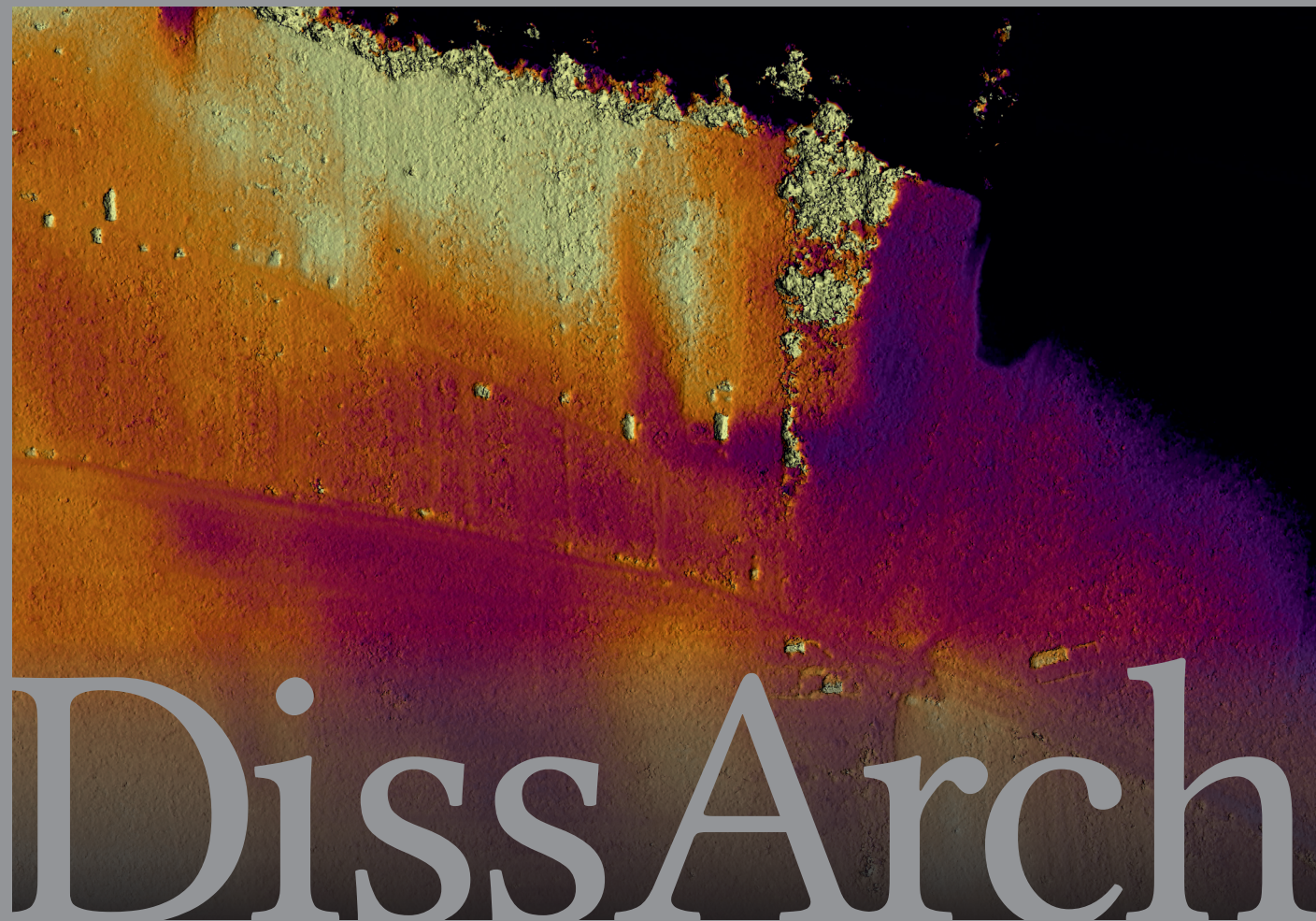


# DISSERTATIONES ARCHAEOLOGICAE

ex Instituto Archaeologico

Universitatis de Rolando Eötvös nominatae



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ex Instituto Archaeologico  
Universitatis de Rolando Eötvös nominatae

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## Short report on the excavations of the Legionary Bath of Brigetio in 2023

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**Abstract:** Since 2015, excavations have been carried out in different parts of the legionary fortress in Brigetio. Due to the systematic geophysical surveys of the *praetentura*, a large building complex came to light, which could be identified as the bath of the fortress, even before the fieldworks started in the territory. In the area of this building complex, the excavations started in 2021, and continued in the next two years. Now, an approximately 1800 m<sup>2</sup> surface of the bath is excavated. During the last season of the fieldwork several heated and unheated rooms and three new (possible) pools and four *praefurnia* were unearthed. The north-eastern closure of the bath was identified, and parts of the northern apses of the *basilica thermarum* were unearthed. A huge number of coins and bronze small finds were discovered, and thanks to the brick stamps, some new data have become available on troop movements and military history of the Pannonian *ripa*.

