struggle for the throne, which would reverse the monarch's priorities. Ottokar I would thus prepare the conditions for the construction and conception of the Prague fortifications, and Wenceslaus I (1230–1253) would implement it. Fortification work did not return to the left bank until "in 1253", when the 2nd phase of construction took place with the fortification of the Johanniter commandary (Fig. 1: 1) and the bishop's court (Fig. 62: No. 58–63). After the completion of the Old Town fortifications in the 1250s, the 3rd phase followed, representing the rampart construction of the newly located (1257) New Town below Prague Castle around the turn of the 1260s. In the 4th phase, it was improved with a Zwinger and walling of ditches, completed in 1278. The 5th phase covered further improvements especially during the wars after 1306 (when the royal line of Přemyslid dynasty ended). In 1348 Charles IV carried out far-reaching city planning changes, he significantly increased the territory of the early Gothic city below the castle and extended the ramparts further to the south and west. The original city ramparts of Ottokar II were thus rendered meaningless and doomed to extinction, which proceeded rapidly.

The study updates some of the the author's earlier conclusions on this topic (2001, 2009, 2017) using new results of archaeological excavations, and it brings the prime evaluation of the 13th century fortification of the Malá Strana Town in its entirety. The archaeological evidence is integrated into wider contexts, thus broadening the knowledge of the historical development of the local area and its monuments. Although a regional evaluation of the topic, it can serve as comparative material for the study of urban fortifications outside the Central European area. However, the outlined depiction is not final and in time further confrontation with new discoveries will be required.

Fig. 1. Prague fortifications on the left bank of the Vltava River in the mid-13th century: Prague Castle within the Romanesque fortifications (**black**) and the newly founded New Town below Prague Castle, today the centre of the Malá Strana quarter. The rampart on the east side of the city (**in red**) is built using a different technology than the early Gothic wall on the west and south side (**in purple**). The fortified area of the city is 17.5 hectares. Prime churches: **1** – Johanniter church of Virgin Mary Under the chain; **2** – St. Procopius; **3** – St. John the Baptist in the settlement of Obora; **4** – parish church of St. Nicholas; **5** – rotunda of St. Wenceslas; **6** – St. Martin; **7** – St. Thomas, who belonged to the Břevnov order of Benedictines until 1285. Stone Judith Bridge from the 12th century (**8**); extinct river arm in **deep blue**.

Fig. 2. V. V. Tomek, 1892: 19th century concept of the fortified area on the left bank of the Vltava combining Prague Castle, New Town below Prague Castle (later Malá Strana) and Hradčany before its expansion during the reign of Charles IV in the 1360s. The existence of the flanking towers has not been confirmed, but the confluence of the city ditch and the Johanniter commandary ditch has (taken from Wiehl 1893, 150).

Fig. 3. Prague 1-Malá Strana. The southern arm of the Přemyslid fortifications – the western part, revealed remains of the fortification. **Purple** – remains of the rampart with a gate from the mid-13th century; **green** – reconstruction of the wall line; **deep orange** – revealed sections of the ditch; **light orange** – approximate line of the ditch; **red** – isolated standing tower buildings; **blue** – massive pre 16th century wall in houses 305–309/III. Numbers correspond with house numbers mentioned in the text.

Fig. 4. Prague 1-Malá Strana, Malostranské Square No. 260/III. **A** – elevation of the northern face of the rampart in section 3A1+3A2/01 (A: D, **purple**). **B** – Section 3A1/RZ with rampart profile (B: D). Legend: **a** – leveling at the establishment of the city in 1257; **b** – floor until 2006; **c** – removed by recent lintel construction; **d** – technological joint. **C** – Malostranské Square No. 258/III, exc. 8/90–93, trench XVII, section 41; the core of the 13th century rampart in the irregular trench for structural purposes.

Fig. 5. Prague 1-Malá Strana, Malostranské Square No. 260/III with the location of the rampart (**purple**), a feature mistakenly interpreted as a fortification tower (**red**) and ditch fill (**orange**); the house plan is at the ground level. To the west trenches of exc. 12/93 in neighbouring No. 259/III, in trench III a small remnant of the rampart (taken from Cymbalak/Podliska2015; supplemented and modified).

