

Tomasz Kozłowski

 <https://orcid.org/0000-0001-5242-6095>

Małgorzata Grupa

 <https://orcid.org/0000-0001-5128-9754>

Analysis of Children's Footwear Relics From the Crypts in the Church in Radzyń Podlaski (18th–19th Century, East Poland)

Analiza obuwia dziecięcego z krypt w kościele
w Radzynie Podlaskim (XVIII–XIX w., Polska Wschodnia)

Abstract: The study examines relics of leather shoes uncovered during the exploration of modern (18th–19th century) burials in the crypts of the church in Radzyń Podlaski, Eastern Poland. The shoes were found alongside the remains of two children, who were likely members of the noble class. Our analyses focused on the footwear's size, shape, structure, construction, and finish. We also tried to document and interpret signs of wear observed on the preserved leather fragments. We believe this research contributes to a deeper understanding of the funeral customs of Poland's former elite and provides insights into childhood during the 18th and 19th centuries.

Keywords: children's shoes, 18th–19th century, crypts, Radzyń Podlaski, Poland

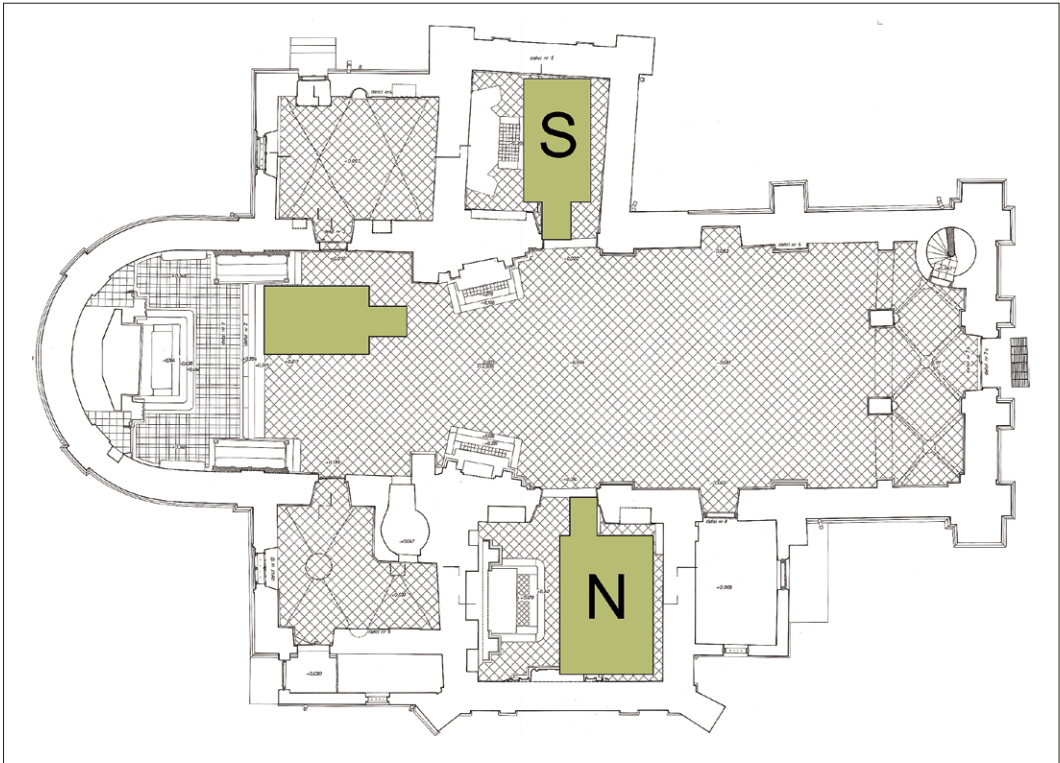
Introduction

Leather, even when tanned, is less durable and mechanically resistant than stone, metal, or certain types of wood. As a result, shoes made from this natural material are not long-lasting elements of human outfit, so they rarely survive intact and are uncommon finds in archaeological contexts. Whenever such artefacts are discovered, they warrant detailed study and, when possible, professional restoration. It should be remembered that footwear, including that worn by children, reflects the era in which it was made, often showcasing the craftsmanship, skill, and innovative construction methods of its time – features that might still be admired today. The two pairs of leather shoes excavated in the crypts of the Church of the Holy Trinity in Radzyń Podlaski (Fig. 1, 2) are particularly rare finds from the early



Fig. 1. Location of Radzyń Podlaski on the map of Poland.

Fig. 2. Radzyń Podlaski: plan of the Holy Trinity Church showing the location of the crypts (N – northern, S – southern), where burials, including the children’s footwear relics, were excavated. Drawing by T. Dudziński, J. Michalik.



19th century. Although similar in general construction and manufacturing technique, closer analysis reveals distinct stories of their use and wear.

The pair labelled "A" was excavated from the northern crypt (Fig. 1) and is believed to have belonged to an unidentified child, likely an infant about 12 months old or younger, who died shortly after birth. The coffin contained only wood shavings and fragments of footwear (Fig. 3). The second pair, labelled "B", was found in a coffin from the southern crypt (Fig. 2, 4) and belonged to Antonina Załoziecka (1832–1835), as identified by a tin plaque on the coffin (Fig. 4B). The coffin contained relatively well-preserved remains, including a skull, postcranial skeleton bones of a child, numerous textile fragments, and a pair of leather shoes (Fig. 4A). Little Antonina's burial clothing has been reconstructed (Fig. 5) based on earlier finds from Toruń, Szczuczyn, and Bytom Odrzański. It is likely that in this case shoes were not prominently displayed in the coffin, as young children were typically buried in dresses much longer than their bodies. Studies on children's burials suggest two common ways of arranging the lower part of the dress: either the dress covered the feet entirely, or its bottom was tucked beneath them (Grupa 2005: 52–54; Vedeler 2010: 252–256; Grupa et al. 2014: 67–72; 2015: 100–103; Grupa 2016: 174–180).



