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## WEAPONRY FROM THE VASSAL HOUSE IN KŘIVOKLÁT CASTLE FROM THE EARLY 15<sup>TH</sup> CENTURY. MODERNITY OR ANACHRONISM?

**Abstract:** This paper aims at discussing an exceptionally well dated assemblage of pre-Hussite weaponry in Bohemia which survived in Křivoklát Castle. This castle was one of the most important medieval defensive seats of the kings of Bohemia. Archaeological examinations of the so-called Vassal House (Czech: *Manský dům*, German: *Lehensmannshaus*) which were carried out in the 1980s by Tomáš Durdík yielded important results which have not been published in full. In destruction layers of the feature which was an economic hinterland of the castle there were numerous remains of weaponry and military equipment, such as fragments of shafted weapons, crossbows, armours and individual finds of firearms. These artefacts are now a unique assemblage of weaponry from the period of intense transformation of European arms and armour in the early 15<sup>th</sup> century. They are also a material testimony of existence of the castle garrison, which was composed of local vassals who were obliged to defend it. It is assumed that in the pre-Hussite period the garrison may have been composed of about 60 combatants, including nearly 40 shooters.

**Keywords:** Křivoklát Castle, Manský dům, Medieval Period, weaponry, castle

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### Introduction


Křivoklát Castle in the Rakovník District is one of Bohemia's most significant castle sites. Long-term systematic research into the castle commenced in 1973 and the practically permanent archaeological supervision of the site is connected indelibly with the personality of Tomáš Durdík, who completed most of the larger excavations by 2001.<sup>1</sup> However, smaller-scope probing on the castle's premises continued to be carried out in subsequent years and is still ongoing.<sup>2</sup> Křivoklát Castle was the centre of the so-called Přemyslid hunting forest,<sup>3</sup> which is situated in the western part of modern Central Bohemia and which represented the core of Bohemia's palatinal and later royal domains. This area also shows a concentration of large royal castles. During the reign of Přemysl Otakar II, Křivoklát was

replaced by nearby Týřov as the central administration castle in the area of this hunting forest.<sup>4</sup>

### A brief history of the castle and its construction design

Křivoklát Castle, as it stands today, was built on the site of an earlier Přemyslid hill-fort. Modifications of the earlier edifice are probably mentioned in a written record from 1110.<sup>5</sup> The construction of the extensive royal castle dates back to the reign of Přemysl Otakar II. At the start of the 14<sup>th</sup> century, the castle was affected by an archaeologically-documented fire that can be related to the conquest of the castle by Vilém Zajíc of Valdek. The castle was the place of repeated visits by Charles IV, who included it among inalienable royal castles.<sup>6</sup> During the reign of Wenceslaus IV, the castle was radically rebuilt. This reconstruction involved the building of a vassal house in the north-eastern part of the castle, along one of the two access routes (Figs. 1-4). Further construction work at the castle, which sustained

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<sup>1</sup> Durdík 1996-2001.

<sup>2</sup> E.g. Kypta et al. 2008; Razím 2010, 101.

<sup>3</sup> E.g. Durdík 1982; Durdík 2001a.

<sup>4</sup> For more on this site see: Durdík 2001b.

<sup>5</sup> Durdík 1999, 299 with an overview of older literature.

<sup>6</sup> Hložek and Gersdorfová 2016, 199-200; Hložek 2018a, 64.



Fig. 1. Křivoklát Castle with remnants of Vassal House. Aerial photo (archive of J. Hložek).



Fig. 2. Remnants of Vassals House in Křivoklát Castle.  
Photo O. Ławrynowicz.

castles with built-up periphery. The eastern part of the castle core was dominated by a massive dwelling tower. Analogies to this edifice can be found among the donjons of King Phillip Augustus in Central France.<sup>7</sup>

#### Historical context for the 1422 events at Křivoklát

Vassal systems were used to manage many large Přemyslid castles in Bohemia, including Loket, Tachov and Trutnov. From the 14<sup>th</sup> century onwards, feudal organisation was being created for not only royal castles but also aristocratic estates.<sup>8</sup> Probably the latest vassal system in Bohemia, existing until as late as 1634, was established at Frýdlant Castle.<sup>9</sup> The origins of the vassal system of Křivoklát Castle probably date back to the period of John of Luxembourg's reign, with its greatest expansion occurring during the reign of Wenceslaus IV.<sup>10</sup>

The vassals, comprising labouring and noble (serving) vassals, were tied to the castle by various duties. Thus, the vassal system of the castle not only represented its economic and operational base, but also constituted a significant component of its defence system.<sup>11</sup> In relation to the military service of noble vassals, we can mention some of the finds from the vassal house, especially the militaria or parts of equestrian equipment.<sup>12</sup> The duties of Křivoklát's

<sup>7</sup> Durdík 1999, 302.

<sup>8</sup> Durdík 1999, 354; Hložek 2018b, 85-87.

<sup>9</sup> Sedláček 1895, 189.

<sup>10</sup> Laštovka 1995, 46.

<sup>11</sup> For the wider context of the feudal system, see e.g.: Vlach 1875; Sedláček 1891; Kočka 1936; Sovadina 1974; Kavka 1990.

<sup>12</sup> Durdík 1995d; Durdík 1995e.

great damage during the Hussite Wars, was conducted during the reign of Jiří of Poděbrady. Under Vladislaus Jagiellon, the castle was rebuilt and transformed into a significant late-Gothic fortress. In terms of its construction design, the castle ranks among large royal

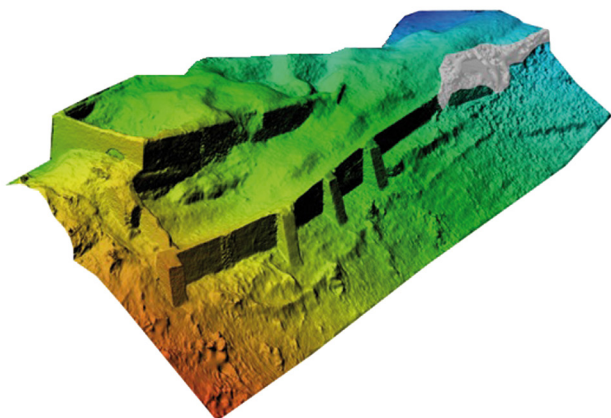


Fig. 3. Visualization of remnants of the terrain of Vassal House in Křivoklát Castle. Prepared by P. Hlavenka.

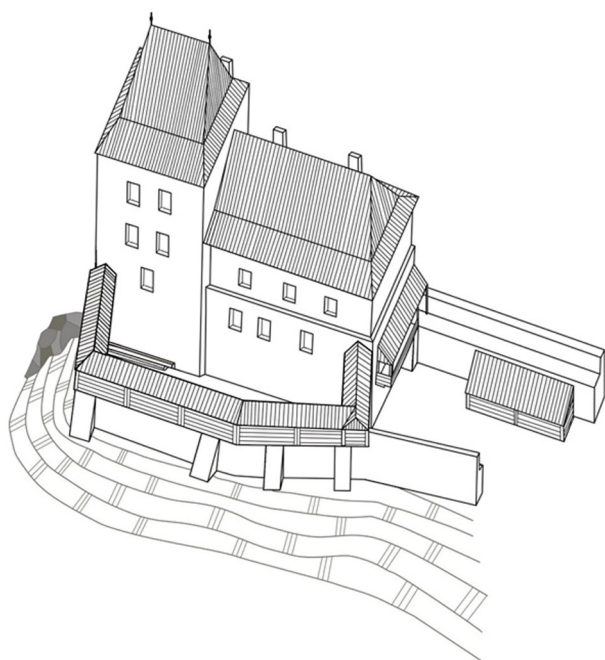


Fig. 4. Reconstruction of the building forms of Vassal House in Křivoklát Castle. Prepared J. Hložek.

labouring vassals of the pre-Hussite period included, among others, “furnishing four persons serving at Křivoklát with victuals and clothing or supplying grass for His Majesty’s privy”.<sup>13</sup> Many other activities are known from the later period.<sup>14</sup> However, the inventory of vassal estates from the pre-Hussite period<sup>15</sup> shows that, where documented, military service at the castle was tied to the overwhelming majority of estates. The vassal system thus provided for at least 39 archers and almost two dozen armour bearers. The duty of Čeněk of Okrouhlík was

