

THE POZNAŃ STRONGHOLD IN THE TIME OF BOLESŁAW I THE BRAVE

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Abstract. The article aims to collect and summarize the latest results of archaeological research on Ostrów Tumski in Poznań relating to the life and reign of Bolesław I the Brave, and to assess the significance and function of the stronghold established there. In the late 970s and early 980s, the Poznań stronghold developed into a substantial, four-part complex, which was further reinforced in the early eleventh century. Evidence from the ducal sector indicates the presence of goldsmithing activity, as well as the operation of a mint, accompanied by numerous imported artefacts. During the reign of Bolesław I the Brave, construction of the first cathedral within the Piast realm continued; this building subsequently became a dynastic necropolis, traditionally associated with the burials of Mieszko I and his son, Bolesław I the Brave. The Poznań stronghold also functioned as a key centre for the introduction and consolidation of Christianity, as attested by pre-Romanesque ecclesiastical architecture, the early inhumation cemetery at Śródka, and the discovery of fragments of a casket reliquary covering, as well as an eleventh-century lead cross from Zagórze. Despite these findings, domestic and ancillary building of the stronghold from this period, as well as the functions of its remaining sectors, remain insufficiently investigated.

Keywords: Bolesław I the Brave, Poznań stronghold, stronghold buildings, cathedral, goldsmithing workshops.

Introduction

Traces of the earliest settlement on Ostrów Tumski isle in Poznań are dated to at least the late 8th century or the turn of the 8th and 9th centuries, corresponding to the end of phase B and phase C of the early Middle Ages (Hensel 1958, pp. 124-126; Józefowiczówna 1963, pp. 32-33; Dębski and Sikorski 2005, pp. 30-31, 43). However, erection of the Piast stronghold began in the first half of the 10th century (the 940s-950s; the earliest dendrochronological date obtained so far is after 951 – Kara 2024, p. 35, Fig. 3), likely during the reign of Mieszko I's father, Siemomysł. Its greatest development and expansion into a four-part fortress oc-

curred during the rule of Mieszko and his son Bolesław I the Brave. At that time the Latin name *Posnania* and the adjective *Posnaniensis* appear in the sources for the first time. Expressions such as *episcopus Posnaniensis I* and *duo miliaria ad urbem Posnani* were recorded by the chronicler, Bishop Thietmar of Merseburg (Thietmar's Chronicle 1953, pp. 73-74 – II 22; pp. 352-353 – VI 27).

In terms of geographic conditions, the stronghold was situated advantageously on a sandy bar in a river valley. It was the only one of the central strongholds of the early Piast realm to be built in relation to a major river, the Warta, and its smaller tributaries: on the right side the Cybina and the Główna, and on the left the Bogdanka/Flisa and the Wierzbak (Kaniecki 2004, pp. 14-17). This location of the stronghold translated into security, economic development, and the living conditions for its inhabitants, and facilitated transport (including building materials for erecting fortifications and structures), trade, communication, and the exchange of ideas. In subsequent centuries it may have contributed to the dynamic development of the town established under Magdeburg law on the left bank of the river, beyond the limited space of Ostrów Tumski (1253).

Archaeological investigations of the stronghold on Ostrów Tumski in Poznań, initiated in 1938 by Prof. Józef Kostrzewski and Witold Hensel, gave rise to numerous discoveries connected with the early formation of the Piast dynasty. Three stages of excavation work can be considered the most important for identifying the layout of the Poznań stronghold, its buildings, and the stronghold complex, which included open settlements, cemeteries, crossings, and places where the hoards were deposited. The first of them is the mentioned pre-war research from 1938-1939 which led to a discovery of the stronghold and its massive timber-and-earth ramparts (Hensel 1938a; 1938b; Hensel, Niesiołowska and Żak 1959; Niesiołowska, Perzyńska and Żak 1960; Wiślański 1960; Malinowska 1974). The second stage fell in the post-war years, the so-called *Millennium excavations* of 1950-1961. It was a time of identifying further sections of the defensive structures, along with the remains of the stronghold's wooden buildings and the early medieval cemetery at Zagórze (e.g., Niesiołowska, Perzyńska and Żak J. 1960; Dzięciołowski 1974). The so-called baptismal basin and the remains of the pre-Romanesque and Romanesque cathedral were also discovered (Józefowiczówna 1963). The third stage of the stronghold investigation consists of the interdisciplinary research of the last quarter-century. Between 1999 and 2015, the ducal part of the stronghold was excavated, revealing the remains of the pre-Romanesque *palas* and its immediate surroundings. This work was carried out by the Institute of Prehistory of Adam Mickiewicz University (now the Faculty of Archaeology) under the direction of Hanna Kóčka-Krenz, thanks to financial support from the City of Poznań under an agreement with AMU known as the 'Mieszko' program (e.g., Kóčka-Krenz 2005b; 2016). Also important for identifying the stronghold complex were the excavations conducted by the Archaeological and Conservation Workshop of Henryk Klunder at the medieval bridge crossing (Pawlak 2008), as

well as at the suburban settlements and the cemetery in Śródka (Pawlak and Pawlak 2015). In recent years, during numerous renovations of church buildings and the drying of their foundations, archaeological work on Ostrów Tumski has been carried out by Artur Dębski's firm, the *Mos Maiorum* Archaeological and Conservation Workshop. Meanwhile, in the Zagórze area, where private investors are constructing residential buildings, archaeologists Antoni Smoliński and Jakub Affelski from the Szpila Archaeological and Conservation Workshop are conducting excavations on the southern fortifications of the Piast stronghold's ramparts. The research of this most recent stage is supplemented by numerous series of dendrochronological dates of the timber structures of the fortifications (Krapiec 2008; 2013; for Zagórze – Tomasz Ważny, not yet published).