Fig. 3. Radzyń Podlaski: northern crypt. Preserved fragments of leather footwear ("A") after conservation. Photograph by T. Kozłowski.



Fig. 4. Radzyń Podlaski: southern crypt. **A.** – contents of the coffin excavated in the southern crypt: a – leather footwear relics (“B”), b – silk fragments from the deceased child’s clothing, c – a well-preserved skull of a child who died at the age of approximately 3 (the red colouring is due to impregnation from dyes in the textiles, likely artificial flowers from a wreath). **B.** – metal epitaph of Zofia Załoziecka: *Tu spoczywa Zofia Bronisława Załoziecka, urodziła się dnia 17 stycznia roku 1835, Umarła dnia 9 stycznia roku 1838* (Here lies Zofia Bronisława Załoziecka, born January 17, 1835, died January 9, 1838). Photograph by J. Michalik.

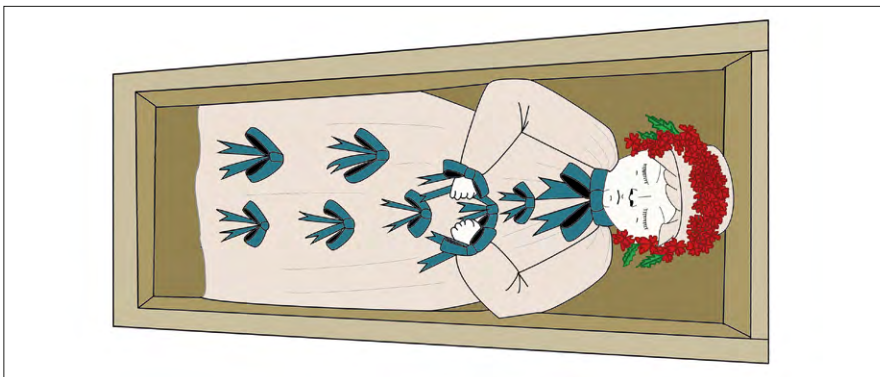


Fig. 5. Radzyń Podlaski: reconstruction of Antonina Załoziecka’s sepulchral attire. Drawing by B. Gałka.

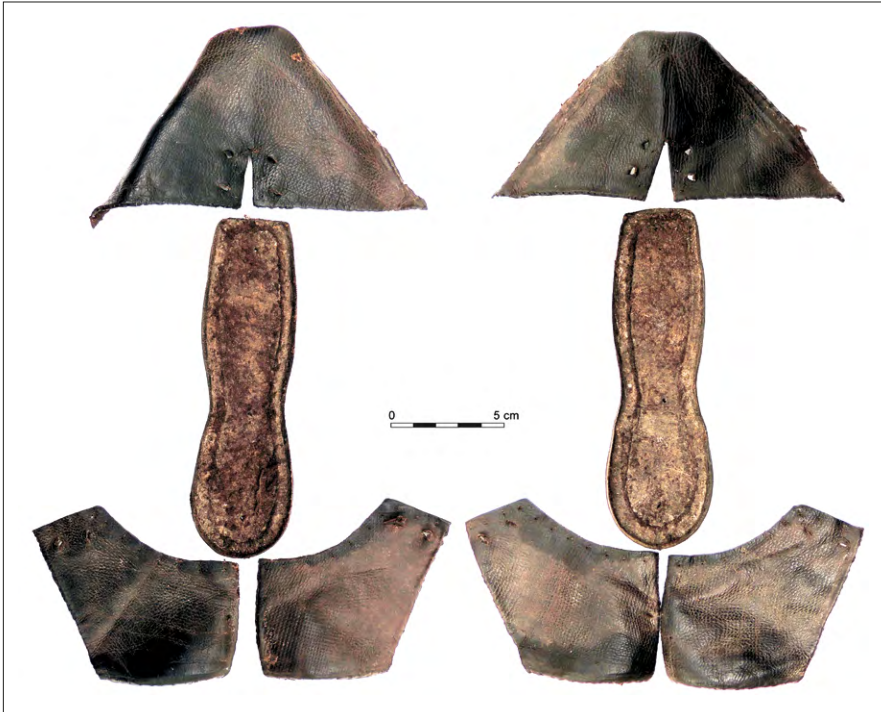


Fig. 6. Radzyń Podlaski: southern crypt. Preserved parts of leather footwear ("B"). The grain surface shows no significant signs of damage. Condition after conservation. Photograph by T. Kozłowski.

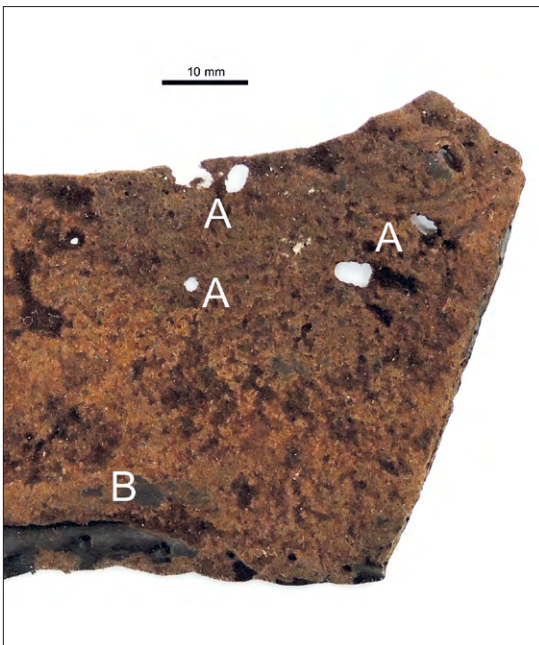


Fig. 7. Radzyń Podlaski: fragment of the bottom part of shoe "A", showing seam holes used to attach the upper to the sole. The placement of the holes along the rim's wrinkles suggests a diagonal pattern relative to the leather edge, providing greater tightness and a more decorative finish. Photograph by T. Kozłowski.

