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THE EARLY MEDIEVAL HILLFORT BOJNÁ — VALY, SLOVAKIA, AND ITS DEFENCE SYSTEM

ABSTRACT

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The hillfort Bojná I–Valy is a part of an early medieval fortification system located in the Považský Inovec mountain range that separates two densely populated settlement areas of Slovakia — namely the valleys of the Nitra and Váh rivers. Judging by the abundance of finds, in the 9th century the 12 hectare hillfort was a prominent seat of social elites. A bronze bell, a collection of gilded figural plaques as well as further symbols substantiate Christian affiliation of the community.

The core of the monumental ramparts consists of log chambers with inner grates filled with soil and stones. From the front side, it was protected by a stone shell. Pincer gates had inwardly extended arms and a tower entrance in the front part of the corridor. According to the dendrochronological data, the fortification was erected in the last decade of the 9th century and shortly afterwards destroyed by a fire. Excavations of the bottom part of the ramparts confirmed, however, the presence of remains of an older construction. In this area, there are also four further hillforts providing finds dated back to the Early Middle Ages. At least one of them (Bojná II) was also destroyed by a fire at the end of the 9th century or in the 10th century.

Key words: Early Middle Ages; Carpathian Basin; hillforths; absolute chronology

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I. INTRODUCTION

Although first mentions about the Valy hillfort in Bojná, district Topoľčany, Western Slovakia, go back to the beginning of the previous century, substantial research works were initiated here only in 2003, after amateur discoveries of numerous mass finds and some valuable artefacts that were acquired by several private and museum collections[1]. This first stage provided evidence for the exceptional importance of the site in the process of understanding the structure and the quality of settlement during the times of Principality of Nitra and Great

[1] Study produced with the support of the project APVV 14-0842 *Central Europe between the Celtic Oppida and the Old Slavic Centres of Power* (50%) and VEGA 2/0001/18 *Slovakia and Middle Danube Region: Development from the Early Historic Age to the beginning of the Middle Ages* (50%).

Moravia in the 9th century (P i e t a, R u t t k a y, R u t t k a y 2006). Since 2007 the hillfort Bojná I–Valy is a subject of a systematic research which, to a smaller extent, covered also four other hillforts located in that area (Fig. 1). Results of field works performed so far as well as the current state of knowledge were summarised in the second monographic study dedicated to this site (P i e t a, R o b a k 2015) for which we presently prepare a second, extended edition. The aim of the on-going research is to clarify dating of individual sites and their internal development, define their mutual relationships and to examine closer both the emergence and the decline of this exceptional settlement agglomeration and establish its relevance. The advantages of the research in Bojná include a very good state of preservation of relics caused by an abrupt demise of several sites and the fact that early medieval soil ramparts were typically located in places without earlier settlement, which afterwards remained unused. So far, only at the hillfort Bojná I itself, 26 mass finds were discovered. On the other hand, however, the mountainous, forested and difficult to access terrain sets high demands on the organisation of both excavations and field prospections. The beginnings of medieval settlement here, as confirmed by numerous finds, go back to the 7th century (P i e t a 2015, 14–16). The oldest part of the Bojná agglomeration is the site Bojná III with an examined fortified settlement dated back to the 7th–8th century (R o b a k 2015, 52–54).

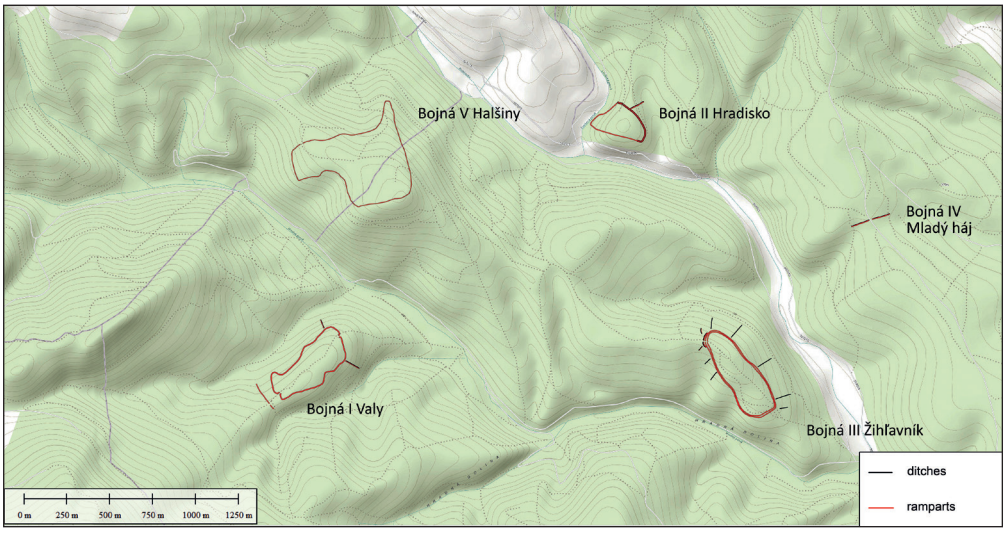

Fig. 1. Bojná agglomeration; prepared by Z. Robak

II. CHARACTERISTICS OF THE HILLFORT

The hillfort Bojná I–Valy is the most important site in the entire region and its ramparts belong among largest fortifications of their times in the Middle Danube Basin (Fig. 2). The layout of these ramparts was documented with detailed geodetic

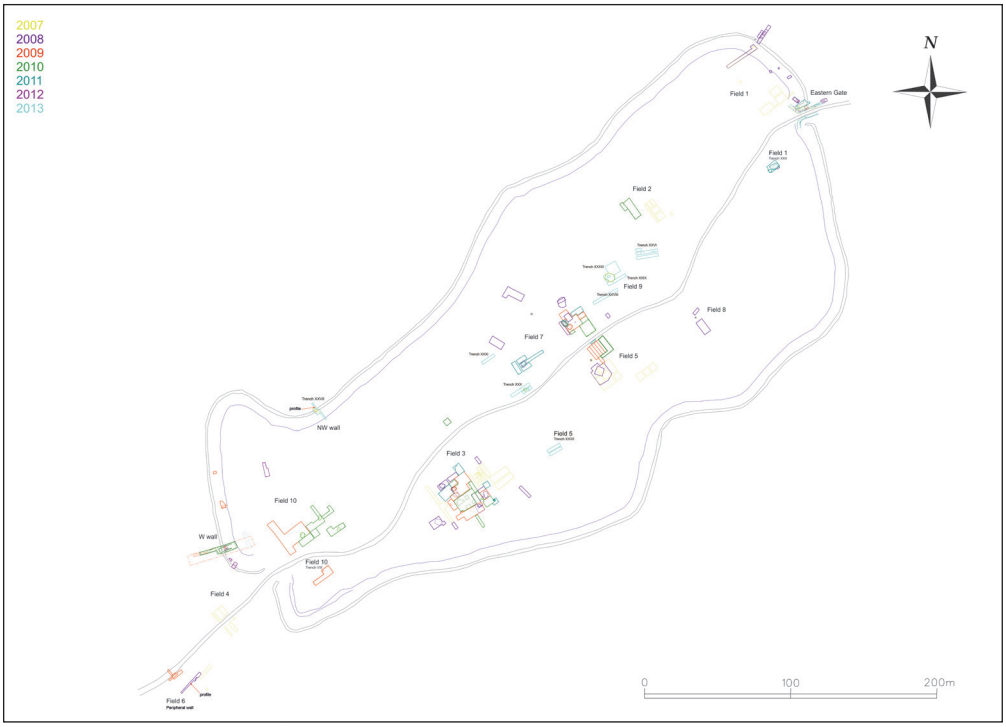

Fig. 2. Bojná I–Valy. Plan of areas explored in years 2007–2013; Archives of IA SAS, Nitra

measurements, aerial photography and LIDAR scanning (R u t t k a y 2015, 304, Fig. 11–12). The ramparts were erected on a narrow mountain ridge protected from both sides by valleys with streams. The perimeter rampart protected the peak of the hill on its longer sides over steep slopes falling into the valleys and on both relatively easily accessible sides oriented towards the mountain ridge. On the northeast side, oriented towards the Nitra valley, in front of the rampart there was a ditch. At the gate, the ditch was crossed by a ramp of an access route. At the northeast bend, below the perimeter rampart there was a slope crossed by a rampart with a ditch on its eastern side. Also on the other side, near the southeast bend of the rampart, there was an external rampart with a ditch oriented similarly towards the east. The aim of these auxiliary fortifications was most likely to increase control over areas located around the hillfort in case of an attack from the east.

