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Militaria, Horse-riding Equipment and Horse Tack from the Excavations of the Late Medieval and Early Modern Residence at Żelechów (Mazovia)

Abstract

During multi-season archaeological investigations of the Ciołek family's seat in Żelechów, situated on the borderland of present-day Mazovian and Lublin voivodeships, a large assemblage of artefacts was collected, mostly from well-dated cultural layers. For analysis we selected 20 artefacts belonging to three functional groups: elements of horse-riding equipment, horse tack and militaria. Alongside a detailed description of their state of preservation, metrics and dating, examples of analogous finds from other late medieval and early modern sites in Poland are provided.

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KEYWORDS
- Żelechów
- Middle Ages
- weaponry
- horse equipment
- noble residence
- manor house

Introduction

Żelechów is a small town on the eastern border of the present-day Mazovian voivodeship, in Garwolin District. Historically, it laid within the Sandomierz voivodeship, in the district (land) of Stężyca (*ziemia stężycka*)[1] (Fig. 1).

Despite its rich history, research on its past was limited and focused largely on the most recent times.[2] Since 2016, thanks to the identification of the location of residence belonging to Żelechów's medieval and early modern owners – previously known only from written sources – the site has become the subject of interest to archaeologists and historians. The waterlogged area on the town's periphery had previously been overlooked by scholars as a potential location of the Żelechów fortalice (Fig. 2). Already in 1840, however, the Żelechów parish priest Andrzej Krasuski mentioned remains of brick walls bonded with lime mortar, which were exposed during works conducted in some meadows near a large pond.[3] This information remained a local curiosity, while it was commonly assumed that the Ciołek residence had stood in the same place as the eighteenth-century manor (in the northern part of Żelechów).[4] Thanks to multi-season archaeological and historical research conducted in 2016-2025, it has been established that in the north-western part of the town, in the middle of a broad, marshy valley of a watercourse known as Żelechówka, there existed a residential-defensive complex belonging to the owners of the town. Today the area is uncultivated land directly adjacent to fishponds. Such a location is

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[1] Pałucki 1993, 48.

[2] Wojtowicz 1977.

[3] Bis et al. 2018, 351.

[4] Dębski 1987, 67.

Fig. 1. Location of the town of Żelechów within the present borders of Poland. Elaborated: W. Bis.

one of the reasons it has not been urbanised. The archaeological fieldwork has made it possible to determine the construction method of the castle, the building materials, and the phases and time of its functioning.[5] It had the form of a quadrilateral with maximum dimensions of 85×90 m. It consisted of a centrally placed square plateau (50 m a side), surrounded by a moat (ca. 10 m wide), beyond which was an earthen rampart formed during the digging of the moat. The results of fieldwork, the finds of moveable artefacts (coins, ceramics and stove tiles), dendrochronological analyses and stratigraphic sequences, together with information from written sources, allow us to assume that the complex was established around the mid-15th century and was in use until the end of the 17th century. At least three principal phases were distinguished. In the first, dated from the mid-15th to the mid-16th century, it was the ancestral seat of the Ciołek family with a brick residential tower and outbuildings on the courtyard. In the second phase, from around the mid-16th to the end of the 16th century, the complex was converted, after extensive modernisation, into a late Renaissance noble residence with a timber manor on the courtyard. At that time the moat was backfilled, residential and utility buildings were erected on the earthen ramparts, and a large part of the area was paved with cobblestones. An impressive heating stove made of Renaissance plate tiles was constructed in the manor. The third phase, beginning at the turn of the 17th century, marked the end of the site's representative function – most likely as a result of a widespread fire that destroyed the timber buildings, traces of which are recorded in the cultural layers. The complex was then converted into a noble *folwark* and became an administrative centre for the surrounding estates. Its utilitarian and economic character is evidenced by a large timber well with a sweep, built on the site of the burnt manor, as well as by the remains of a substantial production building – a non-ferrous metal workshop.

[5] Bis et al. 2019.

Historical Background

A survey of dispersed archival material relating to the past of Żelechów allowed us to systematise historical knowledge of its earliest history. The settlement was mentioned for the first time in the lists of Peter's Pence from 1325-1327, 1336 and 1346,[6] although the village and parish are certainly older. In the *Liber Beneficiorum* (1470-1480), the register of possessions of the Cracow diocese, Jan Długosz notes that there was a 'knight's estate' (*praedium militare*) in the settlemnt, from which a tithe was paid to the Bishop of Kraków and the local parson.[7] It is unknown when the settlement received the urban law, as the charter document has not survived. On the basis of a document issued at Łuków by Casimir IV Jagiellon on 4 September 1447, it is accepted that by that time Żelechów already had town status.[8]

In the early 16th-century written sources the Żelechów residence is described with a term 'fortalice' (*fortalitium*). It is first mentioned in 1515, when the Żelechów estate was divided between Andrzej Ciołek and his half-brother Feliks of Zielonka. Andrzej transferred to Feliks half of the local estate complex – comprising the town, the fortalice and several villages – and pledged the other half to him for 1,000 *grzywna*s. A second reference to the fortalice appears in the 1523 document in the context of a family dispute over the recovery of these goods by Jan (Andrzej's brother) from Feliks of Zielonka, *starosta* of Łuków;[9] the quarrel reached the king. On 11 April 1523, Sigismund the Old issued a mandate to Mikołaj of Szydłowiec, castellan of Sandomierz, treasurer of the Kingdom of Poland and sheriff (*starosta*) of Radom, to induct Jan 'Czolek de Zelechow' into the estates of 'Feliks de Zyelyanka', castellan of Chełm and *starosta* of Łuków, namely the town 'Żelechów with fortalice and villages Wola Żelechowska, Ostrożeń and Łomnica [...] even by the use of force' (*Zelechow cum fortalitio et villas Vola Zelechowska,*

[6] *Matricularum*… 1910, 171, 246.

[7] Długosz 1864, 560.

[8] Bis et al. 2018, 354. More information on the town's history and the Ciołeks there.

[9] Bis et al. 2018, 355.

Fig. 2. Żelechów – the main square seen from the east, 1967. The arrow marks the location of the Ciołeks' residence. Photo: Zbyszko Siemaszko. Signature: FL – czb-1467. Source: https://archiwum.zabytek.pl/pl/dokumenty/fototeka-19310.

Ostrozenye et Lomnycza [...] *etiam vi, si necesse fuerit*).[10] The further course of the dispute is unknown. However, ties to the site clearly endured, as in 1527 a member of the family – also named Jan – styled himself 'of Żelechów'.[11]

No sources survive concerning the later history of the fortalice. It might have been destroyed during the Second Northern War, perhaps as early as the late 1655. On the night of 24-25 December of that year, the Swedes destroyed nearby Stężyca.[12] Considerable damage is also recorded at Łuków, where most of the town buildings, three wooden churches and the hospital were burnt.[13] The invaders were also present in the castle at nearby Wilczyska, which they probably burned down.[14] The Żelechów complex was probably still in use in the 2nd half of the 17th century, although its form and function is unclear. In 1673, the poll tax register notes that a tax of 8.5 florins was paid from the Żelechów manor, calculated for seven inhabitants – an administrator and his wife (nobles) and five servants (commoners).[15] The functioning of the complex in the later 17th century is further confirmed by numerous finds of Crown and Lithuanian shillings minted in 1659-1668 under John II Casimir, most of them retrieved from near-surface cultural layers across almost all trenches. Probably at the end of the 17th century or the beginning of the next, the residence of the owners of Żelechów was moved to another part of the town. In 1722, the Żelechów estates were purchased by two brothers Wacław and Seweryn Rzewuski from the previous possessor, Stanisław Linkaus. According to the 1729 inventory, after Wacław had acquired the entire estate, the timber buildings of the palace and *folwark* were situated 'outside the town, on a distinctive hilly site',[16] which can be identified with the location of the nineteenth-century manor that survives to this day.

