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## ORIGINAL RESEARCH PAPER



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# The architectural parallels of the mausoleum of Iovia (Pannonia) revisited – Experimenting with the hexagon in late antique architecture

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## ABSTRACT

The curious shape of the so-called early Christian *mausoleum* of Iovia, Pannonia has attracted much attention since its discovery in the 1980s. The main part of the building, a hexagon flanked by alternating semi-circular and rectangular rooms was complemented by a bi-apsidal vestibule and a rectangular peristyle courtyard. The hexagon was a relatively rarely used form in late antique architecture compared to the octagon, however, hexagons can still be detected in all parts of the Roman Empire in all kinds of architectural contexts: they appeared in late Roman *villae*, baths, funerary buildings, early Christian *mausolea* and baptisteries.

The architectural parallels of the *mausoleum* of Iovia are traced among the thin-walled hexagons that were flanked by protruding semi-circular and rectangular rooms. The buildings closest in shape were the pagan *mausoleum* of Louin in France and the trefoil hall of the Villa of Aiano in Italy. Other related structures include the so-called Stibadium A of the Villa with Peristyle in Mediana in Serbia, the reception rooms of the Keynsham villa in England, the hexagonal hall of the Palace of Antiochus in Constantinople, the Domus delle Sette Sale in Rome, the baptistery of Limoges in France, and the *cella quinquichora* of Aquincum in Hungary. Although similar in general layout, they had different functions: early Christian *mausoleum*, baptistery, pagan *mausoleum*, and foremost dining halls or reception rooms. This warns us that it is essential to study early Christian buildings in the context of late antique architecture in its complexity and not only in the limited context of other early Christian buildings. Late antique architects seem to have been fascinated by the opportunities offered by the different polygonal or central-plan halls and buildings and used them for different purposes.

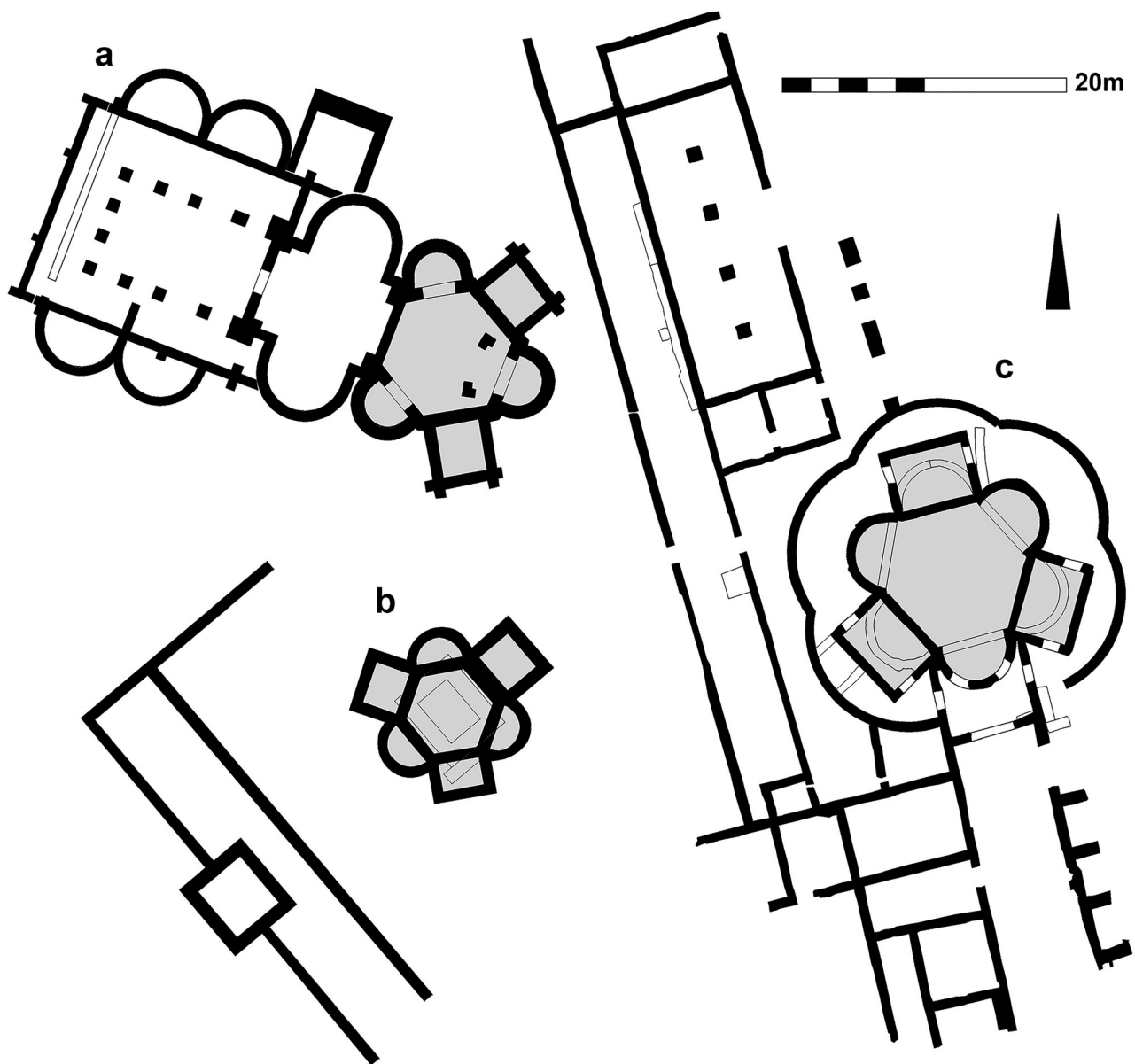
## KEYWORDS

*mausoleum* of Iovia, Pannonia (Alsóhetény, Hungary), pagan *mausoleum* of Louin, France, Roman Villa of Aiano – Torracchia di Chiusi, hexagon in late antique architecture, Roman central-plan structures, late antique polygonal structures

## INTRODUCTION

More than 30 years have passed since the discovery of the so-called early Christian *mausoleum* of Iovia, Pannonia (present-day Alsóhetény, Hungary) and during these decades several other similar hexagonal structures came to be known. This building is generally described as unique and without equal, as are its two closest architectural parallels: the pagan *mausoleum* of Louin, France (the so-called *hypogée de Louin*) and the second phase of the reception room (the so-called trefoil hall) of the Villa of Aiano – Torracchia di Chiusi near San Gimignano, Italy. All three had a hexagonal central room flanked by alternating semi-circular apses and rectangular rooms (Fig. 1).

Hexagonal structures are thought to be rare in late antique architecture. This is all the more striking, if we consider that other central-plan structures, for instance octagonal rooms were extremely widespread in all areas of the Roman Empire, in all kinds of architectural



**Fig. 1.** Plans to scale a, *mausoleum* of Iovia, Pannonia (Alsóhetény, Hungary) b, pagan *mausoleum* of Louin, France c, trefoil hall of the Villa of Aiano, Italy

contexts: they appeared in late Roman *villae*, baths, funerary buildings, early Christian *mausolea* and baptisteries. Hexagonal buildings or rooms appear in the exact same contexts and are scattered throughout the Roman provinces from Britannia to North Africa, however, they were built less frequently.

Roman architecture in Pannonia was not very inventive as a rule, but the *mausoleum* near Alsóhetény in Hungary seems to be an exception. The fourth-century building has attracted much attention, but its parallels have usually been sought among early Christian buildings whether funerary buildings, *mausolea* or baptisteries, and among imperial *mausolea*.<sup>1</sup> None of the cited buildings were hexagonal,

rather octagonal or circular, and they were all domed structures with thick walls and semi-circular or rectangular niches in the walls, quite different from the relatively thin walls and protruding semi-circular and rectangular rooms of the hexagon of Iovia.

The first to notice a similar contemporaneous hexagon was N. Duval, who drew attention to the resemblance between the *mausoleum* of Iovia in Hungary and the pagan *mausoleum* of Louin in France.<sup>2</sup> In 2005 another similar hexagon was found, this time in Italy: the second phase of the representative reception room (the trefoil hall or *sala triabsidata*) of the Villa of Aiano near San Gimignano.

<sup>1</sup>Tóth (1988) 45–51; Tóth (1989) 39; Schmidt (2000) 290.

<sup>2</sup>Duval (1990).

We know of other related structures: hexagons flanked by protruding semi-circular and/or rectangular rooms include the so-called Stibadium A of the Villa with Peristyle of Mediana in Serbia, the reception rooms of the Keynsham villa in England, the hexagonal hall of the Palace of Antiochus in Constantinople, the Domus delle Sette Sale in Rome, the baptistery of Limoges in France, and the *cella quinquichora* of Aquincum in Hungary (Fig. 2).<sup>3</sup> All these structures were related in form, but they were built for diverse purposes. As O. Brandt pointed out, “Roman architecture used a limited number of shapes, and they were used with different functions”.<sup>4</sup> For this reason, it is essential to study a fourth-century building like the *mausoleum* of Iovia in the context of late antique architecture in its complexity, and not in the limited context of a select group of buildings that had a similar function (*mausoleum* or funerary building) or were built by the same religious group (i.e. Christians). Late antique architects were captivated by the different central-shaped halls and buildings with numerous apses and used them for different purposes.

Looking at it from this perspective, the form of the *mausoleum* of Iovia does not seem so extreme, but an integral part of late antique architecture, a stage in the late antique architectural experiment with central-plan shapes, with the form of the hexagon.

## THE SO-CALLED EARLY CHRISTIAN MAUSOLEUM OF IOVIA, PANNONIA (ALSÓHETÉNY, HUNGARY)

The so-called early Christian *mausoleum* of Iovia stood in the cemetery beside the late Roman inner fortress of Alsóhetény, Hungary (Fig. 3).<sup>5</sup> The fortress was one of the

fourth-century fortifications built inside Pannonia which were part of the defence system of the province as fortified logistical centres.<sup>6</sup> Built in the middle third of the 4th century and rebuilt around the 370–380s, the Alsóhetény fortress comprised several large storage buildings, three villa-like main buildings, and a bath. The buildings of a villa estate stood outside the walls of the fortification, near its southwestern corner.<sup>7</sup> The cemetery, which lay about 5–600 m southeast of the fort was presumably used by the inhabitants of both the villa and the fortress. The use of the cemetery can be dated to the 4th century.<sup>8</sup>

Somewhere near the site of the late Roman inner fortress, villa, and cemetery, there must have been a town-like settlement called Iovia, although its archaeological remains have not been found yet. During the 4th century when the fortress was built, the Iovia name probably referred to the late Roman fortress as well. Iovia is mentioned in both the *Itinerarium Antonini* and the *Notitia Dignitatum* as lying along the road from Sopianae to Brigetio.<sup>9</sup> There was another town by the name of Iovia in Pannonia Superior, which is located under present-day Ludberg, Croatia. One of these settlements was the seat of the bishop Amantius, who took part in the Aquileian Council in 381. Although it is now generally accepted that Alsóhetény-Iovia was the seat of the bishop, no bishop's cathedral has been archaeologically attested at either of the Iovias yet.<sup>10</sup>

The building that was identified as an early Christian *mausoleum* by its excavator Endre Tóth was the largest and most intriguing among the funerary buildings that stood in the cemetery near the fortress. The other buildings are mainly known from aerial photographs and field surveys, but the *mausoleum* was fully excavated between 1981–1990.<sup>11</sup> It was identified as a *mausoleum* used by Christians on the basis that most graves inside the building did not contain grave goods despite some of their evidently rich occupants.<sup>12</sup>

The *mausoleum* consisted of three main parts: I. a hexagonal structure with three apses and two rectangular extensions, II. A bi-apsidal vestibule, a rectangular structure

<sup>3</sup>There are groups of hexagons that will not be considered in this paper: structurally very different were the domed hexagons with thick walls and niches in the walls, like the Unfinished Baths in Leptis Magna (Maréchal, 2020, 363), Baths of the Frescoes in Banasa, Morocco (Maréchal, 2020, 358), Baths of Sidi Ghrib, Tunisia (Maréchal, 2020, 346), or the Antonine Baths of Karthago (Maréchal, 2020, 153). Furthermore, this paper will not discuss the buildings where the hexagon was an open courtyard or peristyle flanked by rooms, such as the *macellum* in Saepinum, Italy (Ciliberto, 2015) or the *villa maritima* of Abicada, Portugal (Teichner and Mañas Romero (2018) 263–267). Nor will I cite examples where the hexagon is only a small room or tower in a larger complex, an annex of a reception room, like for example in Löffelbach (Marko, 2011) or Desenzano del Garda (Scagliarini Corlaità, 1997), the towers of the villa in Hosszúhetény (Thomas, 1964, 274–278), or the similar hexagonal tower of the Roman villa of Cerro da Vila, Portugal (Teichner, 2017).