“to lead the artillery”.<sup>16</sup> In the period before the castle’s reconstruction by Wenceslaus IV, noble vassals used the houses built along the perimeter of the so-called lower castle, especially on its north-eastern and western side.<sup>17</sup> In 1337, for instance, Margrave Charles granted a house situated between the castle’s Gottschalk and Aleš Houses, originally used by the castle’s slinger,<sup>18</sup> to Ješek Lintvurm of Chlum, in addition to a village with a wood, a meadow and a mill.<sup>19</sup> The expansion of the Křivoklát vassal system under Wenceslaus IV was also reflected in the building of an exquisite vassal house during that king’s reconstruction of the castle.<sup>20</sup>

The fire that spread from the stables to all of the castle on March 18, 1422, resulting in the destruction of the vassal house, affected mainly the wooden or mixed structures of the peripheral fortifications and other combustible objects. The large castle remained habitable, but could only barely be defended. For this reason, it was abandoned by the Prague burghers hiding there, who subsequently found a safer refuge behind the walls of the Catholic town of Pilsen.<sup>21</sup>

Already in April 1422, the damaged castle was conquered without any major difficulty by the Hussite troops of Absolon Bělbožek of Chříč, who, however, was unable to maintain control of the probably only partially repaired castle. In August of the same year, the unrepaired castle was conquered fairly easily by Hanuš of Kolovrat, who left a small garrison there. This turn of events was exploited by Absolon’s brother Žibřid of Chříč, who besieged the castle again and may have occupied it for a short period of time. The Catholic response was not long in coming, however. Hanuš of Kolovrat soon returned to the castle, having allied himself swiftly with Aleš Holický of Šternberk. Žibřid and his men withdrew to Rakovník, which was burnt down during their pursuit.<sup>22</sup>

Between May 20 and November 8 of the same year, Karlštejn Castle was besieged and some damage was also sustained by Tetín. This siege, however, was preceded by a campaign in November 1421, aiming to seize Karlštejn’s food supplies stored in the buildings below the castle.<sup>23</sup> In 1421, the Hussite army conquered Beroun,<sup>24</sup> burning down the Benedictine Prior’s Residence

<sup>13</sup> Laštovka 1995, 52-53.

<sup>14</sup> Most recently, Razím 2010, 66-68.

<sup>15</sup> Laštovka 1995, 52-54.

<sup>16</sup> Laštovka 1995, 53.

<sup>17</sup> E.g. Sedláček 1891, 18.

<sup>18</sup> Sedláček 1891, 18.

<sup>19</sup> Laštovka 1995, 52.

<sup>20</sup> For the construction design of the house in the late 14<sup>th</sup> century, see: Durdík 1996.

<sup>21</sup> Sedláček 1891, 22-23; Durdík 1988, 295.

<sup>22</sup> E.g. Sommer and Razím 1988, 54.

<sup>23</sup> Sedláček 1889, 47, 81.

<sup>24</sup> Kuča 1996, 100.

at Velíz and the monastery in Zaječov, which sustained extensive damage in the subsequent two years.<sup>25</sup> Other key royal towns in the wider area were held by Hussite unions from 1421. These tumultuous events, which affected the whole region, also had an adverse impact on life in other unfortified agglomerations around Křivoklát, especially in Městečko and Roztoky.<sup>26</sup>

### Archaeological research into the Vassal House and its results

The unusually extensive excavation of Křivoklát Castle commenced in 1973,<sup>27</sup> included research into the area of a Late Gothic earth bastion, or bulwark<sup>28</sup> in the north-eastern part of the castle compound in the years 1983-1987. In this area, the remains of a vanished palace complex were uncovered under the Late Gothic fortification, consisting of a rectangular palace, a quadrangular dwelling tower and a narrow sloping courtyard secured by gates on both sides.<sup>29</sup> This compound, identified as a vassal house, was built as part of the castle's extensive reconstruction by Wenceslaus IV.<sup>30</sup> The demise of the building can be related to the catastrophic fire that broke out in the stables in the morning of March 18, 1422, and spread all over the castle.<sup>31</sup>

The choice of the building site of the vassal house, boasting the dimensions of a small castle, fell on the rock ridge in the central part of the north-leaning crag of the castle outcrop, bounded on three sides by the Rakovník Brook. The house was separated from the gentler, north-western part of the slope by a ditch 7 metres wide, carved into the bedrock and secured on the other side by a bulwark, now partly washed away by erosion, whose width at the foot reached 5 metres. From the north-east, the passable courtyard of the vassal house was accessible by a bridge, or rather a wooden ramp built along the western side of the crag. From the south-east, i.e. from the lower castle area, the vassal house was accessible by a narrow corridor demarcated by the walls. In the axis of this access route, the obliquely disposed quadrangular Huderka Tower was built during the Jagellonian reconstruction in place of an older tower. The relatively busy traffic in the narrow communication corridor is demonstrated by its deep carving into

the bedrock.<sup>32</sup> Attached to the north-eastern line of the neck fortification, at the end of which the vassal house was built, was another building, with the uncovered mortar floor representing its remains.

The core of the vassal house was made up of a rectangular palace with the internal dimensions of 7 × 15.5 m, ended on the north-eastern side by a quadrangular dwelling tower with the internal dimensions of 7 × 7.5 m with a small adjacent sloping yard, enclosed by gates on both ends. The ground floor of the palace contained a large storage room with a smaller separate space. In the basement of the tower connected to the palace by a portal, equipment was found on the basis of which this space was identified as a small brewery<sup>33</sup> serving the needs of Křivoklát's vassals. Within a unique 'Pompeii situation', a large metal pan with a flat handle was found, as well as an ironbound wooden shovel, ceramic pots with metal lids, the remains of a large barrel and a bronze tap. A large amount of charred grain was also uncovered in the room, which had been stored in this space at the time of the fire. It was the room below the tower basement stairs that was mainly used for its storage. However, it was not the only archaeologically documented place in the vassal house where grain had been kept before the fire. Roughly the same amount of grain was stored in the trusses of a small corridor above the upper gate connecting the first palace floor with a privy extending above the slope beyond the outer wall.<sup>34</sup> The grain stocks were stored in bags, the charred fragments of which were found together with the grain. With respect to the circumstances of the demise of the building, the grain found probably dates back to the harvest of 1421.

The first floor of the vassal house's residential quarters contained five rooms separated by wooden partitions and heated by tiled stoves.<sup>35</sup> The second floor, probably half-timbered, was occupied by a hall heated by a tiled stove, decorated with motifs of Samson killing a lion and of a gryphon, complete with a small, probably fast-meal kitchen.<sup>36</sup> On both the first and the second floors, chests of the individual vassals were found,<sup>37</sup> intended for keeping personal belongings, including armour, weapons and riding equipment. The palace was covered with a high pantile roof. At the time of the fire, the courtyard of the vassal house contained iron falconry mews, as well an exquisite four-wheeled

<sup>25</sup> Vlček et al. 1998, 320-321, 691.

<sup>26</sup> E.g. Razím 2010, 23, 30, 67.

<sup>27</sup> E.g. Durdík 1988, 285; Durdík 1996; Durdík 2008b; Razím 2010, 101.

<sup>28</sup> Durdík 1999, 70-71; Durdík 2008, 182.

<sup>29</sup> Durdík 1988; Durdík 1995a; Durdík 1995b; Durdík 1995c; Durdík 1995d; Durdík 1995e; Durdík 1995f; Durdík 1999, 354-355; Durdík 2001a; Durdík 2002; Durdík 2003; Durdík 2010.

<sup>30</sup> Durdík 1996, 246.

<sup>31</sup> Benešová and Žižka 1987.

<sup>32</sup> Durdík 2010, 292.

<sup>33</sup> Durdík 1995b.

<sup>34</sup> Especially Durdík 1995b, 6.

<sup>35</sup> Durdík 1995b; Durdík 2003.

<sup>36</sup> Durdík 1995f.

<sup>37</sup> Durdík 1995d; Durdík 1995e.

carriage, from which wheel hubs and other iron fragments, especially travellers, were preserved.<sup>38</sup>

The design of the individual levels of the interior remains unknown. However, a likely possibility is a communication connection between individual floors via a staircase embedded in the wall, which may have been situated at its northern corner. During the fire, this corner collapsed from the steep north-eastern slope together with most of the tower mass as a result of being weakened by the staircase. Probably due to the volatile situation during the Hussite Wars, which affected both the castle and the wider area, the vassal house was not renewed. During the Jagellonian reconstruction, a massive walled bastion was built on its ruins, largely ignored during the emergency repairs of the subsequent months (probably also due to the many changes in the castle's ownership). The bastion secured the most easily accessible part of the castle outcrop.