Fig. 6. Philip van den Bossche (drawing) / Johannes Wechter (engraver) / Aegidius Sadeler (publisher), 1606: *PRAGUE. Sadeler's Great Prospect of Prague*. Cut-out of the surroundings of No. 258/III (**a**; Lidlovský house) with the rampart (**c**) and a defunct tower (**b**) near the junction of Nos. 258 and 302/III (© Prague City Archives, Collection of graphic, Veduty fund, sign. G 14).

Fig. 7. Prague 1-Malá Strana, Karmelitská No. 301/III. Excavation by NPÚ in Prague 2/87, location and cross-section diagram. The trench for a sewer cut through the north side of the ditch; geological subsoil in **faint grey**.

Fig. 8. Prague 1-Malá Strana, Malostranské Square/Tržiště (Market) No. 259/III, ground floor level. Excavation by NPÚ in Prague 12/93, location of trenches in cellars and diagram of sections. Legend: **a** – section and direction of view; **b** – borehole; **c** – trenches; **d** – geological subsoil; **e** – excavation area nr. 2007/15.

Fig. 9. Prague 1-Malá Strana, Tržiště No. 259/III. Trench I, generalized section assembled from sections 2+4. The 13th century ditch (**orange**) cuts in the south an earlier (Late Hillfort period) ditch carved into the rock, in the north it deepens into the Malostranský stream sediments.

Fig. 10. Prague 1-Malá Strana, Tržiště No. 259/III. Trenches III and IV, north-south generalized section south of the wall line, sections 20+24. Legend: **1** – geological slope; **2** – the line of the southern face of the 13th century wall; **3** – filling of a depression; **4** – rock moved during a deep earth movement; **5** – intact rock; **6** – the foundation course of the 13th century rampart in No. 260/III; **7** – ditch fill with a lot of organic matter; **8** – ditch fill formed by stream sediments; **9** – muddy deposits of a drain with late Gothic pottery and millstone finds; **10** – earlier ditch (Late Hillfort period); **hatched** – timber support of the tunnel.

Fig. 11. Prague 1-Malá Strana, Újezd Gate. **A** – Philip van den Bossche (drawing) / Johannes Wechter (engraver) / Aegidius Sadeler (publisher), 1606: *PRAGUE. Sadeler's Great Prospect of Prague*. Detail: Újezd Gate and its surroundings (©Prague City Archives). **B** – Rudolf Bruner-Dvořák (1864–1921), undated: The remains of the west wall of the 13th century gatehouse tower demolished in 1727, modified into a residential house. The gate walling on the ground floor and first floor was divided between houses No. 301 and 516/III. **C** – Karmelitská plot No. 1050, excavation by the NPÚ in Prague 20/95; location of trenches VII (section 17) and X (section 24), situation of boreholes (**yellow**) and test pit 2 of exc. 18/94 in No. 267 (point **A**). In **purple**, the fortification wall (in trench VII) and the gate masonry (trench X and No. 301+516/III). **1** – masonry; **2** – 10th century wooden road. **D** – anonymous, before 1911: photo of the E front of Karmelitská Street before demolition in 1911, after the demolition of the house No. 268/III on the corner of the square. View of No. 300/III with the eastern wall of the 'Újezd Gate' projecting into the street, the underground part of which was discovered in archaeological trench 20/95-X (Fig. **11C**). House No. 299/III in the foreground.

Fig. 12. Prague 1-Malá Strana, 'Újezd Gate', Karmelitská plot No. 1050; archeologically exposed remains of the above-ground masonry of the Újezd Gate, exc. 20/95, trench X. **A** – section drawing from the western side of the trench; **a** – relocated? subsoil, **b** – fallen out, **c** – moist weathered mortar over soft sticky clay. **B** – view from the E on the southern outer face of the gate and its SE corner. **C** – NE corner of the gate, late Gothic pavements on the right. **D** – profile of fortification wall documented in trench VII by section 17; in **purple** layer 459 – remains of the wall from the time of the city establishment, **colourless** – wall 457A – reinforcement of the wall, perhaps from the early 14th century, **grey** – geological subsoil. **E** – cross of section 24 of trench X passing through the 'Újezd Gate' (**purple**) and section 17 of trench VII through the rampart; the northern wall of the gate and the rampart were probably founded on the geological base, the southern part of the gate stood on fill.

Fig. 13. Transformation of Karmelitská Street. Current state (in **black** and **grey**) projected into the imperial print of the Stable Cadastre (in **green** and **pink**); 'Újezd Gate' and rampart (**purple**), Baroque walls (**turquoise**) and segments of the ditch (orange) archaeologically revealed during the reconstruction of the tram body in 1995. Old descriptive numbers, current Nos. see Fig. **11C**.