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In the course of excavations within the Żelechów complex, and so far, 16 trenches have been

[10] *Matricularum*… 1910, 243 no. 4208; Bis et al. 2018, 355.
[11] AGAD, MK. 1527, k. 264v; *Matricularum*… 1910, 306-307, no. 5208.
[12] Nagielski et al. 2015, 440.
[13] Nagielski et al. 2015, 453-454.
[14] *Słownik*… 1893, 462.
[15] AGAD, ASK 1673, k. 486.
[16] *Inwentarze dóbr*… 2016, 99.

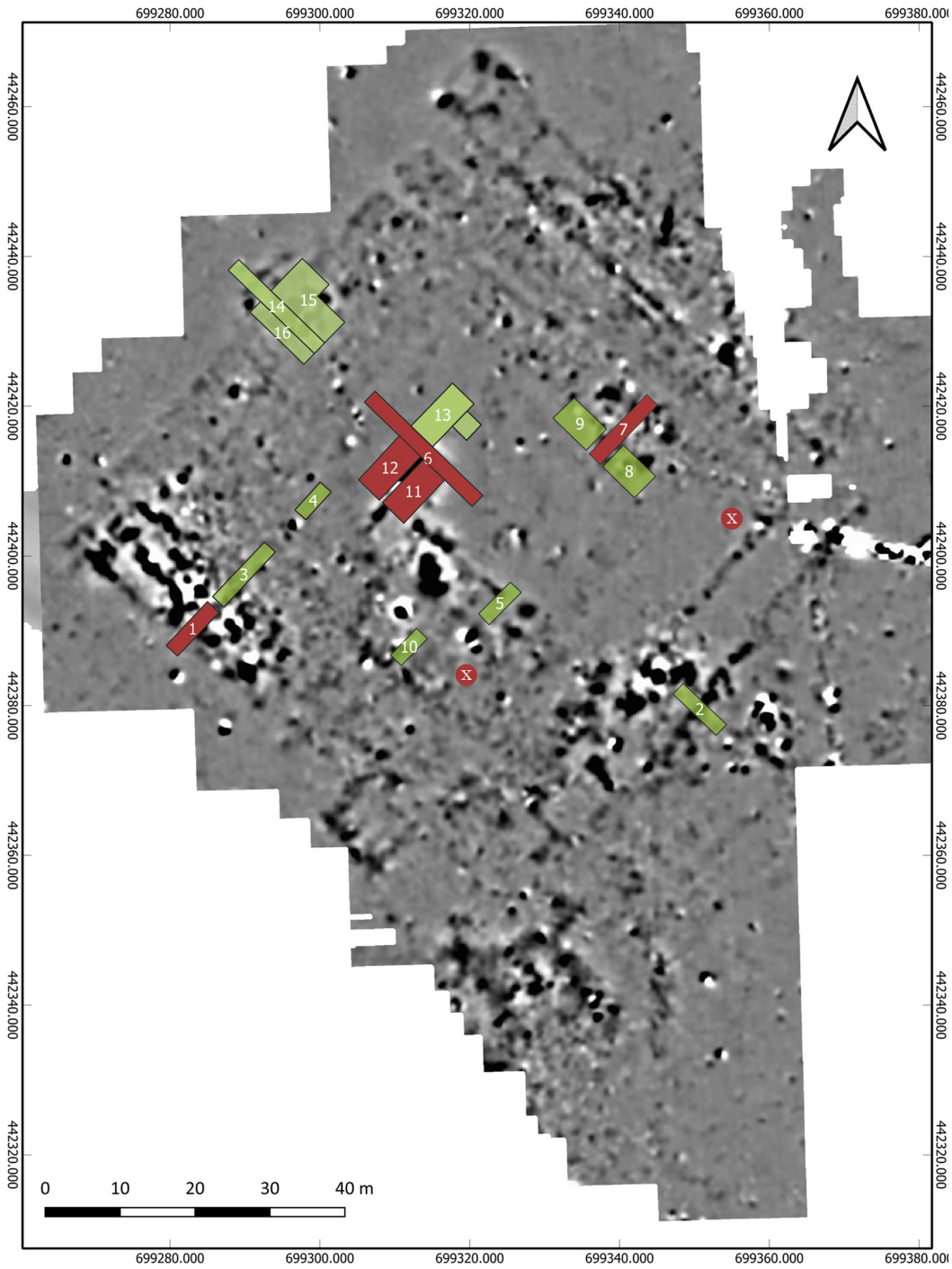

Fig. 3. Location of archaeological trenches on the map of magnetic anomalies within the Żelechów complex. Trenches and find-spots of the analysed artefacts marked in red. Graphic design: W. Bis and R. Ryndziewicz.

excavated at the site. In five of them and at two additional spots on the courtyard, archaeologists recovered 20 artefacts that are the subject of this paper (Fig. 3). These have been divided into three functional groups: militaria, horse-riding equipment, and horse tack; they are discussed here in that order.

Militaria

Sword scabbard chape

The scabbard chape (inv. no. Żw.01/05, Fig. 4:1) was made of a thin iron sheet formed into a U-shaped metal fitting. The artefact is heavily corroded: the major part of one arm is missing, and the preserved arm is slightly flared in its upper part – perhaps a remnant of a rivet hole for fixing the chape to the scabbard. Preserved height is 58 mm; span – approximately 40 mm; diameter of the lower finial – 5 mm; width of the fitting – 8 mm; sheet thickness – 0.5 mm; and weight – 5 g. The item was found in a layer dated to the 1st half of the 16th century.

Chapes in the form of U-shaped grooved sheet were a very common means of protecting the lower