### Weaponry

The remains of the Vassal House in Křivoklát Castle, called by Tomáš Durdík a small 'Bohemian Pompeii', are among many archaeological sites that preserved objects used during a very specific period as if in a time capsule. Results of archaeological research indicate that the deposition period of these artefacts was 1422. However, the question of how long they had been used before that date remains open. Weaponry, if proved effective in specific combat contexts, could be used for a long time, even in situations where it had gone out of fashion or had already become anachronistic on the battlefield as a typological category. In the case of the Vassal House, which also served as an arsenal, one can expect the storing of some pieces of weaponry that were no longer in use. Archaeologists encountered such a situation when exploring modern storage houses on aristocratic estates, where they discovered pieces of medieval weapons. The material or sentimental value of some of them must have been high,<sup>39</sup> while others were simply no longer of interest to anyone.<sup>40</sup> Considering the above reservations but without any knowledge of such situations with regard to the Vassal House in Křivoklát Castle, one might venture some reflection on the modern or anachronistic nature of the weaponry found at the research site. It should be emphasised here that the weapons discussed below are only part of the late medieval military artifacts uncovered by an archaeological dig at Křivoklát Castle.

### Firearms

The most famous piece of historical weaponry discovered in the Vassal House is a bronze handgun frame with a total length of 107 mm and the barrel end diameter of only 5 mm (Fig. 5). The artefact weighs 149.92 g and it has a clearly separated powder chamber (45 mm in length) and a barrel. Both parts are round in cross-section, with the barrel having a total diameter of 14-15 mm and ending with a massive muzzle. Compared with the barrel, the walls of the muzzle and the powder chamber are thicker by 1-1.5 mm. Thus, the barrel wall at the end is 8 mm thick, and its diameter is 5 mm. The diameter of the flash hole located in the upper part of the powder chamber is 3 mm. The thickness of the walls of the barrel, and particularly of the powder chamber, is not uniform. Even though the piece was slightly deformed due to the heating of metal during the fire of 1422, the uneven thickness of its walls most probably resulted from the imperfect cast. Metallographic examinations revealed that the gun was cast of a bronze alloy with a small amount of lead (95.4% Cu; 2.5% Pb; 1.0% Sn; 0.5% Si; 0.2% Ag; 0.1% Sb; 0.1% Ni).<sup>41</sup>

Piotr Strzyż classified the artefact in question into the group of small handgones he distinguished (a small calibre and a short bore), which also includes pieces from Rokškej Castle on the south-western border between Bohemia and Moravia and from Kalisz in eastern Greater Poland, which were used between the end of the 14<sup>th</sup> century and the beginning of the second quarter of the 15<sup>th</sup> century.<sup>42</sup> Another small bronze handgonne (not yet published) comes from Gdańsk and is dated to the turn of the 15<sup>th</sup> century.<sup>43</sup>

An experiment carried out on a replica of the artefact from Kalisz demonstrated that the accuracy of such guns was low even within a 5 m radius, which made Strzyż conclude that such guns were used for training purposes such as familiarising soldiers with a new type of weaponry, i.e. firearms.<sup>44</sup> It is worth noting that the experiment was carried out on a replica built only based on the external dimensions of one artefact.<sup>45</sup> There is no known documentation of the experiment, and it did not refer to the battlefield

<sup>41</sup> A similar alloy composition was found during examinations of powder chambers of octagonal hook guns from Mstěnice from before 1468 (94.44% Cu; 1.57% Pb; 2.80% Sn; 0.70% Sb; 0.45% Fe; 0.07% Si a 94% Cu; 1.00% Pb; 1.70% Sn; 0.80% Sb; 0.10% Fe; 0.10% Si), Hložek, forthcoming; the issue is discussed in greater detail there.

<sup>42</sup> Strzyż 2011, 40-41; Strzyż 2014, 33-34.

<sup>43</sup> The Authors would like to thank Piotr Strzyż for information; cf. Hložek forthcoming.

<sup>44</sup> Strzyż 2014, 34.

<sup>45</sup> Cf. Głosek 1997, 41, footnote 11.

<sup>38</sup> Durdík 1995c.

<sup>39</sup> Ławrynowicz 2006.

<sup>40</sup> E.g. Nowakowski 2006; Marciniak-Kajzer 2016.

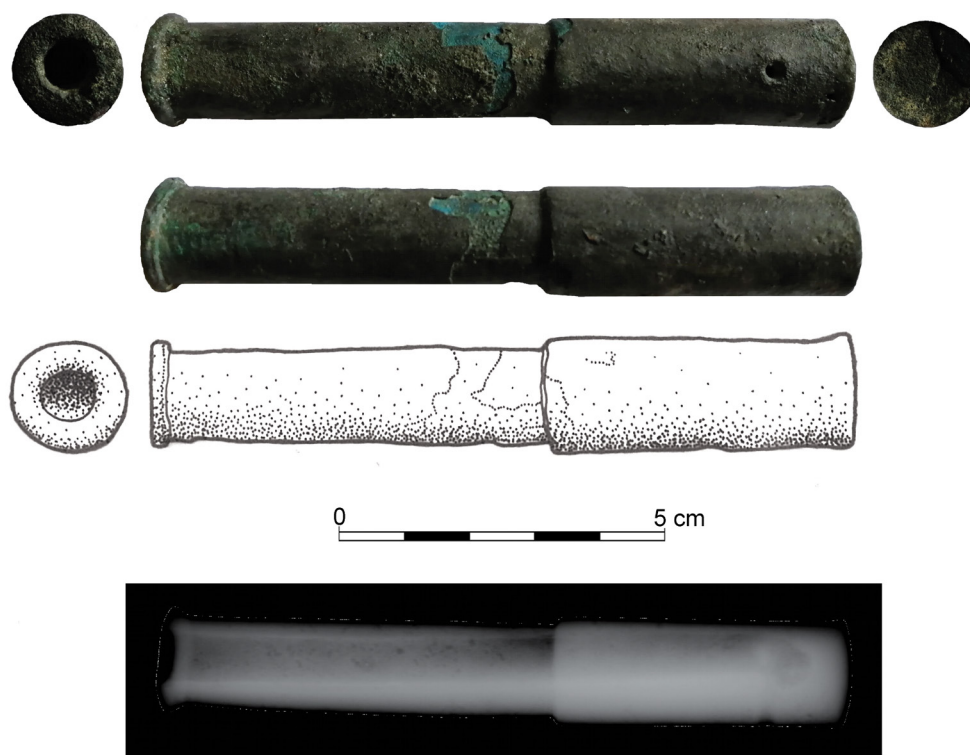


Fig. 5. Handgonne. Vassal House in Křivoklát Castle. Photo J. Hložek, drawing H. Krasanovská, RTG J. Hošek.



Fig. 6. Crossbow nut. Vassal House in Křivoklát Castle. Photo J. Hložek.

realities.<sup>46</sup> Thus, it cannot be treated as a fully reliable procedure. If, however, the weapon was indeed ineffective, its use did not have to be limited to training purposes, especially that it would be difficult to find a reason why fully functional pieces could not be used for this purpose. Thus, other uses for this weapon should be considered, such as giving commands (e.g. to launch an attack) or communication (e.g. to warn against the enemy). The issue of sound signals used on battlefields in the Late Middle Ages has not been

fully explored yet on account of the scarcity of sources.<sup>47</sup> A compact size and a small weight (even including a wooden stock that is a few dozen centimetres long), which allow us to regard this kind of weapon as a prototype of later pistols,<sup>48</sup> made it possible to equip soldiers of virtually all units with it. When firearms were first used, it was also important to frighten the enemy's cavalry, and this simple weapon was perfectly suitable for that.

<sup>46</sup> Cf. Strzyż 2011, 16, footnote 13.

<sup>47</sup> Świętosławski 2001, 123.

<sup>48</sup> Cf. Szymczak 2004, 40.

Table 1. The dimensions and the weight of boltheads from the Vassals House in Křivoklát Castle.