Fig. 14. Anonymous, 1659–1665: View from the north of the Lesser Town of Prague with Petřín and buildings between Karmelitská Street and Strahov. Cut-out – the eastern part; southern front of the square at the bottom left. Gates (marked Z) at Újezd in Karmelitská Street, V koutě (at the SW corner of the square) in No. 259, 'Strahov Gate' in Nerudova Street and later Újezd gate. (© National Archives in Prague, Czech Republic, collection Premonstratensians – Strahov Monastery, Prague, file 77).

Fig. 15. Anonymous, around 1705: Situation plan of Malá Strana with Hradčany panorama. On the square, there is

the V koutě Gate, the 'Újezd Gate' (© National Museum in Prague, Czech Republic, inv. no. H2-27125).

Fig. 16. Prague 1-Malá Strana, Malostranské Square No. 258/III. A 4-level tower built into the southern end of the Liechtenstein Palace, documented by the archaeological excavation of the NPÚ in Prague 8/92. **A** – southern interior walls of the individual floors, 2nd floor unknown due to the vault inserted in the Renaissance period. **B** – recent modification of the room on the 1st floor joined the rooms on the 3rd and 4th floors. **C** – floor plan of the 3rd floor with mullioned windows with shutters on the E and S walls and the blocked portal to the staircase on the north wall; floor plan of the 4th floor with a portal leading to the tower or to the walkway of the city wall 1.9 meters away. **Grey** – original masonry, **colourless** – rebuilt walls.

Fig. 17. **A** – Malostranské Square, SW corner at cellar level. The **purple arrow** points at the former 'V koutě Gate' (today the passage from the square to Tržiště Street through the palace No. 259/III); in **red**: floor plan of the tower with the spiral staircase in the western front of the square, later incorporated into the southern end of the palace No. 258/III. East of the passage in trench II of exc. 12/93, the reconstructed groundplan of a 10th century timber strategic building by the entrance into the early medieval town. **B** – the foundation masonry of the tower in No. 258/III. The lower 0.4 m of masonry (layer 26A) is roughly thrown into the trench; from the joint at a height of 200.1/Bpv, the masonry is levelled (layer 26B).

Fig. 18. Michael Peterle/Jan Kozel 1562: *PRAGUE BOHEMIAE METROPOLIS ACCVRATISSIME EXPRESSA. 1.5.6.2. Panoramic view of Prague by Michael Peterle (?)*. Cut-out: part of the city with the earlier 'Újezd Gate', in the foreground the area around the later wine press on the plot of house No. 373 with a prominent wall with battlements (© Biblioteka Uniwersytecka we Wrocławiu, Oddział Zbiorów Kartograficznych, sign. 4858-A, <www.bibliotekacyfrowa.pl:37021>, <<https://www.bibliotekacyfrowa.pl/publication/31673>>).

Fig. 19. The oldest seal of the New Town below Prague Castle (today Malá Strana), most likely from the time of the city's establishment (photo taken from Hlavsa/Vančura 1983).

Fig. 20. Prague 1-Malá Strana. The eastern part of the southern arm and the southern part of the eastern arm of the Přemyslid fortification. Revealed fortification remains: in **purple** 13th century 'Újezd Gate' and pre mid-14th century rampart wall in No. 274 (city? Zwinger?); in **blue** the only known section of the Johanniter commandary fortification; in **black** masonry with an ashlar face on the east side of the town (Romanesque?); **green** reconstruction of the line of the rampart; **deep orange** revealed sections of the ditch; presumed line of the ditch in **light orange**; in **red** inwardly open tower from the 1st half of the 14th century; in **brown** – intact geological base outside the ditch; **thin red line** – the main city wall presumed by the building historical survey; **dotted red line** – stated in M. Vilímková (1966, 73) between houses No. 298 and 299/III is probably a typo in the descriptive numbers (perhaps it should have been 268 and 269/III – **dashed**).