**Keywords:** Brigetio, legionary fortress, Roman bath, limes, Pannonia

## Introduction

The excavations of the legionary fortress of Brigetio started in 2015.<sup>1</sup> The investigations have been carried out first in the principia, then in 2017–2018 an aula type building dated around the AD 370s was excavated.<sup>2</sup> Based on the results of geophysical surveys conducted in the area in the previous years, the place of the *porta praetoria* and *via praetoria* was determinable, and the excavations of the year 2019 took place there for the purpose of verifying the results of geophysical surveys.<sup>3</sup> Thanks to the geophysical surveys of last years, detailed images of the *praetentura* are accessible. West to the *via praetoria* a large building complex was visible on GPR images, covering a territory of about 6,000 m<sup>2</sup>. Regarding the structure in the images, the building complex was identified as the bath of the fortress even before the fieldworks started.

The excavation of the bath started in 2021. In the first two seasons of excavation approximately 1,250 m<sup>2</sup> were unearthed.<sup>4</sup> During this time, several of the rooms and pools of the bath were unearthed. The specific function of these rooms could not be identified, due to the fact that the complete ground plan is not yet known. However, a clear distinction can be made between the heated and unheated rooms and pools.

In the bath's northern section, a large continuous area became visible during the two seasons of excavation (2021/1, 2021/2 and 2022/1 surfaces) (Fig. 1). A cold-water pool along with its terracotta drainpipe, was preserved. The pool and the rooms surrounding it, showed signs of having undergone several periods of renovation and renewal. An unheated room connected to the pool from the south. In the corner of this room another small, heated room had been created. The rest of the rooms, situated on the south were unheated. To the west, several large, heated rooms were discovered. In the case of these rooms, it could be observed that during use and renovations, some had been sectioned off, creating smaller separate rooms. A *praefurnium* belonging to one of these rooms was successfully excavated.

Surface 2021/3 provided information regarding the middle section of the bath. Here, the unheated rooms opened up into another pool, also unheated.

In the southern section of the bath, a cold-water pool could be found, similar to the one that was excavated on Surface 2021/1. To the north of the pool another unheated room had been constructed. The rooms located to the east, and the west of the pool were heated.

The western section of the bath occupied Surfaces 2021/4 and 2022/3. This south-western tract of the building was an intensely heated area. Here we excavated two *praefurnia* and one warm-water pool. Based on hypocaust columns found here, the existence of a second warm-water pool can be assumed. The trenches opened in this area overlapped two separate rooms. Both these rooms share a common feature: the underfloor heating system used in the first period was renewed by installing a new system on top of the *hypocaustum* that had filled up during use.

1 For more details about the excavations since 2015, see BARTUS et al. 2016; BARTUS et al. 2018a; BARTUS et al. 2018b; BARTUS et al. 2020a; BARTUS et al. 2020b; BARTUS et al. 2022. The research behind the present paper was supported by the National Research Development and Innovation Office (NKFI K 134522), the National Cultural Fund of Hungary (NKA) and the HUN-REN – ELTE Research Group for Interdisciplinary Archaeology.