No.	Total length (mm)	Head length (mm)	Head width (mm)	Cap diameter (mm)	Wall thickness of the cap (mm)	Weight (g)	Length/weight ratio
1	85	63	19	12	1-1.5	42.34	2.00
2	87	53	19	15	2	54.49	1.59
3	80	51	16	14	1-1.5	41.71	1.91
4	80	54	17	13	1-2	42.92	1.86
5	80	50	17	16	3	46.34	1.72
6	90	55	17	13	2	41.92	2.14
7	85	47	17	15	2-2.5	38.65	2.19
8	82	43	16	14	2	50.12	1.63
9	85	62	14	14	2	40.73	2.08
10	84	50	15	13	2	45.35	1.85
11	78	42	15	17	2.5	48.62	1.78

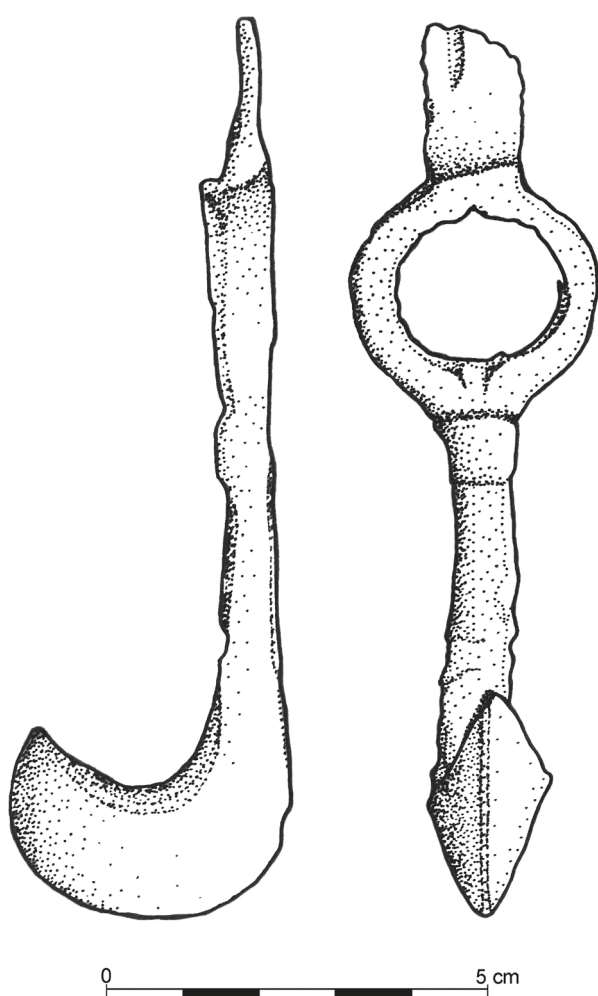


Fig. 7. Crossbow hook. Vassal House in Křivoklát Castle. Drawing H. Krasanovská.

### Ranged weapons

The finds discovered during research in the Vassal House in Křivoklát Castle include a bone element of a crossbow trigger mechanism, i.e. the so-called nut

(Fig. 6), a hook for stretching the crossbow (Fig. 7) and eleven boltheads (with five melted together during the fire), which most probably were originally placed in a quiver that has not been preserved (Figs. 8 and 9). The exposed nut, 31 mm in diameter and 18 mm thick, is made of a cow bone.<sup>49</sup> It is a cylinder with a notch for the string and the trigger. Inside, it has a longitudinal groove with a metal pin that immobilised the bolt and protected the soft material the nut was made of from being destroyed by the trigger pin,<sup>50</sup> and a crosswise axial hole, 4 mm in diameter, located in the centre, in which the nut turned. Such a location of the hole is considered typical of artefacts found in Central Europe.<sup>51</sup>

Another artefact found is a single hook for stretching the crossbow that is 120 mm long and weighs 91.95 g. It was forged of a quadrangular iron bar, measuring 7 × 8 mm, flattened on the prong to the width of 25 mm. The opening in its upper part used to hang the hook on a belt is oval, with diameters of 20 and 25 mm, so the width of the belt could not exceed 20 mm. The artefact is topped with a flat, partially broken end measuring 3 × 12 mm, with an irregular edge, which was a result of damage. Single hooks are less frequently found in Europe than double hooks.<sup>52</sup> Even despite the damage to the upper part of the artefact, it can be classified into a group of short single hooks with a belt hole at its mid-length. Artefacts of this type compared by W. Świętosławski were dated in Italy to the 2<sup>nd</sup> half of the 13<sup>th</sup> century (two from Calabria and one from Tuscany), in Poland (two from a knight's stronghold in Siedlątków in eastern Greater Poland and one from

<sup>49</sup> Brych 2012, 8.

<sup>50</sup> Wojciechowski 1989, 482; Krauskopf 2012, 193; Nawrot and Kucia 2017, 183.

<sup>51</sup> Harmuth 1986, 86.

<sup>52</sup> Świętosławski 2008, 191.

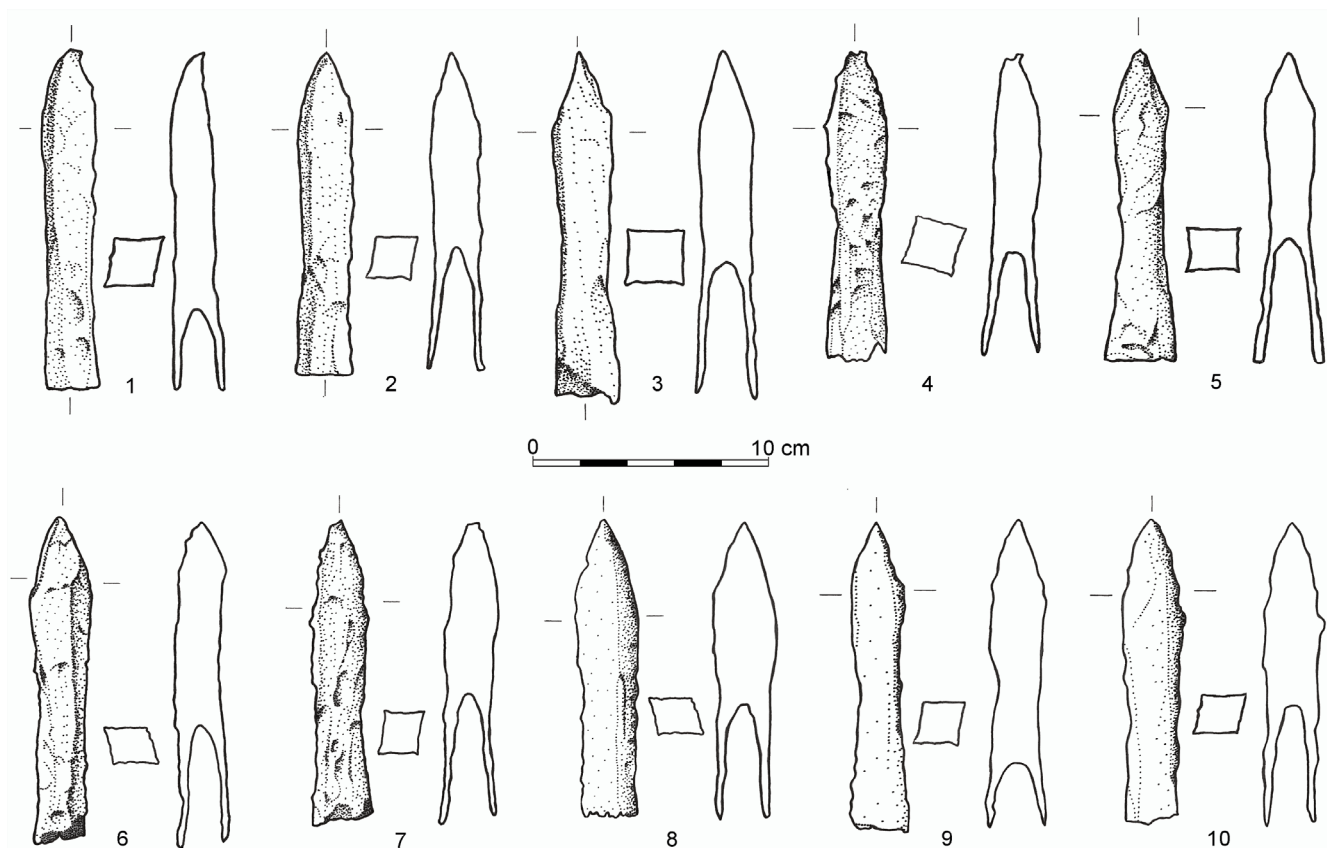


Fig. 8. Boltheads. Vassal House in Křivoklát Castle. Drawing H. Krasanovská.



