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## A SHORT NOTE ON THE CROSSBOW BOLT HEAD FROM THE SIEGE OF THE CASTLE OF KOLNO IN SILESIA<sup>1</sup>

LOCATION OF THE ARCHAEOLOGICAL SITE OF STARE KOLNIE 4 (NO AZP 4/86–34/25)

The Castle of Kolno (Latin: *Castrum Callen*) is located on a floodplain, south of the village of Stare Kolnie, Popielów Commune, Opolskie Voivodeship, where the Budkowiczanka and Żydówka distributaries branch off the mainstream of the Stobrawa River (coordinates: N: 50°50'32.45"; E: 17°39'58.98"). In the medieval period the fortress guarded the border

between the Duchy of Opole and the Duchy of Brzeg. Originally it was raised on a small sandy island in the middle of hardly accessible marshland. West of the castle one can still observe traces of the original riverbed that has been almost totally obscured by 20<sup>th</sup> century regulation works.

### HISTORY OF THE SIEGE

In 1440 a double election of the King of Bohemia occurred. One of the elected was Ladislaus the Posthumous of the Habsburg House, the other Władysław III the Jagiellonian, King of Poland and Hungary. As a consequence, the most ruthless conflict broke out between the Silesian supporters of these two rivals to the throne. In a local war, Konrad IV, Bishop of Wrocław, and his younger brother Konrad VII, Duke of Oleśnica, became bitter foes. The Castle of Kolno was set afire and burnt to the ground on St. Margaret's day (13 July) 1443, during the general conflict between these two lords (Sommersberg 1729, p. 80: *Castrum Callen ruptum fuit: Ipso die S. Margarethae & diebus sequentibus raptum & exustum fuit castrum Callen prope Bregam*). Written accounts inform us about the alliance which emerged at the beginning of July between Hinko Kruszina, a mighty Bohemian

warlord and Konrad VII Duke of Oleśnica to fight the Bishop of Wrocław (Ermisch 1876, p. 60). On the side of the latter there was a coalition of Silesian Duchies and towns led by William, Duke of Opava-Ziębice. It was his forces that managed to seize the castle in Kolno (Ermisch 1876, p. 61), and launch a main offensive against other strongholds considered a threat by the Bishop's party.

Only a few days prior to the downfall of the fortress on 7 July 1443, Castle Callen was sold to the brothers Janko and Michael of the Beess (Bies) family (Michael 1931, p. 312). After 1546, when the estate was sold again, the castle is not mentioned any more. In 1726–1727 the castle ruins were used as a stone quarry and almost entirely dismantled. The stones were reused in the 18<sup>th</sup> century buildings of the cloth manufacture in Brzeg (Kubów 1981, p. 83).

### CONTEXT OF THE FIND

Archaeological evidence recorded at the Castle of Kolno supports a hypothesis that the attackers initially concentrated their efforts on the bailey. The distribution of finds shows a concentration of crossbow bolt heads and handgonne projectiles resulting from the incoming fire (Fig. 1) and other pieces of

medieval 15<sup>th</sup> century armament in the area. A similar abundance of archaeological records has not been

<sup>1</sup> A more extensive paper on the excavations at the castle in Kolno will soon be published in the conference proceedings: *Schlachtfeld und Massengrab – Spektren interdisziplinärer Auswertung von Orten der Gewalt*.

