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Results of the latest interdisciplinary research conducted in the Church of St. James in Sandomierz

Abstract

The article is a summary of interdisciplinary research conducted in the 13th-century Dominican Church of St. James in Sandomierz in May 2022. The research included an archaeological survey located at the junction of the presbytery and the nave, followed by an architectural and historical-artistic analysis of the discovered walls and architectural details. The aim of the work was to obtain new materials regarding the beginnings and subsequent transformations of the church of St. James. In addition to traditional research and documentation methods, digital technologies were used, i.e. digital photography, laser scanning and photogrammetry. The stages of archaeological work recorded in this way could be incorporated into the existing digital 3D model of the entire monastery complex. Archaeological methods, as well as preserved source materials (textual and iconographic) were used to date individual structures. Due to later excavations (related to reconstructions and burials), the relationship between the layers recorded in the excavation did not create a clear sequence and cannot be the basis for findings regarding chronology. The initial dating was therefore based on the relationship between the walls and on the dimensions of the discovered bricks. It was established that the brick foundation marked as k. 43/44 may come from the 13th century and constitute a fragment of the unpreserved choir partition of the church – this hypothesis will require verification in the future. Additionally, a previously unknown, possibly medieval wall with a NS course (k. 3) on the line of pillars between the naves was uncovered, as well as a vaulted ceiling of the vestibule of the crypt under the Martyrs' Chapel. The discovered architectural details include a fragment of a 13th-century ceramic molding, perhaps coming from the choir partition, and stone floor slabs. The discovered brick structures, architectural details and traces of numerous secondary excavations prove that the examined part of the church has undergone numerous transformations over the centuries and was intensively used for burials.

Key words: Sandomierz, Church of St. James, mendicant architecture, medieval architecture, brick architecture, interdisciplinary research

Introduction

Church of St. James in Sandomierz belonging to the architectural complex of the Dominicans, dating back to the 13th century (the convent was founded in 1226), has significantly managed to retain its original structural integrity

until the present day. The structure contrasts against other medieval brick churches preserved in Poland, given its exceptionally intricate ceramic adornment, which is particularly evident in the main portal. It is widely recognised as one of the most exquisite examples of late Romanesque architectural design (Fig. 1). The monument has been the subject of numerous studies, however many issues pertaining to its architecture – including the medieval construction stages as well as subsequent modifications – are yet to be conclusively resolved. This particular circumstance constituted the impulse for the initiation of new investigations, executed within the years 2021–2023 under the two scientific projects, financed by the Jagiellonian University. The research was conducted by: Justyna Kamińska (History of Art and Project Manager), Małgorzata Doroz-Turek (Architecture), Andrzej Gołębniak and Kamil

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Fig. 1. The orthophotogrammetric projection
– Church of St. James in Sandomierz
– displaying the northern elevation (elaborated by A. Gołębniak)

Il. 1. Kościół pw. św. Jakuba w Sandomierzu
– rzut ortofotogrametryczny – widok elewacji północnej
(oprac. A. Gołębniak)

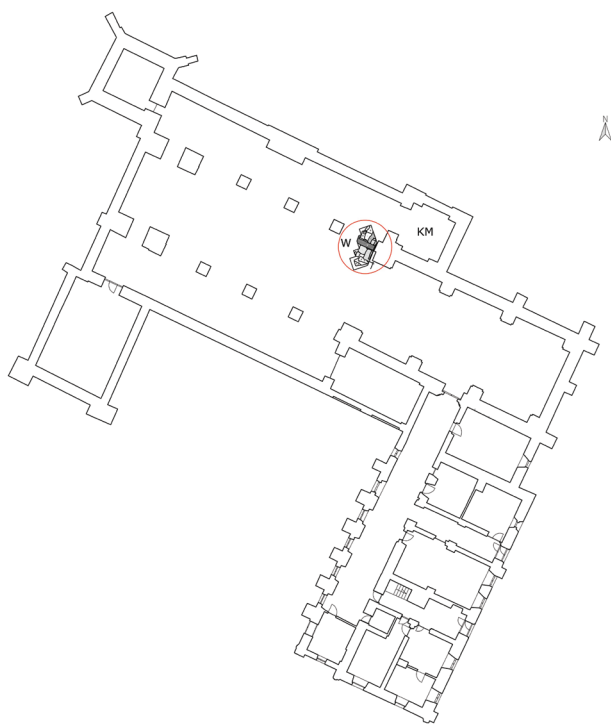


Fig. 2. Sandomierz, plan of the Church of St. James
and the preserved monastery wings, location of the excavation site.
W – excavation, KM – Martyrs' Chapel
(elaborated by M. Doroz-Turek)

Il. 2. Sandomierz, plan kościoła pw. św. Jakuba
i zachowanych skrzydeł klasztornych, lokalizacja wykopu.
W – wykop, KM – kaplica Męczenników (oprac. M. Doroz-Turek)

Rabięga (Archaeology). Students of architecture also took part in the second project¹, thereby fulfilling inventory internships. The studies conducted within the framework of the second project, which are the topic of this article, were

¹ Julia Rabajczyk, Karol Mitreęga, students of architecture, 2021/2022 academic year, Faculty of Civil Engineering and Architecture, Kielce University of Technology.

intended to gather new information regarding the inception and subsequent transformations of the Church of St. James. It was predicted that an examination conducted at the intersection of the chancel and the main church body would yield 13th-century choir partition relics, historical church flooring, burials, and architectural detail. The following work presents the methodology of research, its course, and key findings within the context of the current knowledge regarding the discussed monument.