Material and methods

The preserved footwear consists solely of leather elements, including soles, insteps, and tops (Fig. 3, 6), all of which underwent conservation treatments.

The leather relics were examined under both artificial and natural light, using a hand magnifying glass with 4,5× magnification for microscopic analysis. Measurements were taken with a calliper and ruler, accurate to within 0,5–1 mm.

Visible signs of wear, along with anatomical knowledge and the biomechanics of the human foot (Bochenek, Reicher 1990: 563–617; Gray, Carter 2005: 122–132, 180–184), particularly that of a child (Cunningham et al. 2016: 435–472), helped determine which shoe was worn on the left and which on the right foot. The seam patterns, such as the number and alignment of seam holes along the edges of each fragment, were examined using a magnifying glass and dental dipper, and damage to the leather was also assessed. To facilitate identification, we refer to them as the “left shoe” and the “right shoe”, aligning the preserved fragments accordingly. If the fragments could not be matched, measurement values and other descriptive features were first provided for the “left part” and then for the “right part”.

Characteristics of preserved footwear parts

Footwear “A” (burial from the northern crypt)

The preserved remnants of the first pair of shoes, belonging to an unidentified dead infant, include two soles with lengthened oval shapes, two vamps, and two uppers. Analyses show that vamps and uppers were made from vegetable-tanned calfskin, dyed either black or dark blue, while the soles were crafted from much thicker cattle hide. They are slightly narrowed in the middle (resembling an hourglass in shape), with minimal widths at this point: 35 mm for the left shoe and 39 mm for the right. They gradually taper towards the toes (Fig. 3), where they have a rounded shape with a slightly “straightened” tip. At the heel end, the soles form a near-perfect circular rim, with maximum widths of 45 mm and 49 mm, respectively. In the front part, around metatarsophalangeal joints, the soles are slightly narrower, measuring 41 mm and 45 mm. The maximum length of the left sole is 125 mm, while the right measures 128 mm.

Both soles feature three small, evenly spaced round holes (approximately every 40 mm), running from the heel to the toe. These likely indicate the use of a shoemaker’s last to secure the shoe elements during construction. Along the inner circumference of the soles, there is a 9 mm wide leather strip, visible as a delicate shallow cut in the flesh side of the leather. This strip shows clear signs of attachment, where vamps and uppers were sewn to the soles. Stitching holes, spaced 9 mm apart, correspond with deep diagonal grooves made by twine along the edges.

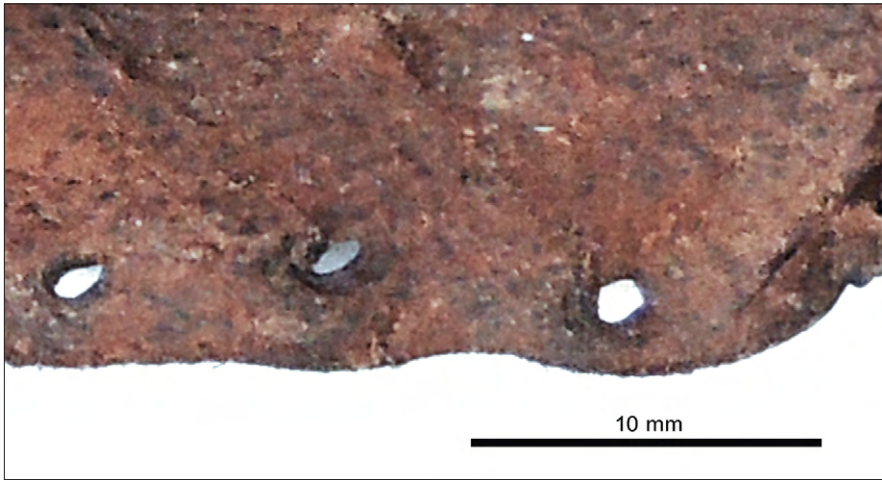


Fig. 8. Radzyń Podlaski: southern crypt. Preserved parts of leather footwear ("B"). The grain surface shows no significant signs of damage. Condition after conservation. Photograph by T. Kozłowski.