On the western side, the ridge Valy narrows and falls to a low, relatively easily accessible saddle. Therefore, this is exactly the spot where the main fortifications with the pincer gate were strengthened with a ditch and a protruding formwork wall. In the narrowest point of the ridge the access to the hillfort from the west was protected by a large ditch with a rampart and another gate. And by that means a fortified settlement emerged. The perimeter of the main rampart is 1340 m long, while the transverse rampart at the western settlement is 193 m long.

The entire inner area of the hillfort, including the settlement, was relatively densely populated, with clusters of sunken houses, storage pits and constructions built at the level of the ground. Areas located to the west and to the east of the hillfort were also populated, although less densely. In features and settlement layers we have found an exceptional abundance of finds, which undoubtedly confirms the hypothesis about an abrupt demise of the site. Currently, from the hillfort Bojná we know more than 5300 individually registered items (Figs. 3–6). This collection, including already known early Christian artefacts — the bronze bell and gilded figural plaques with inscriptions (Hanuliak, Pieta 2014), represents a unique manifestation of the material culture of the Early Middle Ages in the Great Moravian milieu.

Ramparts

The perimeter rampart was examined with three cuts on its eastern, north-western and western sides. Furthermore, the research revealed details of the internal construction of the eastern gate. In all spots we have detected preserved parts of a wooden skeleton of the embankment, which, at least in its upper parts, bear marks of a strong fire. In particular cuts we could trace some distinct differences in the way the fortifications were constructed and in the volumes of materials used in their erection. While on the strategically most exposed western side the walls of embankment and at least the front part of the rampart was made of significant quantities of stones, the south-eastern and eastern parts of the perimeter rampart were constructed mainly of soil and wood with only a limited use of stones. The different extent of the use of stone seems to be partially linked with its availability on the western side of the hillfort, where, directly below the perimeter rampart and fortifications, there was a source of relatively good stones useful in the construction extracted when the ditch was dug down to the rock subsoil. On the southern and eastern sides, on the other hand, there were only limited possibilities to quarry stones from the weathered subsoil.

Convincing results were provided mainly by the works performed on the western side, where 8 meters wide trench facilitated recognition of basic features of the construction inside the rampart, which even today reaches a height of 600 cm (Pieta 2015, 18–21). A base embankment was poured on a levelled rock surface and pairs of pillars, which at both internal and external side fixed horizontal log chambers made of oak beams and covered with stones, were embedded in the ground. Up to a height of 60 cm the chambers were filled with grates made of transversely arranged oak branches and thicker boughs overlaid with layers of a loose material. The embankment was there strengthened with at least five grates and, at back and front sides, additionally enhanced with a wall made of large dry laid stones. On the inner side the embankment was fixed also by a woven wall supported by pillars. On the outside, the embankment was covered by a stone shell set on rocky subsoil over the ditch. We

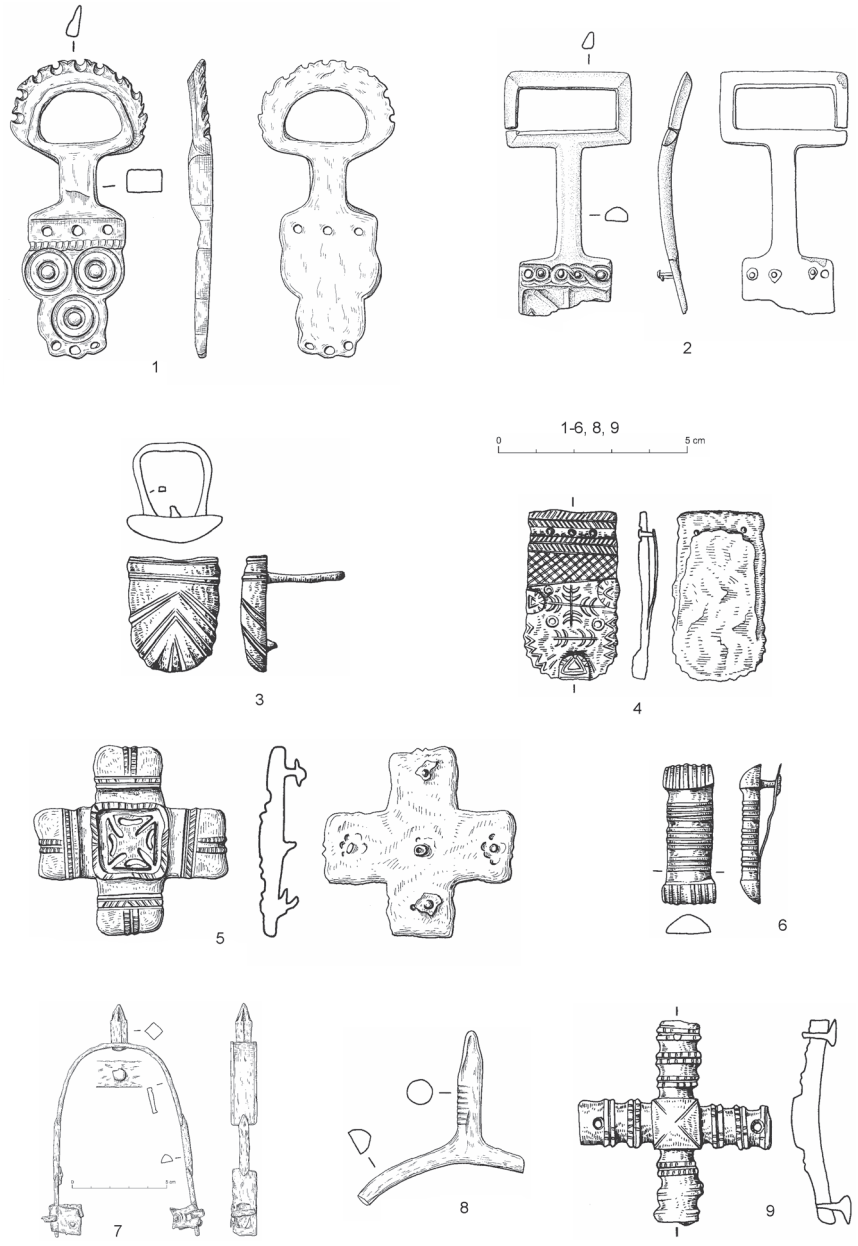

Fig. 3. Bojná I–Valy. Components of a warrior's attire and equipment; Archives of IA SAS, Nitra.
2 — gilded bronze; other — iron