<sup>4</sup>Brandt (2019) 965.

<sup>5</sup>Archaeological research in and around the fortress was led by Sándor Soproni (Hungarian National Museum, Budapest) between 1969 and 1971 and later by Endre Tóth (Hungarian National Museum, Budapest) between 1981 and 1994. Recently, large-scale non-invasive surveys have been carried out in the wider environment of the fort. The whole site: the fortress, the villa beside it, and the cemetery lie mostly in fields under agricultural cultivation. Soproni (1975, 1978) 138–142; Tóth (1988, 1989); Tóth (2009) 37–57; Heinrich-Tamáska and Szabó (2019) 217–224; Szabó et al. (2022).

<sup>6</sup>The exact function and number of the inner fortifications of Pannonia has been debated. Recent papers on the problem of inner forts with further literature: Visy (2018); Szabó (2018); Heinrich-Tamáska – Szabó (2019) 211–212; Borhy (1996).

<sup>7</sup>The remains were earlier identified as traces of a late Roman settlement (*vicus?*). Tóth (1989) 39; Tóth (1988) 22. Now they are thought to be the buildings of a villa based on aerial photographs and geophysical surveys. Szabó (2016) 325; Heinrich-Tamáska – Szabó (2019) 219–220; Szabó (2020) 214–215; Szabó et al. (2022).

<sup>8</sup>Tóth (1988) 36–38; Tóth (2009) 54.

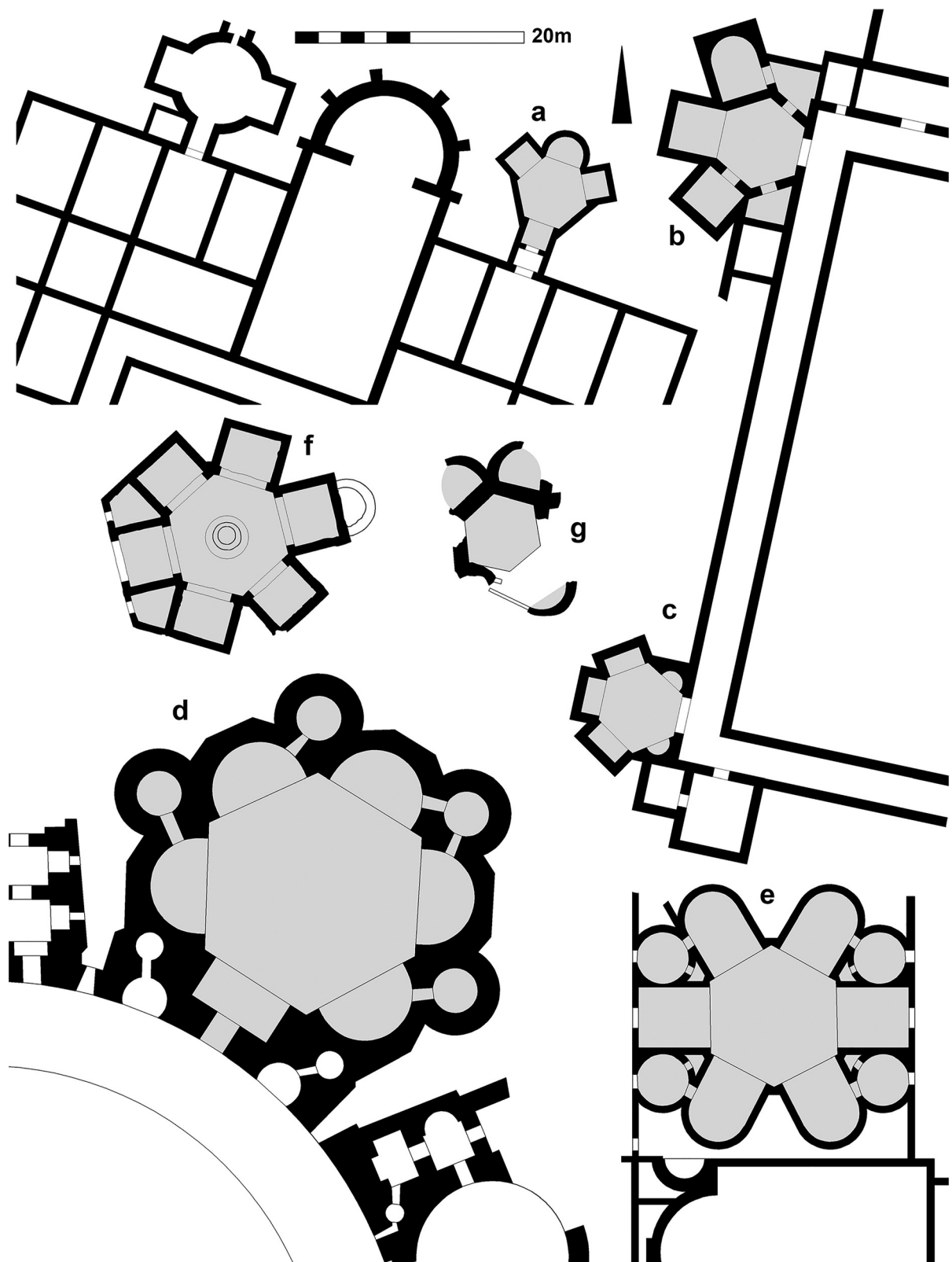
<sup>9</sup>Heinrich-Tamáska and Szabó (2019) 217–218; Bertók (2000); Szabó (2018) 46–47 és 219–220; Tóth (2009) 86–90; Tóth (2003) 46.

<sup>10</sup>Tóth (2009) 119–137; Hudák (2019) 36; Gáspár (2008) 113–114.

<sup>11</sup>The *mausoleum* was excavated between 1981 and 1990. The remains of the building lie only 0.3 m below the topsoil, which means that mostly only the foundation walls and some of the floors were intact.

<sup>12</sup>Most burial places were used by both Christians and non-Christians, so it is extremely hard to decide whether a *mausoleum* like this can be called Christian or not. See Bollók (2016).





**Fig. 2.** Plans to scale a, Stibadium A in the Villa of Peristyle in Mediana, Serbia b, Room J in the Villa of Keynsham, England c, Room W in the Villa of Keynsham, England d, Hexagonal hall in the Palace of Antiochus in Constantinople, Turkey e, Hexagonal hall in the Domus delle Sette Sale in Rome, Italy f, early Christian baptistery in Limoges, France g, the *cella quinquichora* of Aquincum in Budapest, Hungary

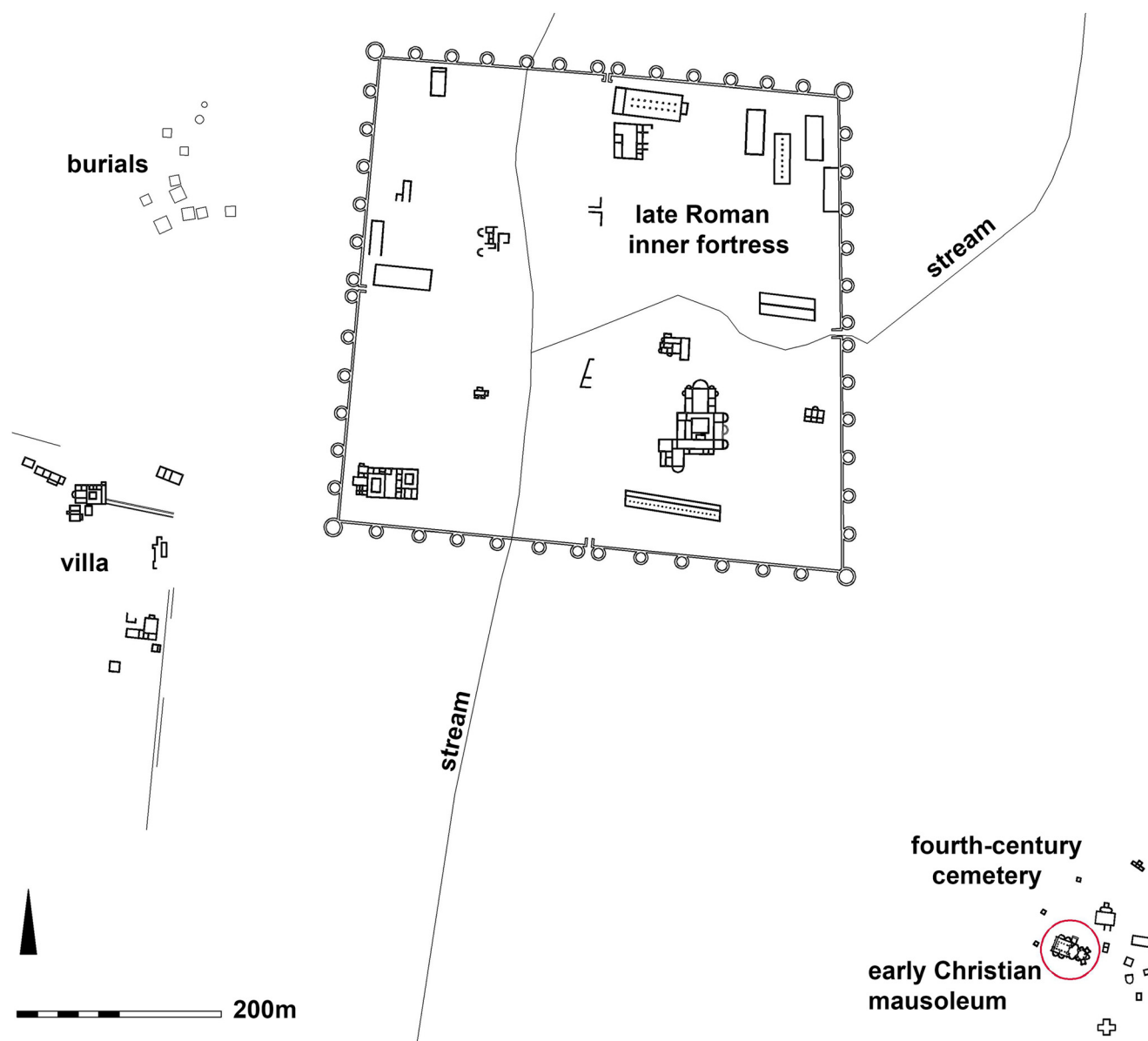


Fig. 3. Topography of the Alsóhetény inner fortress with the location of the *mausoleum* of Iovia (based on Szabó et al., 2022, Abb. 18)

with two apses on both ends, and III. a peristyle courtyard (Fig. 4). The building was oriented towards southeast, and its main axis was parallel with the road leading from the southern gate of the fortress to the cemetery (northwest – southeast). The *mausoleum* had no underground chamber. According to the observations of E. Tóth, the building was most probably built during the 350–360s, modified at an unknown date a few decades later and put out of use at the beginning of the 5th century when this part of Pannonia, the province of Valeria was given over to the Hunnic people and most of the population of this area fled.<sup>13</sup>

<sup>13</sup>Tóth (1988) 39; Tóth (2009) 55–56. The dating is primarily based on coins. The province of Valeria came into Hunnic possession before 425 AD, however, the area was not necessarily abandoned systematically by the Roman population. Kovács (2021); Kovács (2004) 139; Vida (2021).

#### I. The hexagon

The hexagonal structure had two construction phases: the rectangular rooms were only added later to the original hexagon with three apses.<sup>14</sup> The foundation and the walls were built with *opus incertum* technique, but the walls of the apses were built of bricks.<sup>15</sup> The inner diameter of the hexagon was c. 9.5 m. The floor of the central space was

<sup>14</sup>The walls of the hexagon were built separately from the walls of the rectangular rooms. This might mean two different construction phases or only a technological gap during one construction phase. Tóth (2009) 55. The date of the second phase is unknown, but it must have been before the beginning of the 5th century, when Roman rule ended in Valeria, and the site was probably abandoned.

<sup>15</sup>Tóth (2009) 54.