Research status

Since the 1st half of the 19th century, the Dominican Church of St. James in Sandomierz has aroused the interest of researchers (ref. Kamińska 2020, 189–196 for a research summary). The scientific investigation in the field of archaeology and architecture conducted within the premises of the church and monastery during the refurbishment and conservation endeavours in the 1980s and 1990s by Marek Florek, Leszek Polanowski, and Jerzy Zub, facilitated the formulation of new theories concerning the chronological sequence of the establishment of various segments of the complex. Moreover, this research led to the unearthing of purported remnants of the walls of the pre-Dominican church along with its equipment (ref., for instance, Florek 1993; Polanowski, Zub 1993). In the past few years, additional studies have been conducted on the historical monument. Archaeological works at the premises of the monastery were executed under the supervision of, among others, Andrzej Gołębniak and Krzysztof Cackowski. The architectural studies of the bell tower and the architectural inventory of the entire church were performed under the direction of Małgorzata Doroz-Turek. Andrzej Kadłuczka and Klaudia Stala conducted the architectural and archaeological investigation of the eastern wing of the cloister, including the single-pillar basement, and of a portion of the southern monastic wing. The outcomes of the studies include documentation in the form of typescripts, scholarly articles, and a compilation, published in 2019 (Cackowski, Gołębniak 2018; Doroz-Turek 2018; Gołębniak, Lisak 2019). The latest publications on the history of art by Tadeusz Jurkowlaniec and Justyna Kamińska (ref. Jurkowlaniec 2020, 2021; Kamińska 2024, for example) are also noteworthy.

Overview of the conducted studies

The archaeological research was conducted in May 2022 in an excavation site situated at the intersection of the chancel and the east end of the northern aisle of the church. The discovered results laid the groundwork for an architectural, as well as artistic-historical analyses (Fig. 2). The non-uniform outline of the excavation site, approximately 4 × 1.5 m in size, depended on the structure of the existing floor of the church and the technical feasibility associated with the removal of specific tiles. In the east, the area was delineated by the structural pillar of the chancel arch, inclusive of its foundational base, in conjunction with the chancel. The excavation's northern perimeter extended up to the crypt vestibule's vault located



Fig. 3. Sandomierz, Church of St. James, archaeological excavation, collective orthogonal view with marked layers and chronology (elaborated by A. Golembnik)

Il. 3. Sandomierz, kościół pw. św. Jakuba, wykop, rzut ortogonalny zbiorczy z oznaczeniem warstw i chronologii (oprac. A. Golembnik)

under the Martyrs' Chapel, whereas the southern perimeter was projected approximately 1.5 m past the pillar's edge.

The course of investigation included continuous documentation of the stratigraphy of uncovered layers and movable monuments. Apart from the traditional research and documentation techniques, digital technologies such as digital photography, laser scanning and photogrammetry were utilised. Thus, the stages of archaeological work registered in this manner could be integrated into the pre-existing 3D digital model of the entire monastic complex (Fig. 1). The revealed structures made of brick were subjected to architectural studies. Apart from archaeological approaches, the dating of specific structures was made based on the retained source materials (both textual and iconographic). Furthermore, the findings made during archaeological works conducted in the previous years in the vicinity of the southern extremity of the eastern monastic wing proved useful for the study, as they provided contextual details for the data obtained from the excavation in the church.

In total, 48 stratification units were documented during the studies, including 8 solid masonry structures and 4 accompanying structures, as well as 36 layered units (including structural soil reinforcements)². Stratigraphy was made up of backfill layers (the material used to fill construction trenches) and levelling layers (even spreadings

beneath the flooring) (Fig. 3a). The outline of a burial pit was discovered on the eastern side at the bottom of the excavation. Works on smaller areas were carried out up to the apex of the natural layers, reached on the southern (+160.15 m above sea level) and northern (+159.82 m above sea level) extremities of the excavation (Fig. 4a, b).

During the archaeological excavation, the research group discovered remnants of the foundation of a modern altar, which had been present until the church underwent renovation in the early 20th century, as evidenced by archival photographs (Fig. 5). The foundation remained in the form of a broad belt adjacent to the face of the chancel corner foundation, with an additional chancel arch pillar expanded from the south. The altar was partially set on a previously unknown older wall (k. 3), extending in an East–West direction towards the first pillar between the naves from the east, retained at a length of approximately 175 cm, with a depth of ca. 140 cm and a width of 45–50 cm, including offsets. The wall starts 27 cm beneath the level of the contemporary floor and narrows as it descends. In the lower section, it has been erected using haphazardly selected blocks of stone (limestone and granite³), joined with lime mortar. The wall's foundation foot, positioned in a confined-space excavation penetrating the floor of loess layers, was registered at the depth of +168 m above sea level. The wall construction involves

² The research report, compiled by Golembnik and stored in the Sandomierz monastery's archive, contains a comprehensive list of stratigraphic units.

³ The stone wall exhibiting a similar structure is present at the base level of the church's bell tower, dating back to the latter part of the 13th century, ref. (Doroz-Turek 2019, 181).