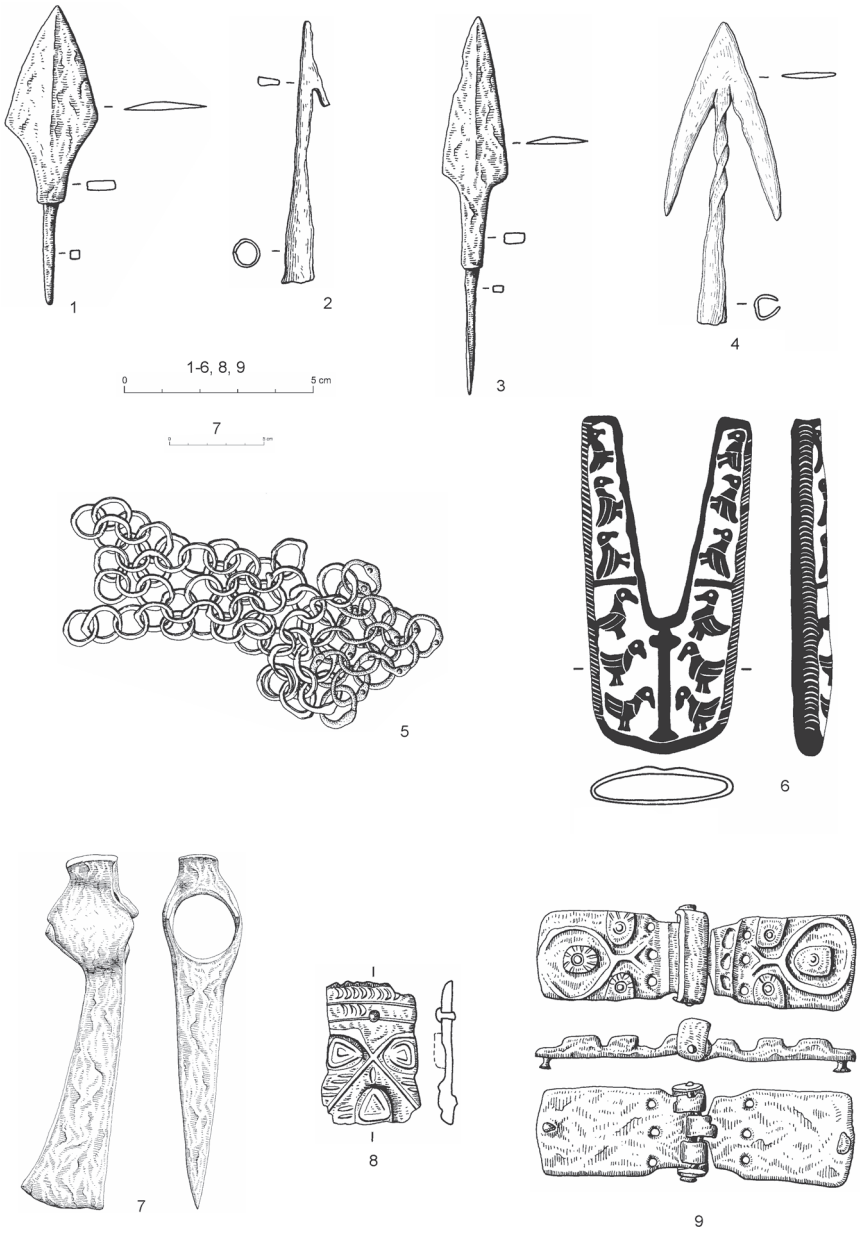

Fig. 4. Bojná I–Valy. Components of a warrior's attire and equipment; Archives of IA SAS, Nitra.
6 — iron plated with silver foil with niello; other — iron