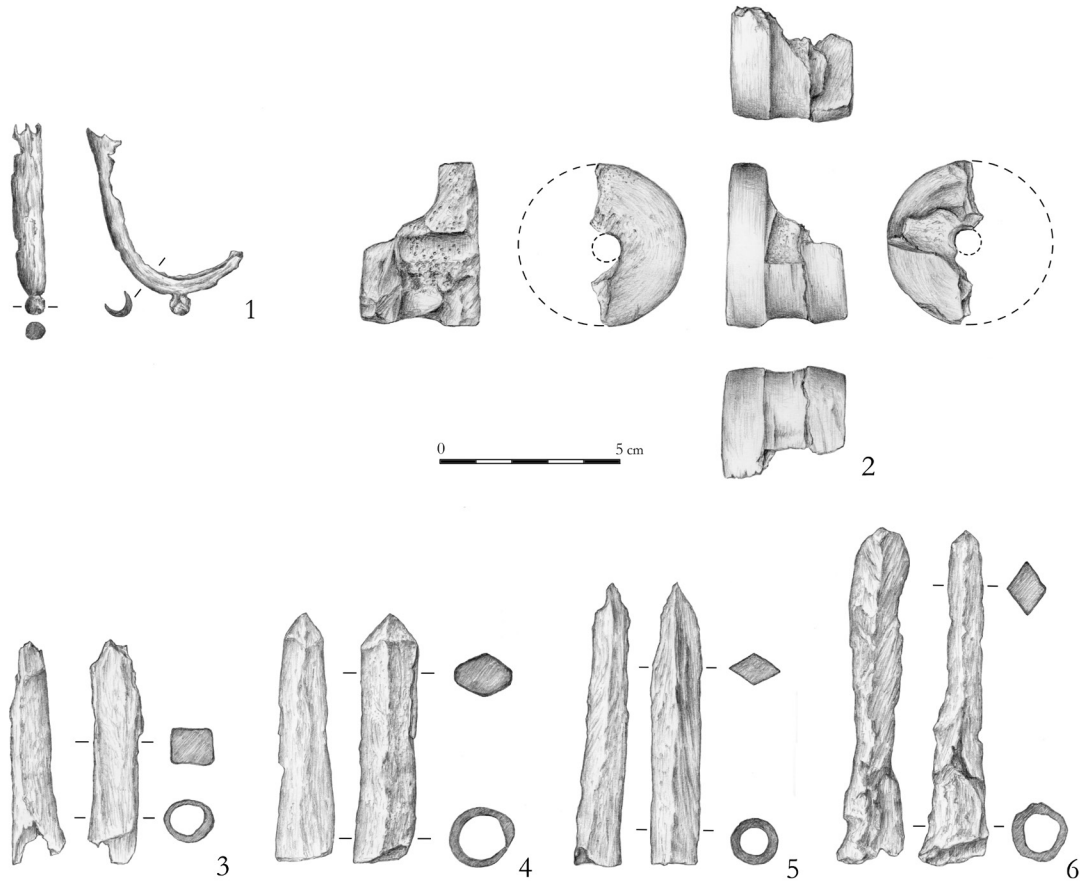

Fig. 4. Militaria from Żelechów. 1 – Sword scabbard chape, inv. no Żw.01.05; 2 – Nut, inv. no Żw.06.07; 3 – Crossbow bolt, inv. no Żw.07.05; 4 – Crossbow bolt, inv. no Żw.12.01; 5 – Crossbow bolt, inv. no Żw.06.05; 6 – Crossbow bolt, inv. no Żw.06.05. Drawing: E. Gumińska.

end of a sword scabbard.[17] Their use in Poland can be observed already in the 13/14th century, as exemplified by two bronze chapes from the medieval stronghold at Raciążek in Kuyavia, dated between 1256 and the 2nd half of the 13th / turn of the 14th century.[18] At least four similar pieces from the fortified settlement in Tum near Łęczyca come from the site's third settlement phase, dated from the mid-13th to the early 14th century.[19] A find from the remains of the fortified settlement at Ostrówek in Opole can be dated to the period after 1240.[20] Potential analogies also include two scabbard chapes from the castle at Czchów in Lesser Poland, dated to the late 14th-15th centuries.[21] An interesting example is a sword of type XVIa, T5, 3 according to Oakeshott, from Buk (Poznań District), preserved with remains of its scabbard and a grooved trapezoidal chape; although found in mixed 17th-18th-century layers, the sword itself is dated to the later 15th century.[22]

A very similar chape with a spherical knop at the bottom is known from excavations in Elbląg (28 Rybacka Street), dated to the 13th century.[23] Another one, with a distinct delicate decoration, from 11 Kowalska Street in Elbląg, comes from 15th-century layers.[24] A decidedly later artefact was discovered in remains of a manor in Nowe Miasto nad Wartą, from a phase dated to the 16th-17th centuries.[25] The Żelechów chape, therefore, falls into the group of younger variants of this widespread form of scabbard fittings.

Crossbow nut

Only half of the crossbow nut has survived (inv. no. Żw.06.07, Fig. 4:2). The external diameter of the complete artefact would have been 45 mm; width – 33 mm; notch for the trigger latch – 10 mm; and the diameter of the axle hole approximately 7 mm, with a weight of 20 g. The nut was carefully made, most likely of antler, and in places shows traces of polishing from use. This find also comes from a layer dated to the 1st half of the 16th century.

[17] See Krabath 2001, 60-63, fig. 11:1-3.

[18] Kowalczyk 1986, 78-79, table LXl:b-c; Świątkiewicz 2010, 13, 73, cat. no. 1-2, figs. 7:1a-1b, 2.

[19] Stasiak and Grygiel 2014, 341-342, fig. 199:1-5.

[20] Wachowski 1985, 13, fig. 1:d.

[21] Szpunar and Glinanowicz 2006, 155, 172, cat. no. 6-7, table1:c-d.

[22] Krzyszkowski et al. 2014, 173-177, figs. 2 and 5.

[23] Marek 2014, 156, 66, cat. no. 136, fig. 29:c.

[24] Marek 2014, 156, 67, cat. no. 137, fig. 29:d.

[25] Grygiel and Jurek 1996, 181, fig. 141:3.

The nut is one of the key components of a crossbow, responsible for cocking the weapon and locking it in the ready-to-shoot position.[26] Crossbow nuts are relatively frequent finds in Poland,[27] particularly at knightly residences. Examples include a specimen from the complex at Nowe Miasto nad Wartą, which functioned in the 14th century, but was probably destroyed in the 1380s[28] and another one from the *motte* at Siedlątków with the same time of deposition.[29] In turn, the crossbow nut from the manor house (*motte*) in Chudów, Gliwice District, dates back to the 15th century.[30] The largest assemblage of such finds from present-day Poland is known from the Teutonic Knights' castle at Człuchów, where interiors interpreted as a crossbow-makers' workshop yielded, besides various stock fittings, ten nuts. The vast majority – nine pieces – have diameters in the 30-32 mm range, with only one larger specimen at 38 mm. The workshop functioned most probably from the late 14th to the 1st half of the 15th century.[31]

From Mazovia, such elements are known from the Czersk castle, from Warsaw, and from the remains of the fortified settlement at Pułtusk. The specimen that is particularly close, in geographical terms, to that from Żelechów, is the crossbow nut from Czersk, with a diameter of 31 mm and a width of 21 mm, broadly dated from the 14th-15th to the 17th century.[32] The Pułtusk specimen has a diameter of 36 mm and a width of 23 mm. It is dated precisely to the 4th quarter of the 13th century.[33] From Warsaw (from the vicinity of the Castle Square) come three nuts with diameters of 34, 35.5, and 40.8 mm and widths of 12.7-16.8 mm, dated to the 14-15th century, though these are stray finds.[34] A later example, from Puck, is again preserved roughly as a half of the artefact and is dated to the later 15th century.[35]

Krzysztof Wachowski proposed a size-based classification for nuts from Polish lands, dividing them into small (26-27 mm), medium (30-34 mm), and large (35-38 mm).[36] The Żelechów nut distinctly exceeds the upper range of this division, suggesting a crossbow of larger size capable of shooting heavier bolts. The arrowheads for crossbow bolts from Żelechów – rather stocky and robust – may corroborate this supposition. Dated to the 1st half of the 16th century, the Żelechów nut belongs to the latest horizon of finds, when the crossbow had already lost its primary military role, but remained important in hunting.

Crossbow bolts

Alongside the nut, four arrowheads for crossbow bolts were found in Żelechów. All belong to the group of socketed arrowheads and come from different stratigraphic contexts, representing distinct chronological horizons; nevertheless, they display close similarity in shape and size.

Closest chronologically to the nut is the arrowhead recovered from the oldest layers of the first manor, dating from the mid-15th to the early 16th century. Its blade is short and massive, merging smoothly into the socket, with a rectangular cross-section. Preserved length is 61 mm, of which the socket is approximately 22 mm; external socket diameter is 15 mm, internal diameter – approximately 13 mm; a transverse section of the blade (maximum width just below the tip) has the dimensions of 13×9 mm; and a weight after conservation is 31 g. The blade is heavily blunted by corrosion or impact; generally, the artefact is poorly preserved and was – probably – originally slightly longer and heavier.

Two further finds come from the same layer. The first (Fig. 4:5) has a blade that is rhomboid in cross-section and merges into the socket; clear traces of edge-peening are visible on both socket and blade. Total length is 78 mm, of which approximately 28 mm constitutes the socket; external diameter of the socket is 13 mm, internal – 10 mm; dimensions of the transverse section of the blade (maximum width at mid-length) are 14×10 mm; and weight after conservation is 40 g.