Fig. 9. Five boltheads melted together during a fire. Vassal House in Křivoklát Castle. Photo J. Hložek.

and one from Vartnov Castle in Silesia) generally to the Late Middle Ages.<sup>53</sup> Eleven well-preserved boltheads analysed are similar in length (78-90 mm), weight (38.65-54.49 g) and form.

These artefacts can be classified as type 2c according to Tomasz Durdík<sup>54</sup> and type B III according to Rudolf Krajíc, meaning boltheads with ferrules, with square-section heads and round-section ferrules, with a less (variant B III b: no. 1, 5, 7, 8, 10, 11) or more distinct groove between the blade and the ferrule (variants B III c: no. 3, 4, 6, 9) or with a distinct groove between the blade and the ferrule but shorter and more massive (B III d: no. 2).<sup>55</sup> These artefacts have square-section blades, widest at the end.<sup>56</sup> These are specimens of a relatively high weight on K. Wachowski's scale – group E (23-48 g): no. 1, 3, 4, 5, 6, 7; group F (48-72 g): no. 2, 8.<sup>57</sup> Thanks to numerous archaeological finds, the chronology of these artefacts is well-known from the geographical perspective. In Switzerland they are dated to the period from the 14<sup>th</sup> century to the

the Castle on the Birów Mountain in the Polish Jurassic Highland) and France (one artefact from Provence) to the 14<sup>th</sup> century, and in the Czech Republic (one from Vildštejn Castle in Moravia, one from Kepkov Castle, two from the abandoned village of Konůvky in Moravia,

<sup>53</sup> Świątosławski 2008, 191: see for further readings.

<sup>54</sup> Durdík 1972a, 5, Fig. 1; Durdík 1972b.

<sup>55</sup> Krajíc 2003, 185-187.

<sup>56</sup> Cf. Michalak 2019, 189.

<sup>57</sup> Cf. Wachowski 1984, 70.



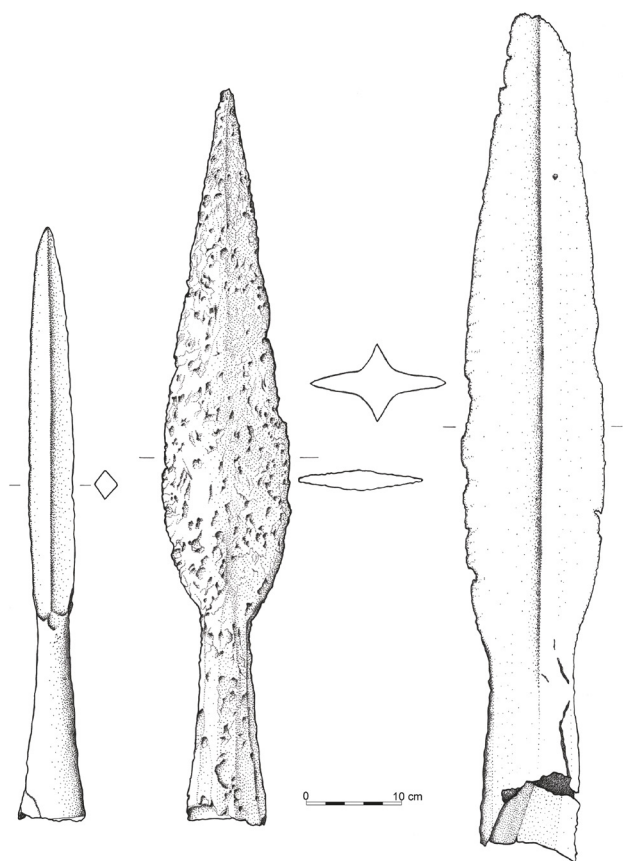


Fig. 10. Lancehead and spearheads. Vassal House in Křivoklát Castle. Drawing H. Krasanovská.

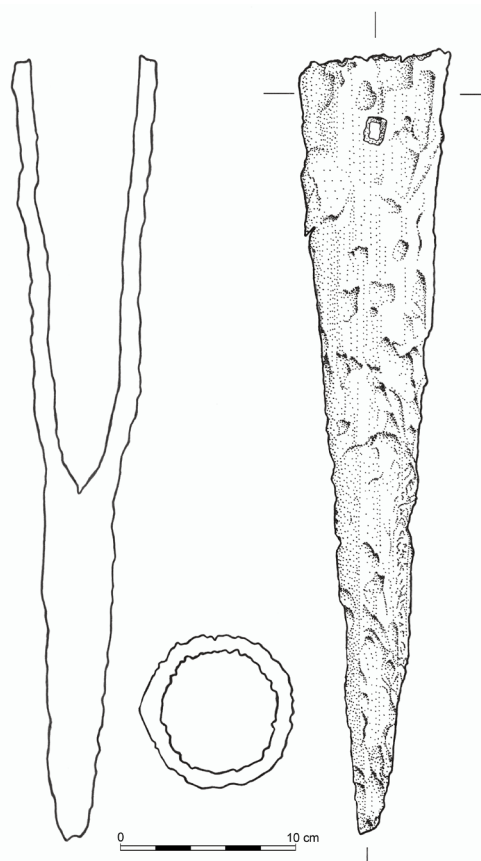


Fig. 11. Shaft end of pole weapon. Vassal House in Křivoklát Castle. Drawing H. Krasanovská.

15<sup>th</sup> century,<sup>58</sup> in the Czech Republic and Slovakia – to the period from the 14<sup>th</sup> century to the 16<sup>th</sup> century, on the territory of what is today Poland – to the period from the end of the 14<sup>th</sup> century to the 16<sup>th</sup> century, and in Lithuania and Estonia boltheads of this type came into use in the 2<sup>nd</sup> half of the 14<sup>th</sup> century, which directly corresponds with nearby, precisely dated (1361) finds from Gotland<sup>59</sup>.

### Pole weapons

In the Vassals House in Křivoklát Castle, remains of two spearheads and one lancehead were also found. The wide spearheads have distinct midribs separating the blades on both sides of the heads and slightly overlapping round-section ferrules (Fig. 10). The first one is 380 mm long, has a ferrule that is 80 mm in diameter, and weighs 586 g, while the other one is 387 mm long, its ferrule is 41 mm in diameter, and it weighs 638 g. The length and the ferrule form of these artefacts resemble spearheads from the castle in Borów in Lower

Silesia, dated to the period from the 14<sup>th</sup> century to the first half of the 15<sup>th</sup> century, and from Wrocław, generally dated to the Late Middle Ages.<sup>60</sup> The artefacts from Křivoklát, however, have definitely wider heads, which are more rhomboidal, and their midribs are more raised, which makes both artefacts closer to rhomboidal spearheads with midribs, such as the spearhead from Nysa dated to the turn of the 15<sup>th</sup> century. Artefacts of this type were also used in the 16<sup>th</sup> and the 17<sup>th</sup> centuries.<sup>61</sup>

The head of a knight's lance is 320 mm long, weighs 357 g and has a squat, massive, quadrangular-section blade, with a ferrule that is relatively large in diameter (36 mm). A similar artefact was discovered in the moat of the Bishop's Palace in Nysa, dated to the end of the 14<sup>th</sup> century or the 15<sup>th</sup> century based on the archaeological context. Other, analogous lanceheads from the territory of Poland are dated similarly, but they are less numerous than other artefacts of pole weapons.<sup>62</sup>

The last pole weapon artefact is the shaft end fitting that is 225 mm long, with a maximum diameter of 43 mm, weighing 436 g (Fig. 11).

<sup>58</sup> Zimmermann 2000, 38-39: the author considers the chronology of the finds from Häringstein Castle in Baden-Württemberg, dated to the period from the 12<sup>th</sup> century to the 14<sup>th</sup> century, unreliable.

<sup>59</sup> Cf. Strzyż 2017, 61-62; Michalak 2019, 189-190; see for a more extensive list of analogies.

<sup>60</sup> Marek 2008a, 86-87.

<sup>61</sup> Marek 2008a, 90-91.

<sup>62</sup> Michalak 2019, 136.