This article aims to collect and summarize the archaeological research results from Ostrów Tumski in Poznań relating to the period of the second half of the 10th century and the first quarter of the 11th century. This will make it possible to formulate conclusions concerning the significance and function of the Poznań stronghold in the time of Bolesław I the Brave.

The settlement complex around Ostrów Tumski

The status of the stronghold on Ostrów Tumski in Poznań as a central location connected with secular and ecclesiastical power may be indicated by the density of settlement in its immediate surroundings. For the period in question, one can list the recorded open settlements in the areas of Komandoria, Dębiec, and Sołacz (Hensel, Hilczer-Kurnatowska 1980, pp. 173-183, 240-242, 245-248). These sites have yielded semi-dugout buildings, hearths, storage pits, and traces related to smithing (Komandoria). Several early skeletal cemeteries from the late 10th and 11th centuries have also been identified, serving as evidence of conversion to Christianity: the cemeteries at Komandoria / Tomickiego Street, in the area of Wodna Street, the Główna River, and at Sołacz (Studia 1980, pp. 171, 184-185, 238-240; Pawlak 2005). From the second half of the 10th century and throughout the 11th century, silver hoards were deposited in the ground around the stronghold. These contained, among other items, Arabic and Western European coins, ornaments and their fragments, silver cakes, ingots, and wires. Of special note is the largest of the deposits – the hoard from Łączny Młyn, weighing 3 kg 340 g – discovered east of the stronghold in the valley of the Cybina River (Kasprowicz 2024, cat. no. 20; Andrałojć, Andrałojć, Silska, and Szyngiera 2011, p. 89; Studia 1980, pp. 186-187). Additional, smaller hoards were recorded near the Berlin Gate, on Górna Wilda Street, in the area of Święty Marcin Street, at Szelaż, and at Dębina / Dębiec (Hensel and Hilczer-Kurnatowska 1980, pp. 211-212, 219-221, 249, 251, 254; Andrałojć, Andrałojć, Silska, and Szyngiera 2011, pp. 90-93, 130-131, 144, 163). From the late 10th century, an increase in the amount of silver bullion

can be observed within the Piast realm, most often recorded by archaeologists as hoards of hacksilver and ornament fragments. This is the result of the use of silver in trade which led to its fragmentation (Bogucki 2011). The concealment of hoards is considered primarily in terms of economic causes: an increase in wealth, safe storage and hoarding thereof (Bogucki 2004). These hoards also include individual coins struck by Bolesław I the Brave and Mieszko II (one or two independent hoards from Górna Wilda / *Am Rosengarten* and from the area of the Berlin Gate), which attest to the rulers' minting activity and the gradual introduction of monetary exchange (Andrałojć et al. 2011, pp. 92-93; 130-131). Considering the composition of these deposits, it can be stated that at least some of them were accumulated during the reign of Bolesław I the Brave. Some may have been buried during the turbulent times of the wars with Henry II or the later crisis of the 1030s.

The core stronghold complex associated with the fortress on Ostrów Tumski was formed by two suburban settlements excavated in the areas of Ostrówek and Śródka, as well as the cemetery in Śródka. A bridge crossing led from the stronghold to these sites. Archaeological excavations to date have revealed the remains of a bridge built on the eastern side of the fortifications during the reign of Mieszko I, likely in the year 979 (Krapiec 2008; Pawlak 2008). From this period three felling dates were obtained for 977 (including one 977 -5/+8) and one for 979. During the reign of Bolesław I the Brave, repairs were carried out (felling dates from 987, 1006, and 1021). The bridge served its function for about 50 years, and repairs were made quite frequently – every 10-15 (maximum 20) years. The bridge piles were made of debarked oak wood and then driven in clusters. It is estimated that the bridge was suspended rather low above the water level and above the marshy bottom of the Cybina valley, which was periodically flooded. Taking into account the preserved height of the piles, it has been determined that the usable level of the bridge was at approximately 51.50-52.00 m above sea level, which corresponds with Alfred Kaniecki's (2004, p. 70) reconstruction of water levels in Poznań for the second half of the 10th century at 51.50 m a.s.l. Due to the fact that the area in the then stronghold was located much higher (by about 3-4 metres, as indicated by the recorded wooden road on the south side of the cathedral), a kind of sloping earthen ramps had to be built to lead to the bridge. The bridge pillars were made of two rows of pile bundles. The distance between the pillars was 1.7-1.8 m. Yoke beams (longitudinal) were placed on the pillar bundles, which held the bundle together. Transverse and longitudinal beams with notches were then laid on the logs, and on them, the roadway battens were fastened using wooden pegs. The estimated dimensions of the bridge were approximately 70-75 m in length and 5 m in width, which allowed for two-way traffic, where two carts could pass each other. The road elements were made of both oak and pine wood and fastened with wooden pegs. The length of the piles in the bridge was estimated at about 3-4 metres, with shorter ones at the abutment (where the water was shallower). The diameters of the piles ranged from 12 to 20 cm, with individual

ones reaching 22-23 cm. They were made of oak trees with growth rings of 30-50, less often more: 87, 64, 95. Sometimes quarters of trunks were used – old trees more than 128 years old (Pawlak 2008, pp. 39-45).