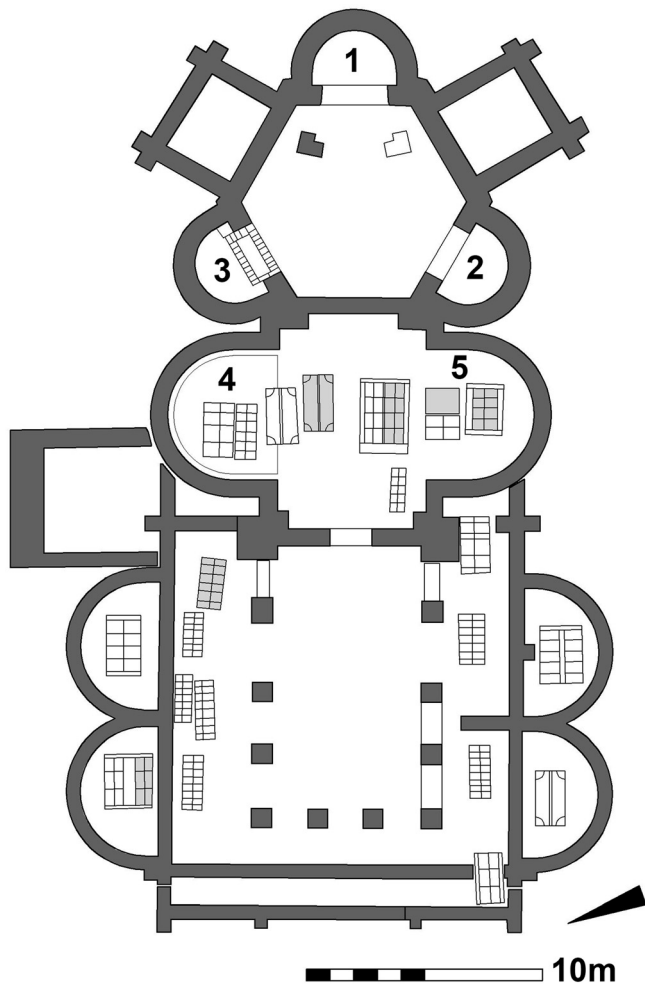


Fig. 4. The *mausoleum* of Iovia. Plan based on Tóth (2009) 28. tábla. The graves with textiles marked with grey

destroyed by the modern ploughing of the field, but a few fragments of marble, *green porphyro verde antico* slabs and mosaic pieces indicate an *opus sectile* and mosaic floor. The level of the floor must have corresponded to present-day ground level, about 0.3–0.4 m higher than the floor of the anteroom.<sup>16</sup> The central hexagon was connected to the apses through wide openings, and two pillars accentuated the opening of the main apsis 1, opposite the entrance of the hexagon.<sup>17</sup> The rectangular rooms must have been accessible via doors either from the hexagon or from the outside.<sup>18</sup> The apses of the hexagonal structure were probably highly decorated, based on a small wall mosaic fragment and a piece of plaster with golden paint found in apsis 2.<sup>19</sup> In apsis 3, there was a robbed grave made of *tegulae*.<sup>20</sup> No other graves were found in the hexagon that were

contemporaneous with the building.<sup>21</sup> This part of the building might have served as a place for funerary banquets and memorial feasts as was the case in both pagan and Christian *mausolea* (see below).<sup>22</sup>

## II. The bi-apsidal vestibule

The wall that separated the hexagon and the bi-apsidal vestibule was mostly robbed, except for its north-eastern section. From the wall structure in this corner, it is evident that the hexagon and the vestibule were built together, at the same time.<sup>23</sup> As mentioned above, the level of the massive mortar floor of the vestibule was lower than the floor level of the hexagon, and probably two or three stairs were needed to bridge the difference. In apsis 4 of the bi-apsidal structure, the level of the terrazzo-floor was 0.1 m higher than in the rest of the vestibule and a shallow dent was observed in its surface filled with carbonized pieces of wood and iron nails. These might have been the remains of a wooden chest, or a table used at funerary banquets. In the same place the marble base of a column was found.<sup>24</sup> On top of the terrazzo-floor, fragments of colourful wall paintings were found in the debris: yellow and red stars and flowers against a blue background, representing the starry sky.<sup>25</sup> Several large, rectangular holes in the terrazzo-floor indicated the place of underfloor graves, nine altogether. Only two of the graves contained grave goods: two silver needles, a spindle-shaped glass bottle (*fusiform unguentarium*) and a glass cup were recovered. In four of the graves the bodies were wrapped in textiles the remains of which were found (see below).<sup>26</sup>

## III. The peristyle courtyard

The third part of the building was an open courtyard surrounded by porticoes on three sides. The structure was enlarged by two semi-circular *exedrae* on either side, which gave additional place for graves. The walls of the courtyard were built separately from the walls of the vestibule; however, it is not clear if this means a different construction time as well, or it was only a technological gap.

The front façade of the peristyle was later moved forward by 2 m and a rectangular room was added to the northern side of the building. No built floor was found in this part of the building, which makes it probable that this structure was not roofed over but was indeed a courtyard.<sup>27</sup>

<sup>21</sup>Tóth (2009) 55–56.

<sup>22</sup>In contrast, M. Nagy proposed another function of the hexagon: *baptisterium*, Nagy (2003) 499. However, no traces of a baptismal font, water channels, or a nearby church have been found, so this is not very likely, see Brandt (2011).

<sup>23</sup>Tóth (2009) 55.

<sup>24</sup>Tóth (1988) 42–43; Tóth (2009) 56–57.

<sup>25</sup>Tóth (1988) 39; Tóth (2009) 54; Tóth (1989) 37. Representations of the starry sky were frequent in early Christian baptisteries and *martyriums*, however, it was also frequent in *mithrea* and other pagan contexts. See Swift and Alwis (2010).

<sup>26</sup>Tóth (2009) 56–57; Tóth (1989) 38.

<sup>27</sup>In contrast M. Nagy reconstructed this part of the building with a roof, as a “*pseudo-basilica*” as he called it. Nagy (2003) 505.

The nineteen burials were all located under the portico or in the apses. Most of the graves were devoid of grave goods, only a bead necklace was found in one grave, and further textile remains in two graves.<sup>28</sup>

The different types of textiles were found on the skeletons in six graves: linens in three different qualities, silk damasks and Chinese silk woven with gold threads. The textiles were preserved due to the mummification of the bodies around which they were wrapped: the fabrics absorbed salt, pine resin and frankincense used for the embalming of the bodies. Both the process of mummification and the imported silk and gold threads were highly expensive, which marks out these graves as those of the richest members of the community.<sup>29</sup> From Pannonia and its surroundings only a few other gold thread finds are known including one from a third-century AD *sarcophagus* in Viminacium (Moesia, present-day Kostolac, Serbia), from a fourth-century *sarcophagus* in Brigetio (Komárom, Hungary), gold threads from another fourth-century *sarcophagus* and a gold hair net from Aquincum (Budapest, Hungary), and an additional hair net from Azaum (Almásfüzitő, Hungary).<sup>30</sup>

In sum: the so-called early Christian *mausoleum* of Iovia was made up of three parts, a hexagonal structure, a bi-apsidal vestibule, and a peristyle courtyard. The building was probably built in two construction phases, but it is not clear if the courtyard was added later to the hexagon with the bi-apsidal vestibule, or all three main parts were built at the same time. The now lost decorations must have been elaborate based on the small fragments of mosaics, marbles, and colourful wall-paintings. Some of the deceased must have been wealthy based on the luxurious Chinese silk and golden textile remains. The question whether the building was indeed used by Christians cannot be solved based on the architectural characteristics of the building, any Christian symbolism would have been conveyed by the now lost decoration, the thematic of the wall paintings and mosaics.

A central-plan structure with a bi-apsidal vestibule is a frequent occurrence in late antique architecture, not only among *mausolea*, but also in baptisteries, baths or villas. E. Tóth already cited some examples: the *Mausoleum* of Constantia in Rome (4th century), the *Mausoleum* of Honorius and Vatican Rotunda attached to the Old St. Peter's Basilica (5th c.), the baptisteries of the Lechaion basilica in Corinth (6th c.), the Chapel of Sant'Aquilino in Milan (4–5th c.), and the Octagon of Galerius in Thessaloniki (4th c.).<sup>31</sup> The list of course could go on: the Lateran baptistery in Rome (5th c. phase),<sup>32</sup> the *frigidarium*

and its bi-apsidal vestibule in the villa baths at Piazza Armerina (4th century),<sup>33</sup> the triconch dining room and its bi-apsidal vestibule in the Roman villa at Desenzano del Garda (4th century),<sup>34</sup> or the so-called Temple of Minerva Medica in Rome (4th century),<sup>35</sup> just to name a few. Especially interesting in this respect are the Octagon of Galerius in Thessalonike and the Temple of Minerva Medica in Rome, because of the uncertainties concerning their functions. The former was alternatively identified as a *mausoleum*, throne room, reception room, *triclinium*, or pagan temple,<sup>36</sup> while the latter as a *nymphaeum*, part of a bath building, or a banquet hall.<sup>37</sup> These cases illustrate well that the function of a structure cannot be determined based only on the plan, because the same forms were used for a variety of different functions.

It is harder to find parallels for the 'peristyle court – vestibule – central-plan structure' ensemble, because most central-plan structures were part of a larger complex (for example in a villa complex) or stood alone (for example as a *mausoleum* in a cemetery). The Round Temple in Ostia comes to mind: built in the 3rd century by Elagabalus, the complex consisted of an open courtyard (without peristyle), a *porticus* (as a vestibule) and a circular temple with alternating semi-circular and rectangular niches in an octagonal arrangement.<sup>38</sup>

The closest architectural parallels of the hexagonal part of the Iovia *mausoleum* are the pagan *mausoleum* in Louin, France and the trefoil hall of the Villa di Aiano near San Gimignano, Italy.

## THE GALLO-ROMAN MAUSOLEUM OF LOUIN, FRANCE (HYPOGÉE DE LOUIN)

The Gallo-Roman pagan *mausoleum* of Louin in Western France had almost the exact shape of the Iovia hexagon: a hexagonal central space was surrounded by alternating semi-circular and rectangular extensions, three of each (Fig. 5). The building was found in 1898 and excavated in the same year by father Camille de la Croix.<sup>39</sup>

The Louin *mausoleum* stood in a late antique cemetery surrounded by a stone enclosure wall. The inner diameter of its hexagon was around 6.30 m, the inner diameter of the apses around 3.30 m. Under the building, which was first defined as a church, there was a crypt. The 1.1–1.4 m thick walls of the crypt were built of *opus mixtum*, alternating two courses of stones with two courses of bricks. The walls of the

<sup>28</sup>Tóth (2009) 54–57.

<sup>29</sup>Graves no. 33., 36., 39., 40., 41., and 53. Sipos (1990); Tóth (2009) 57; Tóth (1989) 38.

<sup>30</sup>Gleba (2008) 64; Geijer and Thomas (1965); Borhy and Számadó (1999); Kuzsinszky (1923); Horváth (2021) 10; Hoppál (2016); Polgár-Nyerges et al. (2022).

<sup>31</sup>Tóth (1988) 46–50; Tóth (1989) 39.

<sup>32</sup>The bi-apsidal vestibule was only added to the octagon during the fifth-century remodelling of the building. Brandt (2020) 227–228.

<sup>33</sup>Wilson (2011); Carandini et al. (1982).

<sup>34</sup>Scagliarini Corlaità (1997).

<sup>35</sup>Barbera et al. (2007); Barbera et al. (2014); Maréchal (2020) 297.

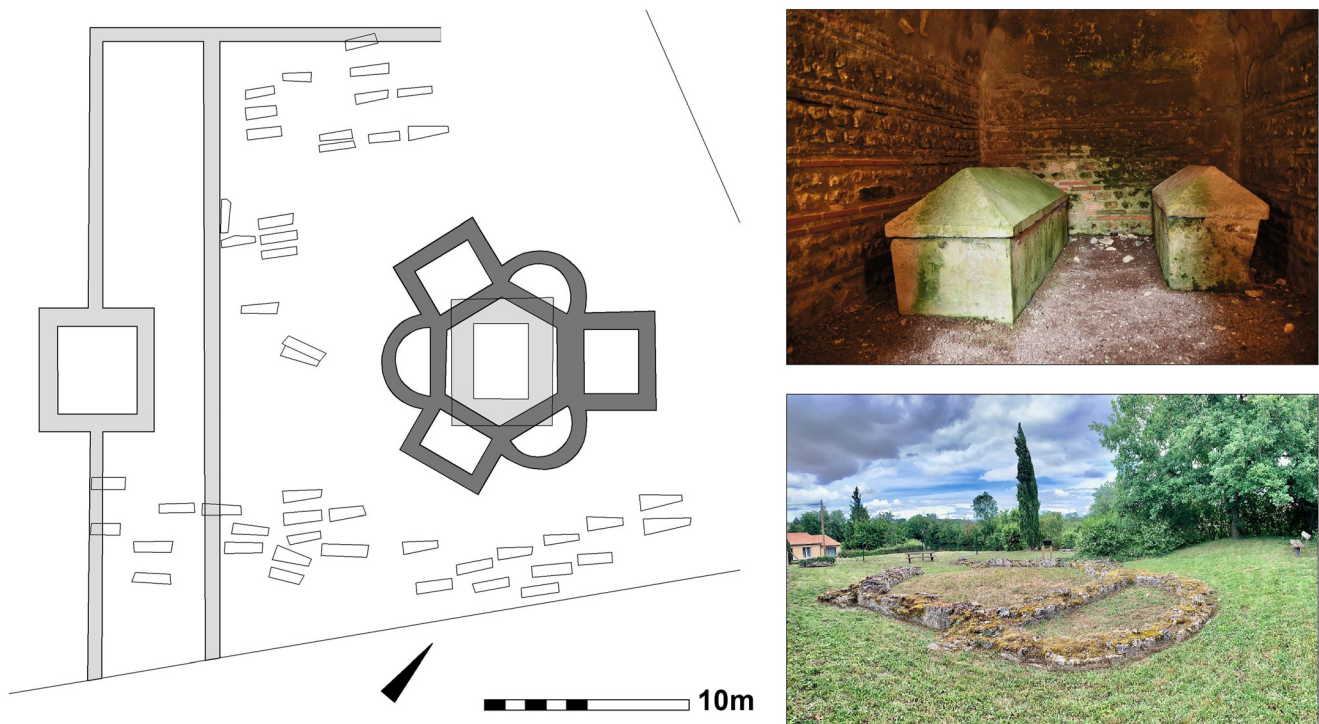
<sup>36</sup>Hadjitryphonos (2011) 210–211.