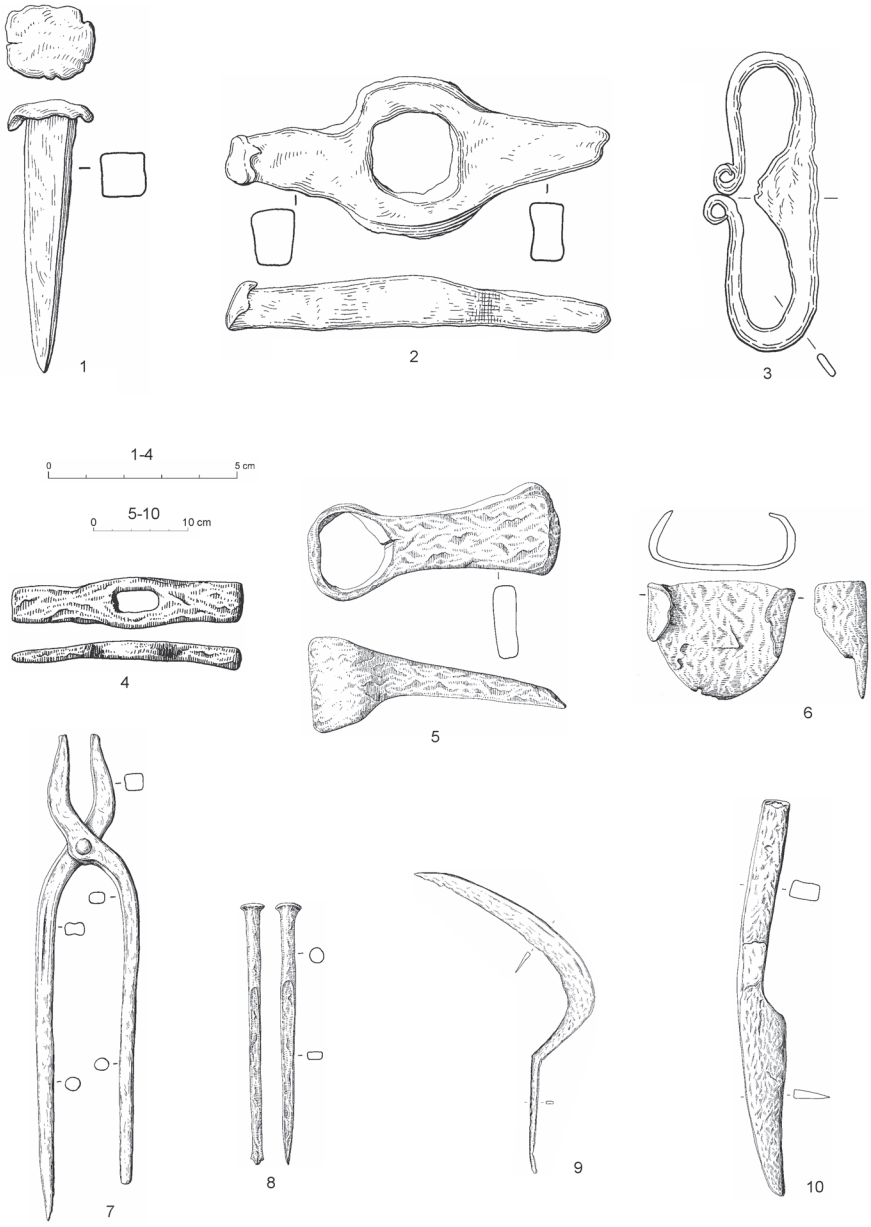

Fig. 5. Bojná I–Valy. Iron tools; Archives of IA SAS, Nitra

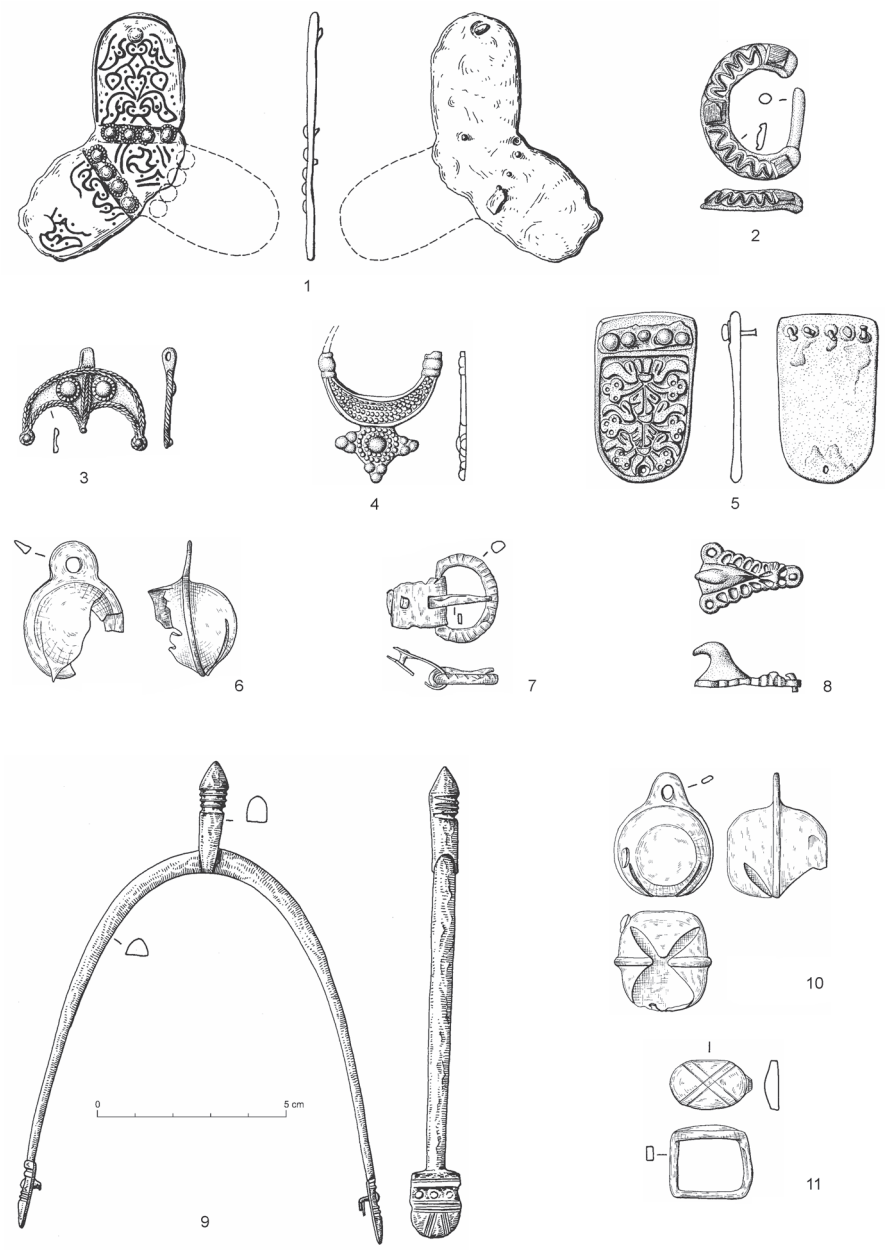

Fig. 6. Bojná I–Valy. Components of attire and warrior's equipment; Archives of IA SAS, Nitra.
1 — iron with gold inlay; 2 — copper alloy plated with silver foil; 3–5, 8 — copper alloy; other — iron

assume that in the unpreserved upper part of the construction the upper beams were bounded and formed a foundation for the platform with a wall-walk and a horizontal timber wall. In this part of the rampart we have identified remains of three transverse log chambers. The fact that the construction of the western rampart was well preserved allowed us to prepare its in situ reconstruction for demonstrative purposes (Fig. 7).

Fig. 7. Bojná I–Valy. A view on a partially reconstructed front side of the western rampart; Photo by K. Pieta

The box construction of the fortifications was at that time very popular in Slavic territories (Poleski 2004, 131–137). In a combination with a "dry wall" it was one of constructions typical for the Great Moravian architecture (Poleski 2004, 136, 137; Procházka 2009, 73). In territories of today Slovakia it was used for construction of lowland fortifications in Pobedim and Majcichov (Bialeková 1978; 1998, 385–387; Fottová, Henning, Ruttkay 2007, 223, 224) but also in mountainous environment, in Spišské Tomášovce (Šalkovský 2006). Similar constructions can be also found in Moravia, particularly in Břeclav-Pohansko (Procházka 2009, 115–129) and Lower Silesia (Jaworski 2005, 139–144).

On the north-west side (trench XXVII) we have discovered a part of a footprint of the rampart and made a profile of the body of the rampart with the communication area along the inner part of the fortifications (Figs. 8–9). The

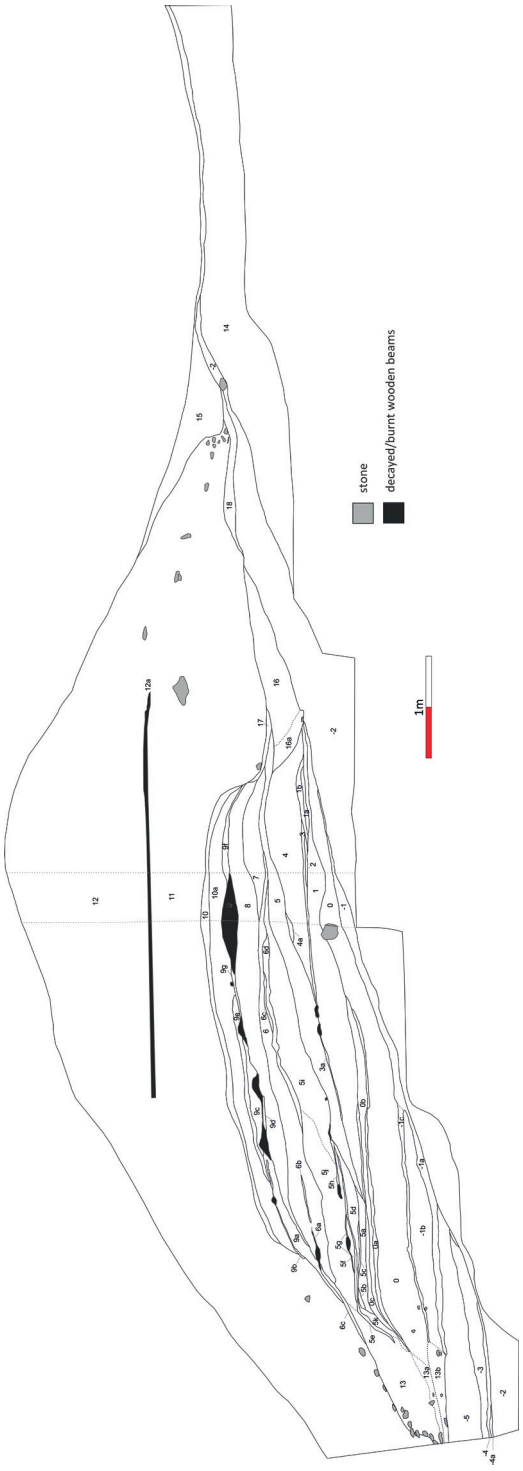

Fig. 8. Bojná I–Valy. Trench XXVII. Profile of the north-western rampart; prepared by Z. Robak

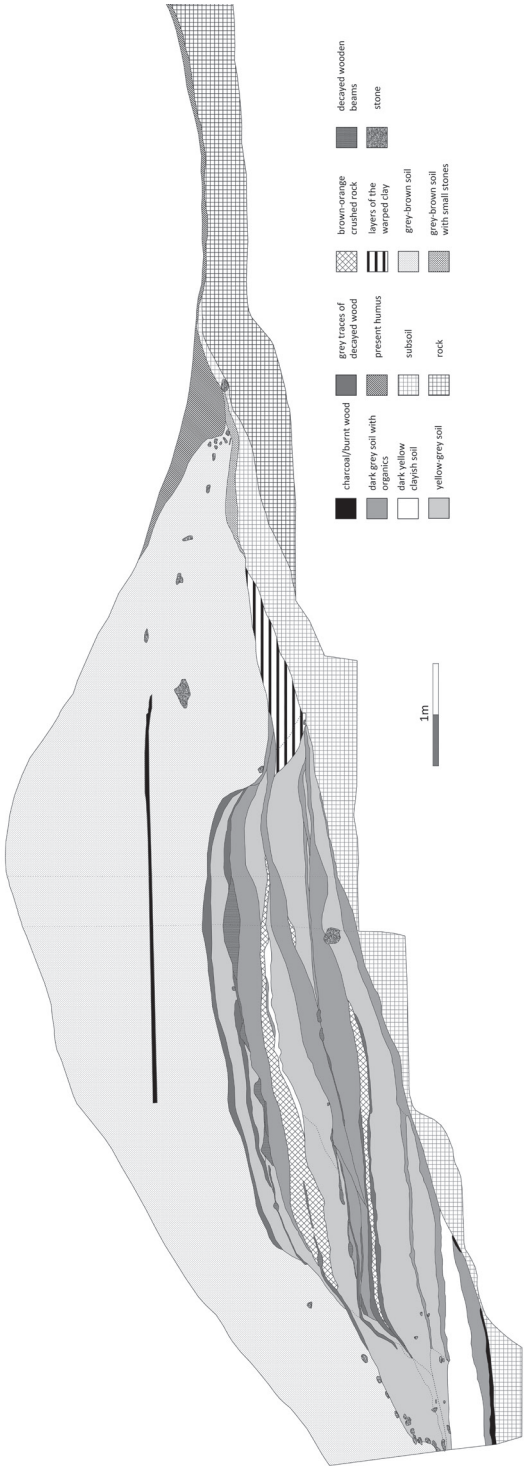

Fig. 9. Bojná I–Valy. Trench XXVII. Profile of the north-western rampart; prepared by Z. Robak

body of the rampart was enhanced mainly with wood with a small amount of stones. This correlates with local gravel subsoil that provided no opportunity to acquire construction material. The transverse wooden reinforcement was preserved in lower sections of the profile in a form of layers of decayed pieces of wood or hollow spaces left after the wood has rotten. In upper parts, due to the fire, the grates were carbonised (unit 12a at Fig. 8). Unlike in the western section of the rampart, here the body of the rampart was not filled with coherent layers of transverse timbers — grates. Instead, there were individual pieces or pairs of tree trunks and beams laid, approximately, every 210 cm. After destruction, the front part of the rampart evidently slid off the slope. We need to notice here also that in none of the trenches cutting the fortifications, we have detected any accumulated layers that would justify isolating stratigraphic units.