The closest suburban settlement was the one located east of the stronghold, on a small islet at the confluence of the Cybina and Warta rivers (Ostrówek). It was established around the mid-10th century and used until the end of the 10th century or the early 11th century (Pawlak and Pawlak 2015, pp. 45-48, Fig. 34-35; 2024, p. 57, Fig. 2). A single residential structure in the form of a semi-subterranean house, storage pits, and a hearth were identified there. The settlement's development was severely limited, or it was destroyed/relocated due to the construction of the bridge crossing. Further east, beyond the watercourse, there was a slightly older (possibly from the 930s–940s) open settlement in Śródka, a significant part of which was destroyed in the second half / the late 10th century due to the establishment of a cemetery in that area. In the Śródka settlement, semi-subterranean houses with square or rectangular plans were documented, built using log construction or, less frequently, post construction. Some had clay floors, and in the corners of the dwellings, hearths were preserved in the form of concentrations of burnt material and scorched, fragmented stones. Large above-ground structures built using post construction were also identified here. Their location along the route and their size suggest that they should be attributed to trade and/or gatherings of the local community (Pawlak and Pawlak 2024, pp. 58-59, Figs. 4-5). In addition to residential and communal-use buildings, structures with economic functions were also discovered, including lime-burning kilns, a pit for tar production, and evidence of ironworking. Lime blocks, mortar, and worked stones were also identified, which, according to the researchers, may indicate a previously undiscovered stone building or could suggest the existence of a construction workshop in Śródka (storage and processing of raw materials) serving Ostrów Tumski (Pawlak and Pawlak 2015, p. 31). The commercial nature of this settlement is confirmed by finds of items related to long-distance trade: imports and luxury items like richly decorated combs and bone coverings, glass beads, semi-finished products and decorations made of rock crystal, gilded bronze fittings, coins, glass mosaic cubes with gold foil, whetstones made of Scandinavian slate – phyllite, spindle whorls made of pink Volhynian slate (Pawlak and Pawlak 2015, pp. 29, 33-37, Figs. 11, 16-18, 22-27).

By the end of the 10th century at the latest, the site of the settlement in Śródka had been levelled and covered with a thick layer of sand. The prepared area was designated as a skeletal cemetery in accordance with the burial practices of the new Christian religion. The authors of the study indicate the existence of probably three independent cemeteries in this area and suggest that this was related to the separation of a burial area for the inhabitants of the stronghold and adjacent settlements. The oldest zone, associated with elite burials, is the eastern part of the cemetery. It is estimated that over the 100-120 years of the cemetery's use, ap-

proximately 800-1,000 individuals were buried there. Studies indicate that the majority of graves were oriented with the head to the west (over 62%), followed by east with a slight deviation to the southeast (24%), northwest (8.6%), and other orientations. The eastward orientation of the head is more often associated with the two oldest phases of the cemetery, up to the mid-11th century. Burials with the head to the west are linked to the consolidation of Christianity in the 12th century. Deviations from this rule are more frequently recorded in the eastern part of the cemetery, suggesting that it is older and that the burial area gradually expanded westward. The cemetery contains mostly child burials (41%); men accounted for just under 19%, women for 18%, minors of undetermined sex for 5%, and burials of undetermined sex for 17%. A distinctive feature of the graves recorded here is the presence of wooden grave structures, documented in as many as 60% of the burials (e.g. covering the deceased with a plank, formwork, wooden frames, and coffin constructions). Additionally, 15% of the graves had stone surrounds/paving, and in other graves, stones were used in construction (single stones under the head, on coffin lids). Personal items were also identified with the deceased, including ornaments (type A bracelets, temple rings, caches – kaptorgi, beads), knives, whetstones, fire-starting tools, as well as grave goods such as clay vessels and buckets. Various symbolic practices were observed: non-monetary obols for the deceased (iron lumps and a lead ingot), eggshells, and grains of cereal. Evidence of fire in the burial pits was also identified in the form of charcoal and charring of the coffin lid, which is interpreted as a remnant of earlier cremation customs from the pagan period (Pawlak 1998; Pawlak 2005; Pawlak and Pawlak 2015, pp. 49-86).

Fortifications of the stronghold

In the second half of the 10th century and the first quarter of the 11th century, the Poznań stronghold was the first large, four-part fortress of this kind in the Piast realm. The second complex of this type was Gniezno, which only acquired a multi-part layout in the 11th century. The construction of the Piast ramparts in Poznań using the box-and-hook technique began in the 940s or 950s. At that time, the princely section was expanded to dimensions of 80 × 100 m (Kóčka-Krenz 2012, p. 19). However, the most dynamic expansion of the stronghold occurred during the reign of Mieszko I, continuing until the 980s. Subsequently, a horse-shoe-shaped outer ward (the later cathedral section) measuring 130 × 100 m was added to the princely section. This expansion is evidenced by discoveries at the Ostrów Tumski 11 and 13 sites (Wiślański 1960; Niesiołowska, Perzyńska and Żak 1960) as well as in the archbishop's garden (Nowak 1974). On the southern side, at Zagórze (Perzyńska 1974; Pawlak and Pawlak 2003), an independent, extensive section of the stronghold was established, separated from the northern part by

a depression – a kind of ravine that was periodically flooded. The youngest, northern outer ward was created in the late 970s and the early 980s by adding a rampart arc connecting the princely section from the west with the cathedral section from the east (Wawrzyniak 2005; Antowska-Gorączniak 2013).