2 BARTUS et al. 2018a.

3 BARTUS et al. 2020a.

4 BARTUS et al. 2022.

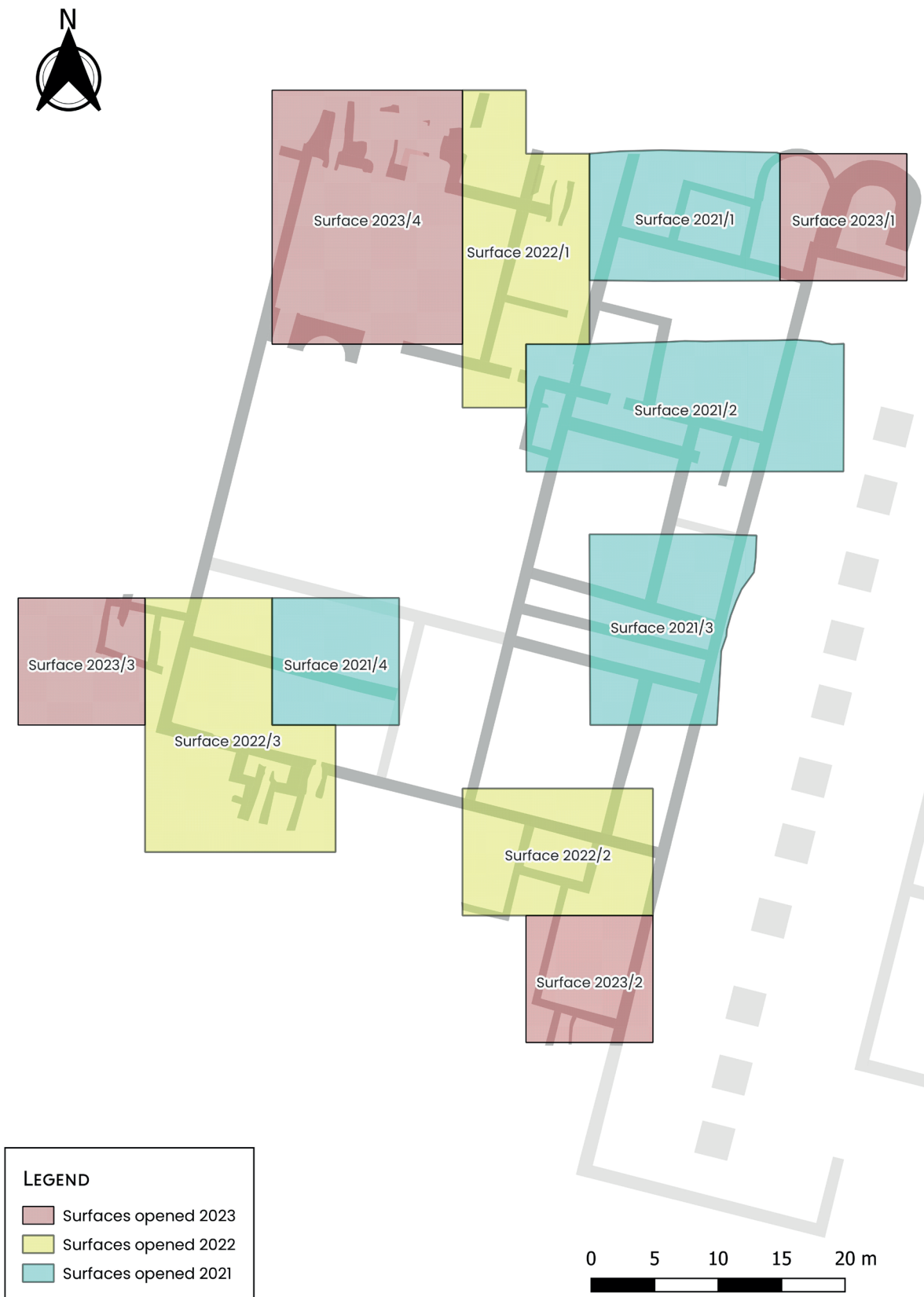


Fig. 1. Surfaces opened in the last three seasons of the excavation

## Excavations in 2023

In the excavation season of 2023 we opened 4 surfaces, covering a territory of 600 m<sup>2</sup> (Fig. 1). The four surfaces were aligned with the sections of previous years to the east, south, west and north-west.

### Surface 2023/1

The small apsidal room with hypocaust heating, previously observed in Surface 2021/1, continued in Surface 2023/1. The columns of its hypocaust system were made of circular bricks (Fig. 2.1). The surface beneath the columns, a rough mortar layer, was of poor quality compared to the rest of these surfaces observed within the bath. The walls of this room were not preserved, only the trenches of the removed walls remained. This room is the eastern edge of the bath, to the east of which the basilica begins. The heated apsidal room was bordered by a wall on the south. On this wall, the threshold of a doorway leading into this room has been preserved (Fig. 2.2). Based on this information, it can be concluded that this room could be entered from one of the larger unheated rooms of the bath. Beneath this room an east-west oriented sewer came to light (Fig. 2.3), the floor of the *hypocaustum* built on top of it had sunken slightly. The sewer may have turned towards the north, where it was then directed through the southwest wall of the apsidal room. The bricks that formed the bottom of the sewer have been preserved in some places, the majority of the sewer, however, was destroyed during the removal of a wall.