Fig. 21. Prague 1-Malá Strana, wall at the border of house plots No. 274 and 292/III. **A** – Construction engineer Tomáš Šašek, approved on 26/09/1939: Axonometric view of the modification of Ottokar's wall. (Archived in The Construction Department Archive of the City of Prague 1). **B** – remains of the rampart?, state 2004 (Petr Turyna 02/2004). **C** – Prague 1-Malá Strana, Maltézské Square No. 292/III and Mostecká No. 274/III. Height ratios of the wall at the boundary of the plots in a schematic section. Legend: **1** – (rampart?) wall; **2** – pillar; **3** – perimeter wall of house No. 292; **a** – 198.66 yard level; **b** – 200.36 today's wall top; **c** – 195.88 surface of the backfill of the pocket between the rampart and the house; **d** – 191.42 – ground floor level of No. 292; **e** – 189.44 – the lowest documented point of Gothic masonry (pillar); **f** – 188.80 – construction site level of the ashlar wall.

Fig. 22. Prague 1-Malá Strana, Maltézské Square No. 292/III, excavation by the NPÚ in Prague 15/92. **A** – the total extent of the house plot on the ground floor, test pit in the front garden, borehole in front of the fence on the square. **B** – detail of Fig. **A**: ground plan of the excavated area, system of sections, masonry structures; **dark brown** – documented part of the ditch; **light brown** – ditch dug up by recent construction; **dashed** – presumed ditch sides; **grey** – intact geological base under ground-floor rooms; **purple** – quarried stone wall at the boundary of the plots; in **orange** – ashlar wall. **C** – ashlar wall 47/II (built with Romanesque technology) discovered under the northern wall of the house. **D** – general view of the structures on the northern side of trench II, ashlar wall 47/II **on the right**, Gothic wall 56/II of quarried stone **on the left**, between them is a Renaissance masonry.

Fig. 23. Prague 1-Malá Strana, Maltézské Square No. 292/III, exc. by the NPÚ in Prague 15/92, trench II, section 9. Layer **46** – two-stage foundation masonry; layer **47** – above-ground ashlar masonry; layer **34** – the construction site layer to wall 47/II is later than the firm base of the demolished paving layer 23; **grey** – geological subsoil.

Fig. 24. Prague 1-Malá Strana, Maltézské Square No. 292/III. Partial section of the ditch compiled from data in sections 5+8+9+11+13. The pointed edge symbolizes the continuation of the situation in the given direction. Legend: **1** – ditch fill; **2** – ashlar wall schematically inset in altitude, but not topographically; **3** – geological background; **green** – yard surface at the time of exc. 191.54/Bpv.

Fig. 25. Prague 1-Malá Strana, Maltézské Square No. 478/III. Western face of the Johanniter commandary rampart made of quarried masonry, revealed in 2001 by excavation 19/01 in trench II. **A** – profile, **B** – west elevation.

Fig. 26. Prague 1 – Malá Strana. A 1939 view from the west of the inclined side of pillars of the “Ottokar’s wall” (**left**); in the back under the fallen plaster there is the quarried masonry of the western wall of the tower in No. 289/III belonging to the Johanniter fortifications.

Fig. 27. Prague 1-Malá Strana, Saská Street plot No. 1045. Situation of the two trenches of exc. 8/99 (**outline in green**) and the approximate location and dimensions of the gate via the ford (**light purple**). In trench II (**E**), part of the rampart built in 1310 in purple; in **red** Gothic masonry in the corner of house No. 56/III, identified by building historical survey and interpreted as rampart with a tower in the corner, open inwards.

Fig. 28. Prague, the left bank of the river with the historic centre of Malá Strana and Prague Castle. The eastern edge of the city within the boundaries pertinent until the High Middle Ages (in **purple**). In **blue**, Vltava river presumed extinct arm and its original (wider) bed. Sites of ashlar masonry in **yellow**: **1** – Pálffy Palace; **2** – Valdštejn Palace; **3** – terrace in Vojan Gardens; **4** – No. 58+61/III; **5** – minor bridge tower, so called Judith.

Fig. 29. Prague 1-Malá Strana, Pálffy Palace (No. 158/III). Fragments of the outer (eastern) wall of the rampart documented in 1995 and 2000, view from E. In the north, part of the gate with carefully laid ashlar face, towards the south, the stone composition loosens and behind the technological joint turns into linear courses of quarried stone masonry.

Fig. 30. Prague 1-Malá Strana, Valdštejn Palace No. 17/III. The ashlar wall. View from the west. **A** – section/view 57 of research no. 23/99; **B** – photo F070 from the W.

Fig. 31. Prague 1-Malá Strana, Letenská plot No. 106. Rampart of quarried stone on the east side of the city – wall 63 in the grounds of the Augustinian monastery, view from the W of the face inside the city.

