

*Institute of Archaeology  
University of Gdańsk  
arkadiusz.koperkiewicz@ug.edu.pl  
ORCID ID: 0000-0002-3760-0312*

**ARKADIUSZ KOPERKIEWICZ**

### **Chelmino rod in Barczewko *Schultheiss*\* houses**

**Abstract.** Barczewko (*Alt Wartenburg* in German) is a village near Olsztyn, Warmian-Masurian Province in northeastern Poland. Historically, it was part of the Warmian bishopric established within the borders of the State of the Teutonic Order in Prussia. In 1325, a watchtower was erected on the River Pisa, and ca. 1330, intense construction works began on the hillside near the River Orzechówka. The young colony ceased to exist in 1354 as a result of a Lithuanian invasion. The historical centre of Wartenberg was rebuilt in the present-day location of Barczewo. The first time the town was founded, it suffered the same fate as other so-called lost cities (abandoned first urban settlements). The memory of that event and the name of the hill, “Old Town” (*Altstadt*), lives on as part of tradition. It appears that it hides perfectly preserved relics of an early urban settlement, vast traces of fire and a cemetery of the first settlers. It likely houses also remains of Prussian autochthones. Sources list names of the first men who served as *schultheiss*, Johannes and Petrus. There are reasons to believe the location of the lots and buildings situated therein could be identified. Since the beginning of these works, the opportunity to learn about the spatial arrangement of the town was fascinating. The final season has yielded a “find” of an abstract sense albeit practically important, namely, the unit of Chelmino rod (*pręt*) used for measuring length for land development purposes.

**Keywords:** archaeology, Middle Ages, the beginnings of Warmia, Barczewko/Alt Wartenburg, Chelmino rod measurement unit.

The remains of the abandoned first medieval urban settlements on the hill in Barczewko (Warmia) were brought into the daylight in 2014. It was one of the last investments made by bishop Eberhard of Nysa. As the chronicle of Duisburg specifies, the Wartberg watchtower was founded in 1325. According to the accounts in medieval chronicles, the tragic end of the young colony took place in the year 1354 (Bönigk 1883; Klimek 2013; Białyński 2014; Herrmann 2014).

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\* The head of a village.

In light of the preserved written sources and dendrological findings, among others (Ważny 2015; Heussner 2016), it can be claimed that high-intensity settlement and town building works were taking place ca. 1330. In 1337, the name of the settlement is mentioned for the first time in the sources, allowing one to identify its location as the Old Town Hill. By that year, high intensity construction works had begun and we learn the names of the first men serving as *schultheiss*, that is, Johannes and Petrus (Herrmann 2014, pp. 38–41).

A decade of studies<sup>1</sup> later (Biermann *et al.* 2016a; 2016b; 2018a; 2018b; 2019; 2021; Biermann, Herrmann *et al.* 2019; Koperkiewicz 2019; 2020), most of the space of the arranged town, including its cemetery, has been already archaeologically identified. The missing element in this respect is the location of the church (Koperkiewicz 2021).

The launching of broad-scale efforts in Barczewko/Alt Wartenburg was inspired by aerial photographs from the early 1990s<sup>2</sup>. During one of the flights, due to a favourable concurrence of circumstances, a textbook example of plant characteristics indicative of relics deposited underground was recorded. Dark green spots of early-stage cereals literally revealed the image of the site planigraphy. The discernible elements included passageways and regular quadrangular shapes, presumably outlines of buildings. These assumptions were confirmed by geophysical studies conducted in 2013 (Wroniecki *et al.* 2014). This observation was of key importance for answering the question whether an effort was made in that place to create a town. A series of anomalies characteristic of relics of an abandoned town had been recorded earlier in Nieszawa (*W poszukiwaniu zaginionego miasta* 2015), and later in, among others, Dzwonowo (Dzwonowo 2017), Stary Toruń, and Stare Chełmno (Wiewióra 2020), and recently, also in Dąbrówno (Koperkiewicz 2023). In all these locations, there is a phenomenon of the so-called old cities, towns, relics of cities and towns, abandoned first urban settlements. In Barczewko,

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<sup>1</sup> Since 2013, a Polish-German non-invasive research project “Alt Wartenburg/Barczewko – the Warmian Pompei” has been executed in 2013–2016 and 2017–2019 instalments funded by the Secretary of State for Culture and Media (Bundesbeauftragte für Kultur und Medien, BKM, Bonn) with the cooperation of the University of Gdańsk. The studies have been conducted by a team composed of Professor Felix Biermann (University of Göttingen/Greifswald), Professor Christofer Herrmann (University of Gdańsk, Technische Universität Berlin), and Arkadiusz Koperkiewicz, PhD (Institute of Archaeology, University of Gdańsk). Presently, the research in Barczewko is conducted by the author as part of the OPUS 21 programme of the National Science Centre and (2021/41/B/HS3/01694) the project titled “Barczewko – a history written by fire. The lost medieval town and urbanization of the Galindian Forest”, 2022–2024.