<sup>37</sup>Barbera et al. (2007); Barbera et al. (2014); Maréchal (2020) 297; Scagliarini Corlaità (1995) 857.

<sup>38</sup>Rieger (2004) 173–190; Pensabene (2021).

<sup>39</sup>Duval (1990) 206; Hiernard and Simon-Hiernard (1996) 190–193.





**Fig. 5.** Pagan *mausoleum* of Louin. Plan based on Hiernard and Simon-Hiernard (1996) Fig. 117. Photo of the sarcophagi in the underground chamber: <https://www.pop.culture.gouv.fr/notice/merimee/PA00101249> (last accessed: December 18, 2023) Photo of the remains of the mausoleum: P. Pérucaud, [https://www.tripadvisor.com/Attraction\\_Review-g14977258-d21045628-Reviews-Hypogee\\_Gallo\\_romain-Louin\\_Deux\\_Sevres\\_Nouvelle\\_Aquitaine.html](https://www.tripadvisor.com/Attraction_Review-g14977258-d21045628-Reviews-Hypogee_Gallo_romain-Louin_Deux_Sevres_Nouvelle_Aquitaine.html) (last accessed: December 18, 2023)

barrel-vaulted chamber were originally covered with colourful wall-paintings. The entrance to the chamber was on its southeastern side, a modern staircase leads down to it at present. Two *sarcophagi* stood side-by-side on the mortar floor of the crypt: the marble *sarcophagus* of a young adult male and the limestone *sarcophagus* of a teenage child. Inside both stone *sarcophagi* was a second coffin made of lead.<sup>40</sup> The inhumation burials were dated to the 4th century by a spindle-shaped bottle (*fusiform unguentarium*, type Isings 105) found at the legs of the adult male. The other *sarcophagus* contained a coin of Severus Alexander in excellent condition.<sup>41</sup> Again, both bodies were wrapped in textiles with gold threads like in Alsóhetény, which means that they were probably the richest members of their community. Neither the skeletons nor the textile fragments are preserved.<sup>42</sup>

The hexagonal structure above the crypt had the same centre point and orientation as the underground chamber, but it is debated whether the two structures were contemporaneous or not. The extremely thick walls of the crypt indicate that they were meant to support the weight of the

hexagon, as well, which would mean that the two parts were most probably built at the same time. During the re-examination and restoration of the structure in 1993 the mortar floor of the apses was observed together with the slightly elevated mortar floor of the central hexagon. Also, traces of a terracotta tile paving were detected and a partition wall inside the eastern apsis.<sup>43</sup> Unfortunately, we do not know which annexes were open towards the central hexagon and which were closed, we only know that the rectangular rooms had doors to the outside.

In the cemetery around the *mausoleum*, 53 graves were examined, all inhumation burials. Among the few grave goods found in the cemetery, a coin of Constantine I deserves mentioning.<sup>44</sup>

In sum, the hexagonal Gallo-Roman *mausoleum* of Louin can be dated to the 4th century, however, a more precise dating is not possible. Although the plan of the building was peculiar, the terracotta tile paving or mortar floor cannot be called lavish and other decorations have not survived. Nevertheless, the richest and highest-ranking members were interred in the crypt of the *mausoleum*, distinguished also by the golden textiles they were wrapped in.

<sup>40</sup>Duval (1990) 206; Hiernard and Simon-Hiernard (1996) 190–193; Segard et al. (2019).

<sup>41</sup>Type RIC 520, minted in Rome, AD 231. Hiernard and Simon-Hiernard (1996) 191.

<sup>42</sup>Hiernard and Simon-Hiernard (1996) 191; Gleba (2008) Cat. 32; Bédard et al. (2005) 9–10.

<sup>43</sup>Hiernard and Simon-Hiernard (1996) 190–193.

<sup>44</sup>RIC 772a, minted in Augusta Treverorum, AD 307–308. Hiernard and Simon-Hiernard (1996) 192–193.



## THE TREFOIL HALL (HEXAGONAL ROOM) OF THE VILLA OF AIANO (ITALY)

The late antique Villa of Aiano – Torraccia di Chiusi near present-day San Gimignano in Italy was built at the end of the 3rd century or beginning of the 4th century AD. About one third of the appr. 10,000 m<sup>2</sup> large villa estate has been excavated so far.<sup>45</sup> The hexagonal reception room was added to the villa in the second half of the 4th century and was remodelled at the end of the 4th or beginning of the 5th century. The whole site of the Roman villa was abandoned by the late 5th century, but some of the remaining structures were utilized again in the first half of the 6th century. Workshops were installed between the walls, and materials found in the abandoned villa were recycled (e.g. glass).<sup>46</sup> During this period most of the villa was stripped of its original decorations and was used as a “quarry”. This fact makes it hard to evaluate the remains of the earlier phases of the villa. It is evident that some parts of the villa were at one point luxuriously decorated with wall paintings, stuccos, mosaics, marble slabs, and *opus sectile* decoration made of polychrome glass paste instead of cut stone. However, it is almost impossible to decide the original location of these decorations and the exact building phase they belonged to.<sup>47</sup>

The hexagonal room of the villa was placed at the northern end of a wide corridor (Fig. 6). On the west side of the corridor smaller rooms stood in a row, while on the east side, a series of open spaces stood in succession. The inner diameter of the hexagon measured c. 10.0 m, so it was slightly larger than the Iovia hexagon. In its first building phase in the second half of the 4th century, the hexagonal central room was flanked by six semi-circular apses, and the whole structure was surrounded by a lobed wall, creating an *ambulatio* around the hexagonal structure. The central room could be entered through its southern apse from the vestibule. The structure was rebuilt a few decades later sometime at the end of the 4th or beginning of the 5th century:<sup>48</sup> the floor level was lowered and three of the apses were dismantled to be replaced by rectangular rooms, which were accessible only from the outside. In this phase, the hexagonal central room and the three apses were decorated with a tessellated red *opus signinum* floor with rich geometrical motifs made of black and white lithic *tesserae*.<sup>49</sup> This is the only *in situ* surviving floor of the villa complex. According to the excavator, M. Cavalieri, the floor of the hexagonal reception room was not of very high quality. The floor was

built hastily using readily available instead of high-quality material.<sup>50</sup>

The trefoil hall was built of travertine blocks in *opus quadratum* technique. The plan of both the first and second phases (the six-foil and trefoil halls) were drawn following a simple but precise plan.<sup>51</sup> The central hexagon had a flat, painted ceiling, while the apses and the rectangular rooms had vaulted suspended reed ceilings. The arches at the entrance of the apses were made of bricks (hollow voussoirs).<sup>52</sup>

The function of the hexagonal structure must have been some kind of reception room or banquet hall,<sup>53</sup> that were often built in the form of a central-plan or a triconch room in Late Antiquity. If the structure was used for dining, only two semi-circular *sigma* or *stibadia* could have been placed into two of the apses, because the third apsis is used as the entrance. This arrangement also results in a puzzling feature of the trefoil hall: none of the apses lies in the main axis of the room, across the entrance. Rather, the entrance leads through one of the apses, and the other two lie on either side of the main axis of the room, while there is a flat wall surface across the entrance. However, on entering the room it was not a flat wall that met the eye: the doors to the hexagon were on the sides of the apse, which meant that the person who entered through either of the doors would have looked right at one of the other apses and not the flat wall.

In sum: the trefoil hall was unique and extravagant in its ground plan, but its elegance might have been lessened compared to phase I, when the hexagonal structure was surrounded by apses on all sides. We are not certain, if the original decoration of the room was more luxurious than the tessellated *opus signinum* floor of the trefoil hall, but if the structure was indeed used for dining, then three places for *stibadia* were lost when three apses were dismantled.

These were the only known examples of a central hexagonal space surrounded on five or six sides by alternating semi-circular and rectangular extensions. The reception room of the Villa of Mediana can be regarded as another architectural parallel: an apse and three rectangular rooms open from the hexagonal central space; however, two apses are “missing” in this case.

## STIBADIUM A OF THE VILLA WITH PERISTYLE AT MEDIANA (NIŠ, SERBIA)

The extensive late Roman Villa with Peristyle at Mediana near Naissus (Niš, Serbia) was first built at the beginning of the 4th century AD and was mostly pulled down by 330 AD to make room for the luxurious villa of Constantine the Great, who was born in Naissus. The second phase of the

<sup>45</sup>Excavations and non-invasive surveys were led by Marco Cavalieri (UC Louvain, Belgium) between 2005–2011 and 2014–2018. Cavalieri et al. (2019) 93; Ferdani et al. (2019) 4–5.

<sup>46</sup>Cavalieri et al. (2019) 95; Ferdani et al. (2019) 5; Cavalieri (2013) 290.

<sup>47</sup>Cavalieri et al. (2019) 99; Ferdani et al. (2019) 5; Cavalieri (2013) 290; Cavalieri (2019) 163.

<sup>48</sup>Cavalieri (2013) 291; Cavalieri (2019) 163.

<sup>49</sup>Cavalieri et al. (2019) 95–96.

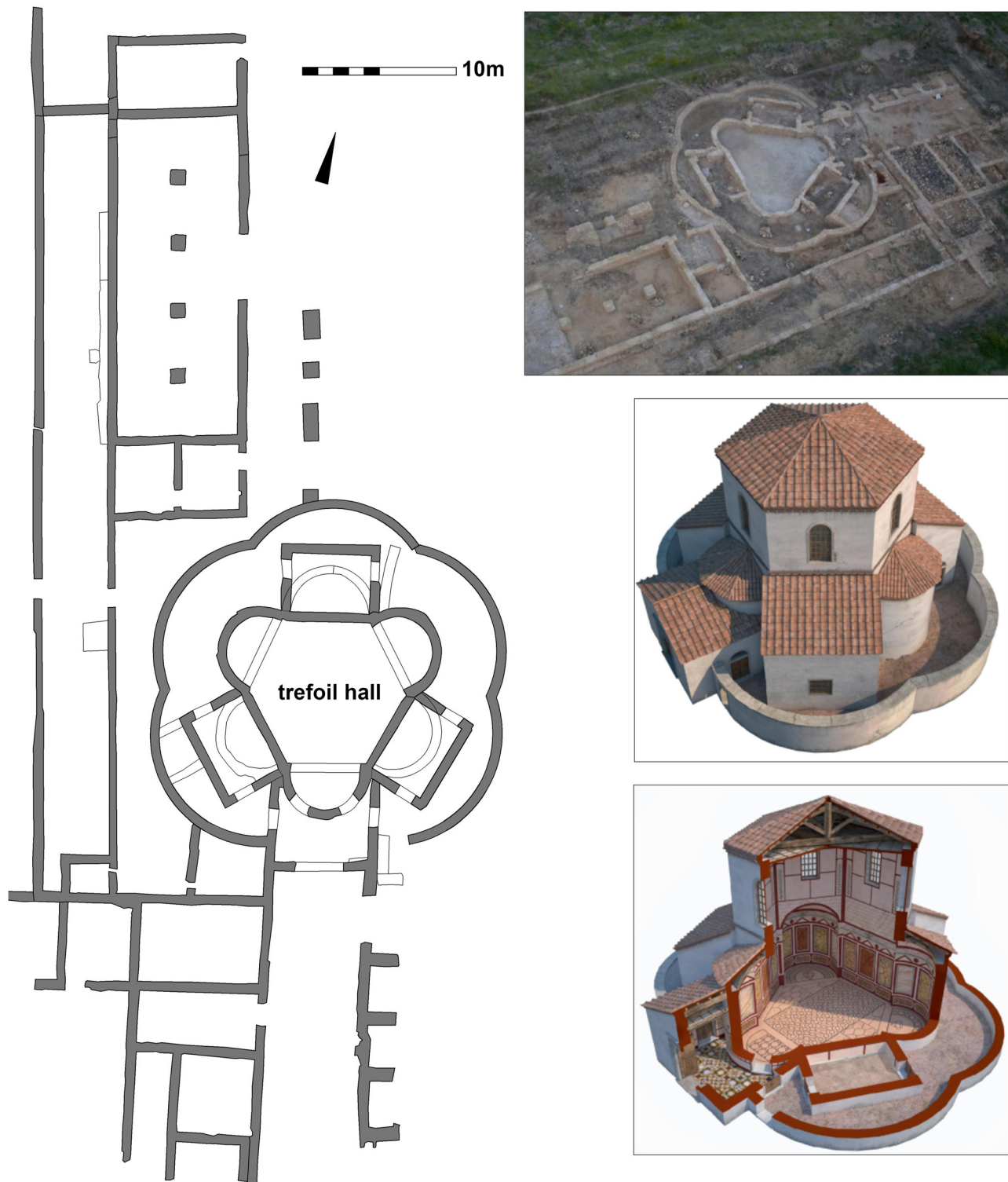
<sup>50</sup>Cavalieri et al. (2019) 97; Cavalieri (2013) 290–291; Cavalieri (2019) 166.