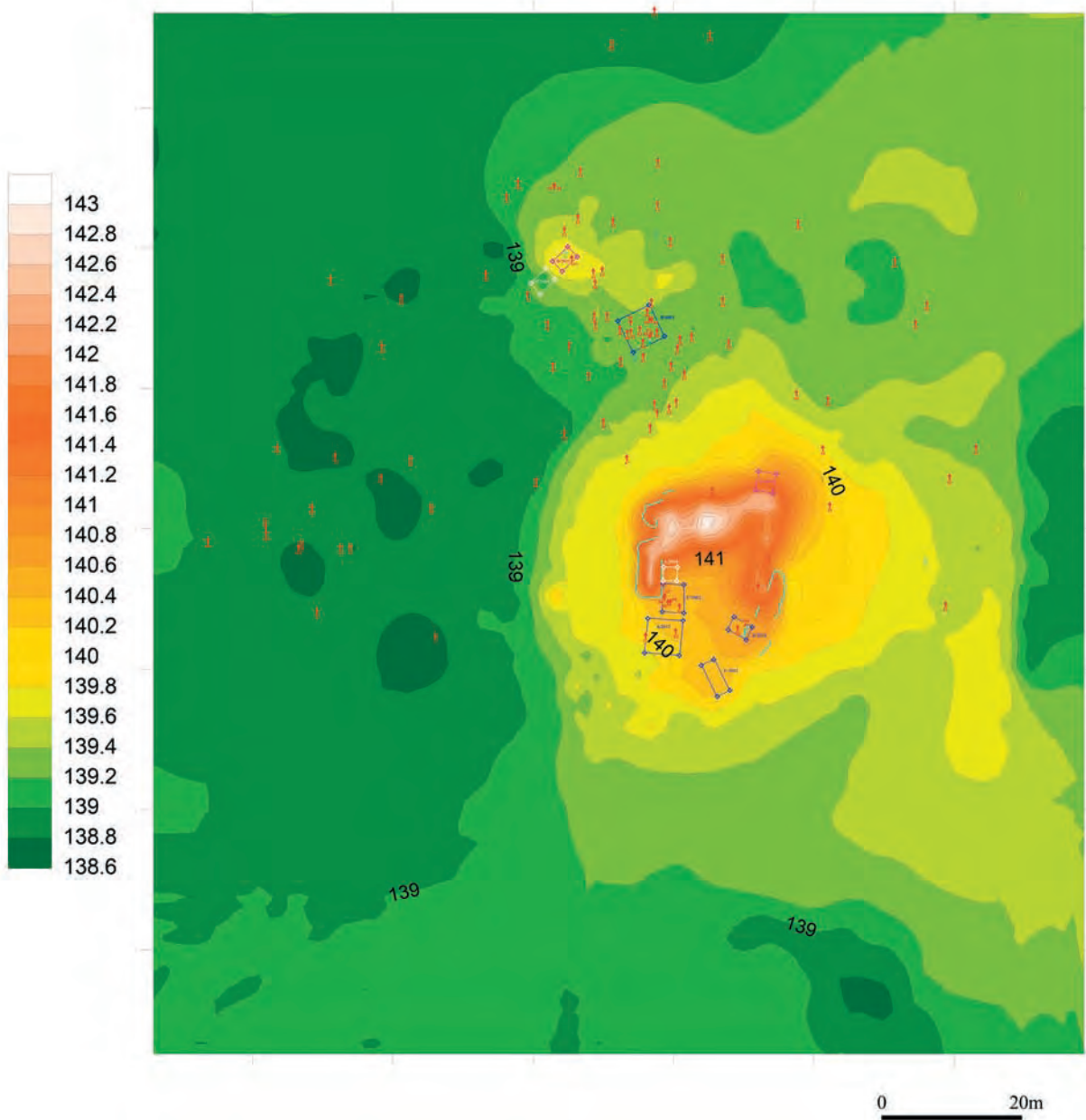


Fig. 1. Stare Kolnie, site 4. Contour map medieval crossbow- and handgonne- projectile finds.  
The scale is given in metres. By L. Marek.

Key:

- |  |                                      |  |                                     |
|--|--------------------------------------|--|-------------------------------------|
|  | Boundaries of the trenches from 2010 |  | Remaining stone walls of the castle |
|  | Boundaries of the trenches from 2011 |  | Crossbow bolts                      |
|  | Boundaries of the trenches from 2012 |  | Lead shots from handgonnes          |

found elsewhere around the castle, even though very thorough investigations were made in the course of surveying all other parts of the stronghold.

During the two last days of the excavation season 2012, in Trench B/2012, at the depth of 130 cm, undisturbed layers of the medieval castle moat were unearthed. These waterlogged strata contained timber framework elements, charcoal, burnt bones, pieces of leather and pottery sherds from the second

quarter of the 15<sup>th</sup> century. Much to the author's dismay, due to the lack of time, the only proper decision was to secure and seal the trench to preserve it for the next excavation season. The excavated part of Trench B/2012 provides us with valuable insight to the exact aftermath of the siege in 1443. A bolt head recovered from this context contained pieces of its original wooden shaft inside the socket (Fig. 2:a). Specialist analysis proved that the shaft had

originally been made of alder (Fig. 2:b.1–5). The use of such a material for arrows and bolts had its advantages. Alder is easy to cut, resilient, light and not very prone to warping. Moreover it dries evenly without cracking. The only disadvantage of alder is that it is not very resistant to weather conditions when not cared for.

Wooden shafts and flights are very seldom in archaeological records. Only special, usually water-logged environment could preserve wooden objects for a long period of time. Bog finds of entirely preserved bolts, dated to the 14<sup>th</sup> century are known, e.g. from Lithuania (Rackevičius 2002, pp. 44–45). Extremely rare are specimens found in glaciers, such

as the one from Lötschenpass in the Swiss Alps, which probably comes from the campaign of 1419 (Zimmermann 2000, pp. 56–57, 82, 159, fig. 13).