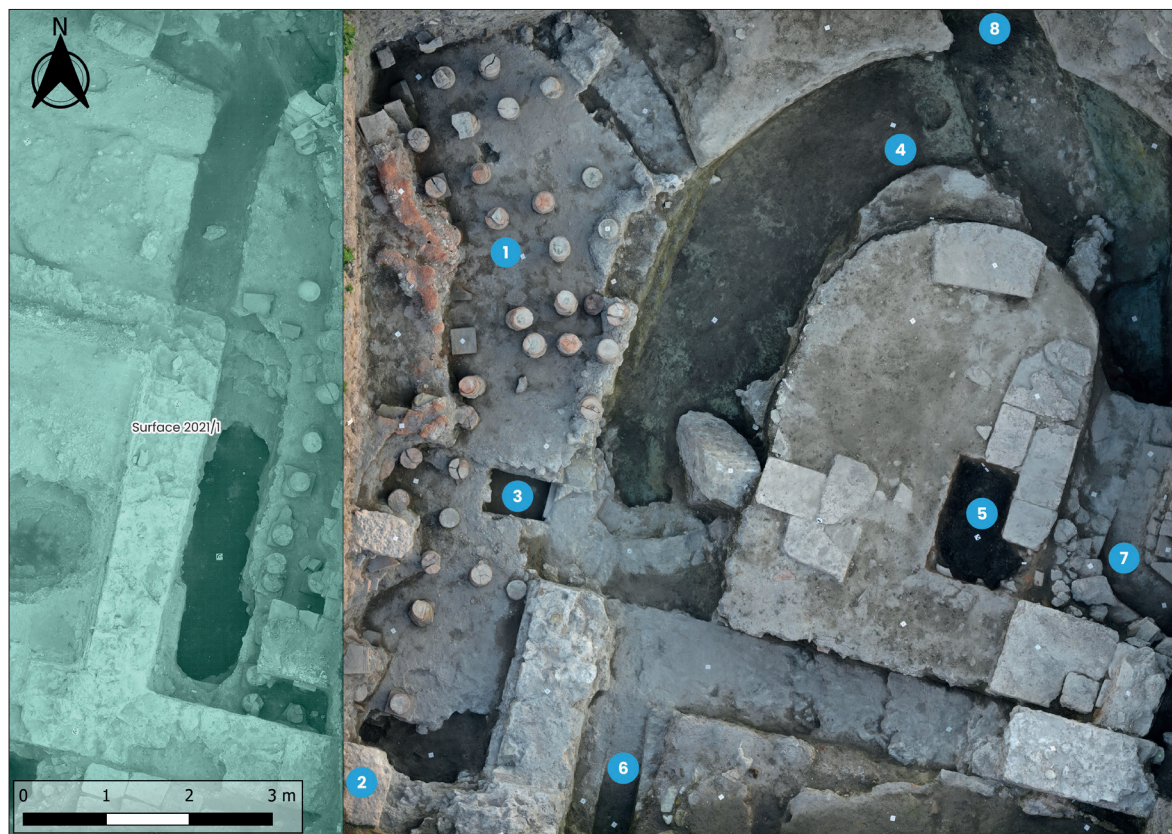


Fig. 2. Orthophoto of surface 2023/1

The remains of the flooring, to the south of the apsidal room, were created using the *opus spicatum* technique, this could also be observed in Surface 2021/1.<sup>5</sup> The wall that bordered the room from the east did not survive, even its foundation had been removed. Here a deep, wide trench left by the

5 BARTUS et al. 2022, 359, Fig. 4, Periods 2f and 2.



removed wall could be observed, its north end closing in a curve. This apse was the northern closure of the *basilica thermarum* that belonged to the bath (Fig. 2.4). The relation between the two apsidal rooms cannot yet be determined. The entryway to the basilica from the heated apsidal room could be found south of the closing apse of the basilica. The two apsidal rooms were not connected to one another. It is not yet clear whether or not the two rooms were in use at the same time.