The second specimen has a relatively long blade only slightly set off from the socket; it is also of a rhomboid section. The total length is 94 mm, and the socket length is approximately 35 mm. The diameter of the external socket is 20 mm, while the internal diameter is approximately 14 mm. Dimensions of the transverse section of the blade (maximum width just below the tip) are 15×10 mm. The arrowhead is heavily corroded and weighs 36 g after conservation. The blade is again strongly blunted by corrosion or impact, suggesting that originally it was slightly longer and heavier. These two artefacts were found in a layer dated to the mid-17th century, although a date in the later 16th century is also possible due to the mixing of materials.

[26] Kruczek 2013, 30-31, figs. 14 and 15.
[27] See Wojciechowski 1989, 481-485, figs. 1-3, table 1.
[28] Grygiel and Jurek 1996, 90, fig. 105:1.
[29] Kamińska 1968, 59, table 13:5.
[30] Michnik and Zdaniewicz 2014, 55, fig.43.
[31] Miścicki 2020, 297-298, 309, fig. 8:1-4.
[32] Ościłowski 2021, 97, fig. 10.
[33] Wojciechowski 1989, 486-487, table 1; Ościłowski 2021, 97, fig. 11.
[34] Ościłowski 2021, 98, figs. 13-15.
[35] Kruppé and Milewska 2014, 100, fig. 87, table 29: 3.
[36] Wachowski 1999, 184.

The last crossbow arrowhead has a short, massive blade with a rhomboid section that smoothly merges into the socket. Its total length is 69 mm, of which approximately 34 mm constitutes the socket. The diameter of the external socket is 16.5 mm, and the internal diameter is approximately 13 mm. The length and width of the transverse section of the blade (maximum width just below the tip) are 16.5×12 mm; and the weight of the artefact after conservation is 35 g, with one sizable corrosion loss. This specimen was found loose in the humus layer dated to the 18th-19th centuries, which may, however, contain earlier artefacts linked to the demolition of the manor buildings.

In terms of weight, the four approximately complete Żelechów heads fall within range E (23–48 g)[37], weighing 31–40 g.

The above-mentioned finds have numerous analogies in both Polish and wider European material. The largest of the heads fits Bernd Zimmermann's type T-5 (heavy variant).[38] Robust heads without a constriction between blade and socket were grouped by Zimmermann as type T 2–6 (appearing in Switzerland already in the early 14th century and still present in the 16th century)[39], or as type J1 according to Valérie Serdon.[40] Comparable forms, with the blade not set off from the socket, have also been distinguished in the late medieval Polish material. For bolt arrowheads from the Muszyna castle, it was the type 1 with the cylindrical socket; various variants of this type account for approximately 8% of the assemblage. Barbara Chudzińska, who studied the castle, dates the beginning of their usage to the 14th century.[41] At the castle in Bolesławiec on the Prosna River, such forms of projectiles were classed by Jerzy Maik as type Ib; among nine specimens, two were dated to the 14th century, the remainder (probably from mixed layers) to the 15th-17th centuries.[42] A head of this kind is known from the knightly residence at Siedlątków, destroyed in the 4th quarter of the 14th century.[43] A series of bolt arrowheads with these characteristics discovered in the town of Sezimovo Ústí, which disappeared around 1420, has been classified as variant BIIIa according to Rudolf Krajíc.[44] Therefore, the discussed form was popular from the 14th century through the early modern period, giving no possibility of more precise chronological resolution.

Firearms

The firearms assemblage from the Żelechów manor is of some interest and comprises two fragments of an iron barrel, a lead ball and a stone ball.

Hackbut barrel with ammunition

Fragments of a hand-held firearm barrel[45] were found in the north-eastern part of the courtyard, in the humus layer near the moat (Fig. 5). Two fragments of different size, forged of iron with a polygonal cross-section, were recovered. The larger is the breech part, preserving over a short section the full circumference of the barrel, together with a breech plug (inv. no. Żw.ZL.01; Fig. 5:1). Unfortunately the attachment point for the rectangular priming pan plate with a touch hole has not survived. The iron tenon is very corroded and currently appears externally as a truncated pyramid while internally cylindrical. Measurements: length with the tenon 196 mm; length without 182 mm; breech thickness 39.5 mm; external width at breech 48.5 mm; barrel wall thickness at breech 13.5-14.5 mm and nearer the muzzle 11.5 mm; calibre 19 mm; weight of the preserved element 915 g.

The second barrel fragment (inv. no. Żw. ZL.02; Fig. 5:2) is a less characteristic section comprising only three of the barrel's flats; its cross-section may be inferred as octagonal. Preserved length 103 mm; wall thickness 11.5 mm; weight 140 g. Calibre c. 20-21 mm, slightly larger than at the breech – perhaps due to bulging of the barrel during an explosion. During the excavations, a ball of 19 mm diameter (Fig. 5:3) was also recovered and can hypothetically be associated with the barrel fragments.

The characteristics of the Żelechów fragments situate them among hand-held firearms typical for the 16th century. Among Renaissance hackbuts in Polish collections, close constructional analogies include a polygonal specimen from the Museum in Jarosław: length over 900 mm, calibre 19 mm, weight 4.4 kg;[46] and a hackbut from excavations in the remains of the town hall at Chełm, with a polygonal barrel, length 1537 mm, calibre 23 mm, weight c. 21 kg.[47] The Żelechów hackbut probably belonged to the lighter variants, weighing around

[37] Cf. Wachowski 1982, 172, fig. 1.
[38] Zimmermann 2000, 51, 53, table 10.
[39] Zimmermann 2000, 53, 55, table 11.
[40] Serdon 2005, 106.
[41] Chudzińska 2014, 62-63, 65, cat. nos. 11, 43, 74, 133, 159, table 1:11, 4:7, 7:2, 12:1, 14:3.
[42] Maik 1997, 27, fig. 10.
[43] Kamińska 1968, table XIV:5.
[44] Krajíc 2003, 187, fig. 151.
[45] More on the remains of the Żelechów hackbut see Bis and Strzyż 2025.
[46] Strzyż 2019, 308-309, fig. 1:1-5.
[47] Strzyż et al. 2016, 102-105, table 1-2, figs. 8:1, 9.

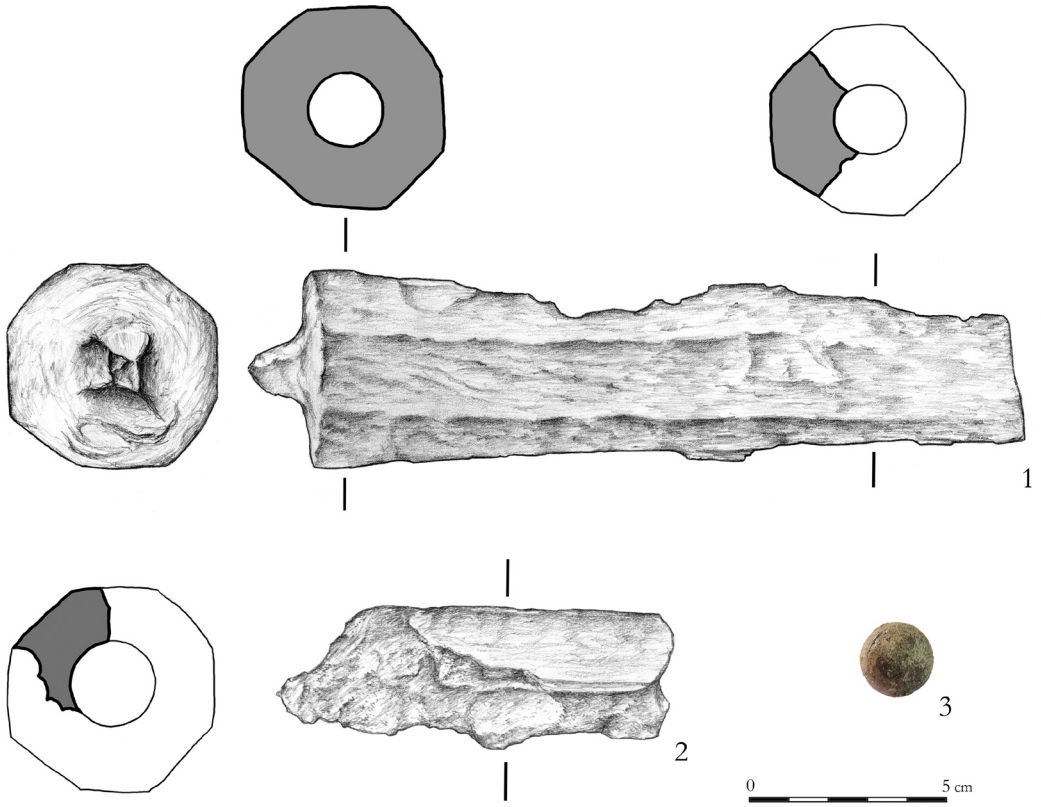

Fig. 5. Hackbut from Żelechów. 1 – Fragment of hackbut barrel; 2 – Fragment of hackbut barrel; 3 – Stone projectile. Drawing: E. Gumińska (1-2) & Photo: W. Bis (3).