<sup>2</sup> In the “pre-drone and pre-lidar” era, much hope was pinned on the possibility to make and process aerial photography for the purposes of archaeology. Barczewko was a testing area for the author of photographs shown at conferences dedicated to this subject – Felix Biermann, Christofer Herrmann, Arkadiusz Koperkiewicz, Jerzy Miałdun, “Preliminary results of non-destructive studies on fortified settlement in Barczewko, northeastern Poland” („Patterns, processes and understanding, Historic aerial photographs for landscape studies”, Poznań-Będlewo, Poland, 24–26 April 2014).

magnetic anomalies yielded a picture of meticulously measured urban settlement with repeated development patterns arranged, most importantly, around a visible quadrangular square – possibly a market square.

In a medieval town, the market square occupied a particularly significant location at the intersection of roads where interests of both residents and travellers overlapped. Its functions determined the central situation, making it the focal point of the spatial composition of the entire settlement. At the turn of the 13<sup>th</sup> century, due to intensified trade, the commercial functions of the market square became more prevalent. It started housing workshops of craftsmen, as well as public and church buildings (Kozaczewski 1973, p. 36; Piekalski 1999, p. 176). Identification of this place in Barczewko was of key importance for further endeavours. Magnetic maps were georeferenced by means of superimposing an image on a digital elevation model and previous aerial photographs. This allowed the research areas to be opened up so that subsequent elements of the settlement could be verified. In the course of the archaeological works, all concerns as to whether they were relics of the first Wartenberg were dispelled. The arrangement of the relics left no doubt as to the fact that we are dealing with a town settlement based on German Law and not a Prussian hillfort development. The town relics in Barczewko perfectly fulfil the role of a benchmark site for studying the phenomenon of the so-called lost medieval cities, that is, the first attempts at founding such settlements that failed for various reasons (Fig. 1). First of all, this allowed us to archaeologically verify and understand findings of the non-invasive studies.

In the aerial photograph of cereals and the magnetic imaging, attention is drawn to a repeated detail of two adjacent anomalies. Shaped as regular quadrangles, they could have been remains of a household or a household cellar. As in other cases, one of the corners of the rectangular spot featured an additional element in the form of a rectangular “tail” (Fig. 2). It was believed that it could have been an entrance to the cellar, as later confirmed by excavation studies. In the case of one of two adjacent features, there is a striking detail, namely, an atypically shaped, zig-zagging entrance/corridor. Cellars of buildings (further referred to as “build.”) 10 and 11 were identified in the years 2018 and 2019. Back then, they were given working names of “*schultheiss* houses”. The accuracy of that name is addressed further in this paper.

What proved a quite good comparative material for Barczewko/Alt Wartenburg were the studies of a German abandoned town (*Stadwüstung*) named Freyenstein on the Dosse in Brandenburg. It is a showcase example of an *Altstadt*, relics of a town from the second half of the 13<sup>th</sup> century (Schenk 2009)<sup>3</sup>. Nealy identical shapes to those in Barczewko were yielded by the echograms of the basements with entryways. However, the cellars had their walls cladded with stone, and it was possible

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<sup>3</sup> <https://rrbb.info/westliche-route/freyenstein/>.



Fig. 1. Barczewko, site II, “Old Town”. Location of the site and relics from the “*schultheiss* houses” with Lake Wadąg in the background; seen from the north (photo by J. Worecki)

to recreate their measurements owing to unearthed stones laid under the ground beams of the framing of the building (Fig. 3). It turned out that in Barczewko, we are dealing solely with wooden relics preserved inside remains of cellars sunken into the ground. The only certain measurement points are the distances of extreme principal posts, which, moreover, differed in terms of their specific features. The model of the simple post-and-beam framing was applied multiple times. In an excavation quadrangular (square-like) in plan, corner posts and middle posts were driven about 0.5–1.0 m into the ground with beams placed on the ground between them. The cellar walls were wooden, made with *dranica*<sup>4</sup> laid either vertically (fixed to the beams between the posts) or horizontally (fixed to the posts and the beams). No remains of braces were found, and given the substantial charring, framing joints were not readable; they seem to have been simpler post structures with beams (Maciakowska 2011, p. 117). In the early 14<sup>th</sup> century, fully formed framing had been already developed (Piekalski 1996, pp. 73–75) and it cannot be ruled out that above the cellars, houses were built using this very method. Inside the cellar, walls were made solely with external plank cladding. In previous eras, the wooden frame was filled with organic materials, fine wood, wattle, and lined with clay

<sup>4</sup> Manually split wooden boards (in Polish: *dranica*).