Based on its floor covering, two phases of construction could be distinguished in the apsidal room that closes the basilica. A continuous thick layer of ash could be observed on the entire surface of the room (Fig. 2.5, Fig. 3). This may be a remnant of an earlier wooden floor, based on the comparable parallel of the *basilica thermarum* of the baths of Xanten.<sup>6</sup> After the wooden flooring, possibly in the Severan period, the surface of the floor was covered using large stone slabs. Along the side of the western wall of the basilica, the continuation of the north-south oriented sewer, that was unearthed in 2021 and 2022, could be observed (Fig. 2.6). Unfortunately, the line of sewer could not be traced all the way, because it was destroyed during the removing of a wall. However, based on its direction, it is most likely to have led into the east-west oriented sewer mentioned above (Fig. 2.3). The curvature of the trench left by the removed wall, indicates that the basilica could have been closed by three apses on the north side. Underneath the wall, in the section where the closing apses of the basilica meet, a channel turning at a right-angle in the excavated area was observed (Fig. 2.7). Its continuation towards the north was destroyed due to the removal of a wall. Because of its location and shape it is possible, that it was built to supply water to either a fountain or *labrum*. A thick, roughly north-south oriented trench of a removed wall indicates the existence of a period that predates the construction of the basilica (Fig. 2.8). This trench was found underneath the trench of the removed wall that closed the apse. It is unknown at the moment what kind of building it belonged to, but it was demolished in the Roman period.



Fig. 3. Ash layer. Remains of the earlier phase's wooden pavement

6 QUICK 2020, 79.

### Surface 2023/2

Surface 2023/2 connected to Surface 2022/2 from the south. During the excavations carried out in this area in 2022 a room with hypocaust heating had been unearthed, in particularly good condition. This same room also occupied most of Surface 2023/2 (Fig. 4). In the course of this year's excavation, we were able to clarify its southern border. The hypocaust system found in these parts was preserved in similar condition to the one found last year (Fig. 5.1). The surface beneath the *hypocaustum* excavated in other areas of the bath, were made of better—poorer quality terrazzo. In this room however the bottom of the heating system was made of square bricks laid out in a regular pattern. On top of this stood the columns of the *hypocaustum* that were made of circular bricks. As observed in the case of Surface 2022/2, on each of the square shaped bricks that formed the base of the hypocaust system, the stamp of the *Legio XI Claudia* was present. The circular bricks that formed the columns, however, bore the stamp of the *Legio I Adiutrix*. The walls of this room did not remain intact in all places. On the south side only the traces of a removed wall could be observed. It is perhaps thanks to this, that the *praefurnium* that provided the heating for this room, was also not preserved in good condition. The walls that surrounded the room from the other sides were visible and relatively intact. Because of this we can assume that the *praefurnium* was located on the south wall. Alongside this wall flat stone slabs lay *in situ*, surrounded by burnt layers (Fig. 5.2). Although it is not yet certain, but it could be assumed that these are the remains of the *praefurnium* that belonged to this room.

Beside the western section wall, we found something that could either be interpreted as a well, or a large pit (Fig. 5.3). Unfortunately, its excavation was not possible.

### Surface 2023/3

Surface 2023/3 joined the previously excavated areas from the west (Fig. 6). The area excavated here probably lay outside the borders of the bath. A room in the shape of a slightly irregular rectangle was observed here (Fig. 6.1). It may have been attached to the western enclosing wall of bath, perhaps it served as a service room of some kind. The walls of the room were constructed using different techniques. Its northern wall was built with the use of regularly shaped stone blocks. Preserved in the western wall of the room, bits of terrazzo and hypocaust bricks could be observed. The room's southern wall had been demolished in one section, here a north-south oriented trench stretched across the whole of the surface (Fig. 6.2). The remains of the wall that had been built inside the trench were only visible in a few places (Fig. 6.3). For the most part the trench was empty. In the south end of the surface, another east-west oriented trench attached to the one previously mentioned (Fig. 6.4). This could perhaps be the result of removing a wall. At the present stage of our research, it is not possible to determine what kind of a building they belonged to, the finds collected from their infill date to the Roman period. In the northern half of the surface an unfinished



Fig. 4. The *hypocaustum* in the southern heated room



Fig. 5. Orthophoto of surface 2023/2



Fig. 6. Orthophoto of surface 2023/3

well was found. At the bottom of the well, 3.5–4 meters below ground level, a continuous mortar surface was present (Fig. 6.5). This may be the reason behind the well's incompleteness. The mortared construction is at a lower depth compared to the walls found on the surface and may belong to an earlier period of the camp. It is thicker than the walls, its exact extent could not be clarified. On its northern side the place of a beam was visible, but it is not yet clear what kind of building it can be attributed to (Fig. 6.6). Most of the surface consisted of a mixed, rubble and ash filled area with little or no coherent layering. It's possible that the rubble from previous construction works and the ash produced by the hypocaust system was deposited in this area throughout several years.