As a ruler, Bolesław I the Brave inherited the Poznań stronghold from his father, Mieszko I, already in its four-part form. He did not expand it further due to the limited area constrained by the surrounding rivers. Nevertheless, traces of reinforcing the base and rampart embankments from Bolesław's reign are evident, confirmed by archaeological research and dendrochronology. The addition, around the turn of the first and second decades of the 11th century, of two rows of outer wooden boxes and possibly a younger stone bench in the northern section of the stronghold – at the site by the present-day ul. Posadzego 3 (branch of the Archaeological Museum *Genius loci*) – is indicated by the felling dates of the oak timber used, with the youngest dated shortly after 1009 (Wawrzyniak 2005, p. 108; Antowska-Gorączniak 2013, p. 56; Krąpiec 2013). Such measures reinforced the rampart embankments. It has been calculated that at the base they reached up to approximately 37 meters in width. This was a deliberate action, necessary not only to demonstrate authority and for the defensive function of the fortifications, but also to protect the main core of the rampart from floodwaters and the higher levels of the Warta River.

Previous estimates put the length of the Poznań stronghold's ramparts, measured along the perimeter, at approximately 2.25 km (Antowska-Gorączniak 2013, p. 58). However, ongoing research related to construction projects in southern Zagórze provides a basis for revising earlier assumptions about their course. It had been assumed that the rampart embankment lay beneath the curved Zagórze street. More recent studies have traced the ramparts south of the street, thereby expanding the outline of the stronghold and increasing the size of its southern bailey. Precise calculations of the stronghold's area and rampart lengths will be possible after the results of these studies are published. Ramparts were discovered here, together with a stone bench and external repairs, of an unprecedented width of approximately 50-60 meters. This is fully justified for this part of the stronghold, as floodwaters and spring meltwater from the Warta River struck the wooden-earth embankments from the south. Numerous samples were also taken from the Zagórze ramparts to determine the felling dates of the trees used in their construction¹. Preliminary results indicate that the southern section was also built during the reign of Mieszko I.

It is unclear to what extent the Poznań stronghold and its fortifications fulfilled their defensive and military functions during the reign of Bolesław I the Brave. In his chronicle, Gallus Anonymous informs about numerous contingents of Bolesław I the Brave's warriors from the Poznań stronghold which the prince could command:

¹ The dendrochronological analyses by T. Ważny have not yet been published.

“from Poznań [he had] 1,300 armoured men and 4,000 shield-bearers” (Gallus Anonymous I, 6, p. 27). The chronicler’s estimate of their numbers is certainly exaggerated, but compared with Gniezno and Giecz, it demonstrates the stronghold’s importance among the other locations of the Piast realm. During the wars with Emperor Henry II and his campaign into the lands of Bolesław I the Brave in 1005, Thietmar’s chronicle records that, at the request of his princes, the emperor halted his troops “...*duo miliaria ab urbe Posnani*” (Thietmar VI, 27, pp. 352-353). The decision to abandon the siege of the stronghold may have been due to several factors: fatigue of the imperial forces, the season, supply problems. However, the strength of the four-part Poznań fortifications likely also played a role, given its advantageous location at the confluence of a major river and the garrison stationed within the stronghold (Pilarczyk, Danielewski and Kościelniak 2017, pp. 160-166). Perhaps these events led to the reinforcement of the ramparts at the turn of the first and second decades of the 11th century (Sikora 2024, p. 48).

The princely section of the stronghold

In the most representative princely section, after the mid-10th century (the 960s?), a *palas* was erected (Kóčka-Krenz 2005b; 2016), which in literature on the subject is linked to the marriage of Mieszko I and the Bohemian princess Doubravka, as well as to the ruler’s adoption of Christianity. The building was constructed on the site where the Gothic Church of the Blessed Virgin Mary now stands, continuing the Marian dedication of the princely chapel. It can be assumed with high probability that Bolesław I the Brave was born and raised here. The residence was constructed on a rectangular plan with external wall dimensions of $27.25 \times 11.70/11.90$ m. Its shorter sides were oriented to the southeast and northwest, with a chapel added on the eastern side, extending from the southern façade.