<sup>51</sup>Ferdani et al. (2023) 7–8 and Fig. 4.

<sup>52</sup>Ferdani et al. (2019) 10 and Fig. 6; Ferdani et al. (2023) 9.

<sup>53</sup>Cavalieri et al. (2019) 96.





**Fig. 6.** Trefoil hall of the Villa of Aiano. Plan based on [Boschetti et al. \(2021\)](#) Fig. 2. Virtual reconstruction of the trefoil hall ([Ferdani et al., 2023](#), Fig. 9)

Villa with Peristyle was completed by 334 AD and was used by Constantine's heirs, Constantius II, Constans and Julian Apostate. After the Gothic destruction of Mediana in 378, the Villa with Peristyle was once more rebuilt and used until the early 440s, when the Huns destroyed the settlement of Mediana (441–443 AD).<sup>54</sup>

Originally, in its first phase, the building must have served predominantly public and administrative functions, based on the high number of offices around the peristyle and the large reception hall with an apse.<sup>55</sup> In the second phase, the complex was turned into the imperial residence of Constantine I lavishly decorated with marble, mosaics, and wall paintings. The most distinguished part of the 98 × 63 m large villa was situated on the northern side of the large peristyle. A hall with an apse (audience hall) lay opposite the main entrance, in the axis of the building. Two smaller banquet halls with sophisticated ground plans were added to each side of the reception room in this building phase: the so-called Stibadium A on the east side and Stibadium B on the west side (Fig. 7). Most of the northern part of the villa: the peristyle, the large reception room, Stibadia A and B, along with parts of the bath building were covered with mosaic floors.<sup>56</sup>

Both Stibadium A and Stibadium B had centralized ground plans and were connected to the main building via rectangular vestibules. The circular Stibadium B had two rectangular extensions and was heated with a hypocaust heating system from the north.

The hexagonal Stibadium A was unheated but had a marble fountain in the middle of its central room. Because of the fountain the structure was first identified as a *nymphaeum*, when it was discovered in the 1930s.<sup>57</sup> A small museum building was erected over it in 1935 to protect its mosaic floor and with this modern construction work the connection between the walls of Stibadium A and the rest of the villa was destroyed.<sup>58</sup> The central hexagon of the structure was roughly the same size as the Louin hexagon with an inner diameter of 6.5 m. Its ground plan resembled very much the ground plans of the hexagonal Iovia *mausoleum*, Louin *mausoleum*, and the reception room of the Villa di Aiano. Here in Mediana, three extensions were attached to the hexagonal central room, an apse opposite the vestibule, and a rectangular extension on either side of the apse. Two apses are “missing” compared to the ground plans of the other three hexagonal constructions. The structure was identified as a small banquet hall, where the *stibadia* would have been placed in the extensions.

To summarize: the small Stibadium A was a distinguished looking part of the imperial villa with its eccentric ground plan, colourful mosaic floor, and marble fountain.

Other structures closely related in terms of shape include the hexagons of the Keynsham villa in Britain, although not on imperial scale.

## HEXAGONAL RECEPTION ROOMS OF THE KEYNSHAM VILLA IN BRITAIN

The Roman villa at Keynsham in Somerset was one of the largest villas built in Britain during Late Antiquity. Now mostly covered by the cemetery of Durley Hill and a road, parts of the villa were excavated between 1922–1924, however, some of the remains were already demolished by that time.<sup>59</sup> The rooms were apparently organized around a roughly 52 × 66 m large peristyle courtyard, and the most elaborate rooms were placed along the western side of the *peristylum*. Both the *porticus* and the rooms were decorated with mosaic floors. There must have been a large reception room or audience hall in the main axis of the building, but the middle part of the western row of rooms lay under the modern road already at the time of the excavation. On either side, a hexagonal room was found with rectangular annexes (Fig. 8).

The hexagonal room in the northwestern corner (Room J) had an inner diameter of about 8.2 m, and it had a rectangular extension in its main axis across the entrance. Three other doors opened from the central hexagon to neighbouring rooms, one of which was heated with a pillared hypocaust. All rooms had colourful mosaic floors mostly featuring geometric motifs.<sup>60</sup>

The other hexagonal room in the southwestern corner (Room W) was slightly smaller with an inner diameter of 7.7 m. Three rectangular extensions opened from the central hexagon opposite the entrance, and there was a small semi-circular niche on either side of the entrance door. This room had a more elaborate mosaic floor with six panels of mythological scenes, including one depicting Europa on the back of Jupiter as a bull. The rectangular alcoves were probably vaulted based on the large number of stone block voussoirs found in the room.<sup>61</sup>

Both central hexagons might have been covered by tufa vaults, because the walls of the surrounding rooms could have functioned as buttresses, however the evidence is not enough to decide if the hexagonal rooms were covered by a dome or a simple wooden ceiling.<sup>62</sup>

According to the opinion of J. Russell, both hexagons served as dining halls,<sup>63</sup> however, P. Witts called this into question. She argued that the size of the recesses was not

<sup>54</sup>Milošević (2011) 169–170; Vasić et al. (2016) 7; Milošević (2020) 204–207; Vasić (2013) 94–96; Gavrilović Vitas et al. (2016) 83.

<sup>55</sup>Milošević (2020) 205–206.

<sup>56</sup>Vasić et al. (2016) 21; Jeremić (2006); Milošević (2020) 207–208.

<sup>57</sup>Vasić (2006) 69–74; Petrović (1994) 33 and 84.

<sup>58</sup>Milošević (2020) 202; Milošević (2011) 171; Bratinić (1938).

<sup>59</sup>Russell (1985) 6–7; Bulleid and Horne (1926) 109–112. After the excavation, the mosaics were carefully taken up and the foundation walls removed by the cemetery authorities. Bulleid and Horne (1926) 135.

<sup>60</sup>Russell (1985) 8; Bulleid and Horne (1926) 116–122.

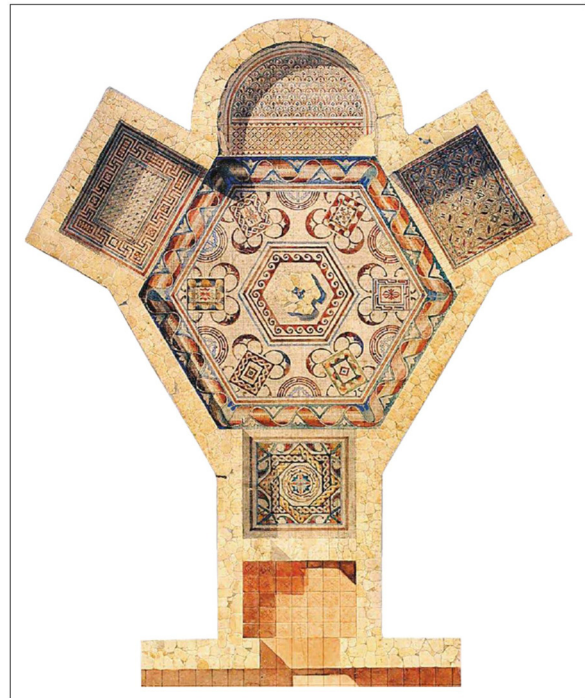
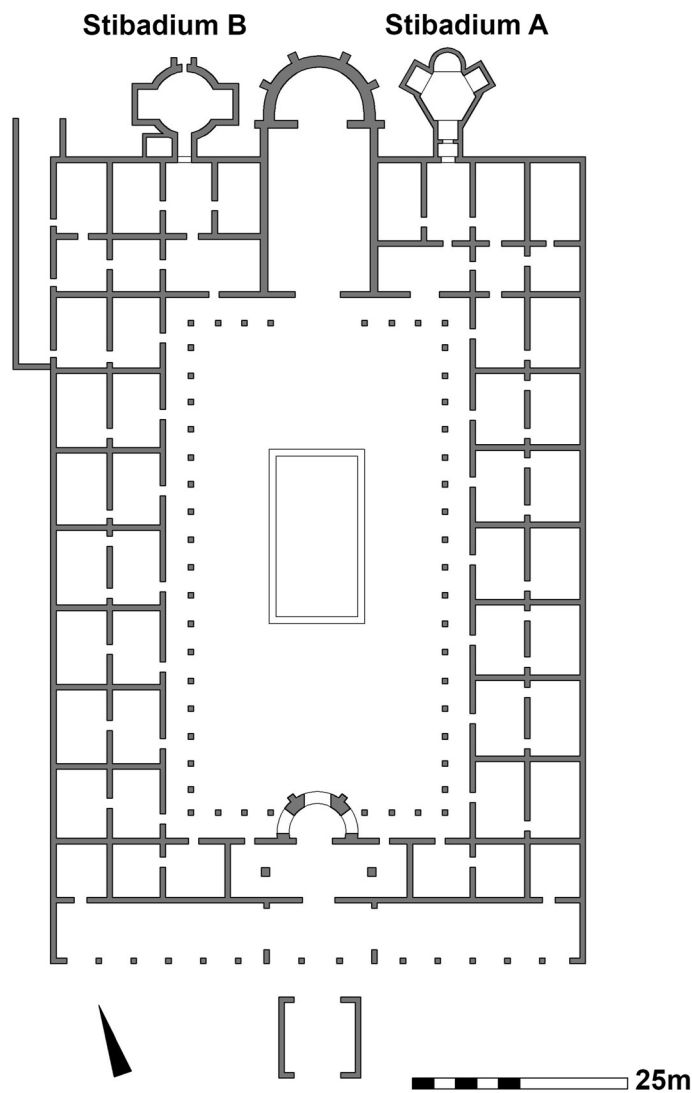
<sup>61</sup>Russell (1985) 10; Bulleid and Horne (1926) 125–128.

<sup>62</sup>Russell (1985) 8.

<sup>63</sup>Russell (1985) 10.







**Fig. 7.** Stibadium A in the Villa with Peristyle in Mediana. Plan based on Vasić et al. (2016) 14. Drawing of mosaic floor by R. Bratanić in 1936 (Vasić et al., 2016, 28). Photo of Stibadium A: <https://narodnimuzejnis.rs/en/медијана> (last accessed: December 18, 2023)

large enough to hold either *stibadia* couches or the traditional *kline*. She hypothesized that Room J was probably used as a small reception room, but not for dining, while Room W could have functioned as a library, based on the thematic of the figurative panels in the mosaic floor.<sup>64</sup>

The villa was probably built at the early 4th century and was abandoned around the 370s, in all likelihood. It was one of the largest and most luxurious of the late antique villas built in Britain, its owner must have been wealthy and of high social status.<sup>65</sup>

Four more hexagonal structures are worth mentioning: the hexagonal hall of the Palace of Antiochus in Constantinople, where five apses opened from the hexagon; the hexagonal hall of the Domus delle Sette Sale in Rome, which had two

rectangular and four apsidal rooms, the early Christian baptistery in Limoges (France), where the central hexagon was flanked by six protruding rectangular rooms, while in the so-called *cella quinquichora* in Aquincum (Budapest) the central hexagon was surrounded by protruding apses.