Surface 2023/3 was remarkably rich in small metal finds, two dolphin shaped box handles, and a bronze satyr statuette was unearthed in this area (Fig. 7).

#### Surface 2023/4

Surface 2023/4 attached to Surface 2022/1 from the west (Fig. 8). The room with hypocaust heating that was excavated in Surface 2022/1 continued here. The *suspensurae* consisted of columns made up of circular bricks, its bottom was a mortar and terrazzo surface resting on a stone base (Fig. 8.1). Its infill was consistent



Fig. 7. Bronze statuette of a satyr from surface 2023/3

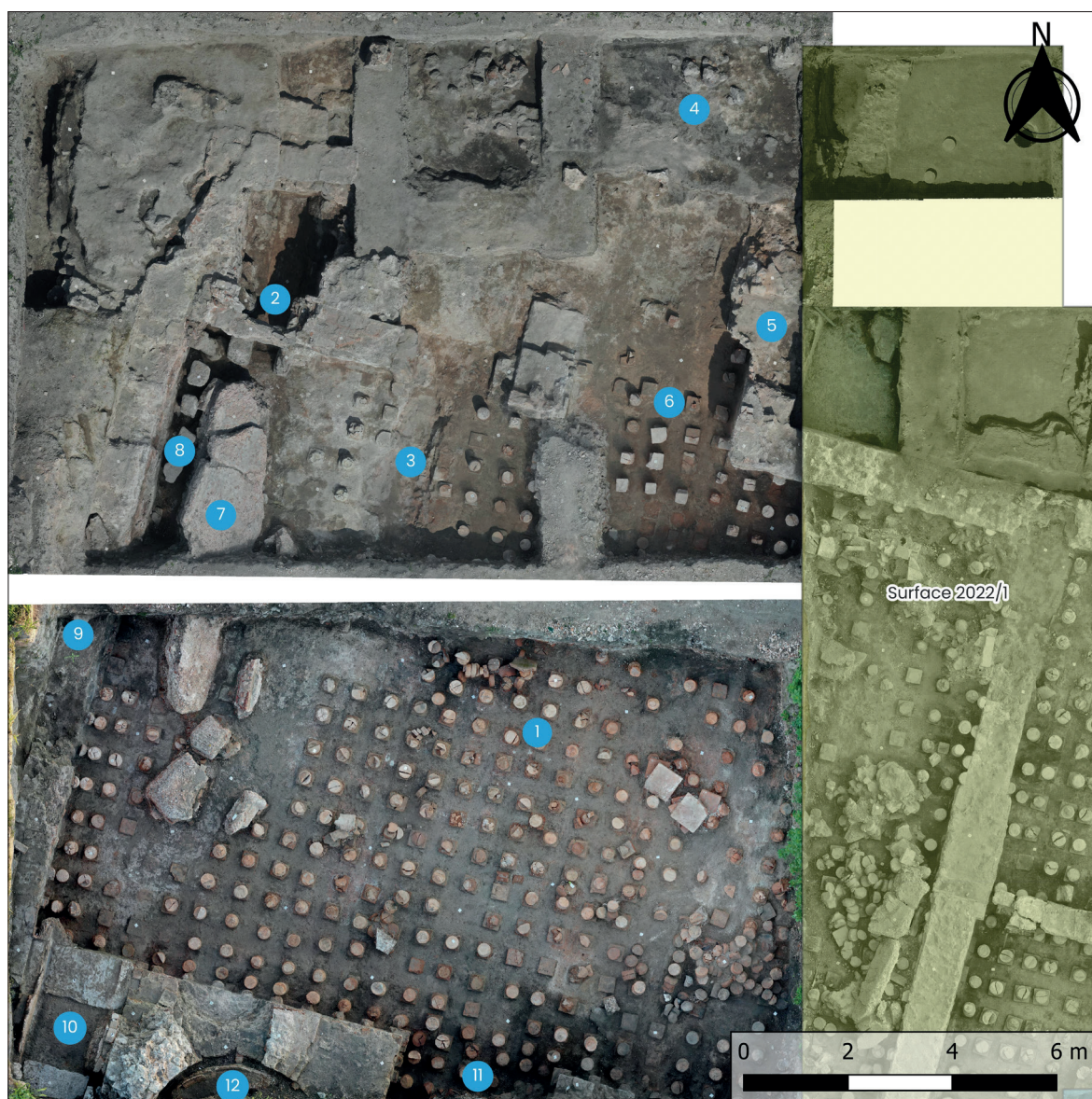


Fig. 8. Orthophoto of surface 2023/4

with the rest of the *hypocaustum* excavated in the bath: brick debris and various construction rubble, at the bottom of which layers of clay and ash were present. The latter was deposited during the use of the *hypocaustum*. The *praefurnia* of the room were located along its northern wall. The one on the west was in a particularly good state of preservation (Fig. 8.2, Fig. 9), the other two less so, but their location was determinable. The stone walls of the western *praefurnium*, tapered downwards, and were preserved at a height of almost 1.5 metres, the stones show signs of severe burning. The lower layers of the *praefurnium* infill, created during its use, were also hard and burnt-through. As observed in the case of Surface 2022/1, stone *suspensurae* were placed in the immediate vicinity of the *praefurnium*, as they were better capable of withstanding immense heat, compared to the brick columns. The other two *praefurnia* were located to the east. All that remained of the middle *praefurnium* was the burnt-through small section of a wall made of the same stone, similar to the one found to the west. The hypocaust columns are missing in this line, and here a small trench cutting through the foundation of the *hypocaustum* was observed (Fig. 8.3). It could not be determined whether it was caused by a later excavation of building material or whether it was created in the Roman period. The wall of the *praefurnium* to the east of this, survived in an even more fragmentary state, probably

located behind a pool. Around both of the *praefurnia* in poor condition, several layers of black ash were observed, which may have been formed during their use (Fig. 8.4).