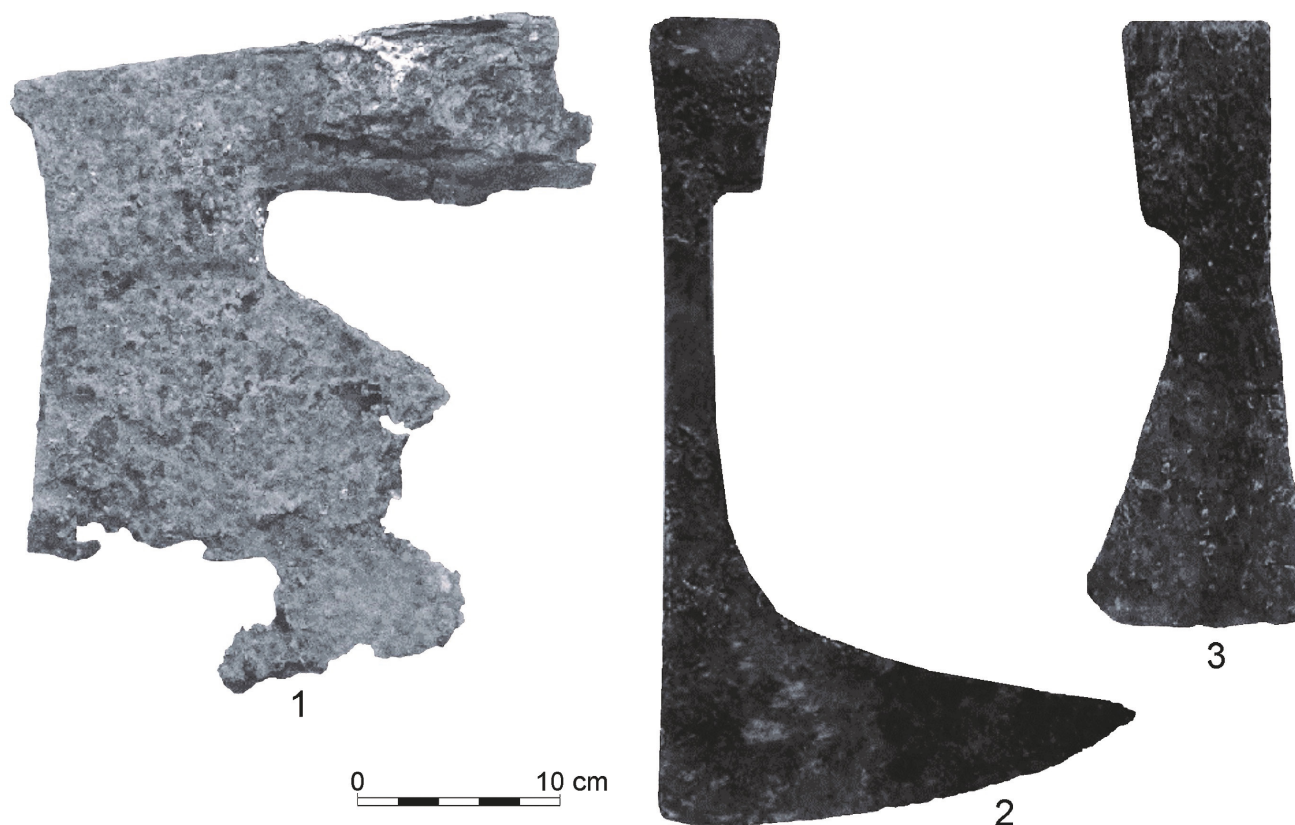


Fig. 12. Axes. Vassal House in Křivoklát Castle. Drawing H. Krasanovská.

### Blunt weapons

During excavations three axe heads were found.<sup>63</sup> The remains of the largest one, weighing 1.35 kg, constitute a type X according to Marian Głosek's classification, meaning a large axes with a long cheek (Fig 12:1). A preserved archival photograph documenting the discovery of the artefact shows a slightly curved blade and a pointed beard. Artefacts of this type are typical of the Late Middle Ages. Iconography usually depicts them as tools for cutting and processing wood.<sup>64</sup> This, however, does not exclude their use in battle,<sup>65</sup> which some researchers even limit to the use by the cavalry.<sup>66</sup> Such weapons were also used by executioners and butchers.<sup>67</sup>

Another axe with a cheek but without lugs or a cheek back extension, with a flat butt, a long face, and a long, pointed beard, weighing 1.75 kg, is a Vd type according to Andrzej Nadolski's typology (Fig. 12:2). This type, considered to be a prototype of the contemporary axe, was used at least from the 10<sup>th</sup> century. It

can be found in large numbers in late medieval iconography both as a tool and a weapon.<sup>68</sup> Axes of both types are found in Poland, frequently on the same late medieval sites, however, axes classified as type X according to Głosek, as objects created during that period, are found more frequently.<sup>69</sup>

The last of the axes, which weighs 1.45 kg, should be classified as type VIII according to Marian Głosek (Fig. 12:3). It has a separate shoulder with a long and narrow bit.<sup>70</sup> Axes of this type were popular in Europe, and they are dated to the 13<sup>th</sup>/14<sup>th</sup> century. Similar artefacts are treated not only as remains of weapons but also of tools used for cutting tree branches and carrying out other day-to-day camp chores.<sup>71</sup>

### Bladed weapons

The only artefact of a bladed weapon found is the end of a blade, most probably of a falchion, which is 163 mm long, with a maximum width of 46 mm, a maximum thickness of 11 mm (in the upper part of

<sup>63</sup> The axes are now being restored in Institute of Archaeology of the Czech Academy of Sciences in Prague.

<sup>64</sup> Głosek 1996, 41-46.

<sup>65</sup> Marek 2008a, 135.

<sup>66</sup> Wagner et al. 1956, 72.

<sup>67</sup> Głosek 1996, 46.

<sup>68</sup> Nadolski 1954, 46, Głosek 1996, 35-37; Michalak 2019, 165-166.

<sup>69</sup> Strzyż 2017, 59-60.

<sup>70</sup> Głosek 1996, 38-39.

<sup>71</sup> Michalak 2019, 162-163: see for further readings.

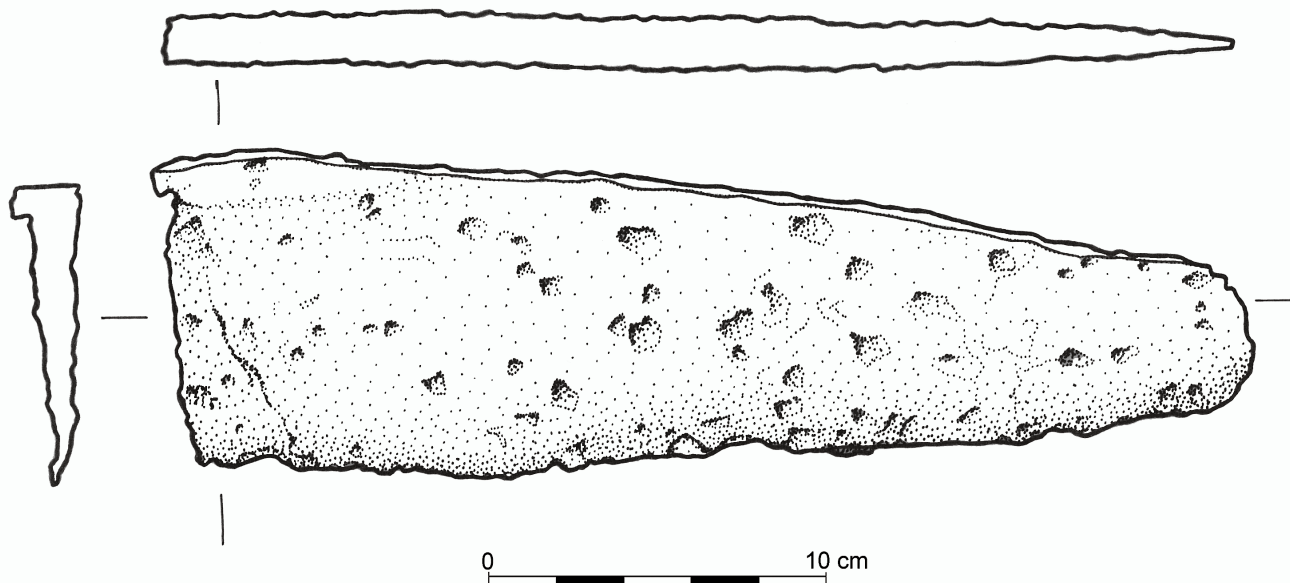


Fig. 13. End of a blade, probably of a falchion. Vassal House in Křivoklát Castle. Drawing H. Krasanovská.

the back of the blade), and a relatively large weight of 238 g (Fig. 13).