An important finding is a layer of warped sandy clay sediment (stratigraphic units 16–16a, Fig. 8) deposited on the inner side of the lower part of the embankment. Based on this find we assume that the upper part of the embankment, from the layer No. 5 up (where first carbonised grates occurred), is a younger phase of the construction, erected on an older foundation. Remains of the so far precisely undated older fortifications were traced also on the eastern side of the rampart.

In the embankment, at least in its lower part above the subsoil, we have found relatively large amounts of early medieval pottery and animal bones. The settlement material was found also in other cuts through the rampart. It lends credence to the hypothesis that parts of the embankment were built of (older) settlement layers from the hillfort. Traces of extraction of soil and stones along the inner side of the rampart are clearly legible in the terrain and well documented on the LIDAR scans.

On the inner side of shorter parts of the fortifications with gates, at least in two spots we were able to identify traces of hollow places — some chambers with timber lined walls. On the eastern side in a similar chamber we have found two deposits of iron items (cauldron and agricultural tools). Therefore, we can assume that such destructed chambers contained also other items discovered on the inner side of the rampart (two buckets on the eastern side and a bronze bell on the western side).

The fortifications of the western *suburbium* were founded on a 180 cm deep and 360 cm wide ditch dug into the rock (Fig. 10). The rampart with an original width of about 9 m was covered with soil and fine stones acquired mainly during digging the ditch. In the profiles of the trench we observed no clearly legible layers or traces of any wooden constructions (Fig. 10). This section of the rampart has not been burnt. On the rear side, the crown of the rampart was enhanced with a stone wall. The front side of the rampart over the ditch was resting on partially carved bedrock. The original stone shell together with charred timber from the platform slid off to the ditch. In the inner part of the body of the rampart, to the south of the cut through the rampart we have found a deposit no. 7 that contained eighteen iron axe-like bars.

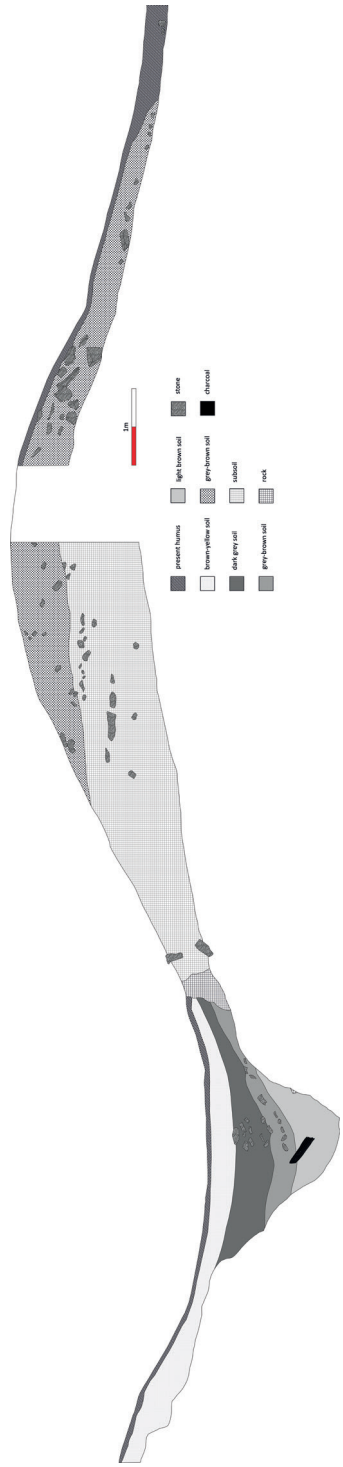

Fig. 10. Bojná I–Valy. Profile of the western perimeter rampart; drawn by Z. Robak

Gates

The access to the fortified area was provided by three gates placed on the longer axis of the hillfort. The research covered both the settlement gate and the eastern gate. The road-like entrance to the settlement leading through a neck rampart was damaged in modern times when the passage was widened. The research confirmed that in that area the ditch was crossed with a fixed ramp, where, above the subsoil, traces of undated cart tracks maintained. In the eastern, pincer gate we were able to document well preserved charred fragments of inner walls of the entrances with rows of pillars linked with transverse beams and wattle (Fig. 11). A similar solution was applied in the construction of leaves of the gate. According to findings of the research performed in the northern part, embankments of the leaves were interleaved with grates. Lower layers contained a lot of settlement waste, burnt clay, potsherds and animal bones. At the junction with the perimeter rampart there was a log beam secured with pairs of pillars at both sides. The entrance was closed with only partially preserved large pillars located in a narrowed front section that presumably supported

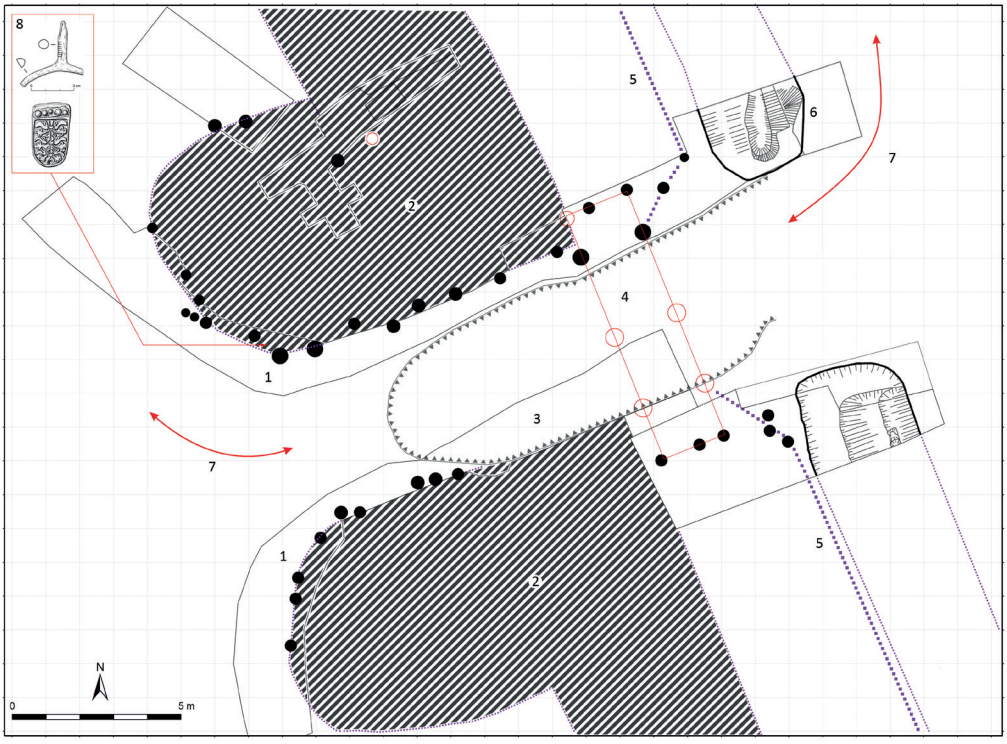

Fig. 11. Bojná I–Valy. Plan of the eastern gate; drawn by Z. Robak.