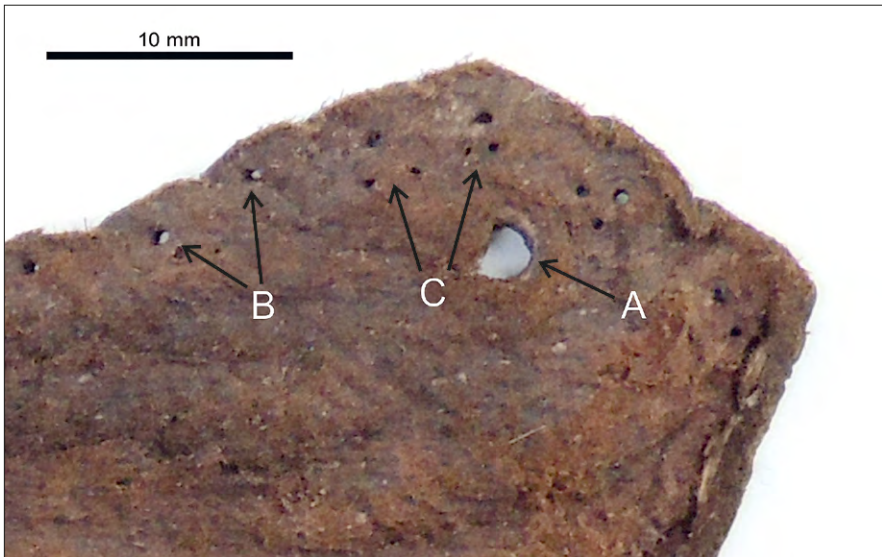


Fig. 9. Radzyń Podlaski: fragment of the instep of shoe "A" viewed from the inside: A – shoelace hole, B – single seam holes fastening the upper to the back edge of the vamp (side and central seams). The edge shows regular leather deformations (edge wrinkles) from tight twine/thread loops. Their positioning relative to the holes and signs suggests a diagonal orientation towards the leather edge, C – additional pairs of smaller-diameter holes where the shoe was tied, which are signs of a rim lining with some extra element (a decorative edge, applique?). Photograph by T. Kozłowski.



Fig. 10. Radzyń Podlaski: northern crypt. Imprint of a lining pattern on the inside of the shoe. Signs suggest the lining was made from plain-weave 1/1 linen textile, in white or ecru. Digitalization by D. Grupa.

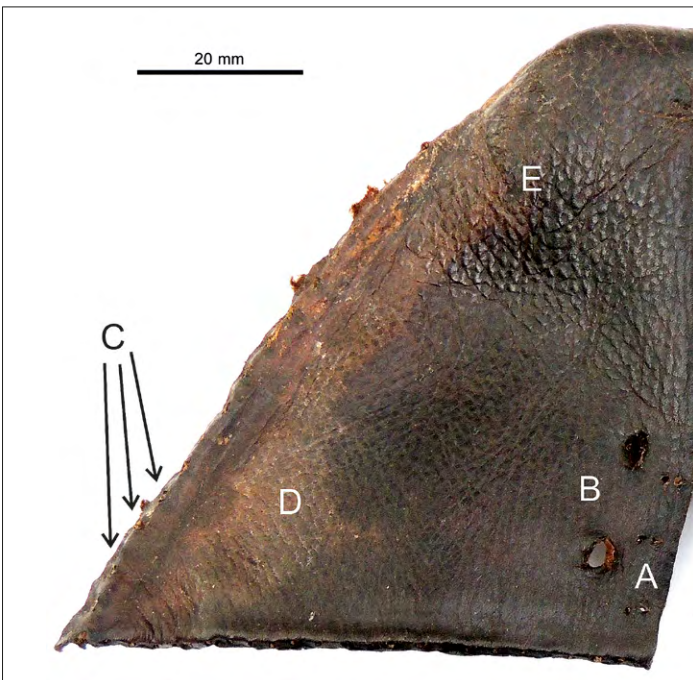


Fig. 11. Radzyń Podlaski: fragment of the upper of shoe "B", likely worn on the right foot. Visible deformations include leather bulging (stretching) caused by the pressure of the distal surface of the first toe (E) and the medial edge of the metatarsus (D). Small areas of external grain rubbing are also visible. A – pairs of seam holes that likely fastened a lining or applique where the shoelace should be, B – shoelace openings with edges pushed clearly outwards, C – seam holes used to attach the upper to the sole (diagonal seam). Photograph by T. Kozłowski.

The vamps, when flattened, have a triangular shape with a rounded top near the toes. Their maximum length (the height of the triangle along the central part, parallel to the sagittal plane of the foot) is shown in Fig. 3, 10. The vamps are similar in size but not identical. The left shoe vamp has a base length of approximately 127 mm, while the right measures 126 mm. The height of the triangle is about 76 mm. Centrally, along the base of each vamp, there are small triangular leather incisions (equilateral triangle), about 13 mm wide and 9 mm tall. Similarly, the length of these cuts varies between the shoes, measuring 23 mm on one and 20 mm on the other.

Near the toe area, on either side of the triangular incision, there are symmetrically placed elongated openings (Fig. 3), likely used for lacing, perhaps with a leather strap or silk band tied in a large knot¹. The most distant interlacing was positioned around the base of the metatarsal bone or distal tarsus section (where the cuneiform and/or navicular bones are located). Both vamps are cylindrically shaped, conforming to the foot's midsection and toes. This shaping would have been achieved on a shoemakers' anvil by hammering the wet leather, which would have stretched the collagen fibres to the desired shape as the leather dried. The long oval edges of the vamps show signs of attachment to the soles. There are 20 holes on one vamp and 22 on the other, with regular wrinkles or misshaping between them, indicating the twine was pulled through these openings during assembly.

Two uppers have also been preserved, covering the heel and gastrocnemius aponeurosis. When combined with the vamps, they form a closed shoe that extends around the ankle joint, both in the front and back.

The uppers are long trapezoidal pieces, with the longest sides slightly arched (Fig. 3). These edges would have surrounded the ankle joint from the back, sides, and partly over the top of the foot. The tips are cut straight. The maximum length of the upper fragments is 151 mm and 155 mm, respectively. The opposite, shorter trapezoid edge – the bottom (measuring 112 mm on the left and 109 mm on the right) – shows signs of attachment to the sole, with 12 needle holes on each side (Fig. 7, 9). The arched longest edge bears similar, though less prominent, stitching marks. The small hole diameters (in an area where the leather is very compact) and the delicate stitching traces suggest that the upper rim might have originally been lined, perhaps with textile, and sewn with a thinner thread (Fig. 9C). Although the lining has not survived, measurements suggest a width of about 4 mm.