#### Armour

Among extremely rare artefacts discovered in the Vassal House are the remains of a round shield with a total diameter of 122 mm, made of a single piece of iron sheet with a thickness of 2 mm (Figs. 14 and 15). Its boss, with a diameter of 80 mm, has three rivet holes with preserved rivets, including one measuring 35 mm that has been preserved in whole. At one of the rivets there is a fragment of the wooden body of the shield, to which the outer metal coating was attached. In the territory of Poland, we have only a written mention of a round shield from before 1444.<sup>72</sup> Armour of this type, however, is not rare in the iconography. Excellent examples are bucklers in the portrayal of Johann von Ringgenberg in the *Codex Manesse*, in a scene showing a tournament sword fight from 1305-1340,<sup>73</sup> and on a bas-relief on the Holy Sepulchre in the Cathedral of Our Lady in Freiburg-im-Breisgau in Baden-Württemberg at the legs of one of the sleeping guards from c. 1300.<sup>74</sup> The artefact from Křivoklát theoretically could be classified as a type I buckler according to H. Schmidt, meaning round items. However, it is difficult to say whether its variant is Ia (flat) or Ib (convex). Thus, both variants should be accepted as analogous. In his study on European bucklers dated to the period from before the 16<sup>th</sup> century, the author presents

the following artefacts: type Ia – from the Museum of London, with a total diameter of 225-260 mm (the boss diameter: 100 mm) from the end of the 14<sup>th</sup> century, and from the Museum of Cultural History in Oslo from c. 1200, with a diameter of 482 mm; type Ib – from the Bayerisches Armeemuseum in Ingolstadt, with a diameter of 260 mm (made of a single sheet of metal) from the end of the 15<sup>th</sup> century, and from the Galerie Fischer in Lucerne, with a diameter of 330 mm (the boss diameter of 118 mm) from c. 1400.<sup>75</sup>

The artefact from the Vassal House in Křivoklát Castle deserves a separate publication that should cover artefacts with imprecise dating and concave shields (type Ic) similar in structure. A good example is a large fragment of a shield that was found in a deposit discovered at the end of the 19<sup>th</sup> century near Stange in Hedmarken in south-western Norway, generally dated to the Middle Ages<sup>76</sup> or c. 1100.<sup>77</sup> Compared with those described earlier, it is similar in diameter to the artefact from the Vassal House – approx. 155 mm. It also has eight rivet holes. Similarly to the artefact from Křivoklát Castle, it is made of a single sheet of metal. A question arises, first asked by H. Schmidt, about whether the artefact can be simply a boss of a larger round shield.<sup>78</sup> It seems that it would also be pertinent to the discussed artefact from the Vassal House.

<sup>75</sup> Schmidt 2015, 108-111, 118-121, 126-127, 160-161; see also Schmidt 2019.

<sup>76</sup> *Catalogue...*, no: C9982.

<sup>77</sup> Schmidt 2015, 216-217.

<sup>78</sup> Schmidt 2015, 216.

<sup>72</sup> Nowakowski 1990, 96.

<sup>73</sup> *Große Heidelberger...*, 190v.

<sup>74</sup> Schmidt 2015, 10.



Fig. 14. Round shield or buckler. Vassal House in Křivoklát Castle. Photo J. Hložek.

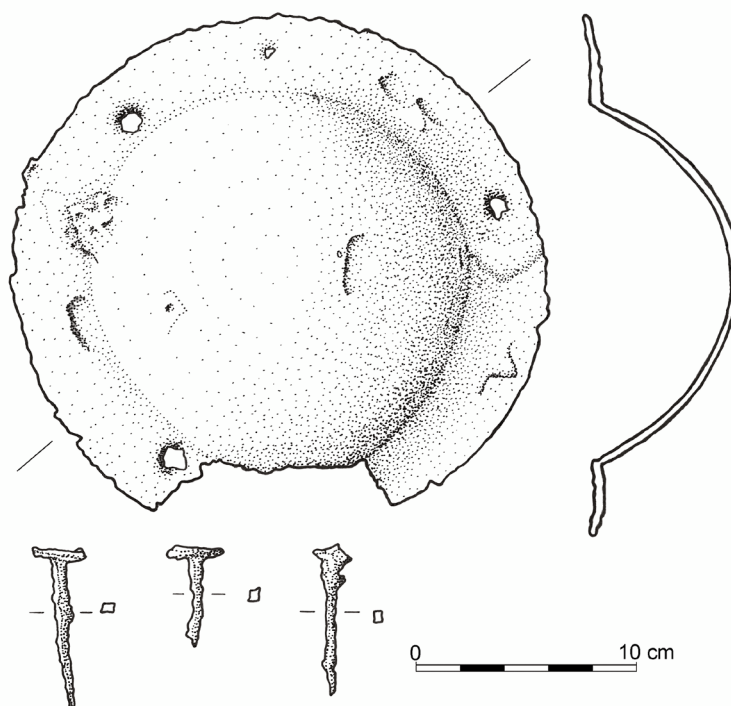


Fig. 15. Round shield or buckler. Vassal House in Křivoklát Castle. Drawing H. Krasanovská

A collection of ten fragments of iron plates have also been discovered in the remains of the Vassal House, each with a line of rivets along its upper edge (Fig. 16). These artefacts are 22-45 mm long, 22-22 mm wide, and 1.5-2 mm thick. Artefacts of this type are interpreted as remains of a coat of plates. They are found not only in castles, nominally associated with representatives of wealthy knighthood, or generally in the remains of medieval fortifications

and battlefields,<sup>79</sup> but also in all types of settlements.<sup>80</sup> Many of them can be seen in late-medieval iconography,

<sup>79</sup> Thordeman 1939; Thordeman 1940; Kajzer and Nowakowski 2001; Mäesalu 2004; Marek 2008b; Kouřil 2009; Vích and Žákovský 2016.

<sup>80</sup> In the Czech Republic, e.g. Nekuda 1975, 152, Fig. 145:g; Nekuda 1985, 138-139; Krajč 2003, 130, Tab. 140; Kouřil 2009; Žákovský 2009, 410.

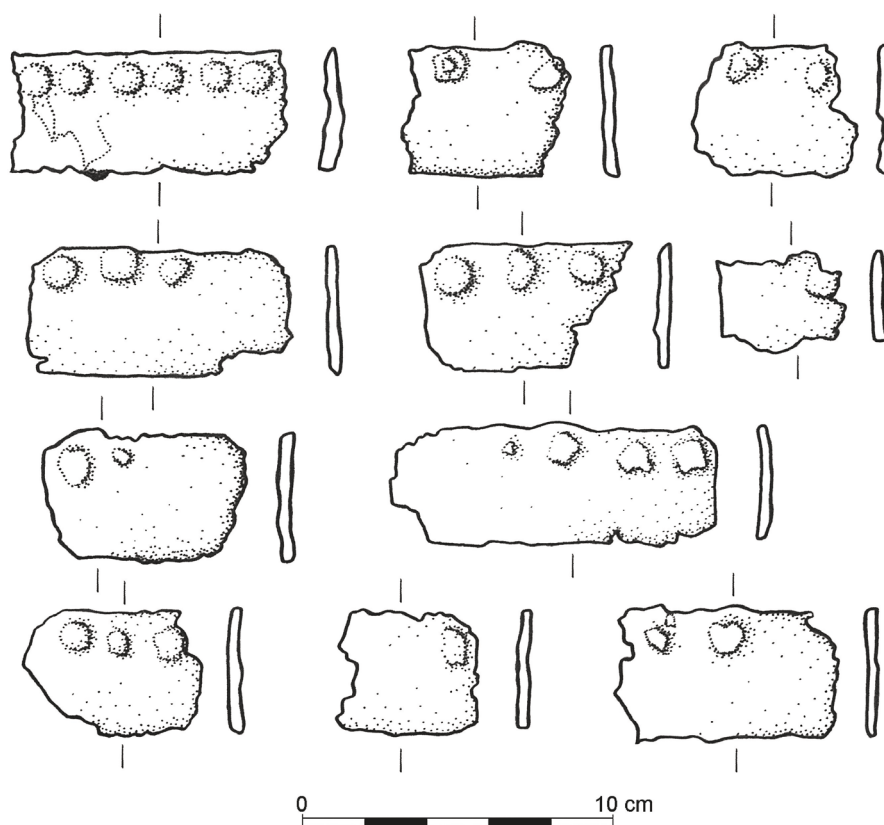


Fig. 16. Remains of a coat of plates. Vassal House in Křivoklát Castle. Drawing H. Krasanovská.