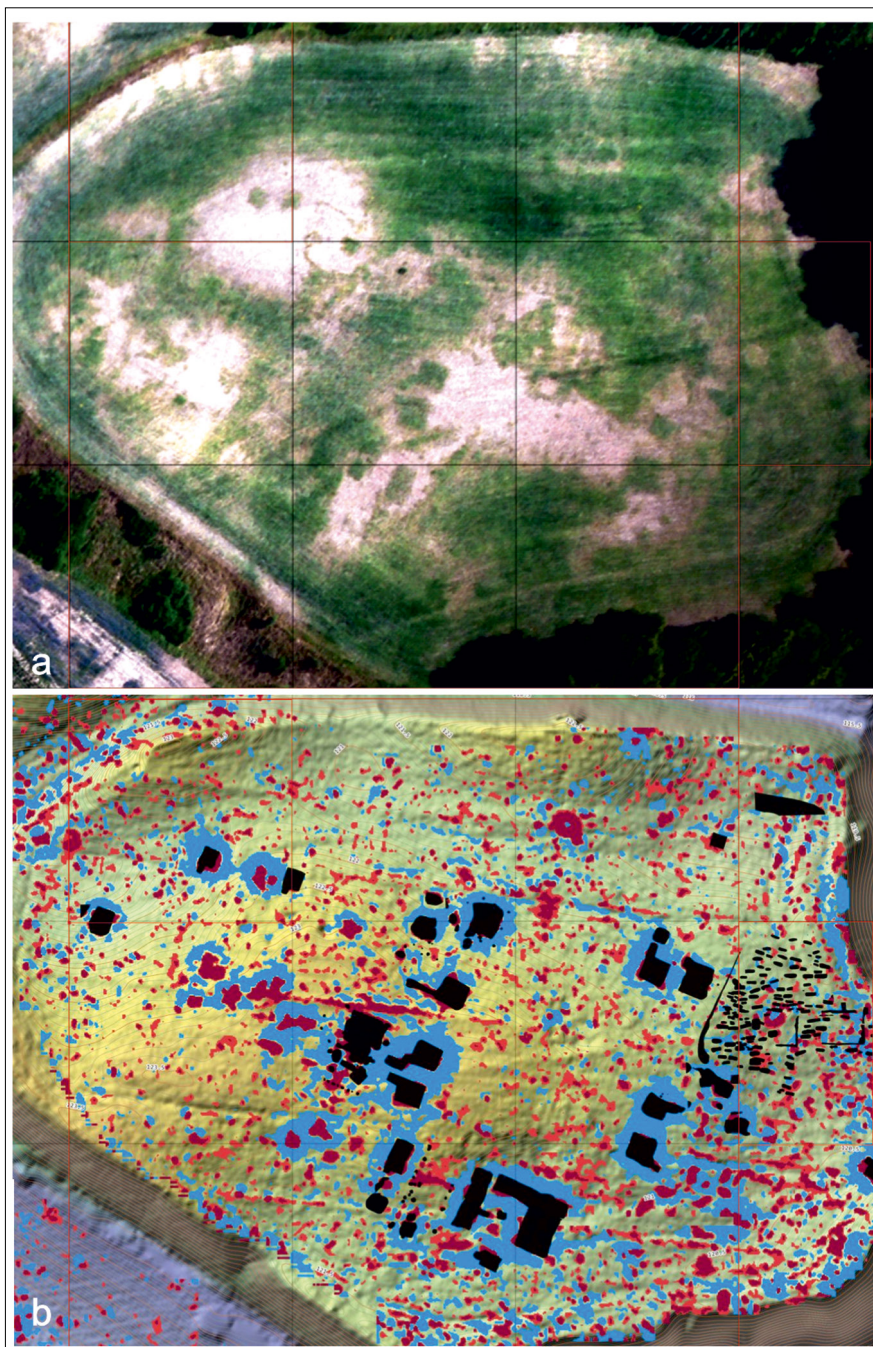


Fig. 2. Barczewko, site II, "Old Town". Aerial photographs juxtaposed with geophysical findings showing visible anomalies over relics of cellars of residential buildings (a – developed by J. Miałdun, b – developed by P. Wroniecki and A. Koperkiewicz)