1 Such references are depicted in iconography. In the portrait of six-year-old Walter Otton Fergusson Tepper (Friedrich Lohrmann, 1785, Fundacja Zbiorów im. Ciechanowickich, the Royal Castle in Warsaw), we see blue vamps tied with a matching blue band (Bialic 2019: 248–249).

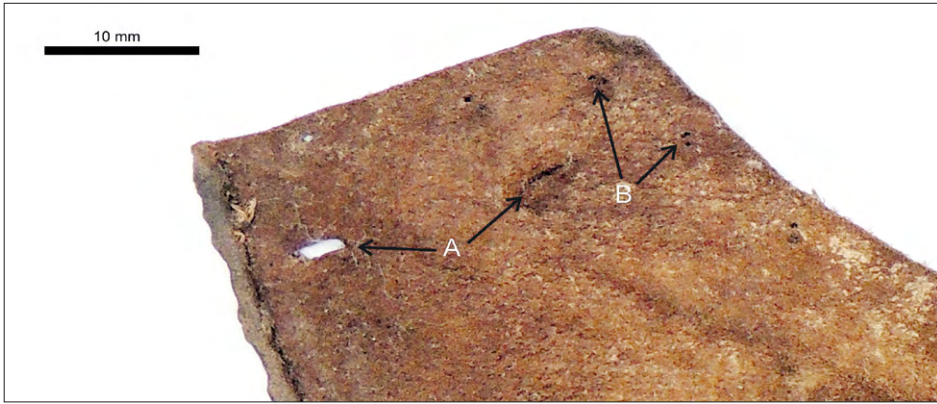


Fig. 12. Radzyń Podlaski. Upper fragment (shoes “B”), showing the edge of the shoelace area from the inside. A – narrow shoelace holes, B – small-diameter pairs of holes next to each other, likely indicating the presence of a lining on the edge or an applique, now lost. These features may have served a reinforcing or decorative function. Photograph by T. Kozłowski.

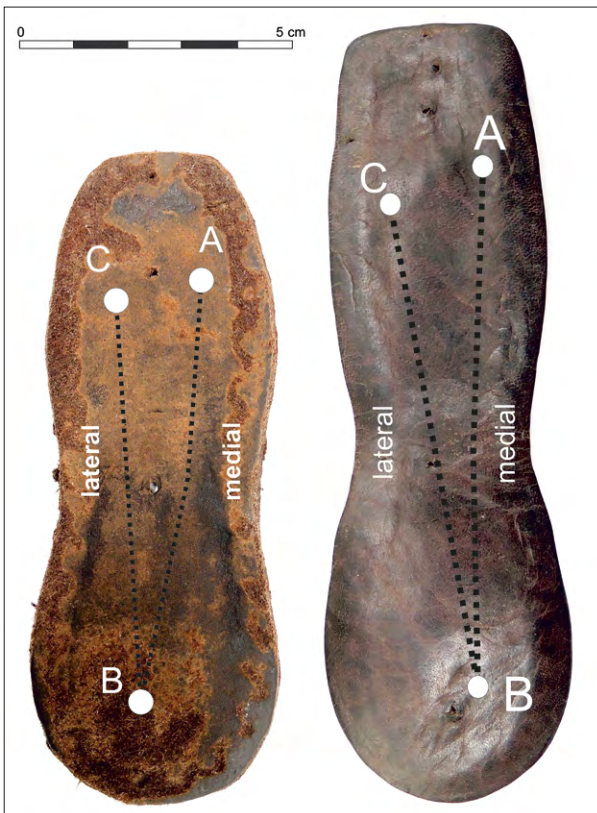


Fig. 13. Radzyń Podlaski: external view of the shoe soles from shoe “A” (left) and “B” (right). The leather surface shows clear signs of use, including rubbing and grain damage, particularly in shoes “A”, as well as bulging and polishing in shoes “B” in areas of the highest pressure during walking. Presumable anatomical and biomechanical foot resting points are indicated: A – medial eminence and the tip of toe I, B – heel (calcaneal tuberosity), C – the lateral plantar eminence of toe V. The sections refer to foot arch positions: A–B medial longitudinal arch (tibial side), B–C lateral longitudinal arch (fibular side), A–C anterior transverse arch. The lateral shift of point B in the smaller shoes (“A”) can suggest valgus, a common phenomenon at such a young age. Photograph by T. Kozłowski.

A delicate double-needle seam, turned outwards and running parallel on both sides of the pair (on the side surface and in the middle), diagonally towards the long limb axis, ran towards the sole and joined the vamp with the upper. These stitching marks helped us align the preserved upper fragments with the soles (Fig. 9). The seam holes align perfectly on both parts, with the left shoe having 12 holes on the side seam and 14 in the middle, while the right shoe has 14 and 13, respectively. The hole placement also corresponds with the length of these pieces, which are 63/66 mm and 59/62 mm.

The holes for lacing (Fig. 9A) are located near the top of the longer, concave edges of the trapezoid. They are easy to identify and distinguish from taphonomic leather damage (such as insect larvae activity – Fig. 7A) because their edges are slightly pushed outwards towards the grain due to the tension from lacing. It can be assumed that the lace holes were symmetrically placed on the upper near the top of the foot – two on the left and two on the right, positioned along the long axis of the shoe and spaced about 20 mm apart. The lacing was likely double, prominently visible, and may have been decorative depending on the type of lace or band used and the style of the knot.

An analysis of the internal surface of the uppers revealed signs of lining (Fig. 10), probably made probably of linen in plain weave 1/1, likely in white or ecru.