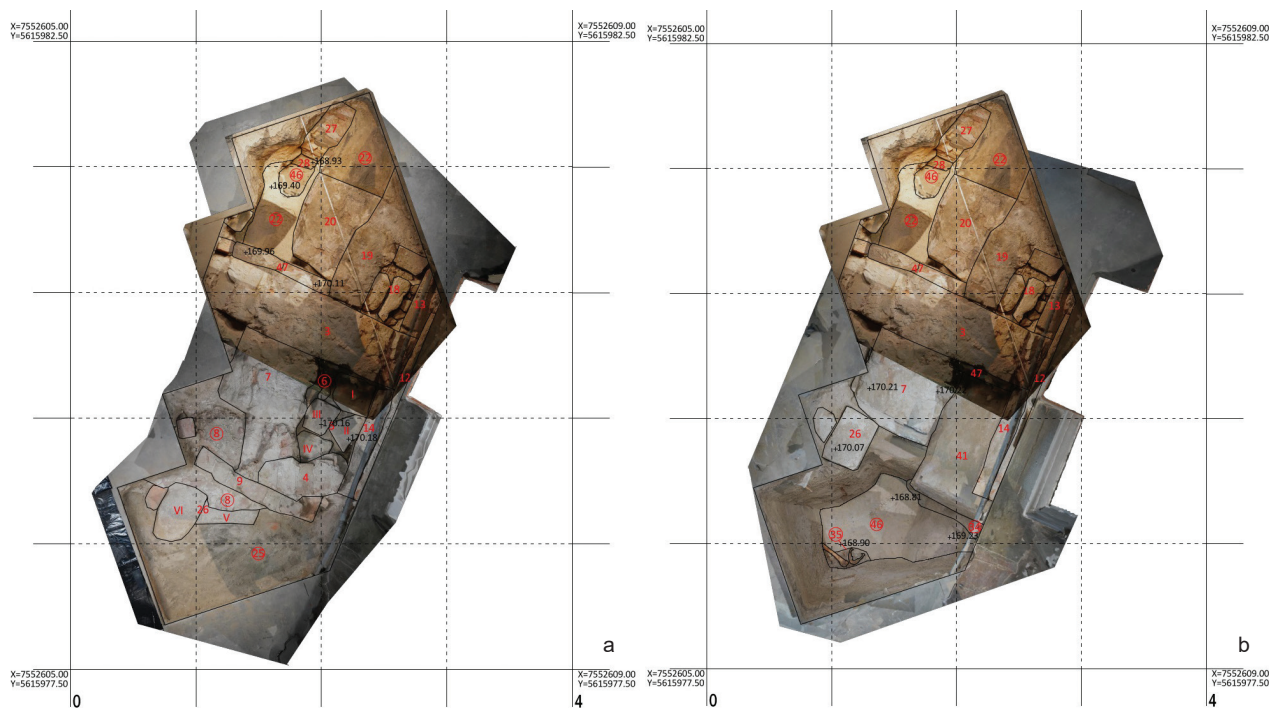


Fig. 4. Excavation: a) horizontal level +170.16/+170.18/+169.96/+169.40, b) horizontal level +170.07/+170.21/+169.90/+168.81 (elaborated by A. Golembnik)

II. 4. Wykop: a) poziomy +170,16/+170,18/+169,96/+169,40, b) poziomy +170,07/+170,21/+169,90/+168,81 (oprac. A. Golembnik)



Fig. 5. Sandomierz, interior view of Church of St. James prior to 1905, with a visible altar by the northern half-pillar of the chancel arch (photo by N.N., source: Sandomierz monastery's archive)

II. 5. Sandomierz, wnętrze kościoła pw. św. Jakuba przed rokiem 1905, z widocznym ołtarzem przy północnym półfilarze łuku tęęczowego (fot. N.N., źródło: archiwum klasztoru w Sandomierzu)

a ceramic tile with dimensions of 3.5/3 cm in thickness and 13.6 cm in width, potentially serving as a compensatory layer. Moreover, a brick with a thickness of 8.5 cm was discovered on its northern façade. The finial of the wall was ancillary, constructed of bricks with dimensions of 14 × 25 × 8/8.5 cm, similar to those employed in the construction of the foundation k. 7 (Figs. 3, 4a, b).

The location where the wall k. 3 intersects with the actual foundation of the chancel corner has not been uncovered. Nonetheless, its connection with the foundation made of bricks (k. 41/42) was revealed, serving as the structural and supportive element of the new chancel arch extension, affixed to the cornerstone foundation from the western side. Its relation towards the foundation labelled as number 20 has also been determined. It is a structure made of stone and brick, affixed to the foundation k. 3. Consequently, both structures: 41 and 20 were retrospectively adjoined to the wall k. 3. Despite the fact that each was structurally autonomous, collectively, they constituted the foundation of the altar erected during the renovation of the church carried out in the 17th century. Interestingly, each of the three walls was set on a different level, which serves as an evidence of their constructional separateness and potentially different construction times. They were connected by the function of the altar substructure they were supposed to fulfil. That observation is substantiated by the similar elevation of the apex of the walls k. 20 and k. 41 (ca. +170 m above sea level).