particularly in figural sculpture.<sup>81</sup> The painting of Western and Central Europe at the time also reflected the growing popularity and significance of coats of plate armour from the 13<sup>th</sup> century, and then the peak of its development in the 14<sup>th</sup> and the 15<sup>th</sup> centuries.<sup>82</sup> From mid-14<sup>th</sup> century, this armour evolved towards full plate armour.<sup>83</sup> However, coats of plates were still popular in Europe, in the 15<sup>th</sup> and the 16<sup>th</sup> centuries getting transformed in northern Italy into an early type of a brigandine, or *corazzina*, made of many small trapezoidal plates.<sup>84</sup> Plate elements were also used to protect different parts of the body in full plate armour. This is well shown by metallographic examinations of single plates and plate armour, which revealed their wide diversity in terms of strength with regard to different threats (missile impacts, axe butt strokes, sword cuts) and their expected effects (crushing, breaking).<sup>85</sup>

Armour plates similar in shape to the artefacts from the Vassal House were discovered in Herbede (North Rhine-Westphalia),<sup>86</sup> in Otepää (Estonia)<sup>87</sup> and San Pietro (Tirolo).<sup>88</sup> Some of the artefacts found in the Vassal House are considerably larger trapezoidal plates (28 × 35 mm – 30 × 88 mm). However, they are badly corroded and deformed. They could have been elements of skirt hoops of plate armour or a brigandine.

Perhaps some of the plates were elements of armour, of which a poleyn has been preserved, consisting of three parts, weighing 463 g, with a total length of 203 mm (with elements overlapping),<sup>89</sup> maximum width in the central part of 115 mm, and sheet thickness of 1.5-2 mm (Fig. 17). All three parts are joined with pairs of flat head rivets with a diameter of 4-9 mm (considering the extent of corrosion). Due to considerable damage, the artefact does not have characteristics that would allow to analyse it in greater detail, comparing it with other similar artefacts. It has features of knee

<sup>81</sup> Wagner et al. 1956, part II, Tab. 2; Žákovský 2009, 413; see for further readings.

<sup>82</sup> Thordeman 1939, 306; Beneš 1991, 11; Nicole 2002, 213-221; Vignola 2008, 143-147.

<sup>83</sup> E.g. Thordeman 1939, 306; Gamber 1953, 56-57; Blair 1959, 56-62; Beneš 1991, 82; Žákovský 2009, 413-414.

<sup>84</sup> Müller 1957, 93; Blair 1959, 58; Blackmore 1965, 18; Klučina and Romáňák 1983, 155-158; Scalini 2003; Scalini 2004.

<sup>85</sup> Hložek et al. 2016.

<sup>86</sup> Peine 2004, 51, Fig. 7, 56, Fig. 10, 59, Fig. 11, 60, Fig. 12.

<sup>87</sup> Mäesalu 2004, 104, Fig. 2, 109, Fig. 4, 110, Fig. 5, 114, Fig. 7, 114, Fig. 7, 115, Fig. 8, 116, Fig. 9.

<sup>88</sup> Stadler 2004, 24, Fig. 3, 30, Fig. 6, 31, Fig. 7.

<sup>89</sup> The upper part of the poleyn: length – 78 mm, width – 114 mm; the central part: length – 114 mm, width – 115 mm; the lower part: length – 80 mm, width – 110 mm.

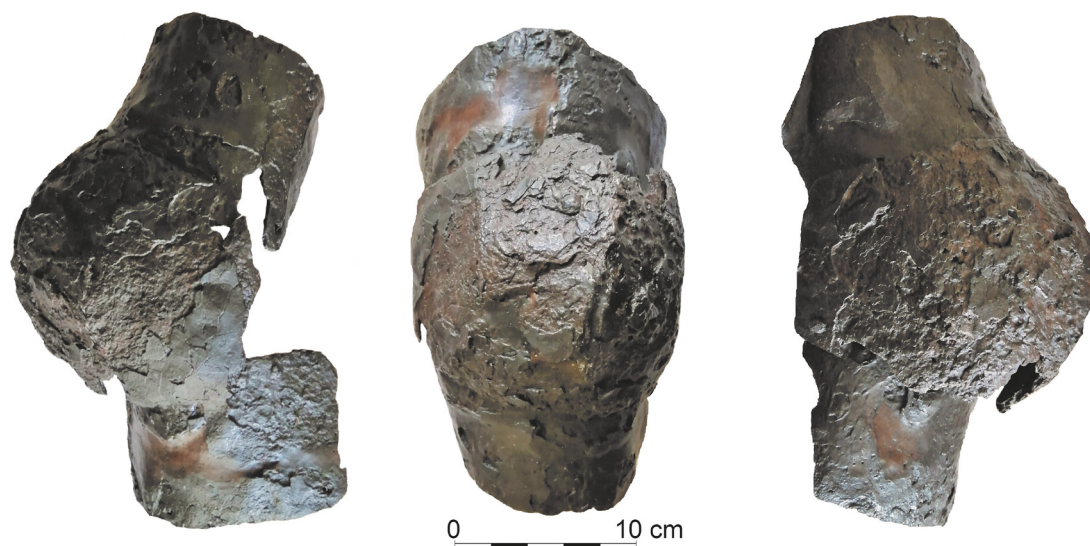


Fig. 17. Poleyn. Vassal House in Křivoklát Castle. Photo J. Hložek.

protection used by half of 14<sup>th</sup> and the 15<sup>th</sup> century in Western and Central Europe.<sup>90</sup>

#### Horse equipment

Some elements of horse equipment have been found in the grounds of the Vassal House including a horse bit with a universal form of the mouthpiece forged of a single iron bar, with hooked ends to attach two bit rings. In Polish studies, according to Andrzej Nadolski's classification,<sup>91</sup> these artefacts are classified as type I horse bits used from the early Middle Ages to modern times.<sup>92</sup> The elements of horse equipment from the Vassal House also includes small collection of horseshoes. These all artefacts are now being restored in Institute of Archaeology of the Czech Academy of Sciences in Prague and have not been analysed here.

#### Conclusions

Weapon artefacts from the Vassal House, along with the remains of other objects found there, constitute an interesting record of the everyday life of royal vassals obliged to take care of the castle and to defend it. Even though all the military items described above could have been useful under siege, some of them were probably used for other purposes typical of relatively peaceful times, such as the pre-Hussite period in Bohemia. Thus, the spears found could have been used by armed men for hunting, lances could have been used by mounted knights during tournaments organised in

the castle, and the round shield could have been used during training or exhibition sword fights. Provisional carpentry work was carried out with axes which, under different circumstances, could be used in battle. The handgonne, the crossbow and the falchion could have been used for training, however, they were rather meant to be used against enemies.

When answering the question asked in the title of this paper, it should be said that the weaponry artefacts discovered in the remains of the Vassal House in Křivoklát Castle are typical of such collections as they include both military items that could have been used for generations and newly produced weapons. On the other hand, however, for the turn of the 15<sup>th</sup> century, the weaponry was both anachronistic, with designs dating back to the Early Middle Ages (spears, axes, the shield), and, more or less, modern (the handgonne, falchion, armour fragments).

Analysing the collection of military items from the Vassals House, one should mostly note the anachronism of the feudal systems of knights/noblemen, the era of which had just ended in Europe. What was coming was the time of battle-seasoned, well-equipped, professional soldiers mostly motivated by generous pay. In the case of Bohemia, an additional catalyst for change was the social and religious rebellion, which fully exposed the anachronism of feudal military formations in the upcoming era of the Hussite Wars.

<sup>90</sup> Nowakowski 1990, 83-84.

<sup>91</sup> Nadolski 1954, 87.

<sup>92</sup> See Strzyż 2017, 68.

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