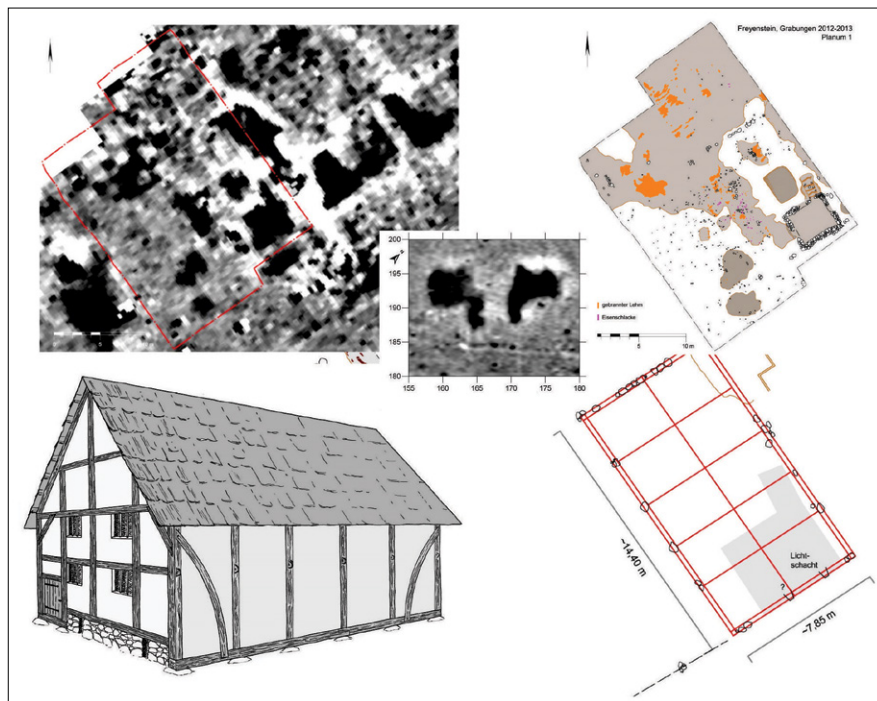


Fig. 3. Freyenstein, Brandenburg – town relics from the 13<sup>th</sup> century. Geophysical studies juxtaposed with archaeological documentation and proposed reconstruction of the development (after Biermann, Schenk 2014, with modifications by the authors)

on top of the entire wall surface. An infill of this sort occurs on higher levels, as evidenced in many cases by thick layers of baked clay and daub with imprints of wood and sticks collapsed to the inside, smeared with clay on the outside (Fig. 4). It is not entirely known whether the structure of the cellar was integrated with the walls of the house standing above the ground. The dimensions of the base of the cellars varied, with their approximate measurement estimated as follows: build. 1: 3.5 m by 3.5 m; build. 2: 3.8 m by 4.0 m; build. 3: 5.0 m by 5.5 m; build. 4: 4.0 m by 5.5 m; build. 5: 5.0 m by 5.0 m; build. 6: 4.0 m by 4.0 m; build. 8: 4.0 m by 4.5 m; build. 9: 4.0 m by 4.0 m; build. 10: 5.0 m by 5.5 m; build. 11: 5.0 m by 5.5 m; build. 12: 5.0 m by 5.5 m; build. 14: 5.0 m by 6.5 m. It was noticed that the cellars in the line of the west and north plots of the market square were larger than those in the other parts. However, it is possible that it was not the measurements of the cellars but the borders of the plots (which were not identified on the surface) that served as the basis for recreating their sizes and the measurement pattern. Nonetheless, this knowledge had not been yet acquired at that time.



Fig. 4. Barczewko, site II, "Old Town". Cellars of build. 11 (above) and build. 10 (below) during the exploration (photo by A. Koperkiewicz and W. Brillowski)

In seasons 2018 and 2019, works were conducted on the top of the hill with a focus on, among others, the western line of the alleged frontage of the market square, revealing twin features, namely, the cellar of build. 10 situated from the south (f. 592)<sup>5</sup> and the cellar of build. 11 (f. 594) from the north. As mentioned above, compared to the entire urban development, these features were best visible both in the aerial photographs from the 1990s and in the geomagnetic images. Once the arable layer had been removed, it turned out that the cellar of build. 11 had a zig-zagging entryway that was atypical compared to the others. As early as at the stage of cleaning of the ceilings of the features, numerous artefacts were discovered. The cellar walls were about 4.3–4.5 m apart. The cellars had a similarly sized rectangular base measuring ca. 5.0 m by 5.5 m. Relics of both cellars were reaching approximately 1.5 m deep in the case of build. 11 (f. 594), and 2 m deep for build. 10 (f. 592). Structures in the cellar of build. 11 (f. 594) were particularly well readable, with preserved charred ground beams with posts in corners about 25 cm wide. From the outside, the walls were clad with vertical boards about 30 cm wide. As in the case of most of the examined samples, the main building material was oak, though pine and maple were also present. In this case, dendrochronological dating oscillates around the first decades of the 14<sup>th</sup> century, which perfectly corresponds with historical and archaeological sources (Ważny 2015; Elzanowska 2024). The ruin of the cellar comprised layers of highly baked clay and burnt lumps from upper parts of the walls. These were typical solutions in early skeletal structures before brick was used on a broader scale. Owing to the high amount of overheated clay and charred wood, the relics were consistent with realistic forms of anomalies in the vegetation and the magnetic field (intense growth of young cereals; clay subjected to temperature on the background of a natural sandy soil). Cellars of these two buildings had different entrances (Fig. 5). As a rule, they were situated at rear at all times, opposite to the gable end that was facing most likely the market square. In the case of build. 10 (f. 592), the entry hall with remains of steep stairs measured about 3.0 m by 1.2 m. Build. 11 had an exit stairway from the northwestern side, somewhat wider (ca. 1.8 m), with two zig-zagging corridors about 4.5 m long. No traces of steps were recorded, and therefore, given the length of the exit stairway, it is not unlikely that it was a kind of a ramp. In both cases, the cellars were locked with a solid iron lock quadrangular in shape, which was common in the Middle Ages, with concave circumferential lines. The key that was put into the hole would move a bolt inside. Parts of locks were found next to the charred remains of the doors. In the cellar of build. 11 (f. 594), an element of a bolt was sitting in a decorated case, adorned with an equal-armed cross motif punched

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<sup>5</sup> The field exploration of this feature in 2019 and the studies on the post holes in the back were directed by Wojciech Brillowski, PhD, Adam Mickiewicz University in Poznań. I would like to thank him for his effort, including physical work, and his professional approach.