The foundation mass k. 41/42 is likely a part of the 17th-century renovation works carried out in the church. It is, however, newer than the brick base k. 43/44, which was unearthed via a narrow access path on the east side of

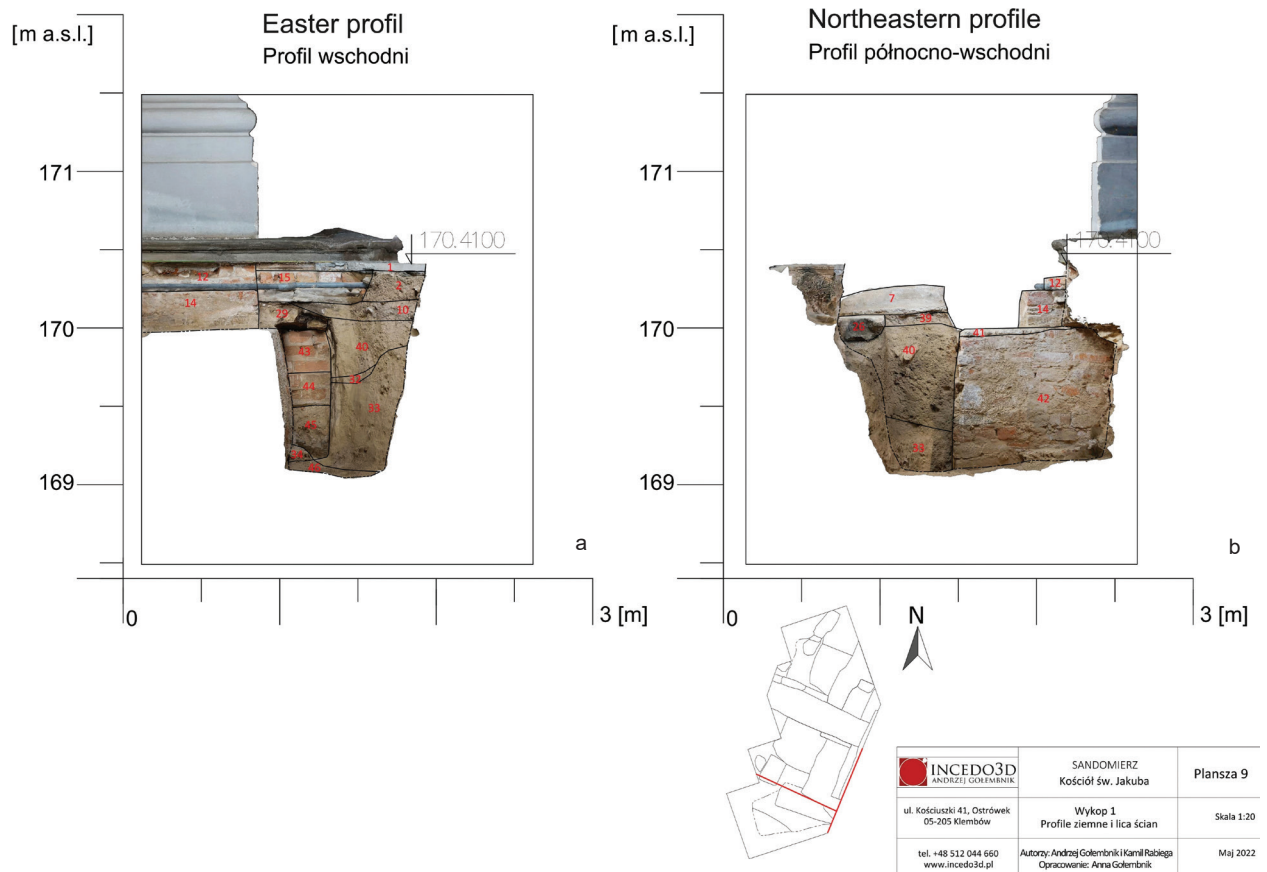


Fig. 6. Sandomierz, Church of St. James, excavation profile: a) Eastern, b) Northeastern (elaborated by A. Gołębnik)

Il. 6. Sandomierz, kościół pw. św. Jakuba, profile wykopu: a) wschodni, b) północno-wschodni (oprac. A. Gołębnik)



Fig. 7. Sandomierz, Church of St. James, east section of the excavation (SW-side view):
a) relation between constructions k. 41/42 (newer, appended), b) k. 43/44 (older) (elaborated by A. Gołębnik)

Il. 7. Sandomierz, kościół pw. św. Jakuba, wschodnia część wykopu (widok od strony SW):
a) relacja konstrukcji 41/42 (młodsza, dostawiona), b) 43/44 (starsza) (oprac. A. Gołębnik)