It can be assumed with high probability that Bolesław I the Brave was born and raised here. The residence was constructed on a rectangular plan with external wall dimensions of $27.25 \times 11.70/11.90$ m. Its shorter sides faced southeast and northwest, with a chapel added on the eastern side, extending from the southern façade. The pre-Romanesque structure was built on foundations of fieldstones, and its walls were made of thin, split stones joined with gypsum mortar. The palace is reconstructed as a two-storey building, approximately 11 m high, with a usable floor area of about 190 m² on each level. An internal division into five rooms has been identified, of which the largest (102 m²) is interpreted as an audience hall (*aula regia*). On its southern side adjoined a room of 51 m², and on the north two rooms - one elongated and small, and another of 34 m² (Kóčka-Krenz 2005b, pp. 64-75; 2012, pp. 20-23, Figs. 25, 35-36; 30-36). At the level of the elongated room (4.5 m²) located in the north-western corner of the *palas*, excavations in

2002-2003 uncovered stratified remains associated with goldsmithing. Hence the presumed function of this room as a small treasury. The wooden building of the goldsmiths' workshop, dated to the late 10th–first half of the 11th century (phase D2), was attached along its longer side to the western wall of the *palas*. Its dimensions were 5×3 m (an area of about 15 m²). The roof was supported by three massive wooden posts, evidenced by large postholes additionally reinforced with stones. At the goldsmiths' working area a depression was documented, on the basis of which the presence of a wooden table fixed on legs driven into the ground is reconstructed. In that location, a layer of ash and burnt material was found, along with six fragments of casting crucibles (including crucibles with adhering droplets of gold), gold melt, gold granules, sheets, wires, rivets, foil, a fragment of gold thread, gold ornaments in the shape of a palmette and a fish (the latter decorated with engraving and niello), green glass beads, two garnet inlays, and beads made of precious stones (Kóčka-Krenz 2006). On the basis of these finds it can be concluded that the workshop next to the *palas* worked primarily with gold, while additional discoveries north of the *palas* revealed numerous fragments of further crucibles and ceramics bearing traces of firing and vitrification. Specialist analyses revealed traces associated with the processing of lead and silver on these items, allowing the conclusion that at least some of them were used as cupellation plates (Miśta-Jakubowska, Czech-Błońska, Duczko, Antowska-Gorączniak, Szeliga and Karaśński 2025, pp. 102-103, 107-108)².

At the southern corner of the eastern façade an open space was recorded, bounded by two projecting, massive *avant-corps*. These are interpreted as supports for a gate passage leading toward the chapel, and possibly as supports for an upper gallery that may have connected to the residential part on the upper floor of the *palas*. The chapel itself was built on a Latin cross plan, ending to the east with an apse. Inside, the foundation of the altar (*stipes*) was uncovered, originally finished with a facing, of which only negatives remain. Around it, a floor made of a gypsum screed laid over small broken stones was identified. Inside the chapel, the walls were found to have been plastered with lime mortar and covered with frescoes, which cannot be reconstructed because they survive only in many small fragments (Kóčka-Krenz 2011; 2012, Figs. 28-33, 22-24, 26-27, 33-34, 37; 2016, p. 36). During the reign of Bolesław I the Brave (probably in the first quarter of the 11th century), a mosaic decoration was created for the palace chapel and possibly also for the Poznań cathedral, as evidenced by glass tesserae with gold foil and coloured cubes made of matte glass in shades of red, blue, green, and black found in various parts of Ostrów Tumski and in Śródka. The mosaics were likely the work of Greek masters, perhaps arriving via Rus' (Kóčka-Krenz 2005a; An-

² An interdisciplinary team of researchers is currently investigating ceramics associated with goldsmithing in Poland, the Czech Republic, and Sweden. The results of this research are being prepared for publication.

towska-Gorączniak 2016, pp. 94-99). Today they are recorded as scattered debris, including fragments of lime plaster bearing negatives of the mosaic.

The minting function should likely also be associated with the princely section of the stronghold. It is for the Poznań stronghold that the striking of the earliest denarii of Bolesław I the Brave has been indicated, including the denarius with an arrow, *VENCIEZLAVS*; *BOLIZLAVS*; Otto and Adelaide (Suchodolski 2019). Earlier hypotheses about a minting centre in Poznań were confirmed by the recent discovery of a denarius bearing the inscription +POZZNANI, dated to 998-1010. Alongside the denarii *GNEZDVN CIVITAS* and *MOGILN CIVITAS*, it carries the proper name of the stronghold (Suchodolski 2023) and is thus the earliest recorded form of that name.

The importance of the Poznań stronghold and the formation of social elites is also evidenced by exclusive objects (including imports) found especially in the princely part of the stronghold and in the more richly furnished graves. Among them are items such as: from the East – pink schist spindle whorls arriving from the territory of Rus' (Antowska-Gorączniak 2016, p. 138), from the southeast – Byzantine glass mosaic tesserae, an amphora discovered in the ruins of the *palas* (Antowska-Gorączniak and Sikorski 2012; Antowska-Gorączniak and Poklewska-Kozieł 2025), the follis of Nikephoros II Phokas, Arab dirhams (Pawlak and Pawlak 2015, pp. 36, 68), or silk (Pawlak, Pawlak and Sikorski 2019). It has also been ruled out that silk cultivation and production took place at the Poznań stronghold in the time of Bolesław I the Brave, as had been suggested in scholarly publications. This earlier view was based on an incorrect identification of cocoons discovered in the cathedral square in layers from the turn of the 10th/11th century and the first half of the 11th century (Kurzawska, Antowska-Gorączniak and Baraniak 2024). Among objects classified as imports are also whetstones probably made of Scandinavian phyllite; from the south (Bohemia, Silesia) came precious stones: garnets, rock crystal, agates, and fluorites (Miazga 2008; Antowska-Gorączniak 2016, pp. 102-108, 150) as well as pottery and spindle whorls with graphite temper (Wenzel 2008). Styluses – tools for writing on wax tablets – can be associated with Latin culture; they are known from neighbouring regions but also from areas of Eastern and Southern Europe (Žak 1956; Kóčka-Krenz 2001). These writing implements indirectly attest to the strengthening of ecclesiastical structures within the Piast realm and the appearance, on Polish lands, of individuals familiar with writing. The introduction of the new religion can also be linked to the presence of casket reliquaries, whose remains have been identified in the form of decorated bone plaques (Kóčka-Krenz 2003). Gemstones recorded on Ostrów Tumski (some reused as ancient intaglios) may likewise reflect their presence in liturgical objects, regalia, or items belonging to elites (Kóčka-Krenz 2008a; 2008b).