5 kg, allowing convenient use without a rest or wall support.

Stone ball

A well-worked – though not perfectly spherical – stone ball was also found (inv. no. Żw.06.08, Fig. 6). Its good quality was supported by the homogeneity of the raw material – a light-grey, uneven-grained Jurassic quartz sandstone – possibly from local deposits. Similar glacial erratics are known, e.g., the Jurassic Höör sandstone from Scania, but these occur relatively rarely in Poland, so the chance of finding and using such a boulder is low. The ball's weight : 1699 g; diameter: 103-113 mm.

It is difficult to determine the connection of this projectile with the Żelechów manor. There are no premises to clarify whether it represents ammunition associated with a firearm – heavier than a hackbut – owned by the castle owners or a trace of unspecified military actions affecting the estate. It would indicate the use of a type of cannon such as a *hufnice*, characterised by a wide bore and narrower powder chamber and firing stone shot of c. 100–150 mm calibre. They were employed mainly in the 15th century, but are still noted in 16th-century inventories.[48]

[48] See Szymczak 2004, 60-61; Strzyż 2014, 84-92, figs. 10-13.

Horse Tack and Riding Equipment

Artefacts commonly classified as militaria also include horse-riding equipment and horse tack. From Żelechów comes a rather interesting assemblage of such finds (Figs. 7–10): two well-preserved spurs with fastening elements, a fragment of a stirrup, a part of a bit, and four complete horseshoes, along with a fifth specimen that is only fragmentary. In addition, a piece of another metal find may constitute the remains of a hobble.

Spurs

Two fairly well-preserved spurs from the Żelechów manor (inv. no. Żw.12.05) were found in the same stratigraphic unit.

The first spur (Fig. 7:1) is heavily corroded but almost complete. It has relatively short arms, U-shaped in plan, with a flattened, elongated triangular cross-section that merges into a broad sheet-iron heel band. The neck is long and terminates in a small rowel, of which only three points survive; one arm of the fork is missing. The neck has an oval cross-section (10×6 mm). The hooks (Stanisław Kołodziejski's type 2) are very well preserved. On the right arm survived a buckle chape and a double-D (figure-of-eight) buckle with a vestigial tongue; in profile, it resembles a flattened V. On the other arm, only fragments of two rings – the remains of a buckle chape – are preserved. Dimensions of the spur are as follows:

length approximately 145 mm; width 95 mm; arm section at junction with the neck 11×4 mm; width of the arm together with the heel band 25 mm; preserved neck height 75 mm; fork height approximately 27 mm; buckle 31×22 mm; and weight 50 g. This specimen corresponds to Stanisław Kołodziejski's variant J, as indicated primarily by the shape of the arms and the long neck. It was found in deposits associated with the first manor, and thus it is dated to the mid-15th to early 16th century.

When defining variant J, Stanisław Kołodziejski had at his disposal only two specimens from the broader Lesser Poland region and he dated this variant to the 15th century, but no later than the 3rd quarter of that century.[49] Nowadays, more examples of this type are known: a very well-preserved, complete specimen with fastening elements from a midden near the castle in Puck, dated to the mid-15th century;[50] and an incomplete find from the Muszyna castle – consisting of one arm with part of the heel band, whose deposition is associated with the siege and destruction of the castle by Hungarian troops in 1474.[51] Recently, long-necked spurs from Gdańsk have also been published in relation to Rajska-Heweliusza Streets, site no. 10, Podwale Grodzkie, and Podbielańska Street, site no. 7, and all are dated to the 2nd half of the 15th - early 16th century.[52]

The second spur (Fig. 7:2) from Żelechów also has short, U-shaped arms with a flattened, elongated triangular section passing into a broad sheet-iron heel band. The neck is long and terminates in a fork, but the rowel is missing; the neck has an oval section (12×6 mm). Hooks (Stanisław Kołodziejski's type 2) are well preserved, and buckle chapes survive on both arms. The spur also has additional mounting holes (5 mm in diameter) made in the heel band. Dimensions of this find are: length approximately 158 mm; width approximately 90 mm; arm section at junction with neck 11×3 mm; width of arm with heel band 29 mm; preserved neck height 99 mm; fork height 35 mm; and weight 65 g. A separate rowel with five surviving (originally six) points (diameter 22 mm) and a two-piece hook were also found, and probably belong to the same spur. The total weight of the artefact with these elements is 68 g. Given the considerable neck length (80–110 mm), the spur should be assigned to Stanisław Kołodziejski's variant K, noted

Fig. 6. Stone ball from Żelechów, inv. no. Żw.06.08. Photo: P. Strzyż.

in Lesser Poland in the 15th century.[53] This find also comes from the earliest phase of the manor's operation and is dated to the period from the mid-15th to the early 16th century.

Other type K spurs, analogous to the said find from Żelechów, are known from the territory of Poland. In this group, a noteworthy example is an artefact discovered in the castle in Rawa Mazowiecka (Rawa District), dated to the 2nd half of the 15th century. This specimen is well preserved and distinguished by its twisted neck, although, unfortunately, its fork has not survived.[54] A spur of this kind was also discovered in the village of Majdan Wielki, Zamość District. It is characterised by a high, strap-like heel band and is richly decorated with punched dots and incised lines. This artefact is also dated to the 2nd half of the 15th century.[55] An exceptional example of this variant is the spur from the western wing of the castle in Radzyń Chełmiński, Grudziądz District. Compared to the above-mentioned finds, it is distinguished by its very rich ornamentation. At the base of the neck, one can identify, among other details, the letters 'S', 'm', and 'L'. The bow is fitted with a heel band, and its lower part is adorned with incised decoration forming a scale-like pattern. It is worth noting that, like the specimen from Żelechów, the spur from Radzyń has type 2 attachments, with a figure-of-eight buckle and hook-like strap fasteners. It is dated to the 2nd half of the 15th century.[56] An analogous buckle, possibly from a spur, is also known from the remains of the town hall at Puck, from layers dated to the late 15 th century – 1st quarter

[49] Kołodziejski 1985, 169, table 1, fig. 8:1.

[50] Kruppé and Milewska 2014, 100, fig. 86, table 28: 1.

[51] Ginter and Przybyłok 2016, 238, 239, cat. no. 10, fig. 8:2.

[52] Marek 2025, 168, fig.77:d-e and 78:a-b.

[53] Kołodziejski 1985, 170, table 1, fig. 9.

[54] Spannbauer and Strzyż 2009, 151-153, fig. 4:2.

[55] Kuśnierz 2010, 224, 230, cat. no. 7, fig. 12.

[56] Należny 2015, 199-203, figs. 2-4.