Footwear 'B' (burial from the southern crypt)

The second pair of shoes likely belonged to Antonina Bronisława Załoziecka (Dab-
ralet et al. 2022), who died at the age of 3 in 1835 and was buried in a coffin deposited in the southern crypt (Fig. 2, 4). The leather parts of these shoes have been remarkably well-preserved (Fig. 6) and include two soles, two vamps, and four quarters – the left and right sections of the uppers crafted from red-dyed calfskin. The soles were made from thick, stiff cattle hide. While the overall construction of these shoes is similar to the pair described above, they differ in size, shape, and the design of the uppers. The uppers consist of two parts – two pieces of leather sewn together with a double-needle seam that is parallel and turned outwards at the heel. The soles, with total lengths of 142 mm and 141 mm, are almost rectangular in the midfoot-toe area. The central and side edges are slightly arched, while the toe area is cut nearly perpendicular to the longitudinal axis of the foot. The shoes feature wide toe parts for comfort, with a width of about 29 mm at the front. Moving towards the midfoot, the soles expand slightly, with the left sole measuring 41 mm and the right 40 mm at this point. Further back, there is an indent narrowing the soles to a minimum width of 32,5 (left) and 31 mm (right), around the region of the navicular (*os naviculare*) and cuboid (*os cuboideum*) bones of the tarsus, as well as the base of the metatarsal bones. This narrowing somewhat

reflects the natural morphology of the human foot. Towards the heel, the soles widen again, reaching maximum widths of 46 mm (left) and 44 mm (right), before closing in a circular shape at the heel.

Similarly to the previously described examples, a strip approximately 6 mm wide is visible around the edges of the soles. It was sewn into the sole along with the vamp and upper. This method ensured that the leather beneath the seam remained compact and unperforated, protecting the seam from direct wear while walking. The entire circumference shows numerous holes spaced 5 mm apart, with signs of twine around the strip.

The vamps are irregularly shaped triangles with base lengths of 155 mm. Their length along the sagittal plane is 80 mm, plus an additional 5 mm for the inwardly arched edge that connects to the strip along the seam. Currently, there are 48 holes (Fig. 11C) on both the left and right shoes. Centrally, on the proximal side of the vamp, there is a cuneiform cut 22 mm long, with a maximum width of 5–7 mm. This cut allowed the vamp to conform to the shape of the foot from the top, where the metatarsus begins.

On either side of the triangular cut, there are two pairs of elongated, cran-ny-shaped openings (Fig. 11B), with a maximum diameter of 3–4 mm. These openings are symmetrically placed, spaced 22 mm apart on the left shoe and 18 mm apart on the right. They likely served as lacing holes for a band or shoelace (Fig. 8). About 5 mm from the edge of each cut, there are two holes (six on each side, Fig. 11A) with much smaller diameters. These may have been used to fasten a decorative textile lining, though this element has not survived, preventing a complete analysis and description. Microscopic evidence suggests an overhand stitch around the top edges of the shoe. The leather's lasting profile in the vamps indicates that the shoemaker intentionally shaped the shoes to fit the front part of the foot, though the design was not specific to the left or right foot.

Similarly to the previously discussed pair, the complete uppers are shaped like long trapezoids, with the longest side slightly arched to form the upper edge surrounding the ankle area. The tops are straight-cut (Fig. 6). The maximum length of these projections is about 172 and 171 mm. On the opposite, shorter side of the trapezoid – the bottom edge, measuring approximately 116 mm for the left and 115 mm for the right – there are visible signs, as seen on the front of the shoe, of fastening them to the soles. There are 22 needle holes on both the left and right uppers (11 on each).

The arched longer rim also shows signs of stitching, although the holes are spaced further apart. On the left shoe, the side section has 7 holes followed by additional 3 pairs of holes near the rim, including two that were used for fastening the shoe on the foot's top. These shoes were fastened using a total of eight openings – 4 on the left and 4 on the right. The central (right) part of the upper on the left shoe, starting from the heel's midline, has a sequence of 3 single holes, 4 double pairs, and another 3 single holes. The stitching pattern was not symmetrical.

On the right side of the upper of the right shoe, starting from the sagittal plane of the foot, there are 6 single holes, followed by 3 pairs positioned just above the two holes for the shoelace (Fig. 12). The left (central) upper part of the right shoe has 7 holes, followed by additional 4 pairs, showing a seam asymmetry. These holes have smaller diameters, and the thread marks on the leather are barely visible. It can be supposed that some kind of lining finished the upper rim, although this element has not been preserved (Fig. 12B).

As with shoes "A", a very delicate seam runs along both sides of the pair (on the side and central foot sections), slightly diagonal to the lower limb's longitudinal axis. This double-needle seam, stitched parallel and turned outwards, connects the upper with the vamp. The side seam of the left shoe has 29 holes, and the central seam has 26. The other shoe has 25 holes on both seams. The lengths of these sides are 73/75 mm and 73/73 mm.

The uppers were constructed differently than in object "A" – here, they consist of two leather pieces sewn together along the sagittal plane of the foot (heel mid-axis). This seam was made with a thin twine for comfort, preventing irritation to the skin of the heel and the area above it. Both the left and right shoes have 19 symmetrically placed holes.

Additionally, on both the left and right shoe uppers, at the midpoint of the heel seam, there are openings with a larger diameter (Fig. 12A). On the left shoe, the opening on the side part of the upper is clearly larger and positioned higher than in the central part. In contrast, in the right shoe, the hole in the central part is larger and positioned higher than the one on the side. Was this a form of decoration, a reinforcement for the heel seam, or simply a way of securing the shoe to the shoemaker's last? The exact purpose remains unclear. The positioning of these elements does not indicate which shoe was intended for the left foot and which for the right.