Dwellings of the stronghold

Given the current state of archaeological research, little is known about the buildings in the other sections of the stronghold. Excavations to date have revealed only a few wooden structures – generally poorly preserved, although in some cases with identifiable construction – along with remains of residential and economic features (pits, hearths) dating to the period in question, i.e., the second half of the 10th and the first quarter of the 11th century. Their dating is based solely on conventional archaeological methods. Unfortunately, no wood samples were taken from the well-preserved huts uncovered during the so-called Millennium excavations, which now makes it impossible to verify their dating using dendrochronology. Two huts from the mid-10th century were recorded in the Zagórze area (Dymaczewski 1961, pp. 148-149, pl. XXXI; Pawlak and Pawlak 2005, pp. 139-143, Fig. 11). One of them was located on a north-east – south-west axis, while the other was oriented according to the cardinal directions. The dimensions of the floor plan of the first hut were 4 x 4 m (interior area approx. 12 m²) while the length of the western wall of the second dwelling was approx. 3 m. Inside, remains of humus were found, interpreted as traces of a wooden floor. Also, in the area of Wieżowa Street, hearths and scattered logs were found, which may indicate further traces of residential buildings (Dzięciołowski 1974, p. 161). Log cabins from the second half of the 10th century were uncovered during rescue excavations in 2000 in the area of the cathedral square, along the southern wall of the cathedral (Kaczmarek 2008, p. 196), and a slightly younger structure – from the late 10th and the early 11th centuries – during research conducted in 1938. This dwelling measured 6 × 4.5 m, i.e. it occupied an area of 27 m² (with an interior area of approximately 21-22 m²). A hearth was identified in it, and posts were documented on the interior and exterior walls, which served as structural elements of the walls or supported the roof. Two pairs of posts were also documented at the threshold on the western side of the hut – these probably supported the roof directly above the entrance (Hensel, Niesiołowska and Żak 1959, pp. 31-32). Another presence of relics of wooden buildings from the mid-10th and second half of the 10th century to the beginning of the 11th century was recorded at the Ostrów Tumski site (Niesiołowska, Perzyńska and Żak 1960, pp. 78-80). The cathedral square yielded the remains of a log building, which, based on the presence of small fieldstone paving, was identified as a presumed bathhouse (Malinowska 1974, p. 11), although it could have also been a residential building. Sometimes, wooden buildings uncovered during archaeological research are severely damaged, most often by fires. The remains of burnt and impossible to reconstruct buildings and a woven container, probably used for storing grain, were discovered in the cathedral square in 1938, in layers IX and XIII, dated to the first half of the 11th century (Hensel, Niesiołowska and Żak 1959, pp. 24-25). In summary: the small number of often badly damaged structures, their scattered location and the fact that only a small area of the

interior of the stronghold has been archaeologically explored make it impossible to draw broader conclusions about the layout of the stronghold itself and individual farmsteads. There is a significant difference in size between the huts from Zagórze and the much larger one discovered in the more representative cathedral area, near the ramparts separating this part from the ducal area.

Presumably, in order to facilitate movement between the buildings of the stronghold, especially on rainy days, routes with reinforced surfaces were designated. Traces of such roads, paved with wooden planks, have been identified on a small section along the southern wall of the cathedral, directly adjacent to a dense cluster of log cabins. Following dendrochronological research, they can be dated to the late 10th century or the turn of the 10th and 11th centuries (Kaczmarek 2008, p. 196). It was part of the road running through Poznań towards the eastern bridge. The approximately 5-metre gap between the cottage discovered in 1938 and the rampart on the cathedral square also indicates that the transport routes were probably also located on the inner side of the ramparts, directly next to their structure.