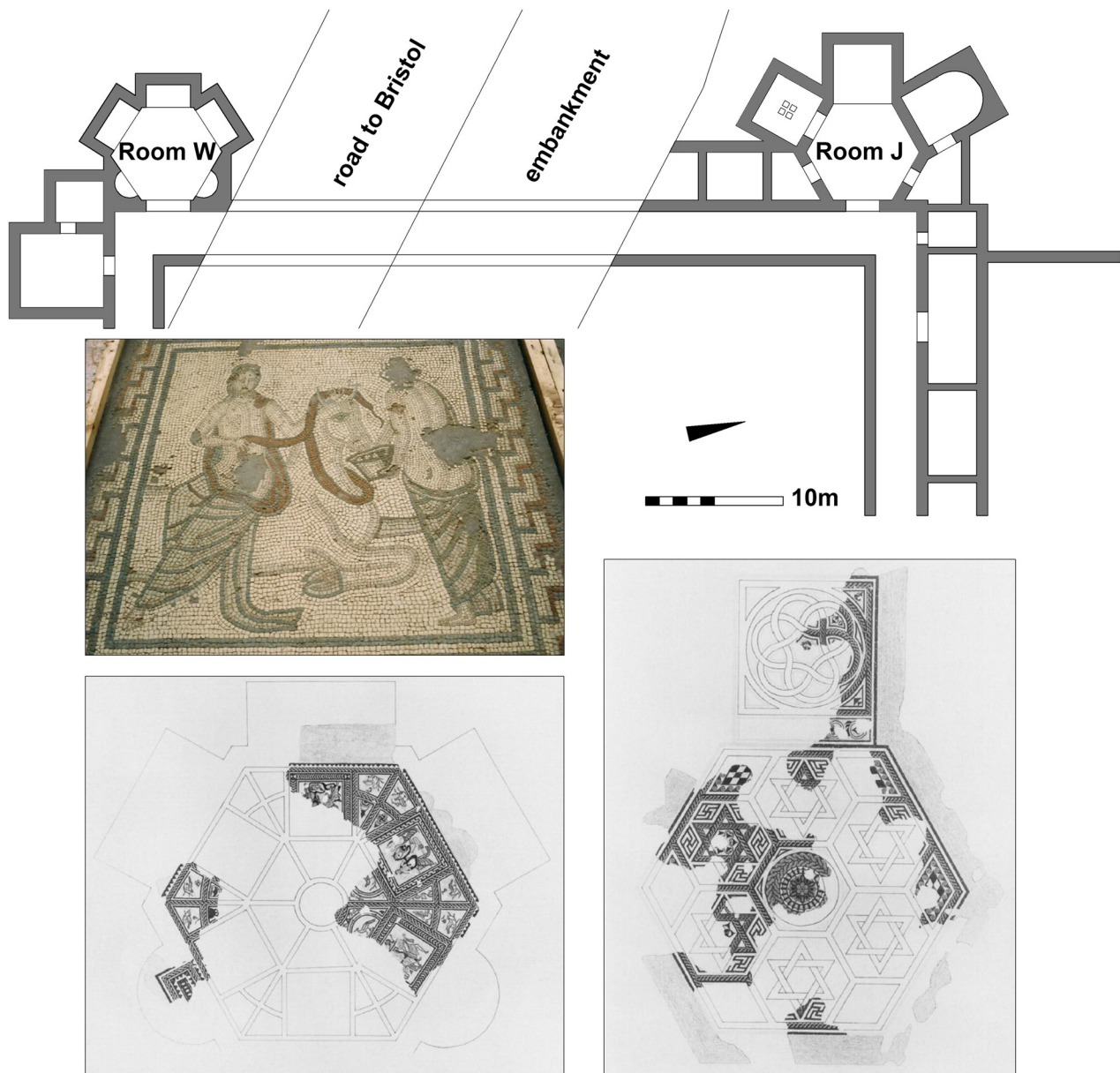
## THE HEXAGONAL HALL OF THE PALACE OF ANTIOCHUS IN CONSTANTINOPLE

The hexagonal hall of the Palace of Antiochus in Constantinople was built on a much grander scale than any of the above-mentioned structures. The palace itself was built probably during the 430s for Antiochus, a Persian eunuch who served as *praepositus sacri cubiculi* and as the tutor of

<sup>64</sup>Witts (2000) 315–316.

<sup>65</sup>Russell (1985) 7–8.





**Fig. 8.** The hexagonal rooms of the Keynsham Villa. Plan based on Bulleid – Horne (1926) Fig. 1. Paintings of the mosaics made by Stephen Cosh (Witts, 2000, Plate XIV–XV). Photo of the mosaic panel of Europa with the bull: <https://bathnewseum.com/2020/03/27/should-roman-bath-have-a-neighbourhood-rival/> (last accessed: December 18, 2023)

the young Theodosius II. He was in the service of the imperial court from c. 402 to 439, when he was disgraced and forced to become a priest.<sup>66</sup> The remains of his palace were first excavated in the 1940s and 1950s, and their identification was made secure by the discovery of an *in situ* inscription on a column base in the *porticus*.<sup>67</sup> The most monumental part of his palace was the hexagonal hall which opened from a semi-circular (sigma-shaped) *porticus* (Fig. 9). The inner diameter of the hexagon was about 21.5 m, twice the diameter of the hexagon in the Villa of

Aiano. The reconstruction drawing of R. Naumann and H. Belting show the hexagon covered with an enormous dome,<sup>68</sup> only slightly smaller than the partly still standing dome of the Temple of Minerva Medica, which had a decagonal central hall with ten expanding semi-circular apses.<sup>69</sup> In the case of the Palace of Antiochus, the small circular rooms between the apses would have served as additional buttresses to prop the dome. The function of the hexagonal hall was most likely a banquet hall, where the

<sup>66</sup>Greatrex and Bardill (1996).

<sup>67</sup>The inscription read: “Of Antiochus the *praepositus*”. Bardill (1997) 67.

<sup>68</sup>Naumann and Belting (1966).

<sup>69</sup>Yegül and Favro (2019) 855–859.

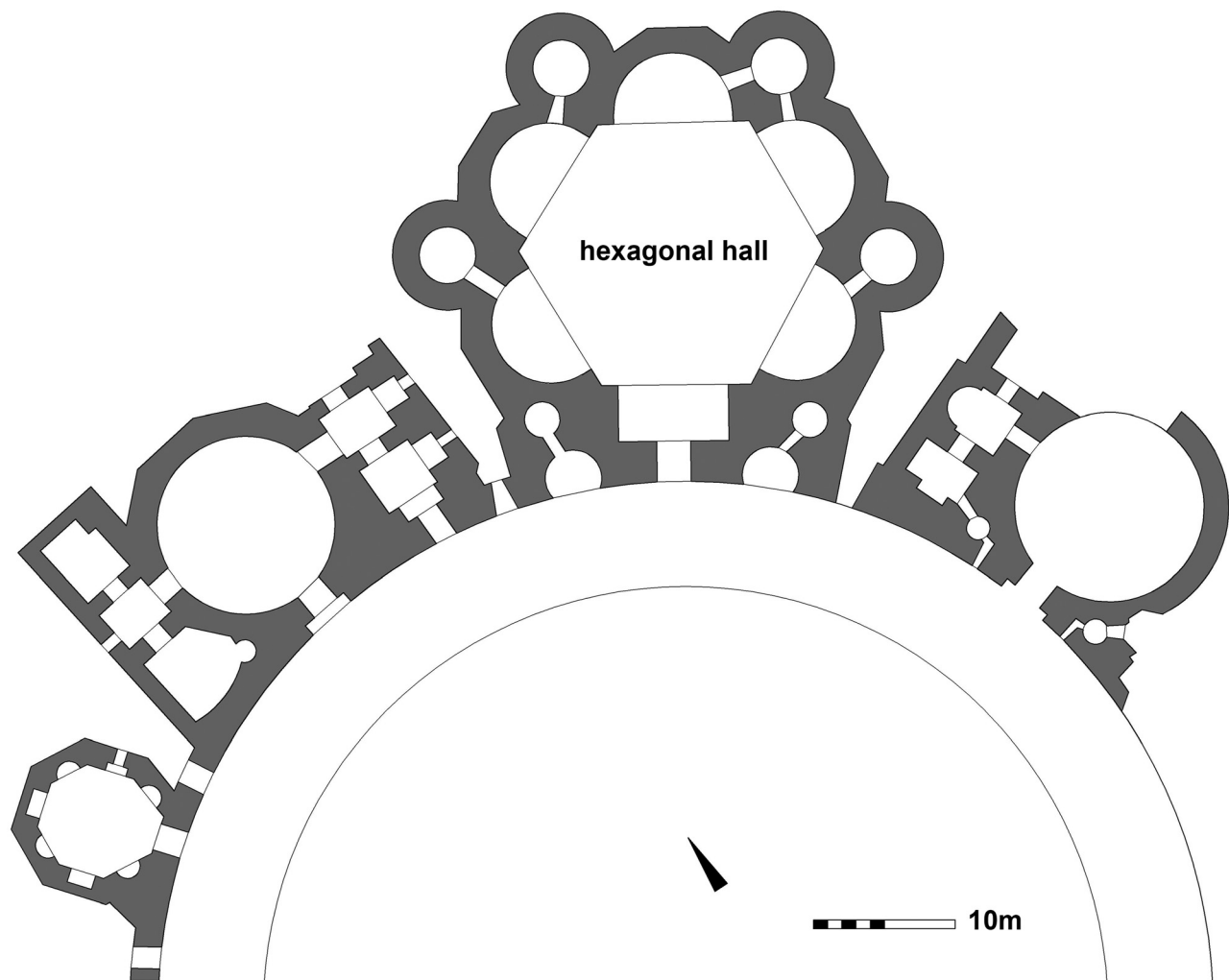


Fig. 9. The hexagonal hall of the Palace of Antiochus in Constantinople. Plan based on Bardill (1997) Fig. 1

semi-circular *stibadia* couches were placed in the apses of the hall.

The hexagonal hall of the palace was turned into a church of St. Euphemia probably around the 680, when the relics of St. Euphemia were brought to Constantinople from Chalcedon.<sup>70</sup>

## HEXAGONAL HALL OF THE DOMUS DELLE SETTE SALE IN ROME

The hexagonal hall of the Domus delle Sette Sale in Rome was probably built in the first half of the 4th century. The *domus* itself was located on top of the Cisterna delle Sette Sale built by emperor Trajan to supply his baths complex, the Baths of Trajan with water. The house had several construction phases since the first half of the 2nd century AD, but it seems to have been turned into a luxurious *domus* in the 4th century. The complex has only partially survived

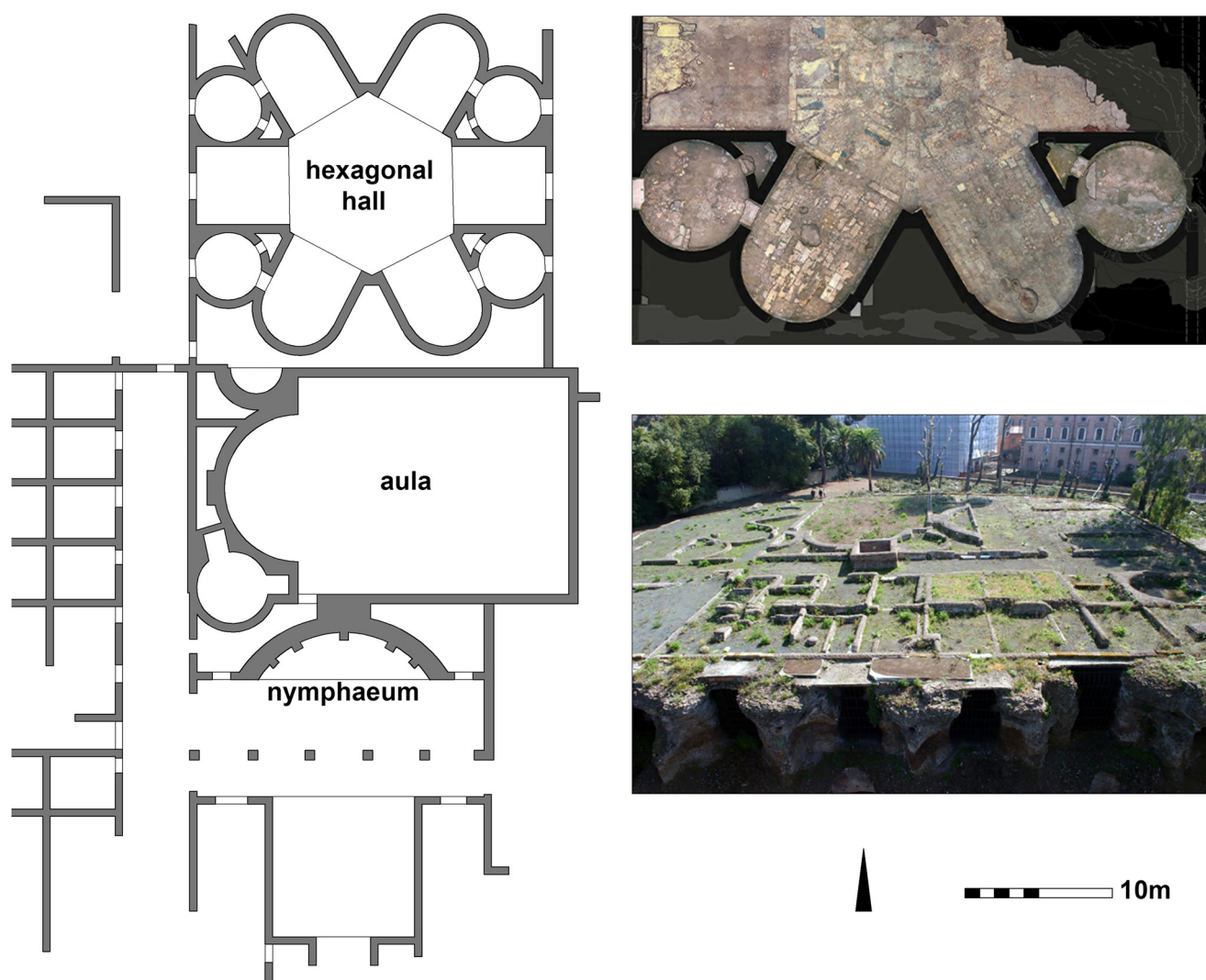
the centuries and was excavated between 1966–1967 and in 1975. The hexagonal hall stood in a row of representative rooms covered with colourful *opus sectile* floors of different marbles: the hexagonal complex, an *aula* with an apse, and a large rectangular hall with a *nymphaeum* lay in succession along a corridor adorned with mosaic floor (Fig. 10). The inner diameter of the hexagonal hall was about 12.0 m, enlarged by two rectangular rooms and four apsidal rooms opening from it. The central hexagon communicated with the corridor through the eastern rectangular room. There were additional circular rooms between the apsidal and rectangular annexes of the hexagon which opened both towards the apsidal rooms and towards the outside.<sup>71</sup> The hexagonal complex served most likely as a banquet hall, where the *stibadia* could again be placed in the rooms opening from the polygonal central room. The small circular rooms added additional space for service functions during the *convivia*. According to the opinion of D. Scagliarini Corlaità, the hexagonal hall was covered by a dome.<sup>72</sup> As the