We can assume that there were several pools in this large, heated room. One of them was located along the eastern section wall. Only the lateral wall of this pool remained, preserving the imprints of *tubuli* (Fig. 8.5). The *praefurnium* that provided the heating for the room and the pool, could have been located directly beneath it. This pool is the symmetrical counterpart of a similar pool found in Surface 2022/3, which was preserved in a slightly better condition. The hypocaust columns found in this part of the room were made of square shaped bricks, as opposed to the rest of the circular brick columns located in this room (Fig. 8.6). A second pool can be assumed in the west end of the room, in the line of the well preserved *praefurnium*. This pool also didn't survive in an easily recognisable state. However, some of the large coherently preserved fragments of terrazzo found in this area, suggest that they may have been used to form the bottom of the pool (Fig. 8.7, Fig. 10). These fragments are thicker than the ones found in other parts of the bath. In one part of the room, a corner created by the smearing of terrazzo was preserved. Since the terrazzo and the hypocaust columns underneath, were preserved *in situ*, in the corner close to the point of emergence, the corner formed at the edge of the thicker terrazzo could have belonged to a pool, i.e., this thicker terrazzo was not the floor of the room, but instead it can be interpreted as the bottom of a pool. Here in the north-western corner of the room, along the wall, the *hypocaustum* was not made up of semi-columns, instead a thick construction consisting of brick and mortar attaches directly to the wall. In addition, massive stone pillars were added beside this construction, the reason for this could be the immense heat generated by the *praefurnium*, which is amplified due to its close proximity (Fig. 8.8).

The bath's western enclosing wall was found next to the western *praefurnium*. For the most part only the foundation of the wall remains (Fig. 8.9). The beginning of the ascending wall can be seen in some places, only the imprints remain of the levelling brickwork. The imprint left by the brickwork, preserved the stamp of the *Legio I Adiutrix*. Most of the circular bricks of the *hypocaustum* also bore the stamp of this



Fig. 9. Heating channel of the well preserved *praefurnium*



Fig. 10. *In situ later* with notches



Fig. 11. *In situ* hypocaust pillars preserved in original height, and the pavement