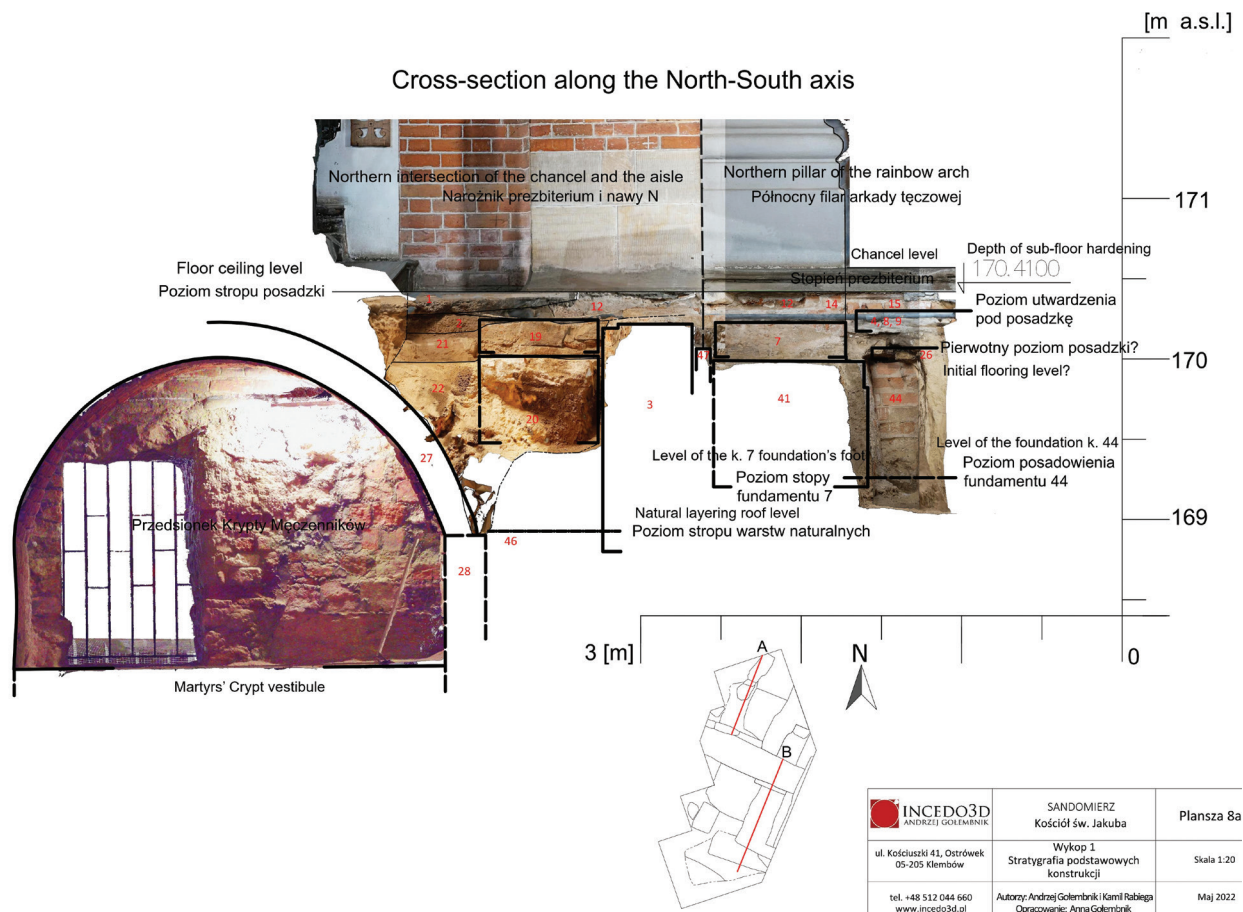


Fig. 8. Sandomierz, Church of St. James, stratigraphy of the fundamental structures adjacent to the excavation in the cross-section along the NS axis (elaborated by A. Gołembnik)

II. 8. Sandomierz, kościół pw. św. Jakuba, stratygrafia podstawowych konstrukcji sąsiadujących z wykopem w przekroju po osi NS (oprac. A. Gołembnik)

the excavation (Figs. 6, 7). The foundation, running in the North-South direction, was positioned on a limestone debris bonded with lime mortar and constructed using bricks. Due to the small area of the uncovered wall made up of five lines of bricks, the brick pattern could not be identified, allowing us to determine solely the thickness (7.5 cm) and length (25.5 cm) of the used bricks. The dimensions correspond to those of the bricks which were used in the construction of the church's chancel, specifically 12/12.5 × 25.5/25 × 7.5/7 cm (Kamińska et al. 2023, 107).

The partial uncovering of the vault haunch and its thorough documentation allowed us to determine the thickness of the vault in the crypt's vestibule below the Martyrs' Chapel (k. 27) at approximately 25 cm. The wall's peak extended 1.5 m beneath the current floor level. The arch was constructed using crushed bricks of different sizes, displaying no evident traces of mortar on the side that was revealed in the excavation (Fig. 8). The wall holding the vault (k. 27–28) was made of stone blocks which protrude approximately 5 cm from the vault and was coated with lime mortar. Debris fragments and dislocated skeletal elements were discovered in the backfill situated between the vault and the oldest wall; in conjunction with the structural characteristics, they may suggest that the preparatory works for constructing the crypt were rushed.

An intriguing ceramic block was uncovered during the excavation, positioned inside the mixed backfill layer, which unfortunately translates into the lack of proper dating (Fig. 9a, b). The artefact in the form of a block with dimensions of 7.69–8.03 × 13.73 cm, seems to be a fragment of a ceramic tile identical to those known from the frieze found on the facade of the northern aisle. Currently, 20th-century replicas are placed there, reconstructed by Jarosław Wojciechowski based on the fragmentarily preserved frieze (Fig. 1). The uncovered fragment was matched against a similar loose tile preserved in the church (approx. dimensions 26 × 26 cm), corresponding to its pattern and size, although slight differences are visible (Fig. 9c, d).

At the level of +170.07 m, beneath the layer unit k. 8 and the structural component – wall k. 9, nearly regularly shaped limestone slabs were revealed on the southern side; they were identified as part of the flooring (Figs. 3, 4a, b). The dimensions (width × length × thickness) of the three revealed plates (k. 26, V, VI) were: 30.5 × 67.1 × 7–15 cm, 41.80 × 47.50 × 14 cm, 29.50 × 43.00 × 10–18 cm. The plates were positioned beneath the modern brick altar's base (k. 4, k. 8, k. 9), situated 32 cm below the current floor level, solely loess (k. 46) was found below them, burial sites were also discovered (k. 35, item +168.90).