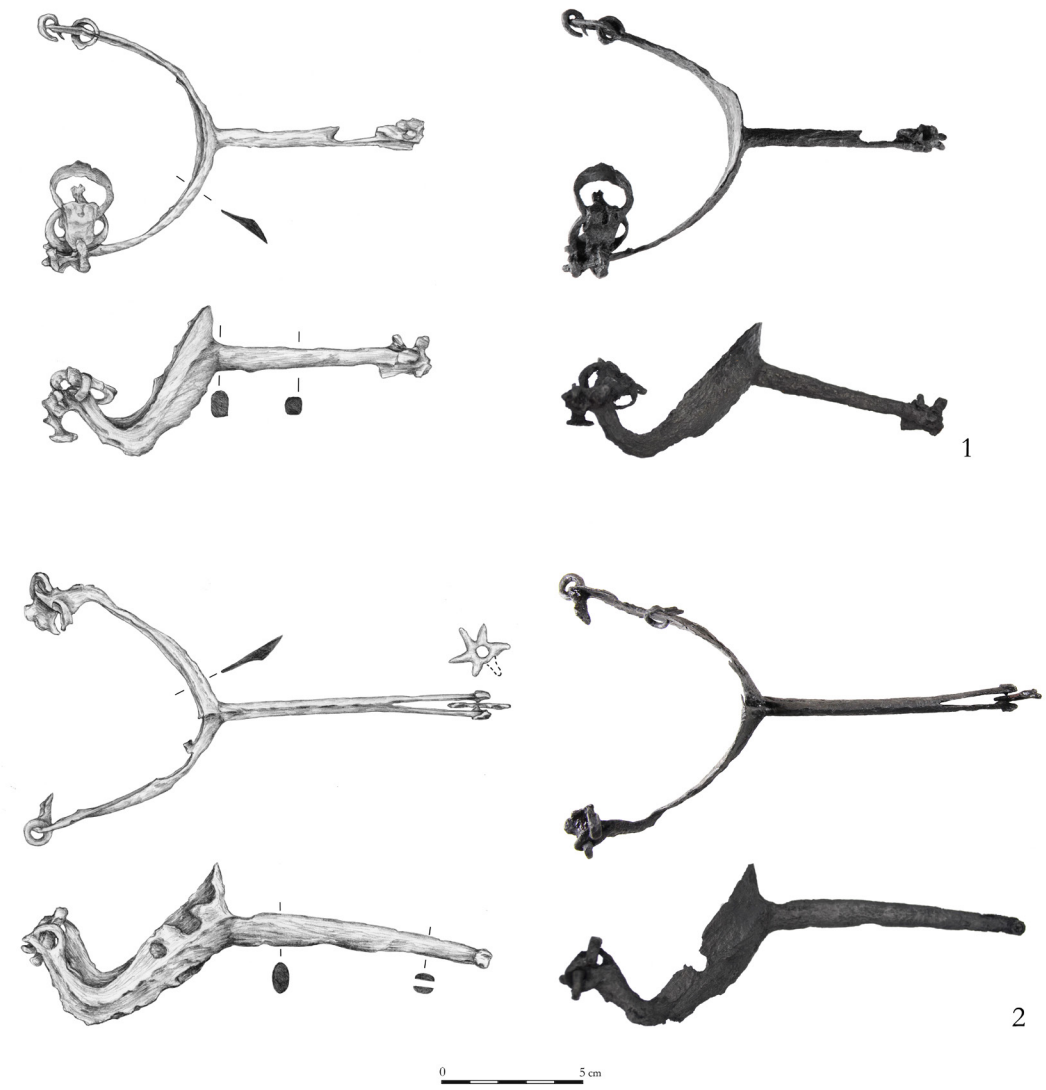

Fig. 7. Spurs from Żelechów. 1 – Inv. no. Żw.12.05; 2 – Inv. no. Żw.12.05. Drawing: E. Gumińska; Photo: W. Bis and P. Strzyż.

of the 16th century.[57] Spurs with an extended heel band and a long neck represent the most developed form of Gothic spurs. The fashion for their widespread use was set by the exceptionally ornate examples made for the wedding of King Casimir IV Jagiellon and Elizabeth of Austria in 1455. In the 2nd half of the 15th century, spurs with a heel band became extremely popular, both in Poland and in neighbouring regions, although their use had already begun in the 2nd quarter of the century.[58]

The two spurs from Żelechów are among the most interesting artefacts in the assemblage discussed in this paper. They represent the chronologically latest variants in Stanisław Kołodziejski's typology, which are not commonly encountered in Poland. Moreover, they can be precisely dated to the period of the residence's occupation by the Ciołek family, from the 2nd half of the 15th to the early 16th century.

Stirrup or a crossbow stirrup

The iron stirrup (inv. no. Żw.11.07, Fig. 8:1) survives only in its lower half; the upper part with the slot for the stirrup leather is missing. The preserved width is 144 mm; present height – 101 mm; tread width – 29 mm. The plate widening reaches the maximum width of the bow; sheet thickness is 3 mm. In its lower part, the bow is twisted and approximately 10 mm in diameter; in the upper part, it transforms into a rectangular section of 10 × 5 mm. The artefact is heavily corroded, especially the tread. The preserved artefact's weight is 63 g. It comes from a layer dated to the 2nd half of the 16th century.

A detailed analysis of the find is hindered by its poor state of preservation and by the lack of comprehensive studies on early modern stirrups. In the surviving part, the artefact most closely resembles

[57] Starski 2015, 173, figs. 151:24, 153:A.

[58] Cf. e.g. Denkstein 1969; Slivka 2004, 183-186, cat. nos. 1-5; Pela 2008, 199, figs. 1:1-6, 2:1-6.

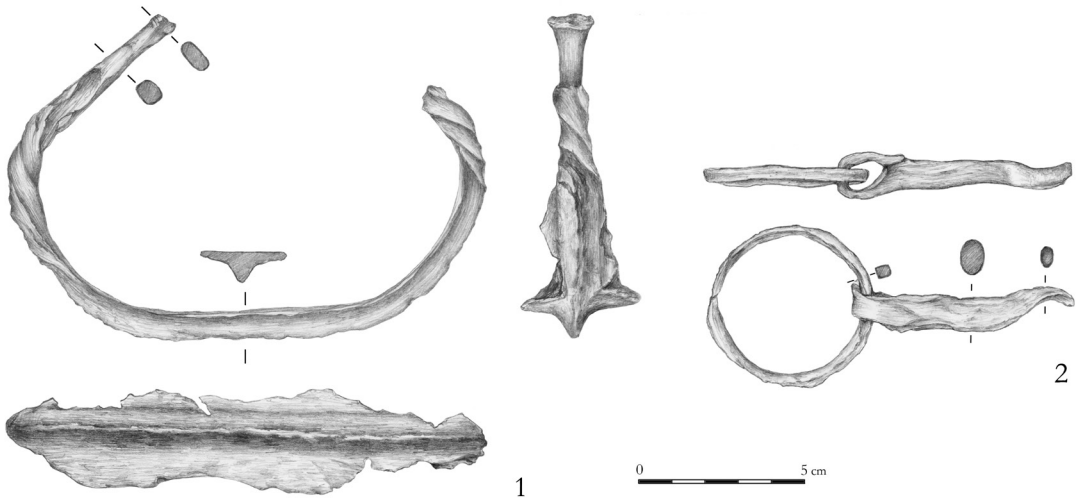

Fig. 8. Horse tack from Żelechów. 1 – Stirrup, inv. no. Żw.11.07; 2 – Bit, inv. no. Żw.11.10. Drawing: E. Gumińska.