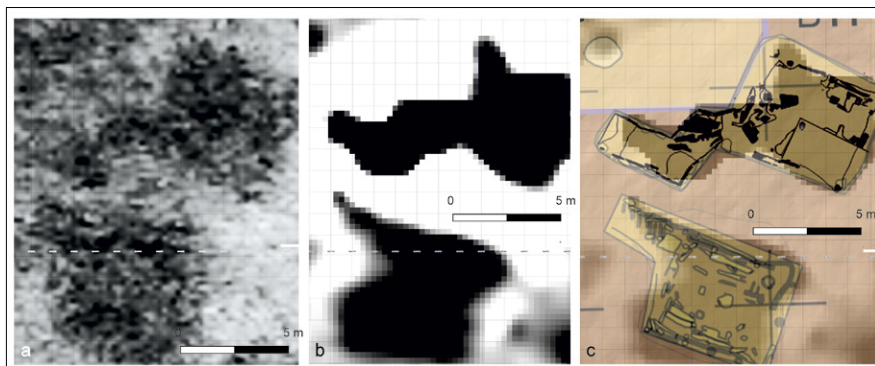


Fig. 5. Barczewko, site II, "Old Town". Site identification stages: consistency in vegetation characteristics and magnetic anomalies, archaeological verification of reasons behind their occurrence (developed by P. Wroniecki)

in heated metal. On the bottom of the cellar of build. 10, there were oval bases of remains of containers made of phloem or wood (baskets or barrels). By the south wall, below burnt planks, a complete skeleton of a cat was unearthed. In turn, on the sill plate of the east wall, a fragment of a vessel with eggshells was discovered. Is it likely that it was a foundation offering? This phenomenon has not been recorded anywhere else; therefore, it seems only reasonable to assume that a cellar was a good place for perishable food to be stored in, or for a cat to hide in.

A great surprise came with the exploration of the atypical hall/ramp leading to the cellar of build. 11 (f. 594). Halfway down the cellar entryway, a concentration of about 160 specimens of crossbow broadheads was found. It was quite a large number considering a crossbowman's quiver could hold up only up to 20 bolts at once. The crossbow was a common weapon in urban contingents and was used less often by peasants, probably due to the price (about 1 *mark*). As for the matter of arms manufacturing and prices, it remains a yet unproven research postulate (Kwiatkowski 2016, pp. 426, 548). In the Malbork book kept by a treasurer, it was noted that in 1401, 4 quivers and 30 items of complete and sanded crossbow broadheads (*gesliffener stelene pfyle pfilysen*) including fletching cost an amount equal to 1,020 denarii, that is, about 1.5 *marks* or about 270 g of silver. The price for one arrow was about 18 denarii, but soon after, in the year 1409, the price for a single broadhead was 1 denarius, meaning they were mass produced (MTB 1896, 98. 13–14, 590. 20)<sup>6</sup>. The presence of this popular weapon (with hooks and levers that were

<sup>6</sup> I would like to cordially thank Professor Krzysztof Kwiatkowski (Nicolaus Copernicus University in Toruń), a prominent expert and researcher investigating this matter, for identifying the source and helping to present the converters.

also found) and the projectiles it shoots is not surprising. Up to that point, they had been found across the entire site, with some stuck in wood. Therefore, it was assumed that they were obvious remains of military actions related to the presence of Lithuanian dukes in Warmia. In this case, however, the deposit was undoubtedly a personal arsenal that had not been used at the time of the defence. The broadheads lied scattered in a layer of baked clay in the entryway leading down to the cellar and could have slid under their own weight from a storey above. If we were to apply the above-cited price converter dating back to the Battle of Grunwald, a deposit of 150 bracteates found in one of the Barczewko cellars traded for a collection of 160 crossbow broadheads from the “*schultheiss* houses” would have been considered a fair deal. Though there are no specific sources, it seems that this is not aligned with the reality of the mid-14<sup>th</sup> century. At the present stage of the research, one can only assume that the alleged houses of the founders (privileged location, atypical nature of the settlement) were a good place fit for storing personal arsenals.

By the wall next to the broadhead deposits there were objects that had a mystery to them, specifically, two massive iron rings stacked one on the other. Made of an iron bar 5 cm wide and about 1.6 cm thick, the rings were 28 cm (at the base) – 27 cm (at the top) wide in diameter, while the weight of one specimen was 4 kg. Analogous items are hard to find, though the iconographic material suggests they could have served as fittings or reinforcement for some wooden elements such as forge nozzles or a well shaft.