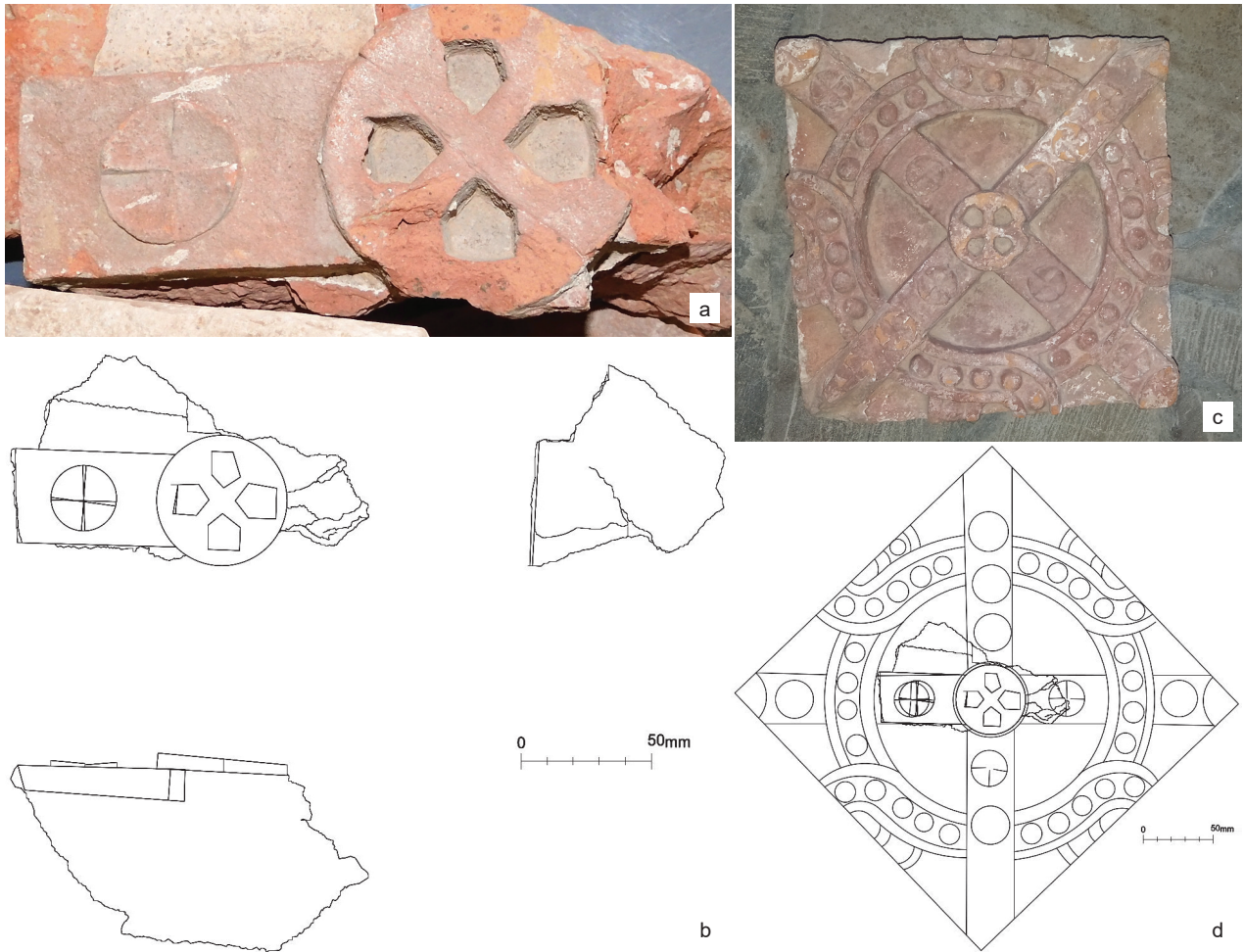


Fig. 9. Sandomierz, Church of St. James, a ceramic tile with a motif of braided pattern and a cross:
 a, b) a fragment of a ceramic tile discovered in the excavation, c) an intact copy of the tile, d) a reconstruction diagram
 (photo and elaborated by M. Doroz-Turek)

Il. 9. Sandomierz, kościół pw. św. Jakuba, ceramiczna płyta z motywem plecionki i krzyża:
 a, b) fragment ceramicznej płyty odnaleziony w wykopie, c) nieuszkodzony egzemplarz płyty, d) rysunek rekonstrukcyjny
 (fot. i oprac. M. Doroz-Turek)



Fig. 10. Sandomierz, Church of St. James, stone slab found during the excavation: a) drawing, b) photography
 (photo and elaborated by M. Doroz-Turek)

Il. 10. Sandomierz, kościół pw. św. Jakuba, płyta kamienna odnaleziona w wykopie: a) rysunek, b) fotografia (fot. i oprac. M. Doroz-Turek)

Apart from these elements, three additional, irregularly shaped stone plates were uncovered 11 cm above (coordinates +170.16, +170.18). These elements were arranged loosely, serving as filling (k. 5, I–IV); one featured a distinctive circular indentation (Fig. 10). Marek Florek revealed similar plates during his archaeological works carried out inside the church between the years 1991–1992. Three usable levels of flooring were identified at the time at excavation site number 4 – apart from the contemporary and “late Romanesque” (dating back to the period when the church was constructed, second quarter of the 13th century, situated directly on the pillar foundation), also the modern one (originating from the 2nd half of the 17th century, around 1670, preserved as a stone slab and bricks with traces of engove on the pillar’s eastern face) (Florek 1993, 136, 127, 132). Stone slabs were also uncovered at excavation site 9, documented 17 cm below the current flooring’s level (the researcher believes the flooring dates back to the 2nd half of the 19th century, supplemented with early 20th-century fillings) (Florek 1993, 131, 133, 135).