Shoe sizes and signs of wear

By analysing the footwear size alongside archaeological and anthropological contexts (such as coffins, other clothing items, and children's bones), we can confidently conclude that these were children's shoes. The sole length of the shoe "A" (125–128 mm) corresponds to the modern EU size 20/22, intended for infants aged 12–24 months. Given that the foot length of a child between 1 and 1.5 years old typically ranges from 120 to 135 mm, it is reasonable to assume that these shoes were used during the first half of *Infans* I (ages 0–4). In the case of another pair, the sole length (141–142 mm) suggests a modern EU size 23/25, which is designed for children aged 24–36 months. This aligns with the significant variability in foot length for three-year-olds of 135–150 mm (based on common trade data).

For example:

<https://www.jestemdzieckiem.pl/tekst,62,tabele-rozmiarow.html>

<https://birdrockbaby.com/pages/how-to-size-baby-shoes>

<https://www.gerberchildrenswear.com/pages/size-chart-gerber-childrenswear/>

<https://sadiesbaby.com.au/pages/baby-kids-shoe-size-guide>

<https://www.liveabout.com/european-baby-clothes-size-chart-286073>

Data from professional anthropometric studies are more reliable. The average foot length for three-year-old boys in Poland is 149 mm (left foot) and 150 mm (right foot), with a standard deviation of 9/10 mm. For girls, the average is 151 mm (left) and 150 mm (right), with the same standard deviation (Wacławek et al. 2015: 16–18). Spanish children of the same age have slightly larger feet, with an average of 165,5 mm for both sexes and a standard deviation of 10 mm (González-Elena et al. 2021: 4). Assuming that shoes “B” belonged to three-year-old Antonina Załoziecka, we can observe that her feet were relatively small compared them to present-day children.

For visible signs of wear to appear on children’s shoes – especially on the soles – the child must at least begin standing or walking. Modern children typically start standing and supported walking between 9 and 12 months of age (Malinowski 2004: 77–78) and fully develop walking abilities between 11 and 14 months (*The Cambridge Encyclopaedia...* 1998: 248).

In studying the shoes from the church in Radzyń Podlaski, we can observe wear patterns such as compression, oval-shaped bulging of the leather soles, as well as mechanical damage (Fig. 13), particularly in the smaller shoes, labelled “A”. The soles show signs of supporting a full foot, possibly indicating flatfoot, which is natural for infants due to the lack of a fully developed arch (Cunningham et al. 2016: 437). Deformations are mainly seen in the areas of the calcaneus, toes, and the ball and pad of the foot. Although the foot in question belongs to a small child who has not yet fully developed a walking gait, research by Montagnani et al. (2021: 1–19) indicates that in children aged 13–15 months, the greatest pressure during walking is exerted in the same areas. This is also evident on the leather soles of the shoes.

The internal surfaces of the sole, which were in direct contact with the foot, show signs of compression and wear – more noticeably on the left side in both pairs, especially in the toe area of the larger shoes. In the smaller pair, the external left sole displays significant signs of grain rubbing (Fig. 13), particularly in the heel and around the first and fifth toes. These areas correspond to key support points, including the medial eminence (the base of the big toe), calcaneus, and the underside of the toes during lift-off. On the right sole, similar damage is concentrated in the heel area, with smaller signs of wear under the pad of the big toe (Fig. 13). These damages were likely caused by active walking and foot lift-off, during which the sole was still flexible.

In contrast, the larger shoes, labelled "B", do not exhibit such wear patterns. They show only leather bulging in key foot support areas and polished surfaces in these regions (Fig. 13). This suggests that the smaller shoes may have been used more frequently or for a longer period, possibly passed down from one child to another. Alternatively, the smaller shoes may have been used on a rougher surface, such as stone or ceramic flooring, while the larger shoes were worn on a smoother surface like wood or carpet. These patterns of sole deformation (Fig. 13) offer clues about which shoe was worn on the left foot and which on the right. Researchers should carefully consider these factors during historical footwear analyses, especially when shoes were not custom-made for specific feet.

Usage-related damage is also visible on the back parts of the uppers. Inside, there are oval deformations in the leather, along with signs of heel rubbing against the counter surface. Externally, the leather is particularly deformed just above the seam joining the upper to the sole, slightly shifted towards the heel in the smaller shoes, labelled "A", with an overhang of loose, stretched leather. The shoe may have been too loose in this area due to leather stretching, heavy use, or an initial mismatch with the wearer's foot. It may also indicate the presence of a flat-valgus foot, a condition common in young children (Tomaszewski, Czaślawska 2020: 369), which helps them maintain balance as they learn to walk.

Shoes "A" are especially notable for the extensive damage to the external grain of the bootleg, particularly on the left boot. Most of the vamp has been almost entirely stripped of its grain (Fig. 3), likely due to mechanical rubbing. This contrasts with the other shoe, where the grain remains largely intact, except for some wear on the medial and distal heel areas. This asymmetry could be the result of a preference for using the left limb or, less likely, taphonomic processes, as both shoes were buried under identical conditions. The leather grain surface of the larger pair ("B") is almost perfectly preserved (Fig. 6), with only minor scratches near the big toe of the left shoe, typical of mechanical damage (Fig. 11E).