<sup>70</sup>Bardill (1997) 67.

<sup>71</sup>Volpe (2000) 159–160; Scagliarini Corlaità (1995) 854–856.

<sup>72</sup>Scagliarini Corlaità (1995) 856.





**Fig. 10.** The hexagonal hall of the Domus delle Sette Sale in Rome. Plan based on Volpe (2000) 1. The *opus sectile* floor of the hexagonal hall: [https://news.uniroma1.it/03122019\\_0930](https://news.uniroma1.it/03122019_0930) (last accessed: December 18, 2023). Photo of the site: [https://www.sovrintendenzaroma.it/i\\_luoghi/roma\\_antica/monumenti/terme\\_di\\_traiano/domus\\_delle\\_sette\\_sale](https://www.sovrintendenzaroma.it/i_luoghi/roma_antica/monumenti/terme_di_traiano/domus_delle_sette_sale); last access December 18, 2023

walls of the structure only survived up to a height of 0.5 m at the most, it is impossible to decide whether the hall was domed or had a flat wooden ceiling. The wall structure was built mostly of bricks and in *opus vittatum* technique but was only c. 0.6 m thick.

## THE EARLY CHRISTIAN BAPTISTERY IN LIMOGES, FRANCE

In 2005 an early Christian baptistery was excavated north of the gothic Cathédrale Saint-Étienne in the heart of Limoges (France).<sup>73</sup> The baptistery belonged to a parish church and had a hexagonal central room from which six rectangular rooms opened (Fig. 11). The inner diameter of the hexagon

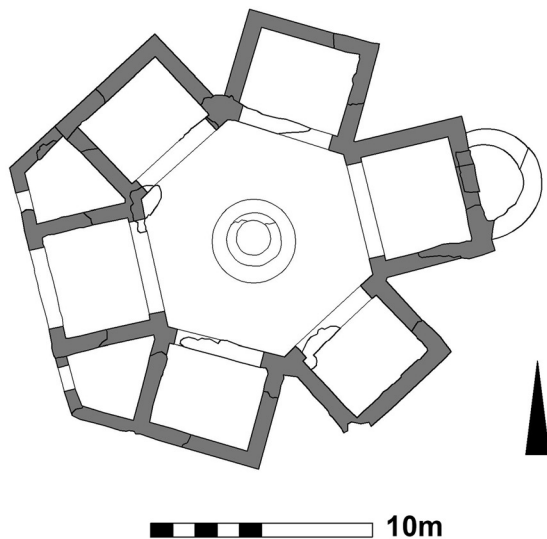
was c. 11.0 m. The western and eastern rectangular rooms in the main axis of the building were a bit larger than the other four. The entrance of the building was on the west, and a small deltoid shaped room stood on either side of the entrance which were only accessible from the outside. A baptismal font was situated in the middle of the central room connected to water channels in the northern apse.<sup>74</sup> The floor structure of the hexagonal room consisted of limestone slabs laid on a mortar floor. The same is supposed for the rectangular rooms. The walls of the building were in a poor state of preservation, and not much is known about the decoration of the structure. The use of different kinds of marble and porphyry was attested.<sup>75</sup> Because of the scarce

<sup>74</sup>Denis (2006) 126.

<sup>75</sup>Denis (2006) 126.

<sup>73</sup>The excavation was led by Julien Denis. Denis (2006) 125.



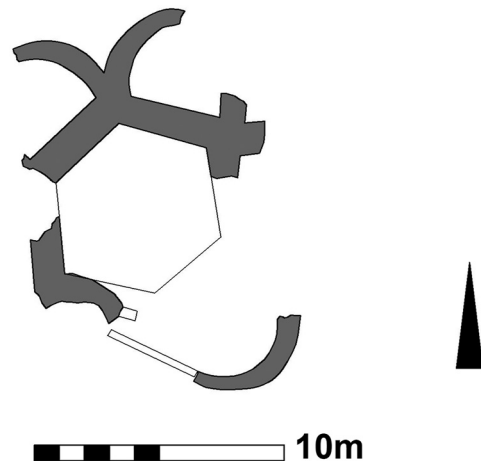


**Fig. 11.** The early Christian baptistery of Limoges. Plan based on Denis (2006) fig. 61. Virtual reconstruction by C. Lachaud: <https://www.cathedrale-limoges.fr/the-paleochristian-baptistery.html> (last accessed: December 18, 2023)

find material, the dating of the building was based on  $^{14}\text{C}$  data, which yielded an interval between 320–420 AD.<sup>76</sup>

The early Christian baptistery was turned into a church during the 6th century, when an apse was added to its eastern rectangular extension. The whole building was demolished in the late 12th or early 13th century to make place for a new parish church consecrated in 1219 (Église Saint-Jean).<sup>77</sup>

The building of the early Christian baptistery measured about 290 m<sup>2</sup>, which makes it one of the largest baptisteries of Gallia.<sup>78</sup>



**Fig. 12.** The so-called *cella quinquichora* in Aquincum. Plan based on Parragi (1976).

decided without further excavation, the available evidence is not enough.

## THE SO-CALLED *CELLA QUINQUICHORA* IN AQUINCUM (HUNGARY)

A hexagonal structure was found in Aquincum (Budapest, Hungary) in 1973. During the development-led excavation it was impossible to uncover the whole building because of ongoing construction works. Only parts of three curved walls and a few sections of straight walls were documented (Fig. 12). In consequence, all reconstructions are highly hypothetical, and it is only supposed that the structure was a hexagon flanked by five or six apses. The dating of the building is also hypothetical, it was probably built sometime during the 4th century. Likewise dubious is its identification as an early Christian funerary building.<sup>79</sup> Neither the original layout nor the function or date of the building can be

## THE HEXAGONS – DIFFERENCES IN LAYOUT, SIZE, AND SPATIAL RELATIONS

The set of hexagonal structures presented above were similar in layout and were built at roughly the same time between the first half of the 4th century and the early 5th century, although they had different functions. It is evident that the hexagonal plan with added apses and rectangular rooms were meant to make the building prominent and extravagant, show the richness and importance of the client who paid for the construction works, regardless of the function of the structures. In the case of the *mausolea* of Iovia and Louin the graves inside the building contained textiles with golden

<sup>76</sup>Denis (2009).

<sup>77</sup>Denis (2006) 128.

<sup>78</sup>Denis (2006) 126.

<sup>79</sup>Parragi (1976); Gáspár (2002) 17–20; Gáspár (2008) 66–69; Tóth (1990) 9. ábra; Nagy (2002). There are also inconsistencies between the two drawings of the building's plan published in the excavation report.



Table 1. The wall thickness of the hexagons in relation to their diameter

Name	Diameter [m]	Wall thickness [m]	Ratio of wall thickness and diameter	Wall type
Palace of Antiochus	21.5	1.90	1:11.3	<i>Opus mixtum?</i>
Domus delle Sette Sale	12.0	0.60	1:20	<i>Opus vittatum</i>
Limoges baptistery	11.0	0.65	1:16.9	<i>Opus incertum?</i>
Aiano villa	10.0	0.60	1:16.7	<i>Opus quadratum</i> (travertine)
Iovia <i>mausoleum</i>	9.5	0.85	1:11.2	<i>Opus incertum</i> , brick wall
Keynsham Room J	8.2	0.80	1:10.2	<i>Opus quadratum</i>
Keynsham Room W	7.7	0.80	1:9.6	<i>Opus quadratum</i>
Aquincum <i>cella quinquichora</i>	7.0	1.40	1:5	<i>Opus incertum?</i>
Mediana Stibadium A	6.5	0.50	1:13	<i>Opus incertum?</i>
Louin <i>mausoleum</i>	6.3	0.75	1:8.4	<i>Opus mixtum?</i>

threads which bear witness to the wealth of the deceased. The baptistery of Limoges was one of the largest baptisteries built in late antique Gaul. As to the villas: the Villa of Mediana was imperial property, the Villa of Keynsham was one of the biggest in Britain and must have been built by an influential member of the elite, the Palace of Antiochus was built by one of the highest ranking officials in the imperial court and the remains of the decoration in the Villa of Aiano leaves little doubt that its owners were wealthy as well.

Looking at the plans of the structures, they share similarities in layout: all have a central hexagonal hall flanked by protruding semi-circular and rectangular rooms. None of the buildings survived above knee-height, consequently, the form and structure of the ceilings and vaults cannot be decided with certainty. The walls of the buildings were relatively thin; therefore, the hexagon was probably not domed in most of these cases,<sup>80</sup> but the apses and rectangular rooms might have been vaulted. The central hall was probably higher than the surrounding rooms and were possibly equipped with clerestory windows to let more light into the middle part of the structure.

It is noteworthy that the size of the hexagons shows a clustering around three diameters: the largest and most magnificent of all was of course the hexagonal hall in the Palace of Antiochus with an inner diameter of c. 21.5 m. It is followed by the medium-sized hexagons with an inner diameter between 9.5 and 12.0 m: the *mausoleum* of Iovia (c. 9.5 m), the Villa of Aiano (c. 10.0 m), the early Christian baptistery of Limoges (c. 11.0 m), and the Domus delle Sette Sale (c. 12.0 m). The smallest hexagons had an inner diameter of about 6.0–8.0 m: the *mausoleum* of Louin (c. 6.3 m), Stibadium A in Mediana (c. 6.5 m), the *cella quinquichora* in Aquincum (c. 7.0 m) and the reception rooms of Keynsham (c. 7.7 and 8.2 m). If we compare the diameter of

the hexagons with the wall thicknesses (see Table 1) a few things become apparent: the extreme thickness of the Palace of Antiochus can be explained with the enormous dome that covered the hexagon, however, the large thickness of the walls of the *cella quinquichora* seem exaggerated, even if the structure was vaulted. Its builders might not have had enough experience with these kinds of structures and did not take risks. In comparison, the wall thicknesses of the hexagons in the Domus delle Sette Sale, the Limoges baptistery and the Villa of Aiano are much more daring. The relatively thin walls might be explained with better quality stone walls and more experienced builders. Unfortunately, the structure and material of the walls is not always known, because in some cases only the foundations were found. However, the strength of the material and the wall structure certainly influenced the choice of wall thickness.