Several fragments of medieval and modern pottery were also discovered in the excavation (including a piece of a 17th-century glazed strainer), as well as fragments of glass and brick, coffin nails, and other small iron items.

Conclusions

The correlation of the layers documented in the excavation does not create a coherent sequence, thus it cannot serve as a basis for definitive chronological determinations. The sole legible joints include: the perimeter of the construction trench beneath the foundation mass k. 41/42, and the excavation under the partially deteriorated tomb pit, visible in the virgin soil by to the southern edge of the probing site (k. 35–36) (Fig. 4b). Preliminary dating must therefore be based on the correlation between the walls and the dimensions of the uncovered bricks, whereas the conclusions presented below should be perceived as an initial recognition. The unearthed brick structures, architectural detail, and evidence of numerous excavations indicate that the examined section of the church has undergone a number of changes throughout the ages and was also intensely used for burial purposes.

It is plausible that the presence of a choir partition was related to the initial phase of the functioning of the Dominican church. Perhaps a fragment of this construction (in the foundation section) was identified on the eastern side of the excavation at the intersection of the main nave and the chancel (k. 43/44). The positioning along the line beneath the chancel arch could serve as a proof of such a role (moreover, it would prove difficult to justify the construction of a wall at this spot during each of the subsequent reconstructions of the church). Conversely, the rationale for assigning an early date to the structure (at around mid-13th century) stems from the fact that, based on stratigraphy, it had been constructed before the foundation of the pillar which holds the weight of the arch arcade; the excavation also affected the burial sites in this area. The hypothesis is further substantiated by the congruence of the dimensions of the exposed bricks and those

used for the construction of the chancel. This hypothesis will however require future validation.

There are no remaining traces of the medieval choir partition in the currently accessible area of the Church of St. James. However, its existence may be speculated, considering the Dominican regulations⁴, as well as the conventional customs prevalent in monasteries during the mid-13th century (Szyma et al. 2021, for instance). The ceramic details originating from the 13th century which still exist today serve as an additional rationale as they are difficult to associate with other preserved locations within the church or monastery grounds. Michał Walicki (Walicki 1971, 216) had already anticipated the presence of ceramic, unidentified decorative pieces from the choir screen. Zofia Gołubiew and, subsequently, Jerzy Pietrusiński hypothesised that the preserved ceramic features similar to those present in the main portal may have originated from the analogium, an antealtar dividing wall (Gołubiew 1975, 65, 66; Pietrusiński 1993, 142). Jurkowlaniec combined the rood screen removed in modern times with a ceramic capital decorated with a crowned head, discovered in 1907 and lost after 1968 (Jurkowlaniec 2021, 228, fn. 17)⁵, as well as numerous other ceramic elements that are currently preserved in the Diocesan Museum in Sandomierz. It is probable that the ceramic tile, a piece of which was discovered in the excavation, initially constituted a part of the rood screen of the Church of St. James. Nonetheless, this will require verification in the subsequent stage of research.

An additional structure, which could also potentially date back to the medieval period, was a stone foundation (k. 3) intended for an unidentified construction. Perhaps, it should be associated with the destroyed, initial Martyrs’ Chapel, referred to in written records and earlier research⁶, as well as indicated in illustration records from the early 20th century at the first span of the northern aisle from the east (Wojciechowski 1910a, plan of the church depicted on p. 209). Alternatively, this wall could be connected

⁴ The obligation to erect rood screens in Dominican churches was established in 1249 by the General Chapter’s directive, which stipulated that the friars must remain unseen to the secular individuals while transitioning in and out of the choir – refer to (Meersseman 1946, 163; Sundt 1987).

⁵ Gołubiew believed that this component originated from the portal jamb; however, there is in fact no unoccupied space where it could possibly be accommodated (cf. Gołubiew 1975, 34, 195).

⁶ Rev. Melchior Buliński postulated the presence of a pre-existing chapel situated at the terminal end of the northern aisle of the church, which, in his opinion, was erected to pay tribute to the Martyrs from Sandomierz: [...] *even though it might not have constituted a full chapel, there was, at a minimum, a distinct rise in the form of a rotunda positioned over the roof of the corresponding nave, with the observable remnants over the vault remaining visible to this day* (Buliński 1879, 293). Similar assertions were made by Wojciechowski, possibly drawing from Buliński’s narrative: *In 1600, the Martyrs’ Chapel was constructed by Teofil Semberg, the castellan of Kamieniec, replacing the pre-existing chapel carrying the same name located on the northern aisle* (Wojciechowski 1910a, 209). In another place, the architect noted that, as early as the 16th century, a chapel characterised by a “flat, dome vault” was situated at the terminus of the northern aisle (Wojciechowski 1910b, 688). Wojciechowski noted the presence of the domed vault on his designed plan of the church.

with a hypothetical late medieval expansion of the rood screen into a three-bay architectural formation – validation of this assumption could be provided by subsequent archaeological investigations conducted on the contrasting, southern side of the nave.