In summary, the boots from Radzyń Podlaski show clear signs of being worn, especially the smaller pair "A" which belonged to an anonymous infant. These shoes display significant wear, indicating that they were used intensively by an active child or multiple children. They were likely not crafted specifically as "coffin" boots for burial. Given the rapid growth of children's feet, footwear needs to be replaced frequently, and in this case, the shoes may have been passed down from older to younger children before eventually being used as grave goods. The boots belonging to an older girl (Antonina Załoziecka) show far less damage, though they also were not made specifically for burial. The signs of wear on these boots reflect the asymmetry in foot development and the typical points where pressure is transferred to the ground.

Conclusions

1. The boots analysed, though relatively simple in construction, were carefully crafted using quality materials. Two types of leather were employed: a thicker, likely cattle hide for the soles, and a delicate, thinner, more flexible calfskin, for the vamps and uppers. The designs reflect a compromise between functionality (durability and foot protection) and comfort, taking into account the anatomy and needs of a child's foot.
2. The footwear fragments examined were not designed with the anatomical and functional asymmetry of a child's left and right foot, or the biomechanics of walking, in mind. Ergonomic considerations were minimal, with the shoes serving primarily as decoration and offering basic protection from minor foot injuries.
3. Only the visible signs of use, which appear asymmetrically (particularly on the soles), allow us to reasonably determine which shoe was worn on the right foot and which on the left. The process of a shoe adapting to the foot's lateral shape likely occurred through wear over time. Possibly, these shoes were once marked in some way (through the colour of lace, seam, or decoration), but such elements have not survived in these finds.
4. The analysed footwear was likely worn frequently, as evidenced by clear signs of leather compression, folds, cracks, sole rubbing, bulging, stretching, and deformation, particularly on the uppers and vamps. These signs of wear appear asymmetrical, especially in the case of the larger shoes, labelled "B". It is unlikely that they were put on randomly without consideration for the right or left foot. In the case of the smaller pair, an adult likely helped the infant put them on correctly.
5. The significant signs of wear, especially on the smaller "A" shoes, suggest that they may have been passed down from an older child to a younger one. It is possible that the deceased children were buried not with their own shoes, but with older, less valuable items as part of a broader practice known as the "death economy", commonly observed in both lay and clerical burials (Dudziński et al. 2017; Grupa 2019: 166–183; Grupa et al. 2015: 143–146; Kozłowski, Grupa 2019: 35; Kulesz 2019: 156–167; Kulesz, Grupa 2020: 143).

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Streszczenie

Omawiane w pracy relikty obuwia skózanego odkryto podczas eksploracji nowożytnych (XVIII–XIX w.) pochówków w kryptach kościoła pod wezwaniem Św. Trójcy w Radzynie Podlaskim. Dobrze zachowane buty razem ze szczątkami kostnymi i tekstyliami znaleziono w dwóch pochówkach należących do dzieci. Z prawdopodobieństwem graniczącym z pewnością zmarłe dzieci należały do klasy szlacheckiej. Jedno dziecko zmarło w wieku późnoniemowlęcym (obuwie A). Jego tożsamości nie udało się ustalić. Szczątki drugiego (obuwie B) najpewniej należały do Zofii Załozieckiej, która zmarła w wieku 3 lat. Nasze analizy skupiały się głównie na rozmiarze, kształcie, strukturze, konstrukcji i wykończeniu odkrytego obuwia. Staraliśmy się także szczegółowo opisać i zinterpretować widoczne ślady użytkowania butów, które odkryliśmy na zachowanych fragmentach.

Analizowane buty mają stosunkowo prostą konstrukcję, ale zostały starannie wykonane, zgodnie ze sztuką rzemieślniczą, z wysokiej jakości materiału – dwóch różnych skór – grubszej (prawdopodobnie bydłowej), użytej na podeszwę i delikatniejszej, cieńszej (skóra cielęca), z której wykonano przyszwę i cholewki. Konstrukcja mogła stanowić kompromis pomiędzy walorami użytkowymi (trwałość i ochrona stopy) a komfortem ich noszenia. Badane fragmenty obuwia nie zostały stworzone z myślą o dostosowaniu buta do asymetrii anatomicznej i funkcjonalnej lewej i prawej stopy oraz biomechaniki. Względy ergonomiczne stały na niskim poziomie, a buty stanowiły praktycznie tylko ozdobę i ochronę przed przypadkowymi urazami. Badane obuwie

musiało być noszone dość często lub długo. Świadczą o tym zgniecenia skóry, fałdy i pęknięcia, przetarcia i wybrzuszenia podeszwy, a także rozciągnięcia i deformacje widoczne na cholewkach i przyszwach. Układ i rozmieszczenie uszkodzeń wskazują, że ich noszenie mogło być jednak zlateralizowane. Intensywne ślady użytkowania (zwłaszcza butów „A”) wskazują także, że mogło je nosić nie tylko jedno dziecko, ale dziedziczyło je młodsze po starszym. Zmarłe dzieci mogły zostać wyposażone w mniej wartościowe na skutek znacznego zużycia przedmioty, co byłoby cechą znaną również z innych pochówków, w tym osób dorosłych świeckich i duchownych, którą można byłoby łączyć z szeroko pojętą „ekonomiką śmierci”.

Uważamy, że rezultaty naszych badań pozwolą wzbogacić wiedzę na temat kultury funeralnej dawnych elit, jak również będą przyczynkiem do lepszego zrozumienia przebiegu dzieciństwa w okresie XVIII i XIX w.

Słowa kluczowe: buty dziecięce, XVIII–XIX w., krypty, Radzyń Podlaski, Polska

Tomasz Kozłowski

Nicolaus Copernicus University in Toruń
Institute of Archaeology
e-mail: kozlow@umk.pl

Małgorzata Grupa

Nicolaus Copernicus University in Toruń
Institute of Archaeology
e-mail: mgrupa@umk.pl