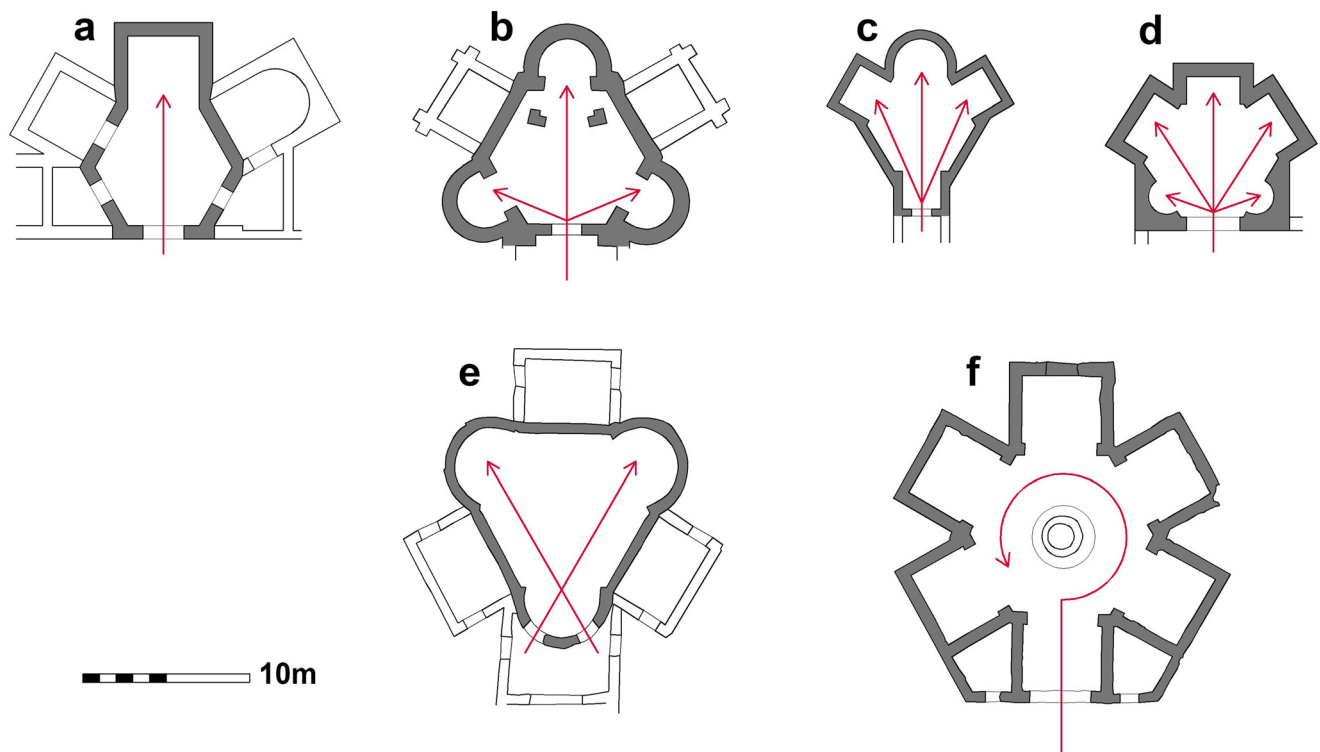
Despite the similar general layout of the structures, there were differences in terms of spatial relations (Fig. 13). In the case of the trefoil hall in the Villa of Aiano and probably also the *mausoleum* of Iovia, only the apses were open towards the central hexagon. In Iovia, one of the apses lay across the entrance, putting additional emphasis on the main axis of the building, especially as there was also a pair of pillars in front of the apse. This makes it a central-plan structure with a marked longitudinal axis. In contrast, in Aiano the apses were off the main axis which made the main axis of the room less significant. In Mediana, Keynsham, and the Palace of Antiochus more rooms were open towards the central hexagon, which again presents a different sense of space, taking weight off the longitudinal axis. Finally, in the baptistery of Limoges, all the rectangular annexes were open, and there was a basin in the middle of the hexagon: the emphasis lay on the ability to move or stand around the baptismal font as the focal point of the structure.

FUNCTION OF THE HEXAGONAL STRUCTURES

As already mentioned above, despite the similar general plan of these buildings they all had different functions: reception

<sup>80</sup>The hexagonal hall of the Palace of Antiochus was reconstructed with a dome by Naumann and Belting. Bardill (1997) 95; Naumann and Belting (1966). According to the opinion of D. Scagliarini Corlaità, the hexagonal hall of the Domus delle Sette Sale was covered with a dome.





**Fig. 13.** Schematic layout of the hexagons a, Room J of the Keynsham Villa b, *Iovia mausoleum* c, Stibadium A in Mediana d, Room W in the Keynsham villa e, trefoil hall of the Villa of Aiano f, the baptistery of Limoges

hall or dining hall, Christian and pagan *mausoleum*, or Christian baptistery. This means on the one hand that the plan of a building in itself is not sufficient to determine its function, and on the other hand that the plan in itself could not carry symbolic meaning, which is often assumed in the case of early Christian buildings. However, it is highly unlikely that a polygon with any number of sides or apses (whether eight or six) was used for its symbolic meaning by Christians, when the exact same architectural form was used for pagan *mausolea* and dining halls as well. Any symbolic meaning must have rather been expressed through the decoration of the building, the thematic of the wall paintings, mosaics, or floor design.<sup>81</sup> The choice of form in any late antique building must have been primarily influenced partly by architectural fashion and partly by the spatial needs of the function of the structure.

In the case of the banquet halls in late antique villas the role of architectural fashion was a decisive factor. During the fourth century the Roman elite built a large number of rural luxury villas both in Italy and the provinces, which were centred around the idea of *otium*, the educated leisure including the enjoyment of fine dining, music or plays. The *otium* took place in one of the several dining rooms of the villa, and when the competition of the elite was manifested in building ever more luxurious and creative villas, the dining halls were one of the outlets of this creativity beside bath

suites and private *mausolea*.<sup>82</sup> The layout of the banquet halls usually involved a central room with a cluster of circular or angular extensions opening from it, a central-plan structure that took the shape of a triconch (a central square with three protruding apses), octagon, or other forms. Especially popular were non-orthogonal, curving forms with apses,<sup>83</sup> and the experimentation with them sometimes led to eccentric forms (e.g. the Villa at Piazza Armerina in Sicily,<sup>84</sup> the triconch and tetraconch rooms of Romuliana-Gamzigrad in Serbia,<sup>85</sup> the Palace of Antiochus and the Palace of Lausus in Constantinople,<sup>86</sup> the villa of Rabaçal in Portugal,<sup>87</sup> or the villa of Carranque in Spain,<sup>88</sup> to mention only a few).

For the *otium*, a central room enlarged by semi-circular or rectangular extensions was ideal. By the 4th century, semi-circular *sigma*-couches or *stibadia* became the norm for dining, and when they were placed in apses, the central space could be used by the servants to serve food and after meal for the entertainment (dancers, musicians, actors).<sup>89</sup>

<sup>82</sup>Stephenson (2018) 1–5; Bowes (2008) 125–129; Mulvin (2017) 236.

<sup>83</sup>Stephenson (2018) 1–5; Bowes (2008) 125–129; Lavin (1962) 5–9.

<sup>84</sup>Wilson (2011).

<sup>85</sup>Bülow (2011).

<sup>86</sup>Bardill (1997).

<sup>87</sup>Pessoa et al. (2019).

<sup>88</sup>García-Entero and Guiral Pelegrin (2020).

<sup>89</sup>Dunbabin (1991) 130–135; Dunbabin (1996) 74–78; Rossiter (1991) 202–203; Stephenson (2016) 63–68; Mulvin (2017) 236–240.

<sup>81</sup>Brandt (2011) 1600–1602.



Literary evidence suggests, that a fourth-century dinner party, or *convivium* consisted of two stages: the reception of the guests and small-talk in a reception room or library was followed by the dinner itself in a dining room or *triclinium* or banquet hall. This custom was mirrored in late antique villa architecture in the two or more elaborate rooms reserved for this purpose<sup>90</sup> that were placed near each other often along the same side of the peristyle across the entrance of the house, as we can see in the Villa with Peristyle in Mediana where Stibadium A and B were on either side of an audience hall, or in the Villa of Keynsham, where the hexagonal Room J and Room W occupied the ends of the same corridor. The centralized plan enlarged with apses or rectangular rooms was perfect for the informal reception and conversation of the guests as well, because it enabled and encouraged the forming of small groups of people. So, the choice of a hexagonal central room enlarged with semi-circular and rectangular extensions for the purpose of a dining hall, banquet hall or reception room or library was both due to the architectural fashion of the time and to practical reasons, for this layout perfectly served the function of dining and entertaining.

*Mausolea* were also prestige buildings in which a family could show off their wealth and status, and their design would have been heavily influenced by fashion. Circular and polygonal *mausolea* became widespread during the 4th century in both pagan and Christian contexts. Beside the monumental domed imperial *mausolea* several large villa estates boasted a family *mausoleum* a few hundred meters away from the villa. While some of them were built in the usual octagonal form, for example the *mausoleum* of the Pueblanueva villa, others tended to be of eccentric shapes, like the *mausoleum* in La Cocosa and in Carranque, all in Hispania.<sup>91</sup>

Banquet halls and funerary buildings, *mausolea* were functionally linked by the shared activity of the *convivium*: in the former, *otium* dinner was enjoyed and in the latter funeral banquets were celebrated. Eating at the tomb was always part of the Roman funerary rites, and it continued among Christians during the 4th century.<sup>92</sup> Traditionally, Roman funeral banquets were celebrated at the graves on the day of the funeral (*silicernium*), on the ninth day following the funeral (*cena novendialis*), on the deceased's birthday (*dies natalis*), during the annual festival of the *parentalia* between February 13–21, and during the festival of *rosalia* in May or June.<sup>93</sup> Cemeteries were equipped with stone tables and *triclinia* or *stibadia* for the funeral banquets, and the *mausolea* of wealthy families often had a purpose-built room for memorial feasts, sometimes even with a kitchen.<sup>94</sup> Based on literary evidence, funeral banquets were celebrated among Christians as well, and church officials had a hard

time trying to transform these practices until they were finally abandoned.<sup>95</sup> It is therefore not surprising that the architectural form used for dining in villa buildings and palaces was readily used for pagan and Christian *mausolea*, as well.

The choice of central-plan buildings for baptisteries might have been mostly a matter of liturgical function. A Christian baptistery is essentially the architectural setting for the celebration of baptism; therefore, its most important part and focal point was the baptismal font, around which people gathered. For this activity, the central-plan structure, an octagon, or hexagon was perfect.<sup>96</sup> The first central-plan baptistery is thought to be the octagonal Lateran baptistery built at the mid-fourth century, when polygonal forms were already widespread in baths, banquet halls, and *mausolea*. As free-standing polygonal structures, *mausolea* and baptisteries looked often quite alike, with one difference: the presence of water in the form of a baptismal font was a crucial part of a baptistery.<sup>97</sup> Baptisteries were also related to baths, because they were both centred around the act of immersion in water, and in the 4th century the word *balneum* was still sometimes used instead of *baptisterium* for baptisteries. The word *baptisterium* itself was synonymous with the words *piscina* and *natatio*.<sup>98</sup> In the case of a monumental baptistery like the one in Limoges, the wish to create propaganda for Christianity with a building that was large and fashionable in design might also have played a role.<sup>99</sup>

## CONCLUSIONS

Central-plan multi-apsed structures became fashionable in Late Antiquity, and the variations of polygonal rooms or buildings were used in all kinds of architectural contexts by pagans and Christians as well: in dining halls and reception rooms, baths, or in *mausolea* and baptisteries. Hexagons were built less frequently than octagons, therefore they tend to appear as more eccentric or unique. However, hexagons were scattered throughout the provinces of the Roman Empire as well, and they form an integral part of the late antique architectural experiments with polygonal spaces in the 4th and 5th centuries.

One of the closest architectural parallels of the *mausoleum* in Iovia, Pannonia (Alsóhetény, Hungary) was a pagan *mausoleum* in Louin, France, and the other a banquet hall or reception room in the Villa of Aiano in Italy. All three had relatively thin walls and their central hexagonal rooms were flanked by alternating semi-circular and rectangular rooms. Other related structures where the central hexagonal hall

<sup>90</sup>Rossiter (1991) 201–202.

<sup>91</sup>Bowes (2008) 135–145.

<sup>92</sup>Jensen (2008); Mulvin (2017); Magyar (2012) 131; Lindsay (1998).

<sup>93</sup>Jensen (2008) 117–118; Toynbee (1971) 51 and 62.

<sup>94</sup>Toynbee (1971) 62; Jensen (2008) 126.

<sup>95</sup>Jensen (2008) 126–136; Mulvin (2017) 242.

<sup>96</sup>Brandt (2011).

<sup>97</sup>Brandt (2011) 1593.

<sup>98</sup>Brandt (2011) 1588–1589.

<sup>99</sup>Brandt (2011) 1588.



was enlarged by protruding semi-circular and/or rectangular rooms include the so-called Stibadium A of the Villa with Peristyle of Mediana in Serbia, the reception rooms of the Keynsham villa in England, the hexagonal hall of the Palace of Antiochus in Constantinople, the Domus delle Sette Sale in Rome, the baptistery of Limoges in France, and the *cella quinquichora* of Aquincum in Hungary. It is evident that all of them were built as prestige buildings that showed the status and wealth of their builders not only with their sumptuous decoration but also with their sheer extravagant form.

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