Nearly all of the probed area in its modern layers was covered by a haphazardly constructed brick structure of a loosely structured reinforcement (foundation) for a modern altar (k. 7 and 19), incorporating older brick structures (k. 3, 20 and 41/42). The stone plates were related to these constructions (k. 4, 8 and 9). Considering the findings from the research conducted by Florek, the stone plates may display a correlation with the floor level from the 2nd half of the 17th century. The researcher deemed the partially identified brick flooring, discovered solely in the nave's western section, to predate it, observing at the same time that [...] *the uneven configuration of the floor bricks could potentially be due to their extraction and subsequent replacement during the preparation of burial sites* (Florek 1993, 135, 136). The verification of the primary flooring level and the above stated hypothesis should be sought out in further research.

The aforementioned proposition to date the specific structures unveiled in the probing process is proven by the limited ceramic fragments discovered during the exploration of the infill layers within the structural excavation. Those are fragments of white, glazed ceramics originating in Kielce. The majority of the layers proved levelling related to construction activities. In the course of the construction works, the burial sites related to the medieval era situated in this location were destroyed (heavily corroded, iron nails used in coffins). This dating indirectly validates the lack of any funeral artefacts (with a considerable quantity of dispersed skeletal material).

Summary

In spite of the limited area covered by the probing and the technical limitations which prevented, among others, revealing a larger part of the brick foundation found beneath the chancel arch, the results of the conducted research significantly enhance our understanding of the architectural changes of the Church of St. James in Sandomierz spanning across numerous centuries. The earlier unknown structures represent the foundation k. 43/44 discussed above, as well as the wall k. 3, which might be linked to an initial site dedicated to the worship of the Sandomierz Martyrs, or alternatively, to the expansion of the choir partition. The researchers managed to uncover the outer part of the vestibule structure situated in front of the Martyrs' Crypt and determine the thickness of its vault. Evidence of a foundation for a modern altar, as well as fragments of a 17th-century stone flooring, have also been identified. The uncovered traces of numerous excavations, and the remnants of caskets and bones confirmed that the section of the nave in proximity to the chancel was intensely used for burial purposes.

The research proposals for the future include conducting a similar survey at the southern aisle of the church (for the purpose of, among other things, determining whether a masonry structure similar to k. 3 exists between the pillars, and possibly revealing a distinct stratigraphy that could allow arriving at a more accurate dating of different masonry structures); additionally, archaeological studies in the chancel are suggested (with the objective to expose k. 43/44 foundation from the other side to affirm its assumed function and dating, to look for the pre-Dominican church remnants and to confirm the presence of a crypt, as indicated by bores performed in the 1990s of the 20th century).

Translated by
Dawid Kowalski

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Streszczenie

Wyniki ostatnich badań interdyscyplinarnych przeprowadzonych w kościele św. Jakuba w Sandomierzu

Artykuł stanowi podsumowanie badań interdyscyplinarnych przeprowadzonych w maju 2022 r. w mającym XIII-wieczną metrykę kościele dominikańskim pw. św. Jakuba w Sandomierzu. Badania obejmowały wykonanie sondażu archeologicznego założonego na styku prezbiterium i korpusu nawowego, a następnie analizę architektoniczną i historyczno-artystyczną odkrytych murów i detalu architektonicznego. Prace miały na celu pozyskanie nowych materiałów dotyczących początków i późniejszych przekształceń kościoła pw. św. Jakuba. Oprócz tradycyjnych metod badawczych i dokumentacyjnych wykorzystano technologie cyfrowe, tj. fotografię cyfrową, skanowanie laserowe i fotogrametrię. Zarejestrowane w ten sposób etapy prac archeologicznych można było dzięki temu włączyć w istniejący już cyfrowy model 3D całego zespołu klasztorowego. Do datowania poszczególnych struktur wykorzystano, poza metodami archeologicznymi, zachowane materiały źródłowe (tekstowe oraz ikonograficzne). Relacja zarejestrowanych w wykopie warstw ze względu na późniejsze wkopy (związane z przebudowami i pochówkami) nie tworzyła czytelnej sekwencji i nie może być podstawą wiążących ustaleń chronologicznych. Wstępne datowanie oparto zatem na relacji zachodzącej pomiędzy murami oraz na wymiarach odsłoniętych cegieł. Ustalono, że ceglany fundament oznaczony jako k. 43/44 może pochodzić z XIII w. i stanowić fragment niezachowanej przegrody chórowej kościoła – hipoteza ta będzie wymagała weryfikacji w przyszłości. Odsłonięto ponadto nieznaną wcześniej, być może średniowieczny mur o przebiegu NS (k. 3) na linii filarów międzynawowych, a także pachę sklepienną sklepienia przedsionka krypty pod kaplicą Męczenników. Wśród odkrytych detali architektonicznych należy wyróżnić fragment XIII-wiecznej kształtki ceramicznej, być może pochodzącej z przegrody chórowej oraz kamienne płyty posadzkowe. Odkryte struktury murowane, detal architektoniczny oraz ślady licznych wkopów świadczą o tym, że badana część świątyni ulegała na przestrzeni wieków licznym przekształceniom, a także była intensywnie wykorzystywana do pochówków.

Słowa kluczowe: Sandomierz, kościół pw. św. Jakuba, architektura mendenkancka, architektura średniowieczna, architektura ceglana, badania interdyscyplinarne