Fig. 32. Prague 1-Malá Strana, Valdštejn Palace No. 17/III. Rampart with ashlar inner face revealed in the palace area; **A** – general view from the west; **B** – topography. Legend: **a** – newly surveyed masonry revealed in 1957, accessible in the utilidor; **b** – in trench XI of exc. 23/99 (main courtyard); **c** – rampart with a turret (copied from Charvátová 1957), structure of the inner wall of the wall unknown; **d** – in trench XII exc. 23/99, now the 4th (Feldovské) courtyard; **e** – later buildings in the rampart lane; **f** – foundation of the sala terrena; **g** – above-ground masonry of the sala terrena.

Fig. 33. Prague 1-Malá Strana, Valdštejn Palace No. 17/III. Trench XII, section 58 under the western wall of the sala terrena; layer **55** – profile of the W face of the rampart, a wall with a cast core and an ashlar western face; layer with **K3** stone – foundation course of upright opoka stones in clay; layer **14** – mortar, at the surface and towards the west, abundantly mixed with clay (approx. 2 : 1), breaks in lumps.

Fig. 34. Prague 1-Malá Strana, Valdštejn Palace No. 17/III. Trench XI, section 52, outer, eastern face of the rampart **a** in Fig. **32B**: **a**, from the east.

Fig. 35. Prague 1-Malá Strana, Pálffy Palace No. 158/III. The outer, eastern face of the wall with the passage of the gate, around which a representative ashlar structure was used (*cf.* Fig. **29**). In **red** vault footings of the Petřín ferruginous sandstone, **blue** cobblestone paving.

Fig. 36. Prague 1-Malá Strana, the eastern arm of the city fortifications – northern part. **Black** – revealed Romanesque parts of the walls, tower and turrets; in **purple** – Gothic quarried masonry rampart in the background of the monastery at St. Thomas; **red** – Gothic buildings revealed by building history or archaeological surveys, forming a lane along the rampart; reconstructed rampart line north of Letenská Street in **yellow**; a ditch in No. 29; extinct arm of Vltava River in **blue**.

Fig. 37. Prague 1-Malá Strana, the eastern arm of the city fortifications – southern part, inset is detail of the “palace” of the bishop’s court. **Black** – revealed Romanesque parts of the walls and towers; reconstructed rampart line south of Letenská Street in **green**. In the circle, the rampart in Vojan Gardens; a ditch in No. 29; extinct arm of Vltava River in **blue**. **Brown** in the cut-out – foundation masonry of an unknown building in No. 62, presumably belonging to a tower in the corner of the square – **dotted in green**.

Fig. 38. Prague 1-Malá Strana, Vojan Gardens plot No. 148. scheme of foundation trenches during sequential construction of the rampart, lowering of the surface outside the rampart increased its height (M. Müller).

Fig. 39. Prague 1-Malá Strana, Vojan Gardens plot No. 148. **A** – general view from the west of the inner ashlar face of the rampart (in the centre), with 0.6 m wider foundations of large flat irregular opoka slabs mostly covered with an even layer of mortar. In the north, the rampart was demolished to a greater depth and replaced by a narrower

Renaissance terrace wall (**a**). **B** – view from the east of the rampart foundation, at the top transversely laid foundation stones. **C** – view from the east of the southern part of the trench; at the top back, transversely laid foundation stones on the outer face of the rampart; in the centre the additional wall with a corner belonging to a sunken feature outside the wall. **D** – earlier stones of the additional wall raise above the later layer of the cast mortar K87.

Fig. 40. Prague 1-Malá Strana, Vojan Gardens plot No. 148. Ground plan of the rampart with the position of the stones of the wider foundation, the position of the additional wall and layout of sections. Legend: **1** – Renaissance terrace wall; **2** – the above-ground rampart masonry with the ashlar face on the W and quarried stone face on the E; **3** – foundation masonry on the W, with higher level on the W than on the E; **4** – part of the foundation masonry at the same depth for both sides; **5** – Late hillfort period layers, into which the rampart was embedded; **6** – construction layer K87 (most likely) to line the escarp (1278); **7** – intact geological base (field documentation by L. Hrdlička).

Fig. 41. Prague 1-Malá Strana, Vojan Gardens plot No. 148. **A** – cross-section of the rampart on section 1 (mirror overturned). **B** – generalized section G1: **8** – surface inside the city before the construction of the rampart; **9** – funnel-shaped foundation trench; **10** – section through additional wall, relation to layer K87 according to photo (Fig. 39D); **purple** layer K87 – mortar layer of the construction site for the walled lining of the ditch (based on field documentation by M. Müller). Colours cf. Fig. 40.