The cathedral and bishopric

Owing to written sources, the Poznań stronghold is associated with the oldest bishopric, where in 968 '*Jordan, episcopus Posnanienis I*' is mentioned (Thietmar's Chronicle 1953, pp. 73-74 – II 22). To date, no archaeological evidence has been found to identify the bishop's house/palace from the second half of the 10th century. Some researchers assume that he was a missionary bishop, travelling around the Piast domain and baptising pagans. The subsequent bishop, Unger, almost slipped into historical oblivion as a result of anti-German policies. However, recent research links him to the construction of the first cathedral in Poznań. As a result of the discoveries made during the Millennium research of the relics of many construction phases of the cathedral basilica (Józefowiczówna 1963) and their excellent documentation, it has been possible to re-verify and determine the beginnings of its construction (Bukowska 2013, pp. 137-143, 254-255; 2016, pp. 60-74). The Poznań Cathedral was a basilica built on massive stone foundations, with a three-nave body with a total length of approximately 49 metres and a maximum width of approximately 25 metres (23 metres width including the extended rectangular rooms of the thickness of the wall, extending from the side naves). The choir on the eastern side had a central part which was an extension of the nave on a square plan enclosed by a semicircular apse, and on the sides it was framed by longitudinal rooms on a rectangular plan, slightly protruding beyond the line of the body. A crypt was separated from the choir, significantly higher than the naves, with its vault supported by four pillars. The western part was separated from the naves and constituted their extension, with the central room opening onto the in-

terior. The room on the line of the nave had a plan similar to a square, while the side annexes, like the chancel, were elongated rectangles with external walls extended by the thickness of the wall beyond the outline of the body. Traces of floor screeds have also been preserved. Saxon models and the basilica in Memleben, founded by Emperor Otto II and Empress Theophanu in 979, are cited as references for the Poznań cathedral. A similar modular layout was identified here in the design of the basilica, based on three squares.

A more developed spatial and liturgical programme was discovered in Memleben. Presumably, a similar programme was also used in the archbishop's cathedral in Magdeburg. According to A. Bukowska, the simplicity of the floor plan and the repetitive rigour of the geometry were indicative of the Ottonian designers. This is also evidenced by the separate rooms at both ends of the basilica in double-choir churches – first in Carolingian, later in Ottonian architecture. Only the eastern choir was completed in Poznań; the western choir is missing. The reason why the foundation of the Poznań cathedral and the beginning of its construction are attributed to Bishop Unger is the similarity of the basilica's layout and construction techniques to those used in the basilica in Memleben where Unger had previously served as abbot. The beginnings of the construction of the cathedral in Poznań were therefore established in the 980s or early 990s. Written sources suggest that Unger became bishop of Poznań at the turn of 991/992 at the latest. Therefore, either Mieszko I or Bolesław I the Brave contributed to the initiation of the construction of the first cathedral on Polish soil, continued during the reign of Bolesław (Bukowska 2013, pp. 254-255; 2016, pp. 59-72, 75-80).

The importance of the Poznań stronghold in introducing the new Christian religion is confirmed by other archaeological discoveries, including the aforementioned skeleton cemetery serving the inhabitants of the stronghold in Śródka and the relics of the palace chapel with an altar base in the apse. The conversion to Christianity is also indicated by items like the bone coverings of a box reliquary discovered near the altar of the palace chapel (Kóčka-Krenz 2003) and a lead cross with a schematic image of Christ from the southern part of the stronghold, dated to the turn of the 10th and 11th centuries (Dębski and Sikora 2025). The lower, tapering triangular end of the vertical beam of the cross and a similar object excavated near the settlement in nearby stronghold Dąbrówka, site 1 (Kaczmarek 2019), may indicate that it was a part of a portable altar or reliquary. It can be concluded that, according to written sources, while Mieszko I initiated the introduction of the new religion, it was only during the reign of Bolesław I the Brave that material evidence of changing beliefs becomes visible, particularly among the inhabitants of the main strongholds, including the one in Poznań.

The necropolis of the first rulers

Regarding the tradition of burials of kings and princes from the Piast dynasty in the Poznań Cathedral, texts are provided in written sources from the 13th-15th centuries. These also concern the graves of the first two rulers, Mieszko I and Bolesław I the Brave. The earliest reference appears in the *Wielkopolska Chronicle* in a note about Władysław Odonic, stating that he granted privileges to the Poznań Cathedral, being “deeply attached” to it because here “lie buried his father Odo, Bolesław the Great, and other of his ancestors” (*Kronika Wielkopolska* 2010, p. 149). The burials of the rulers are also mentioned in the *Annales* by Jan Długosz (after 1455). From these, we learn that the final resting place in the Poznań cathedral was for Mieszko I, Bolesław I the Brave, Mieszko II, and Kazimierz Odnowiciel (Jan Długosz 1961, pp. 295, 310, 333; 1969, p. 86). An important note is also the mention of the Gothic carved sarcophagus of King Bolesław I the Brave, commissioned by Kazimierz Wielki (Jan Długosz 1975, p. 165).

Based on written sources and the archaeological discoveries of stone relics in the cathedral made during the so-called Millennium excavations, these have been associated with the necropolis of the first Piasts (Józefowiczówna 1963; Kurnatowska 1990; 2000; 2001). In the centre of the nave of the oldest cathedral, two pre-Romanesque tombs were identified: No. 186 and 187, and a third further south of them (No. 180). Unfortunately, no human remains have survived in any of them. The first tomb (186) is made of stone covered with a pseudo-vault of triangular shape. It was constructed from broken stones bonded with lime mortar and rose about 40 cm above the floor screed. In the burial chamber, iron fittings from the coffin were found. The tomb was surrounded by a rectangular slab of lime screed on rubble measuring 4 x 5 m, which may indicate additional enclosure of the burial site. Around the tomb, fragments of gabbro stone tiles were also identified, possibly part of its cladding. The most common interpretation associates this burial with Prince Mieszko I. This is indirectly confirmed by the findings of A. Bukowska regarding the early construction of the Poznań Cathedral at the end of this ruler's reign (Bukowska 2013, p. 254). It is possible that even then, its interior was planned as a necropolis for the Piasts. On the other hand, Przemysław Urbańczyk presented a different hypothesis regarding the burial of Mieszko I along with Doubravka within the palace chapel on Ostrów Tumski in Poznań. According to him, tomb 186 may have contained the first bishop – Jordan, and the discovered gabbro stone cladding was thought to be part of a portable altar, supporting the idea of a clerical burial at this location. Tomb 187, in turn, would have been a later memorial for the bishop, created during the time of Bolesław I the Brave (Urbańczyk 2012, pp. 398-420).