the pear-shaped forms classified by Świętosławski as types VA, VB, and VII, which were particularly popular in the 14th and 15th centuries.[59] In particular, the VB type is also characterised by the presence of ribs on the outside of the foot.[60] In the later 15th and early 16th centuries, however, more common forms became stirrups with distinctly asymmetrical arms and treads (Świętosławki's types VIA and VIB).[61] A virtually identical fragment – comprising the tread with parts of the arms – was found in 17th-century layers in the castle in Bolesławiec on the Prosna River.[62] Stirrups with twisted-form elements are relatively common in the 16th century, although this technique more often applies to the treads than to the arms.[63]

It should be noted that this artefact can also be interpreted in a completely different way – as a crossbow stirrup. Such stirrups were used in the process of drawing the crossbow – an archer would place his foot in it and at the same time hook the string onto a hook attached to his belt. This facilitated easy reloading of the weapon.[64] Unfortunately, the upper part of the find from Żelechów, which would definitively settle the issue, has not been preserved. When we take into consideration its characteristic features – the arms that converge strongly towards the centre and the rib added to the underside of the foot – we will find similar crossbow components in assemblages from other sites in Poland (e.g., Plemięta, Grudziądz District), Bobrowniki, Lipno District, and Toruń),[65] the Czech Republic (e.g., Ostromeč and Martinice in Benešov District),[66] and Slovakia (Gajary Posadka in Malacky District); these are usually dated to the 14th-15th centuries.[67] However, according to the classification of crossbow stirrups created by Jan Kruczek on the basis of iconographic representations, the specimen from Żelechów should be dated to the turn of the 16th century.[68] This dating corresponds with the chronology of the crossbow nut and one bolt arrowhead from Żelechów discussed above.

Bit

In the remains of the Żelechów manor, archaeologists also found half of a two-part iron bit (inv. no. Żw.11.10; Fig. 8:2). The length of the mouthpiece made of solid wood is 67 mm; its cross-section is 10.5×8.5 mm; external ring diameter – 51 mm, internal diameter – 45 mm; and weight – 29 g. It was found in the oldest deposits associated with the first manor, dated to the mid-15th century to the early 16th century. It represents the most common variant in the Polish lands, with a two-part mouthpiece and circular rings, classified by Andrzej Nadolski as type I.[69] Such artefacts are found with remarkable frequency in both medieval and early modern contexts, and knightly residences are no exception. Their prevalence reflects the important role of horses in transport and in warfare during this period.[70]

Horseshoes

As with bits, horseshoes are very common finds at knightly and noble residences. From

[59] Świętosławski 1990, 54-8, 63-64, fig. 18, chart 1.
[60] Świętosławski 1990, cat. nos. 138, 141-144.
[61] Świętosławski 1990, 58-62, fig. 18, chart 1.
[62] Maik 1997, 34, fig. 25.
[63] Zschille and Forrer 1896, 22, table IX.
[64] E.g.: Brych 2012, 28; Kruczek 2013, 50-51.
[65] Kola and Wilke 1985, 114, 116, table XIII:3 and 4; Wojciechowski 1989, 489, fig. 5:1-3.
[66] Brych 2012, 30, fig. 1:a, c.
[67] Brych 2012, 37, fig. 16:h.
[68] Kruczek 2013, 51, fig. 39:n.
[69] Nadolski 1954, 87-88.
[70] Marciniak-Kajzer 2011, 221-222; Nowakowski 2017, 160, table 50-51.

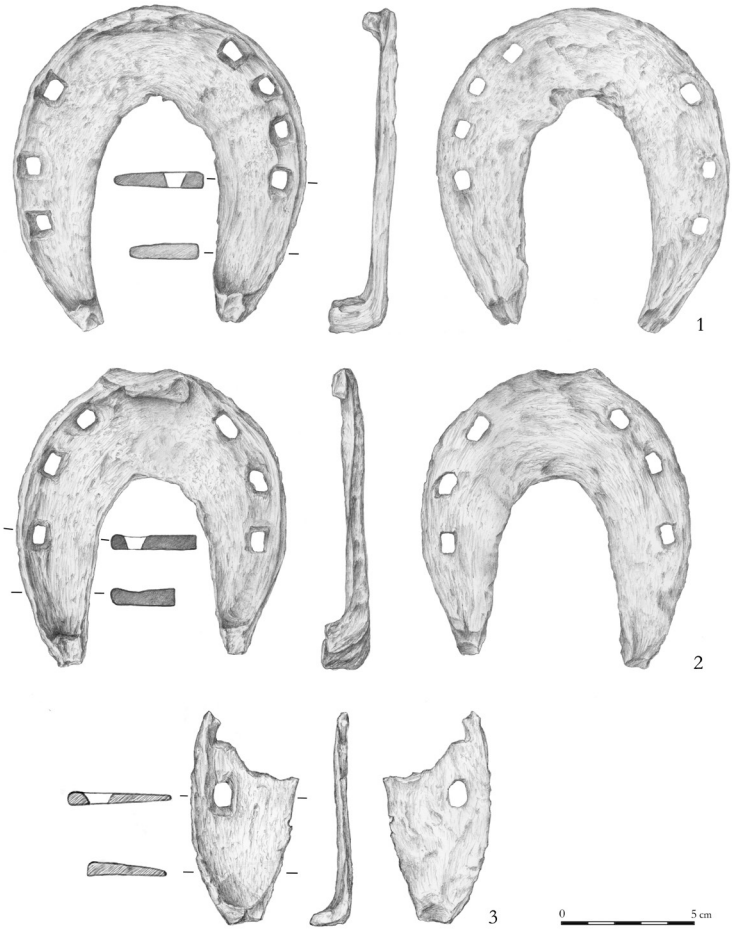

Fig. 9. Horseshoes from Żelechów. 1 – Inv. no. Żw.01.07; 2 – Inv. no. Żw.01.07; 3 – Inv. no. Żw.01.07. Drawing: E. Gumińska.

Żelechów come four complete specimens and one preserved fragmentarily.

Two complete horseshoes and half of a third one were found together in a single stratigraphic unit (inv. no. Żw.01.07; Fig. 9). The first one (Fig. 9:1), although completely preserved, is heavily corroded. However, its constructional features remain fully legible. Its dimensions are: length – 125 mm; branch span – 110 mm; webbing width –37 mm; toe height – approximately 11 mm; nail holes – 7×4 mm (three on the left, four on the right); webbing thickness – 4.5-6.5 mm; caulkin height – 21 mm; caulkin width – 8 mm; and weight – 243 g. There is no fullering and no nail seats. Given the modelled webbing with a raised rim and a raised toe, and the absence of fullering and seats, it may be assigned to Józef Kaźmierczyk's variant IV/2 with caulkin without a heel-piece A2.[71]

The second complete horseshoe (Fig. 9:2) is similar in construction but slightly smaller. Its length is 115 mm; branch span – 101 mm; webbing width – 40 mm; toe height – approx. 7 mm; nail holes – 10×5 mm (three on each side); webbing thickness – 3 mm at the toe, increasing to 5 mm at the caulkins; caulkin height – 18 mm; caulkin width – 10-11 mm; and weight – 178 g. The shoe is heavily worn. This specimen also lacks fullering and nail seats and, with its modelled webbing with raised rim and toe, is likewise classified as variant IV/2 with caulkin A2.

The recovered shoe fragment (Fig. 9:3) consists of a part of one branch. Its dimensions are as follows: length – 82 mm; web width – 40 mm; nail holes – 10×7 mm; web thickness – 4 mm; caulkin height – 14 mm; pyramidal caulkin; and weight – 48 g. Its features are identical to those of the two shoes described above, allowing its assignment to variant IV/2 – or possibly IV/3 – with caulkin A1.

Based on the site's stratigraphy, these specimens are precisely dated to the early 16th century. The dating is significant, as it demonstrates the persistence into the early modern period of shoe variants characteristic of the 14th and 15th centuries.[72]

Two further horseshoes were found together in a single layer (inv. no. Żw.12.01; Fig. 10). The first one (Fig. 10:1) is complete but heavily corroded. It has a length of 121 mm; branch span – 113 mm; webbing width – 27 mm; toe height

[71] Kaźmierczyk 1978, 74-78, fig. 20.