Fig. 42. Prague 1-Malá Strana, Vojan Garden plot No. 148. Section 1. K107 layer at the bottom of the semi sunken feature and the pottery range from it (Hrdlička 2009).

Fig. 43. Prague 1-Malá Strana, Dražické Square No. 60/III. Section 1; masonry **12** – above-ground ashlar, foundation masonry **13**; **grey** – geological base; localization see Fig. 37 (Zavřel 1995a).

Fig. 44. Prague 1-Malá Strana, Dražického Square No. 62/III. **A** – Groundplan of the cellars with the position of sections and with the feature filled with stones and loose mortar (layer 12, **ochre**); **a** – a Post medieval deep cut in the line of the ashlar rampart filled with dark grey clay with ash clumps and scarce large stones; **b, c** – modern age (Čiháková/Zavřel 1999).

Fig. 45. Prague 1-Malá Strana, the immediate vicinity of Judith tower. **A** – the trench supervised by V. Píša with a negative result (1973/01); **B** – outline of archaeological excavation 2007/23, 2008/06, 2009+2010/23 (Dragoun 2009, 410), no masonry of Judith bridge was found. **C** – trench revealing the paved surface of the Judith bridge on the ground floor of building No. 77/III. Approximate location of the gate (**faint purple**, according to Vilímková 1966) at Saská plot No.1045 and two trenches I (**D**) and II (**E**) of excavation 8/99: in trench II position of the 1310 rampart (in **purple**); **F** – trench V of exc. 26/97 in Mostecká plot No. 1035; **red** – Gothic masonry construction – rampart with an open tower in the corner of No. 56/III (according to Novosadová/Muk 1964).

Fig. 46. Prague 1-Malá Strana, Josefská No. 28/III (monastery) and Letenská No. 29–33/III (economic monastery facilities). Extent of excavation 2006/12 with its plots and trenches in the N plot.

Fig. 47. Prague 1-Malá Strana, Letenská No. 33/III, plot No. 106. The rampart Z63 (**purple**) in trench S2+3. **A** – in section 111; **B** – in groundplan, **blue** section direction.

Fig. 48. Prague 1-Malá Strana, Letenská No. 33/III, plot No. 106. Rampart wall Z63 in trench S2+3. **A** – eastern face (view from E); **B** – view from E of the lower above-ground part of wall Z63 in the test pit below the bottom of the building, right below wall 103; **C** – western face of wall Z63 on section 218 across the entire width of the trench (photo see Fig. 31); **D** – section 171 showing stone K1 as part of structure Z177. Uncertain whether Z177 belongs to the base of the Z63 rampart or to an earlier structure.

Fig. 49. Prague 1-Malá Strana, Letenská No. 33/III, plot No. 106. Rampart wall Z89 (**purple**) in trench S5. **A** – groundplan of the rampart, **grey** – outline of the foundation masonry of the northern wing of the monastery (area A); **B+C** – profile of the rampart faces on sections 173 and 172; **D** – damaged western face of the above-ground rampart formed the eastern side of S5 narrow trench, face preserved at the bottom.

Fig. 50. Prague 1-Malá Strana, Letenská plot No. 1031/1. Shaft and tunnel (TŠ 4 trench) of exc. 2005/31 (J. Havrda). **A** – trench position with the walls transverse to the line of the rampart, most likely belonging to a gate. Earlier wall Z02 – opoka with clay, Gothic (**purple**); later walls Z01 and Z03 – opoka with mortar, probably (at the latest) Renaissance (**blue**). **B** – the western wall of the tunnel below today's roadway (191,75), section 3 showing walls Z01–Z03. **Grey** – intact geological base. The opposite wall the Z02 construction was probably standing in place of Z03 (Hlavatý, field documentation 2005/31).

Fig. 51. Prague 1-Malá Strana, Valdštejnské Square No. 17/III – Valdštejn Palace, today 2nd Courtyard, outside the

rampart (*cf.* Fig. 59A: e). **A** – the grid of sections 2 × 4 m; in **purple** – an interface in the distance 4–3 m from the western edge of the yard running to the bottom of the measurement (–11 m), which is probably the face of the escarp wall; the fall lines converge to the **red** line (probably thalweg of a prominent trench fill?); the total **length of the yard** in line V2-10 is 57.5 m; the distance between the red and orange lines is 23.4 m. **B+C** – records of radar measurements, the depiction exceeds 2× the length; height zero corresponds to today's surface 190.35, in **yellow** possibly the surface of the ditch fill; **a** – 188.4/Bpv wider foundation of the ashlar wall inside the city, *cf.* Fig. 59A (based on Hrubec 1996, interpretation J. Čiháková).