1 — lines of wooden pillars; 2 — earthwork; 3 — eroded part of the gate; 4 — preserved and hypothetic pillars of the entrance; 5 — line of the face of the rampart; 6 — outer ditch; 7 — direction of entrance and exit of the gate; 8 — location of finds of the spur and the fitting

a tower construction. The original road led towards the south leaf of the gate along a ramp crossing through the ditch in the eastern part of the fortifications. Such a two-piece constructions were applied also at entrances to palisade fortifications in Ducové and Břeclav-Pohansko (Dostál 1969; Ruttkay, Čelko 1984). A similar solution is known also from large hall gates (Poleski 2013, 96). However, unlike other gates of a similar construction (Szameit 1998, 73), a platform of the eastern gate in Bojná was shifted to the front and the narrowed defence corridor was located on the inside. An exceptional state of preservation of this object allowed its virtual reconstruction and presently we also prepare a structural reconstruction in its original location.

Dating and the issue of an older phase of the fortifications

Based on the current collection of finds and natural analysis, the hillfort in Bojná I–Valy could be generally dated back to the 9th–beginning of the 10th century and was linked solely with the Great Moravian culture. Unlike the neighbouring hillforts Bojná II–Hradisko and Bojná III–Žihľavník the hillfort reveals no traces of older settlement. Even the horizon of the oldest finds does not provide any arguments to shift the chronology of the site far beyond the beginning of the 9th century. The horizon, without any exception, includes items that are generally dated back to the second half of the 8th century, but it cannot be excluded that they could be used also in the first third of the 9th century (Robak 2015)[2]. The chronology of the youngest metal items linked with the Early Middle Ages does not go beyond the first half of the 10th century.

Based on the dendrochronological analyses of samples taken from remains of burnt constructions of the eastern gate and from the adjacent section of the wall (Table 1), we know that erection of this part of the rampart took place around/after 866. Most of the results confirm construction activities after 890 and the youngest data come from the period around/after 908. Similar findings were provided by an analysis of a sample taken from a low rampart closing the access to the western settlement (around/after 899). Therefore, the construction of massive fortifications still visible at the hillfort should be dated back to the end of the 9th or the beginning of the 10th century. Most likely, with this phase we should also link a moderate settlement layer recorded at the hillfort, which abound in metal and pottery finds including entire vessels. There are no traces of later use of the fortifications as well as younger cultural layers. This confirms that in the first half of the 10th century the hillfort was abandoned and never again restored.

[2] This chronological information applies also to the collection of hooked spurs. Contrary to the common beliefs about their chronology (between the 8th century and the beginning of the 9th century), in the Middle Danube Basin we must assume that they were used at least until the mid-9th century — and occasionally even throughout the Great Moravian period (Robak 2013, 26, 27; Profantová 2016).

Table 1

Bojná I–Valy. Dendrochronological data from the eastern rampart; after J. Henning, M. Ruttkay (2011, 279, Tab. 9) prepared by K. Pieta, Z. Robak.

Sample	Feature	Rings	Probable date of a cut
C-51123	Inner side of the E rampart, wooden beam	798–846	about/after 866
C-51125	Inner side of the E rampart, pillar 5	827–860	about/after 880
Sample "too short" — information: K.-U. Heussner, Berlin, 03.03.2011	Inner side of the E rampart, pillar 1	44 rings	about 886
C-51128	Inner side of the E rampart, pillar 4	788–869	about/after 889
C-51129	Inner side of the E rampart, pillar 9	799–872	about/after 892
C-51123	Inner side of the E rampart, pillar 6	808–876	about/after 896
C-51121	External western perimeter rampart	754–879	about/after 899
C-51127	Inner side of the E rampart, pillar 7	833–888	about/after 908

A question of an older settlement phase on the hill Valy and therefore also the issue of an older phase of the fortifications remains unanswered. There are, however, numerous arguments supporting the hypothesis that there was such an older settlement phase. The stratigraphy of layers in trench XXVII (Figs. 8–9) hints at the possibility of the existence of an older embankment (layers from 4th to 2nd and older). It remains uncertain, however, whether we deal here with an entire older construction or only with a construction phase. An unambiguous proof of the existence of a dense settlement in the time, when the rampart was erected is provided by the presence of layers of black soil containing bones and pottery. This material was taken from the inhabited area, which must have been occupied before the rampart was built. Another argument for the hypothesis about an older settlement phase is delivered by the location of several storage pits preserved only in lower parts below the cultural layer on the surface of the hillfort. Upper parts of these pits were destroyed, when at the end of the 9th century or at the beginning of the 10th century the soil for the construction of the fortifications was taken and when the area of the hillfort was stripped off a substantial portion of settlement layers. This is sufficiently illustrated by traces of layers legible in trench XXVII.

At present, from the hillfort Bojná I–Valy we have 22 radiocarbon data, including 12 sampled from the ramparts, 8 from backfills of features, and 2 from the settlement layer, which preserved in several spots at the hillfort (Table 2; Figs. 12–13). Relying on dendrochronological analysis, the fortifications of the hillfort were dated back to the period between 866 and 908. Due to the relatively low accuracy of the radiocarbon method, the results provided by this analysis deliver only auxiliary information without any significant influence on determining the age of the fortifications. All results of the radiocarbon analysis of samples with a 95% confidence interval cover precisely the data obtained thanks to dendrochronological analysis. It seems, however, interesting that the samples with the oldest radiocarbon data concentrate in a trench located on the inner side of the western perimeter rampart (MKL-1422, MKL-1420 MKL-2877). Unfortunately, from this section of the rampart we have no dendro-data to compare, as all dendrochronological tests were performed exclusively on samples taken from the eastern part of the rampart and the eastern gate. This provides an incentive for further studies of the ramparts and urges us to look for an unambiguous answer at least to the question of the existence of a construction older than the currently visible remnants.

So far, at the hillfort we have discovered 44 settlement features, including 13 sunken houses. Confidence interval of radiocarbon data obtained from the features and from the cultural layer in the central part of the hillfort covers the early medieval period and except for one (MKL-1426) includes data obtained from the rampart. This allows us to reject the hypothesis about an older than early medieval settlement at the stronghold. Interestingly, the data correlates with information obtained based on stratigraphic evidence that allows us to speculate about two early medieval phases of settlement without any hiatus. These two phases are separated by the construction of fortifications, whose traces can be still seen at the hillfort.

The earliest probable radiocarbon data MKL-2876 (1370 ± 90) comes from a furnace in feature 33 (sunken house 9). The object is interesting, because it was purposely filled with soil (pure clay) and then the surface was levelled and reinforced with a layer of stones. This was done still during the use of the hillfort. On this elevated layer of stones a small cultural layer containing early medieval ceramics accumulated. It is one of a few features at the hillfort documented in a clear stratigraphic sequence.

The two youngest radiocarbon data (MKL-2874 a MKL-2868) come from samples taken from the cultural layer directly below forest humus and covering upper parts of destroyed storage pits. This layer (similarly as the layer over sunken house No. 9) is linked with the decline phase of the hillfort parallel to the use of the fortifications. This is an important conclusion, because it supports the hypothesis that the area of the hillfort was used longer than the distribution of dendrochronological data of the fortifications seems to suggest. It remains uncertain, however, whether this hypothetically older settlement horizon included the hillfort or only an elevated settlement and whether sunken house No. 9 should be linked with it.

Table 2

Bojná I–Valy. Radiocarbon data from the hillfort; prepared by K. Pieta, Z. Robak.