The fill of both cellars is where Gothic *Ave Maria* clasps come from, preserved either in their entirety or fragmentarily, finds exceptional for the site, or the so-called engagement clasps. The first category involves an entire series of clothing clasps with realistic lettering or a stylized ornament. In this respect, it seems that several letters render the style of the Gothic uppercase. It was worn by noblemen, the clergy, and townspeople. The characteristic trait of the other series is a motif of clasped hands. In this particular case, it is silver with prominent cuffs and an ornament styled as an inscription. These ornaments echo those made using precious metals and worn by the wealthy. Analogous specimens are known from Gdańsk municipal tribunals (Trawicka 2018, pp. 349–350, 374–375, Figs. 17, 18). In Barczewko, there are many references to the tangible culture of large medieval metropolises. This serves as convincing evidence that this very environment is where the “founding fathers” of the new settlement came from. The collection of rarer finds can be expanded to include a fragment of a spur and a conical lead weight. The latter was about 46 g heavy, which is equal to a *wiardunek* (*Vierdung* in German), that is, a quarter of a *mark* (Fig. 6). It is not unlikely that some of these objects fell inside from the destroyed storeys above. A somewhat representative character of these houses can be also evidenced by fragments of a kind of an external wall plaster found there. These were large pieces of pug applied onto walls with preserved remains of lime and a light celadon green hue. The original set of artefacts from the relics of the adjacent buildings in



Fig. 6. Barczewko, site II, “Old Town”. Selected artefacts from the so-called “*schultheiss* houses”: 1 – iron rings from the cellar of build. 11; 2 – iron lock in the door of the cellar of build. 11 with an ornament; 3: a–c – Gothic clasps for garments; 3: d – lead weight; 3: e – fragment of a spur; 4 – arsenal of 160 crossbow broadheads in the *Schultheiss* house (1, 2, 4 – photo by A. Koperkiewicz, 3 – photo by J. Strobin)

the representative central part of the western frontage was linked to the men serving the role of the *schultheiss* confirmed in the sources, most likely brothers Johannes and Petrus. It is only a working hypothesis, which is plausible though probably unverifiable in an objective manner (Fig. 7).

In season 2023, an area west of cellars 10 and 11 was opened with an expectation to investigate utility rooms at the rear of the buildings. That area showed high-intensity magnetic anomalies; however, they lacked any clear shape. It was expected that these were scattered relics of a site of the fire, though it was only in the course of the exploration that this situation could be understood. The clear image of the non-invasive identification pertains solely to large features sunk into the ground (that is, regular shape cellars). From the west, on the extension of features 592 and 594 a big bed of cultural layers related to the destruction of the walls was unearthed. It was burnt clay and charcoal containing fragmented artefacts, mainly ceramics and iron relics. Having removed these layers, three parallel lines of negatives of post holes were revealed. They were at similar intervals, arranged along the NE–SW line, in accordance with the entire spatial arrangement of the settlement. The holes were 0.3–0.5 m in diameter, while the preserved negatives of posts were about 0.2–0.3 m



Fig. 7. Barczewko, site II, “Old Town”. Fragments of burnt clay from the external walls of the so-called *schultheiss* houses (build. 11, f. 594) and traces of dyes (photo by G. Chojnowski), and *schultheiss* houses seen from the market square (3-D visualisation by P. Moszczyński)

wide. The north line lied on the extension of the north line of the wall of the cellar of build. 11. The central line lied on the extension of the northern line of build. 10. The south line extended beyond the cellar of build. 10. Between the north line and the central line, from the west side of the cellar of build. 11 (f. 594), another row of post holes was revealed, arranged in a way such that the free space was situated right vis-à-vis the entrance to the cellar of build. 11 (f. 594). The intervals between the central lines of the holes measured ca. 8.7 m, while the preserved line was about 17.5 m long (Fig. 8).

In Teutonic Prussia, town organisation was regulated under the 1233 Chełmno Law. Across the entire state, a uniform coin minting and measurement system was introduced. The Chełmno *mark* (about 180 g of silver) was equivalent to 60 shillings (*szeląg*), which were divided into 720 denarii. The unit of measurement for volume was the *korzec* (bushel – about 40 kg), while area was measured in *łans* (ca. 16.8 ha). The basic measurement unit for length was the Chełmno rod (*pręt*) equal to 4.35 m and the ell (*łokieć*) equal to ca. 58 cm. The measurement unit ten times the length of the rod/*pręt* was the *sznur*/rope (Nowak 1968, p. 115)<sup>7</sup>.