The poor state of preservation is the main reason for problems with identification of projectiles, since we often find only an iron head, which may have well belonged to a crossbow-bolt, an arrow for a war-bow, as well as an early firearm. The mentioned arrows or bolts differed only in the shape of their shafts and flights, but were armed with similar iron heads.

When analyzing the unique finds with wooden shafts still existing, there seems to be no rule concerning the choice of material used for their manufacture. Most of the 500 bolt shafts in different stages of

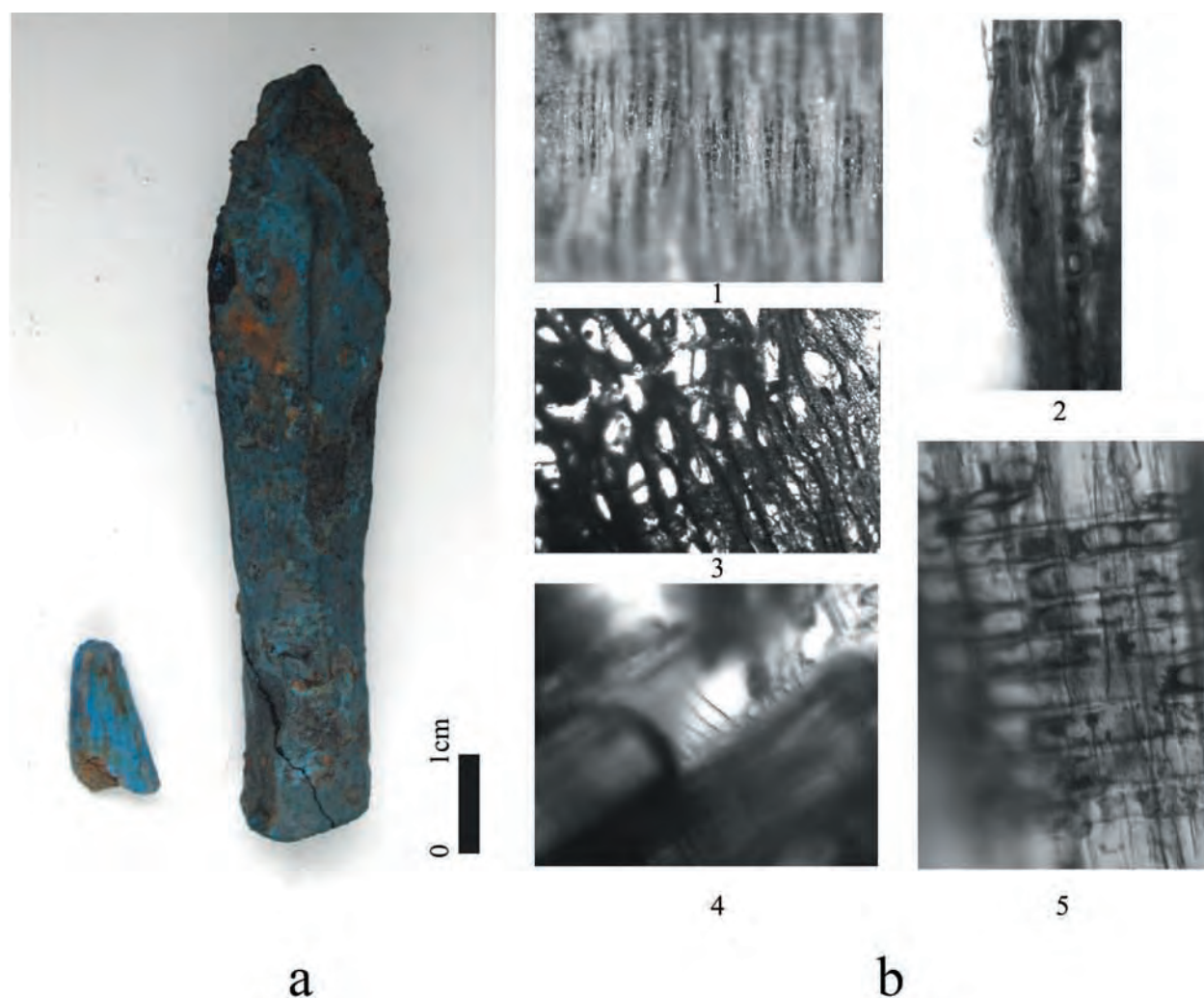


Fig. 2. Bolt head found in trench B/2012 (No. 92 on the map of Stare Kolnie, site 4 – see fig. 1): a – general view of the iron head, with a fragment of its original shaft removed from the socket for analysis (Photo: L. Marek); b – microscopic features of hand-sectioned organic core, indicating alder wood: uniseriate rays in tangential plane (b–1,2), wood diffuse-porous in transversal plane, pores in radial clusters of 2 (b–3), scalariform perforation plates in vessel members and homogeneous rays in radial plane (b–4,5). Wood sections were observed unstained under stereoscopic microscope Olympus SZX–9 (Olympus Optical Co., Ltd.) and epi-fluorescent microscope (Olympus BX50, Olympus Optical Co., Ltd.) in white transmitted light. Microphotographs were taken with a digital camera DP71 (Olympus Optical Co., Ltd.) complemented with Cell ^ B software (Olympus Optical Co., Ltd. and Olympus Soft Imaging Solutions GmbH), (wood identification – dr Elżbieta Myśkow, Institute of Experimental Biology, University of Wrocław)

production found during conservation works in Peters Tower of the Legnica ducal castle in Silesia (see Lewandowski 1986) were made of oak, and soaked with linseed oil to prevent them from warping.<sup>2</sup> The flights of these 15<sup>th</sup> century specimens were cut out of linden wood. Their almost identical dimensions suggest that a metal template was used to produce them (Serdon 2005, pp. 150–151). Most of the flights are mounted in grooves, helically cut in the shafts, to cause rotation of the bolt when launched which probably improved accuracy (*ibid.*). The sockets of the bolt-heads were probably heated before fitting them on the wooden elements as indicated by charred, sharpened shaft-ends.

Apart from linden wood flights for crossbow bolts recorded in Legnica or in the collection of the Unterlinden Museum in Colmar (Serdon 2005, pp. 149–150), there is a proof for the use of different materials for their production.

Parchment appears to be a suitable material, as evidenced by the 15<sup>th</sup> century bolts used for the hunting crossbow of Emperor Maximilian Habsburg, kept in the Kunsthistorisches Museum in Vienna. Medieval flights made of bronze and tinned iron were excavated at the site of Salle de Théologie in the Pope's Palace in Avignon, France (Serdon 2005, p. 149). Preserved medieval documents of the Holy See mention orders of large quantities of bolts with flights made of natural feathers (Serdon 2005, p. 149).