The second tomb (187) had a more complex form. It was added from the east to a slightly older pedestal associated with the altar of the Holy Cross (Kurnatowska 2000; 2001). The burial chamber, with external dimensions of 2.2 × 0.8 m,

was built of broken stones bonded with lime mortar. A lime-mortar floor was laid at the bottom of the grave pit, and the top was covered with a limestone slab set at floor level. Iron fittings from the coffin, along with charred wood fragments and nails, were also recovered from the burial chamber, interpreted as remnants of the wooden structure of the memorial placed on the tomb slab. Around the tomb was a low wall about 80-85 cm high, with an entrance on the north side, preserving hooks and hinges. This tomb is interpreted as the burial place of King Bolesław I the Brave, a view supported by a large number of scholars. Based on the form of tomb 187 and the fact that it was attached to the altar of the Holy Cross, Tomasz Janiak put forward the hypothesis that there were attempts to elevate the first king of Poland to sainthood. These efforts were allegedly confirmed by the younger tombs of Bolesław, also placed in the middle of the nave of the Gothic cathedral (Janiak 2003; 2025). It should also be noted that in the rubble of the destroyed tomb 187, a denarius of the Bohemian prince Břetislav was discovered, associated with the probable disturbance of the resting place of the Piast king during the crisis of the 1030s and the invasion of Czech forces (Sikora 2025).

In the third pre-Romanesque tomb, an iron coffin handle, a rock-crystal bead, and a fragment of a silver pendant were recorded. The grave goods indicate that this was a female burial, likely one of the members of the ruling dynasty (Kurnatowska 2000).

Thus, the building technique used, the stratigraphic context, and the association of the remains of the three tombs with the first cathedral allow them to be linked with the times of Mieszko I and Bolesław I the Brave. Their location, the form of the graves, and the scant surviving grave goods indicate that they were the final resting places of members of the social elite (clergy or the ruling dynasty) as confirmed by written sources.

Summary

Based on the archaeological discoveries and historical sources to date, the Piast stronghold on Ostrów Tumski in Poznań during the life and reign of Bolesław I the Brave appears as a central administrative centre with multiple functions. The massive fortress – whose main, four-part layout was created during the reign of Mieszko I – was reinforced under his successor: the rampart slopes were widened and possibly heightened, as confirmed by archaeological research and dendrochronological dating in the northern section of the ramparts (early second decade of the 11th century). Care was also taken to maintain the main communication routes, including regular repairs of bridges. In the princely section, a residential-sacral complex operated, erected after the mid-10th century by Duke Mieszko I and Doubravka. During the reign of Bolesław I the Brave, in the late 10th century, a goldsmiths' workshop was added to the *palas* and operated through the first half

of the 11th century. The prince exercised direct control over the goldsmiths, the treasury, and minting activity, and the minting operations previously suggested for the Poznań stronghold have now been confirmed by the recent discovery of a denarius of Bolesław I the Brave bearing the earliest written form of the stronghold's name. Poznań was at that time an important missionary centre for introducing the newly adopted Christian religion, a bishop's seat, and the place where the earliest cathedral on Polish territory was built. According to the tradition recorded in 13th-15th-century sources, including Jan Długosz, and supported by the discovered remains of pre-Romanesque tombs, the Piast rulers designated it as the site of the first princely and royal necropolis. The effective adoption of Christianity during the reign of Bolesław I the Brave is evidenced by the skeletal cemetery in Śródka, which served the inhabitants of the stronghold, as well as small finds like the early medieval lead cross from Zagórze or the bone reliquary plaques from the *palas* chapel. Considering the numerous indications of Poznań's significance in the second half of the 10th and the first half of the 11th century, it may be regarded as a distinguished centre of the early Piast realm, perhaps serving as a capital during the reign of Mieszko and at least part of Bolesław I the Brave's rule. In the absence of written sources detailing the coronation of the first Polish king, a recent hypothesis has suggested the Poznań stronghold as a possible location for this ceremony (Jurek 2005, pp. 70-72). From the perspective of archaeological sources concerning Ostrów Tumski, it is impossible to prove this. However, one may recall the threshold stone in the northern entrance of the Gothic Church of the Blessed Virgin Mary, which, according to hypotheses presented by Michał Kara, may originally have been the throne stone of the Piast rulers (Kara 2006).

Although in the last quarter-century knowledge about the Poznań stronghold has been supplemented in many areas, we still possess too little information regarding the identification of residential and economic buildings, the organization of daily life, and the sociotopography of its individual sections. These areas still require extensive, interdisciplinary fieldwork and studies employing modern specialist analyses.

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