<sup>7</sup> This measure is not unambiguous. In general, there has been distinguished the Chełmno measure – 4.35 m, but also an old Chełmno measure – 4.71 m and a new Chełmno measure – 4.32 m. In the



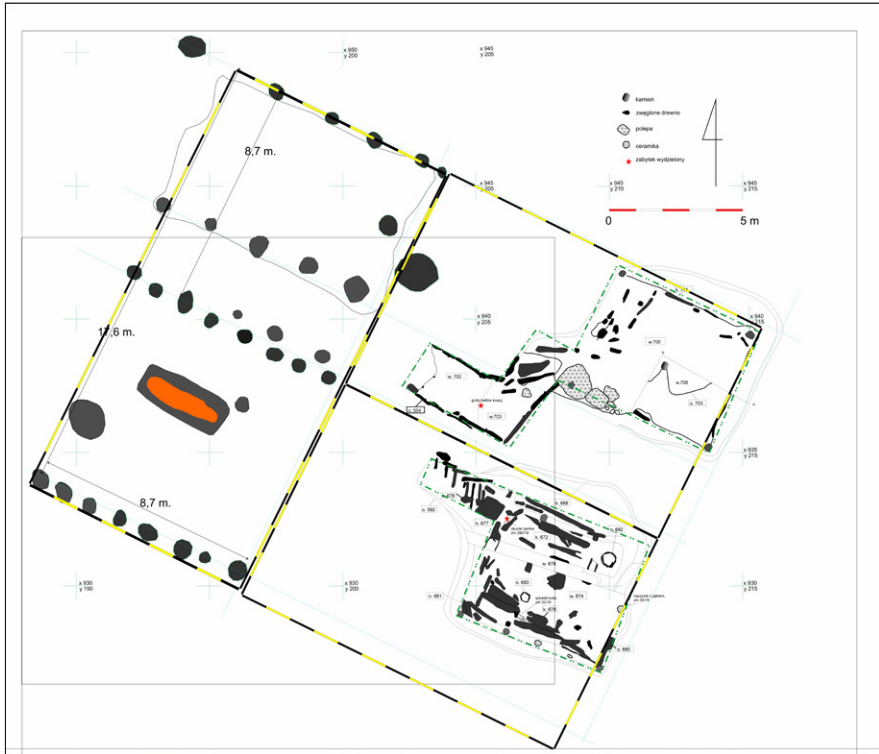


Fig. 8. Barczewko, site II, “Old Town”. Planigraphy of relics of cellars of build. 10 (f. 592) and build. 11 (f. 594) including the utility buildings. Intervals between post holes provide a basis for reconstructing the length of the unit and the module of 2 by 3 rods (drawing by W. Brillowski, A. Napierała, M. Marczewski; developed by A. Koperkiewicz)

The measured distances are quite consistent with the Chełmno rod. A single building module in the post hole line was 2 by 3 rods large. It is difficult to say what the total length of the plot was, what area was covered by the residential and by the utility buildings. These are problems that are tackled by researchers of cities as perfectly identified and as abundant in historical sources as Elbląg, for instance. In places like that there is no chance for identifying the oldest wooden structures due to the ongoing centuries-old transformations (Nawrońska 2012, p. 97). In the medieval Puck, the base at the foundations of the oldest town hall was 2 by 4 rods large (Starski 2015, p. 77). In smaller Silesian towns, a house would take a quarter of an approximately 40 m long plot, which makes for a length of ca. 10 m

current literature, we find it to be estimated at 4.32 m, so we can accept that it measured 4.32–4.35 m (Kałdowski 1984, p. 48; Herrmann 2007, p. 113; Krzywdziński 2018, p. 47).

(Kozaczewski 1973, p. 34). In our case, we can consider two options. Assuming that the development in the pioneer period of the town's history was minimal, the former would suggest that the residential buildings were erected directly above the cellars. Option two seems more likely. Without knowing the depth of the entire site, it should be assumed that the skeletal structure of the house was rectangular in plan, measuring ca. 13.0 m by 8.7 m (Fig. 9). This would make the cellars cover roughly half of the house area. The west side with walls supported with stakes and filled with clay, likely roofed, would then serve utility purposes. Perhaps, one could argue in favour of this solution pointing to relics of a large furnace and a deep pit in the back of build. 10. The absence of any more pole holes along the line of the cellar walls could prove that in that place, on the ground level, there were foundations of the skeletal structure. They formed the outline of the residential building and were likely sitting on stones, like in Freyenstein. The buildings featured possibly a double-storey front elevation from the side of the market square. Sadly, everything on the surface has been completely levelled to the ground.

The line of the “*schultheiss* houses” was shared by the cellar of build. 3 (f. 158 with a long ramp) situated from the north and the cellar of build. 12 (f. 712) in the northwestern corner. The latter was surrounded by evenly spaced post holes