Among the extant examples of wooden bolt-shafts, a large variety of material used for their manufacture could be observed. At the settlement of Colletière a Charavines dated to the 11<sup>th</sup> century, out of 44 recorded bolt-shafts, 26 were made of ash, willow, hazel and maple (Serdon 2005, p. 148).

Bolts from the city moat of Wangen in Switzerland, dated to the beginning of the 14<sup>th</sup> century were cut out of spruce or larch (Boschetti-Maradi et. al. 2004, p. 729, figs. 33, 37:1).

## CONCLUSIONS

The archaeological evidence proves that there was actually no firm rule in the choice of material used for medieval bolt shafts. Specimens made of different kinds of wood, such as beech, oak, larch, spruce, ash, willow, hazel, alder and maple were recorded to date. This could be partially explained by the fact that projectiles were expendable weapons designed for one action. There was no need to pay too much attention to their quality. The demand for bolts used, even during a single medieval siege was enormous

(Strickland, Hardy 2011, p. 125). Randomly selected material, which was at hand proved sufficient for the production of bolts. Of course this could be the logical, practical and plausible explanation for the great variety of shafts. On the other hand it may be an anachronistic point of view, overlooking the medieval world of superstitions and folklore. As opposed to iron and stone, wood was treated by the medieval people as a living being, even after it had been converted into a useful object (Pastoureau 2006, p. 91). According to medieval beliefs and a very specific medieval etymology which had nothing to do with the actual origin of words, different attitudes, evil or good were ascribed to different kinds of wood (*ibid.*, p. 107). Alder was disturbing for the medieval people. They regarded it as a ghost tree, which grows in the marshland and bleeds (turns red) when cut down (*ibid.*, p. 108). It seemed to be a devil's tree. Whether firing an arrow or bolt was meant as a wish of evil to the enemy at the siege of the castle in Kolno or was a mere coincidence, will probably remain an unsolved mystery.

<sup>2</sup> Similar deposits of medieval bolt shafts are known from a number of European castles. Among the most important are 40 specimens found during refurbishing of ceilings in 1949 at the Castle of Habsburg in Switzerland (Zimmermann 2000, pp. 46, 54, 81–82, figs. 6, 11). The collection could be plausibly dated to the 14<sup>th</sup>–15<sup>th</sup> centuries. Another deposit of 212 bolts from the 12<sup>th</sup>–13<sup>th</sup> centuries was discovered in 1992 during conservation works at a medieval tower in Nänikon Bühl, Switzerland. It is quite analogous to the collection of 200 bolt shafts from the Castle of Mont Terri in the Swiss Jura Mountains (Serdon 2005, p. 151).



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