[72] See Kaźmierczyk 1978, 77-78.

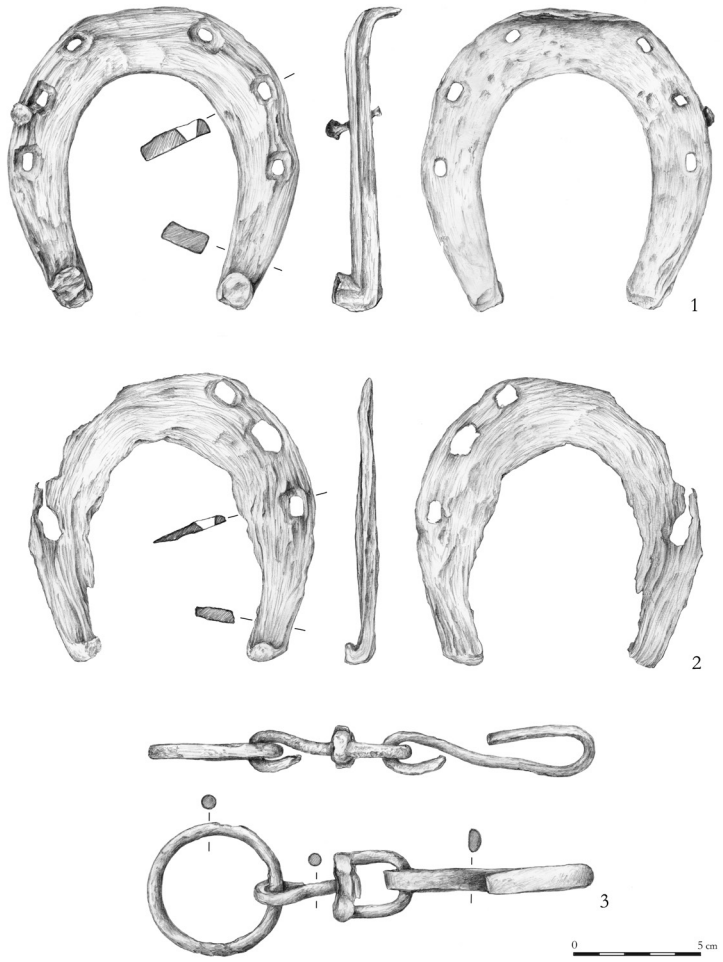

Fig. 10. Horseshoes and horse hobbles (?) from Żelechów. 1 – Inv. no. Żw.12.01; 2 – Inv. no. Żw.12.01; 3 – Inv. no. Żw.ZL.03. Drawing: E. Gumińska.

– approximately 20 mm; nail holes – 7×5 mm (one nail preserved, length 24 mm); webbing thickness – 6-9 mm; caulkin – 18×13-15 mm; and weight – 306 g. Conservation revealed constructional details, indicating that it was probably forged from two welded strips. Given the modelled webbing with a raised rim and toe, together with fullering and nail seats, it may be classified as Kaźmierczyk's type VI/4 with caulkin without heel-piece A2.[73]

The second specimen (Fig. 10:2) is also complete but very heavily corroded and worn. Its length is 116 mm; branch span – approximately 104 mm; webbing width – 33 mm; nail holes – 9×5 mm; webbing thickness – 4-5 mm; caulkin height – 13 mm; caulkin width – 8 mm; and weight – 100 g. Given the shape of the web and the traces of fullering and nail seats, it can also be assigned with some probability to Kaźmierczyk's type VI, perhaps variant 4 with caulkin A2.

These two horseshoes came from the humus layer dated to the 18th-19th centuries, which, however, as indicated above, may contain older artefacts (such as the bolt head discussed above) related to the demolition of the manor buildings.

Archaeological material from knightly residences in Poland often attests to the widespread practice of shoeing horses. For example, two partially preserved horseshoes – apparently of type VI according to Kaźmierczyk's classification – were found at the manor in Orłów, Kutno District, and are dated to the mid-14th to mid-15th century.[74] From the knightly residence at Trzemsze, Turek District, come four horseshoes: two complete specimens and two uncharacteristic fragments. These artefacts have been identified as type VI, variant 4, with type F hooks according to Józef Kaźmierczyk's typology. Based on the period of occupation of this knightly residence, they can be dated to the 1330s-1380s.[75] As later examples, one may cite a horseshoe discovered during excavations of the manor house at Zduny, Jarocin District, whose remains date to the period from the early to late 16th century.[76] Horseshoes of types IV and VI, with low cubic hooks, have also been recorded among early modern finds (16-17th centuries) from

[73] Kaźmierczyk 1978, 97-103, figs. 28-29.

[74] Kajzer 1990, 281, fig. 16: 9, 10; Marciniak-Kajzer 2011, fig. V.37:6.

[75] Marciniak-Kajzer 2011, 223, fig. V.36:4-5.

[76] Grygiel and Jurek 1999, 127, 128, fig. 103:4.

the castles in Bolesławiec on the Prosna River[77] and in Tykocin.[78]

Other – horse hobbles (?)

The assemblage of horse-related artefacts from the Żelechów manor may also include an element composed of a ring, a hook with a shank, and an S-shaped plate (inv. no. Żw.ZL.03; Fig. 10:3). External ring diameter is 55 mm; internal diameter – 44 mm; wire thickness – 6 mm; shank with hook is 42 mm long and 5 mm in diameter; the D-shaped loop has dimensions of 30×27 mm; and the overall length of the artefact is 173 mm, and the total weight is 95 g.

This find comes from the south-eastern part of the courtyard, from the humus layer dated to the 18th-19th centuries. Subsoil layers in most trenches yielded mixed material – both older artefacts associated with the demolition of the manor and early modern or modern items. At this stage, the chronology of the find remains uncertain; there are no close parallels in archaeological literature, particularly from earlier contexts. Based on ethnographic sources, it is highly probable that the object represents a part of a hobble used in horse breeding during the early modern period. Such devices were used to immobilise horses at stops or during grazing, and their presence is attested from the Middle Ages onwards. Sometimes they were fitted with a lock to prevent theft. This method of hobbling horses' pasterns is perhaps also evidenced for the 12th-14th centuries at the castle of Stare Drawsko.[79]

Conclusion

In terms of its size, the assemblage of militaria and horse-related equipment from the Żelechów manor, comprising twenty artefacts, is rather modest. However, it is noteworthy for several other reasons. Firstly, particular attention should be drawn to the coexistence of a projectile weapon rooted in medieval tradition – the crossbow – with a newer weapon that propelled projectiles by means of gunpowder gases. The former category is represented by a crossbow nut (optionally also a crossbow stirrup) and four bolt arrowheads from layers dating to the transition from the Middle Ages to the early modern period, when the crossbow gradually lost its primary military role and became a hunting weapon. It was replaced by rapidly spreading hand-held firearms. In Żelechów, these are represented by fragments of a 16th-century hackbut barrel and its ammunition – evidence that the owners kept pace with contemporary developments in armaments.

A second noteworthy component of the discussed assemblage is the pair of well-preserved late medieval spurs with rowels. They are distinguished by the presence of heel bands that progressively came to enclose the rider's heel and are characteristic of the latter half of the 15th century. Due to the precise stratigraphic dating, the Żelechów spurs provide a valuable point of reference for other finds of this kind.

All these categories of finds are significant for broader studies on the material culture of knightly and noble residences in the period of transition from the Middle Ages to the early modern period. The early stage of this development remains much better understood than its later phase, and it is hoped that the Żelechów material will help to fill this gap, at least in part.

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No potential conflict of interest was reported by the author(s).

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