Sample	Uncalibrated BP	Feature	Catalogue number	CalAd 95,4%	CalAd 68,2%
MKL 1422	1290±80	W rampart, tower construction, horizontal beam	78/11	605–945	653–860
MKL 1420	1290±60	W rampart, wattle	60/10	648–881	663–771
MKL 2877	1080±70	W rampart, stone wall	38/14	770–1150	885–1024
MKL 225	1190±40	E rampart		695–967	775–882
MKL 1423	1200±30	W rampart, tower construction, horizontal beam	80/11	715–940	775–873
MKL 2871	1070±50	W rampart, S profile	13/14	809–1116	900–1018
MKL 1704	1080±40	E gate, trench XX	27/12	885–1024	900–1012
MKL 2873	1160±50	W rampart	17/14	694–994	776–953
MKL 1428	1170±30	W rampart, vertical element	54/10	771–965	777–893
MKL 1424	1150±40	W rampart, horizontal element	53/10	774–978	778–968
MKL 1703	1020±60	E gate, trench XIX	24/12	892–1158	905–1148
MKL 2870	1020±35	W rampart, S part, wattle destruction	12/14	901–1151	986–1032
MKL 2876	1370±90	Feature 33, sunken house 9, trench XXXIII/b, K68, oven	33/14	433–882	584–767
MKL 1425	1290±40	Sunken house 1, furnace, K261, Field 3	88/08	652–861	671–767
ERL 14314	1261±42	Sunken house 5, tooth, K207, Field 3	10/09	675–775	665–876
MKL 1429	1280±80	Sunken house 6, K51, Field 10	12/10	613–900	658–862
POZ 2	1180±30	Feature 42, K108, Field 9	50/16	730–951	777–887
MKL 1427	1170±50	Feature 11, sunken house 3, K328, Trench I/a, Field 3	24/09	713–986	775–941
POZ 1	1115±30	Feature 41, sunken house, K 95, oven, Field 9	19/16	779–1013	895–972
MKL 1426	840±40	Sunken house 2, K276, Field 3	82/08	1049–1270	1164–1246
MKL-2874	1090±35	Trench XXXIV/e, K213, Field 5	18/14	888–1018	898–991
MKL-2868	930±35	Trench XXXIV/d, K203, Field 5	4/14	1023–1184	1040–1154

MKL — Laboratorium Datowań Bezwzględnych Cianowice; POZ — Poznańskie Laboratorium Radiowęglowe; ERL — Radiokarbolabor Erlangen.

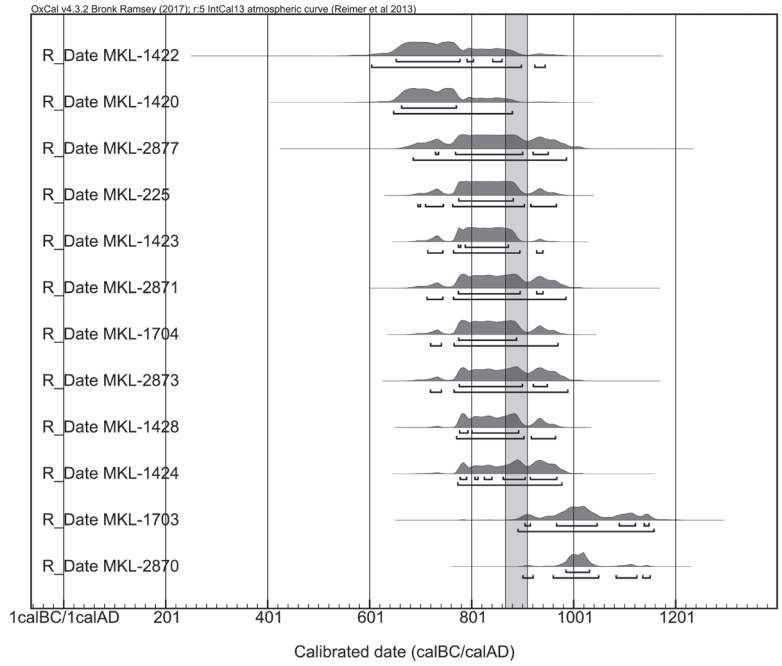

Fig. 12. Bojná I–Valy. Radiocarbon data from the ramparts. The grey area covers the range of dendrochronological dating of the ramparts; prepared by Z. Robak

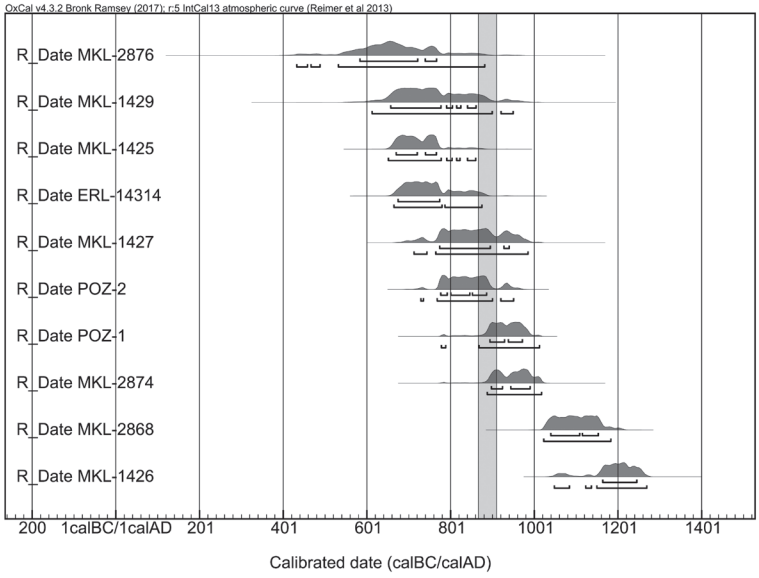

Fig. 13. Bojná I–Valy. Radiocarbon data from the features. The grey area covers the range of dendrochronological dating of the ramparts; prepared by Z. Robak

The series of radiocarbon data certainly requires verification by repeating dating of features at least twice. For example, a radiocarbon data obtained from a sample of the backfill of sunken house No. 2 (MKL-1426) suggests that it should be dated back to the 12th–13th century, which, however, is inconsistent with the current knowledge. Archaeological researches confirm that the hillfort was used only in the 9th century, respectively at the beginning of the 10th century. If, however, with the aggregation of radiocarbon data, the correlation strengthens, it will be possible to determine a chronological sequence of settlement features, although certainly the calibrated data, as contrasted with actual data, will be relatively extended, similarly as in the case of the fortifications.

Fortifications of settlements at the hillfort Bojná I and their common features

In the vicinity of the hillfort Valy, there are four further rampart fortifications. At least two of them — Bojná II–Hradisko and Bojná III–Žihľavník and possibly also the linear rampart at the site Bojná IV–Mlády háj — were also erected in the Early Middle Ages (P i e t a 2015, 30, 34, 35). The massive fortifications (more than 21 hectares) at Bojná V–Halšiny at the borderland between Bojná and Nová Lehota bear marks of documented settlement already in the Late Bronze Age and the mid-La-Tène culture, with single finds dated back to the 9th–10th century. Locations as well as the layout of ramparts of all fortifications were significantly clarified by the aerial scanning (R u t t k a y 2015, 304–309). We were able to obtain radiocarbon dating only from remains of burnt constructions of the rampart found in ditches of the hillfort Bojná II (P i e t a 2015, Fig. 18; R o b a k 2015, 57, Fig. 7). The results suggest that the rampart should be dated back to the end of the 9th or the 10th century and therefore does not differ much (or even coincides) with Bojná I.

In the present state of research we are entitled to assume mutual relations between individual fortifications only hypothetically. Even if their distribution in the mountainous terrain suggests attempts to establish a unified, perhaps incomplete, unfinished strategic project, we have no sufficient arguments to verify it. Common features of these fortifications include doubling of ramparts in exposed spots. This first step could be seen at the hillfort Valy as well as Bojná II and Bojná III. Another common defensive feature of all these three sites includes external fortifications — downhill along ditches and ravines — protecting slopes below the main ramparts. External ramparts, indeed, were intended as obstacles impeding fast moves of groups of invaders, particularly the equestrians, across the slopes below the ramparts and unexpected attacks in various points simultaneously.

The strategic concept of the fortifications in Bojná pursued two aims: securing access to the wider settlement area of the Nitra valley by controlling numerous passes through Považský Inovec and protecting a larger, local community. The

significance of the region was additionally enhanced by the presence of iron ores and gold that most likely have been exploited already in the Early Middle Ages.