Fig. 52. Prague 1-Malá Strana, Letenská No. 33/III, exc. 2006/12. Plot No. 101, area J, trench J3. The escarp wall remains Z114, **A + B** – front view facing east; **C + D** – top view from the south; **B, D** after removing the top layers of stones/boulders.

Fig. 53. Prague 1-Malá Strana, Letenská No. 33/III, exc. 2006/12. Plot No. 101, area J, trench J3. **A** – remains of cylindrical tower with later repairs viewed from the east; **B** – groundplan of the same situation with the sections' position. **Ochre** – opoka masonry Z112, **orange** – slate masonry Z113.

Fig. 54. Prague 1-Malá Strana, Letenská No. 33/III, exc. 2006/12, trench J3. Revealed part of a cylindrical tower, poss. from 1250s. **A** – elevation of the inner skin of the tower on section 196 from **slate** masonry Z113, dark brown earlier layers (Late Hillfort period); **B** – elevation of the outer shell of the tower on section 197 from **opoka** masonry Z112, **grey** – geological base (field documentation by M. Müller).

Fig. 55. Elevation relations of the masonry and earthen structures in sections 181 (**A**) and 180 (**B**) – tower (**orange** and **yellow**), ditch and walls (**leight brown**); position see Fig. 53B.

Fig. 56. The level of the Zwinger cut into the geological base ends at the place of the outer perimeter of the wall Z113, Late Hillfort period layer in **brown**.

Fig. 57. Prague 1-Malá Strana, Letenská No. 33/III, exc. 2006/12, trench J3. **A** – front outer face of opoka cylindrical tower Z112, relatively regular blocks laid in rows; **B** – top view from E.

Fig. 58. Prague 1-Malá Strana, Dražický Square No. 62/ III. Embedded face of a stone filling layer 12. Hypothetically, the western face of the massive foundation masonry (*cf.* Fig. 44A: layer 12, ochre) of an unknown building/tower? (*cf.* Fig. 37).

Fig. 59. Prague 1-Malá Strana, Valdštejská No. 154/III, plot No. 614/1+ 615. **A** – topographic situation at the eastern foot of the castle slope with Písek gate (**a**), Romanesque gate (**b**; *cf.* Fig. 35), unknown massive masonry, 1976 trench for static purposes in **red** (**c**; *cf.* Fig. 59B) and archaeological trenches documented by exc. 24/98+4/99 in **black** (**d**). **B** – foundation (**dark**) and above ground (**light**) masonry of construction with uncertain interpretation, perhaps external rampart.

Fig. 60. A depiction of Prague from 1493; highlighted is the eastern rampart of the city on the castle slope. In: Hartmann Schedel, Liber Chronicarum, Nuremberg: A. Koberger, 1493.

Fig. 61. The relationship between the length units of the ancient (Greek and Roman) system and the Bohemian cubit (0.5914 m); legalized unit from the mid-13th century. Their mathematical relationship and conversion system. Graphic and table conversion (M. Müller).

Fig. 62. General plan of the fortifications of the left bank fortress including Prague Castle, New Town below the Castle (Malá Strana) and the Johanniter commandary at the end of king's Přemysl Ottokar II (1253–1278) reign. In **purple** – the masonry of the early Gothic rampart (1250s and 70s); in **black** – segments built with Romanesque technology prior the mid-13th century; **green** – reconstruction of the main rampart line; **light ochre** – presumed line of the ditch; **dark blue** – presumed outer wall; **light blue** – Malostranský Stream. **Gates:** **a** – on the Zámecké Stairs, **b** – in No. 192/III, **c** – Strahov Gate in Nerudova Street, **d** – In the corner (in No. 259/III), **e** – Újezd Gate in Karmelitská Street, **f** – commandary entrance, **g** – in Saská Street, **h** – from Judith Bridge, **i** – in Letenská Street, **j** – Písek Gate in Valdštejská Street, **k** – Romanesque in No. 158/III.

Translated by Linda Foster