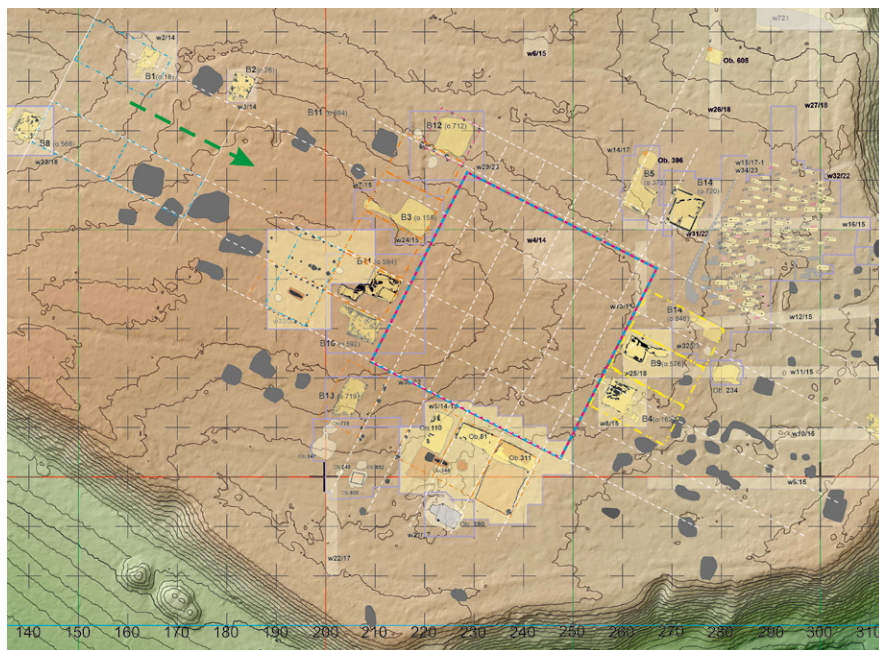


Fig. 9. Barczewko, site II, “Old Town”. Planigraphy of the relics and an attempt at applying the Chełmno rod unit in a 2 by 3 module on an are grid (developed by A. Koperkiewicz)

forming a square with a 2 rods long side (ca. 8.8 m). The Chełmno rod was also applied in the south side of the market square, where a complex of buildings was identified, interpreted as *mercatorio*, that is, a commercial area that housed also craft workshops. According to the Chełmno model, the 2 by 3 rods module corresponded to the proportions of buildings in the complex. With due account of the fact these are burnt wooden structures, it fitted almost perfectly the width and length limits of the relic layers related to features 81 and 311. The line of post holes recorded from the eastern side of build. 13 (f. 719 – “forgery”) was specifically about 8.7 m away from the western line of post holes by f. 110 (structures without base-ments that make up the *mercatorio* complex). It seems that the 2 by 3 rods module proved effective as a measure for designing the western and southern buildings by the market square. The effort to apply this matrix in the eastern buildings failed. In their vicinity, cellars of build. 4 (f. 162) and build. 9 (f. 576) were unearthed, the so-called “victims’ houses”<sup>8</sup>. These buildings were the only ones to be situated centrally in the line of the eastern frontage. From the northeast, there was a small cellar of build. 14 (f. 846) recessed towards the N–E, adjacent to the border of the cemetery. In 2023, inside this building, a deposit of 150 bracteates and a sword pommel were found.

The north line of the buildings appears intriguing, with relics of a cellar of build. 5 (f. 375) and build. 14 (f. 720) recorded from the northeastern side. The latter was adjacent to the border of the cemetery. A negative of some form of a cemetery fence has been preserved. Likewise, in this case, the distance from the fence to the west wall of the cellar of build. 14 was ca. 8.7 m and this distance, more or less, was applied for the west axis of the wall of build. 5, which was parallel. Therefore, the 2-rod width of plots was applied in each case. The axis running along the line of the south walls of these cellars intersected the axis of the north wall of the cellar of build. 12. In the undeveloped space of the market square, there was a square sized 10 by 10 rods (about 43 m), assuming that build. 12 was not part of the western buildings and had a south-facing gable end. Given the absence of traces of other buildings and the specific state of preservation of the relics of the cellar of build. 5, it is hypothesised that the northern market square space was under construction. The issues of searching for minor control points of the modular grid, the area of the plots and houses, and passageway solutions are complicated and require further comparative analyses<sup>9</sup>.

At the present stage, it is difficult to fully reconstruct the concept employed for planning the layout of the settlement, the sizes of structures, and the depth

<sup>8</sup> In the cellar of build. 4, fragmentary remains of an infant were found, whereas in the cellar of build. 9, a skeleton of a young woman was discovered, her skull cremated, pieces of which were lying directly next to the collapsed structure of the west wall.

<sup>9</sup> Cf. the proposition for determining the oldest measuring model for urban planning in Morąg and Dąbrówno (Mackiewicz 1997; Poklewski-Koziell 1997).



Fig. 10. Wartberg in the Galindian Forest. The pioneering phase of building the young colony (drawing by L. Lauritsen)

of plots. All this is miniature compared to other settlement centres and, perhaps, one should adopt the simplest solutions, most suitable for the pioneering stage of this solution. It is a one-of-a-kind case and a possibility to identify the earliest stage of the birth of the city. The development area was reclaimed from the forest. Undoubtedly, the people who were organising these efforts must have had the contemporaneous knowledge of “geodesy”, and these could have been the founders themselves (Fig. 10). Most likely, further studies will provide more data. It is beyond question that the abstract (for intangible) find of the identified measurement unit from the so-called “*schultheiss* houses” is a discovery whose impact on this process is groundbreaking.

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