III. CONCLUSIONS

The systematic research conducted in the years between 2007 and 2016 at the hillfort Bojná I–Valy and covering also further fortifications within this extensive agglomeration provided many new pieces of information about the early medieval defensive technique in the Central European milieu. The main sources of information included cuts through the ramparts and across the diches and gates as well as aerial scanning LIDAR. Preserved wooden parts of the ramparts destroyed by a fire allowed dating the construction. At the main hillfort Bojná I–Valy, in more exposed points, the structure was reinforced with log constructions filled with stones, soil and wooden grates, and covered with stones on the front. The access to the hillfort was protected by a ditch enhanced by a protruding rampart on the western side. In places more difficult to access, over steep slopes ramparts were less elaborate. Embankments were reinforced only with wooden grates and there was no stone shell. Slopes below the perimeter rampart were protected by vertical lines of external ditches with embankments. Doubled lines of fortifications in more easily accessible areas and external ramparts are present also at further hillforts of the agglomeration (Bojná II and III).

According to results of dendrochronological analyses and ^{14}C samples, the ramparts at the hillfort Bojná I and Bojná II were constructed at the end of the 9th century or the beginning of the 10th century, although the research of the main perimeter rampart allowed identifying also older sections of the fortifications. Their age, however, remains undetermined so far. The turn of the 9th and 10th century was a period of dynamic political changes in the Middle Danube Basin associated mainly with the expansive policy of Svatopluk and the emergence of a new active player in the Moravian-Frankish conflict, namely the Old Hungarians, who soon took the initiative. Also other factors contributed to the crisis associated with the emergence of Hungarians in the Carpathian Basin including internal problems of the Moravians linked with the dispute over the inheritance after Svatopluk who died in 894. It seems that in that period a large-scale action of erecting and/or reconstruction of a series of hillforts located in Western Slovakia such as Pobedim and Majcichov (Henning, Ruttkay 2011, 283, 284). At this point it is difficult to assess whether the construction of large fortifications of the hillfort Bojná I was triggered directly by one of the above events (immediate threats from Arnulf of Carinthia, Hungarian threats, rivalry between Svatopluk's sons) or whether it was rather a consequence of actions undertaken due to the general geopolitical situation at the turn of the 9th and 10th centuries. Dendrochronological dates of the youngest sample from the rampart (after 908) and radiocarbon dating of the ditch at the hillfort Bojná II indicate that construction activities could be still performed at the Bojná

agglomeration even after the date commonly accepted as the fall of the Great Moravian political organisation (906–907).

Currently, research works concentrate on further fortifications in the area of Bojná, including a newly discovered large hillfort Bojná V. Gradually, we identify also other features, either discovered or documented with LIDAR, including traces of mining activities within a complex network of old hollow ways passing through Považský Inovec.

REFERENCES

Abbreviations

ASM Archaeologica Slovaca Monographiae, Nitra (Archeologický ústav SAV)

Studies

Bialeková D.
1978 *Osídlenie oblastí so surovinovými zdrojmi na Slovensku v 9–11. storoči*, Archaeologia Historica 3, p. 11–17.

Bialeková D.
1998 *Zur Bautechnik der Befestigungsmauer des Burgwalls in Pobedim, Bez. Trenčin*, [in:] J. Henning, A. T. Ruttkay (eds.), *Frühmittelalterlicher Burgenbau in Mittel- und Osteuropa. Tagung, Nitra vom 7. bis 10. Oktober 1996*, Bonn (R. Habelt Verlag), p. 383–390.

Dostál B.
1969 *Opevnění velmožského dvorce na Pohansku u Břeclavi*, Sborník prací Filozofické fakulty brněnské univerzity E 14, p. 181–218.

Fottová E., Henning J., Ruttkay M.
2007 *Archeologický výskum včasnostredovekého hradiska v Majcichove*, [in:] K. Pieta, A. T. Ruttkay, M. Ruttkay (eds.), *Bojná: hospodárske a politické centrum Nitrianského kniežatstva*, ASM 9, p. 217–236.

Hanuliak M., Pieta K.
2014 *Odraz christianizácie v hnuteľných prameňoch z 9. storočia vo východných častiach Veľkej Moravy*, [in:] P. Kouřil (ed.), *Cyrilometodějská misie a Evropa — 1150 let od příchodu soluňských bratří na Velkou Moravu*, Brno (Archeologický ústav AV ČR), p. 134–147.

Henning J., Ruttkay M.
2011 *Frühmittelalterliche Burgwälle an der mittleren Donau im ostmitteleuropäischen Kontext: ein deutsch-slowakisches Forschungsprojekt*, [in:] J. Macháček, Š. Ungerman (ed.), *Frühgeschichtliche Zentralorte in Mitteleuropa: Internationale Konferenz und Kolleg der Alexander von Humboldt-Stiftung zum 50. Jahrestag des Beginns Republik*, Studien zur Archäologie Europas 14, Bonn (R. Habelt Verlag), p. 259–288.

Jaworski K.
2005 *Grody w Sudetach (VIII–X w.)*, Wrocław (Uniwersytet Wrocławski. Instytut Archeologii).

Pieta K.
2015 *Včasnostredoveké mocenské centrum Bojná — výskumy v rokoch 2007–2013*, [in:] K. Pieta, Z. Robak (eds.), *Bojná 2: nové výsledky výskumov včasnostredovekých hradísk*, ASM 20, p. 9–49.

Pieta K., Robak Z. (eds.)
2015 *Bojná 2: nové výsledky výskumov včasnostredovekých hradísk*, ASM 20.

Pieta K., Ruttkay A. T., Ruttkay M. (eds.)
2006 *Bojná: hospodárske a politické centrum Nitrianského kniežatstva*, ASM 9.

Poleski J.
2004 *Wczesnośredniowieczne grody w dorzeczu Dunajca*, Kraków (Księgarnia Akademicka).
Poleski J.
2013 *Małopolska w VI–X wieku: studium archeologiczne*, Kraków (Towarzystwo Wydawnicze "Historia Iagellonica").
Procházka R.
2009 *Vývoj opeňovací techniky na Moravě a v českém Slezsku v raném středověku*, Brno (Archeologický ústav *AV* ČR).
Profantová N.
2016 *Ostruhy jako doklady přítomnosti elity v 8. a 9. století v Čechách*, Archaeologia Historica 41:2, p. 7–40.
Robak Z.
2013 *Studia nad okuciami rzemieni w typie karolińskim. VIII–X wiek*, part 1, ASM 18.
Robak Z.
2015 *K otázke počiatkov včasnostredovekého osídlenia Bojnej*, [in:] K. Pieta, Z. Robak (eds.), *Bojná 2: nové výsledky výskumov včasnostredovekých hradísk*, ASM 20, p. 51–62.
Ruttkay M.
2015 *Využitie leteckej prospekcie a skenovania pri výskume hradísk a ich zázemia na západnom Slovensku*, [in:] K. Pieta, Z. Robak (eds.), *Bojná 2: nové výsledky výskumov včasnostredovekých hradísk*, ASM 20, p. 297–333.
Ruttkay A., Čelko E.
1984 *Moravany nad Váhom, Ducové pri Piešťanoch, Kostolec — archeologická rezervácia: sprievodca*, Piešťany (Balneologické múzeum).
Szameit E.
1998 *Zum frühmittelalterlichen Burgwall von Gars/Thunau: Bemerkungen zu den Fortifikationsresten und der Innenbebauung. Ein Vorbericht*, [in:] J. Henning, A.T. Ruttkay (eds.), *Frühmittelalterlicher Burgenbau in Mittel- und Osteuropa. Tagung, Nitra vom 7. bis 10. Oktober 1996*, Bonn (R. Habelt Verlag), p. 71–78.
Šalkovský P.
2006 *Výskum a rekonštrukcia fortifikácie západného areálu včasnostredovekého hradiska v Spišských Tomášovciach*, Slov. Arch. 54, p. 239–255.

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