Fig. 12. Remains of the semi-circular, heated pool

legion. Semi-columns were placed alongside the wall at 45 cm intervals. On top of these columns lay *lateres* with notches (Fig. 10). These could be used to support the thinner-walled elongated rectangle shaped *lateres* with tongue, abundant among the finds, the walls of which were scratched to ensure better plaster adhesion. They were placed on the wall spanning all the way up to the ceiling. This technique was used for the heating of vaulted buildings, this allows us to reconstruct a vaulted ceiling in this part of the bath.<sup>7</sup>

In the southwest corner of Surface 2023/4, two thresholds and the short corridor between them had been unearthed (Fig. 8.10). At the junction of the threshold and the large, heated room that was excavated, the structure of the underfloor heating system could be observed *in situ*. The *suspensurae* were made up of 9 circular bricks (Fig. 11), with a square shaped brick providing the base of the column. On top of the column, larger square bricks were laid, on top of which a layer of terrazzo was placed. The *tubuli* between the western enclosing wall of the bath and the flooring diverted the airflow along the wall.

In the southern parts of the surface, the remains of an east-west oriented wall could be detected in some places. The wall found between the hypocaust columns was not continuous. The *suspensurae* continued to the south through the middle of the large room with underfloor heating (Fig. 8.11). This suggests that the room to the south of this, which has not yet been excavated, was a heated room. We do not possess much information about this room yet, as Surface 2023/4 just barely touched this area. However, a small section of a semi-circular, hot-water pool fell on to the excavated area (Fig. 8.12, Fig. 12). The pool had terrazzo flooring and was located in a semi-circular cubicle. Although not all the *tubuli* between the pool and wall were preserved intact, their placement is clearly visible. This information allows us to reconstruct a smaller heated pool here.

## Chronology

The exact chronology of the bath is unknown as of today. Evidence of reconstruction and renovation could be observed in several places. Based on this we are able to distinguish between periods, the renew-

7 For similar bricks and heating system from Vindonissa, see JEANLOZ 2022, 70–72.

ing of the flooring for example happened in the exact same way in each room of the bath.<sup>8</sup> Some of the southern *hypocaustum* systems were rebuilt,<sup>9</sup> and one of the northern heated rooms was later divided into two separate rooms.<sup>10</sup>

The stamps found on the bricks suggest that the construction of the bath may have started when the camp was first established. Although determining this is made difficult by the fact that the *Legio I Adiutrix*, whose stamps clearly dominate the bricks found *in situ*, was present in the camp from the time that it was established until its abandonment, so these stamps are not dateable. The only other type of stamp found *in situ*, in Surface 2022/2, belonged to the *Legio XI Claudia*. This proves that the construction of the bath was already underway between the year AD 101 and 105 at the latest.<sup>11</sup> In the case of Surface 2023/2, this information was supplemented by the fact that the bricks with the stamps of the *Legio XI Claudia* were also accompanied by bricks with the stamps of the *Legio I Adiutrix*. According to the traditionally accepted legion history however,<sup>12</sup> these two legions were never stationed at Brigetio at the same time. The explanations for this occurrence, are only hypotheses for now. We can rule out the theory that the *Legio I Adiutrix* continued with a construction that was left unfinished, because if this were true, then a close to 10-year period existed when the construction would have been halted, which is highly unlikely. Considering that the underfloor heating system belongs to the very foundations of the building, a renovation or reconstruction also seems unlikely. This is supported by fact that when the heating system had been renewed in the bath, it was not done by replacing the old columns with new ones, but rather by filling up the space between the old columns and placing the new *hypocaustum* on top.<sup>13</sup> It could be possible that the *Legio I Adiutrix*, used the bricks previously made by *Claudia XI* or vice versa, that *Legio XI Claudia* used the bricks previously made by the *Legio I Adiutrix*.<sup>14</sup> At the same time, it is not impossible to assume that the chronological data found in earlier literature needs to be revised, and the *Legio I Adiutrix*, or some of its units, didn't in fact completely leave the camp at Brigetio between AD 101–114/118, or at the very least occupied it at the same time as the *Legio XI Claudia*.

In addition, very little *tegula* material indicating construction phases has been found in the territory of the bath. Some stamps of the *XXX Ulpia Victrix* legion, which arrived at the camp after *Claudia XI*, were unearthed, but they were not *in situ*. This suggests that there could not have been an active wave of construction in the area of the bath in the period between AD 105–114/118. At most, if we accept the hypothesis that some of the units of the *Legio I Adiutrix* remained at the camp between AD 101–105, then they could have continued with the construction work until AD 118.

From the Late Roman Period, some stamps with the names of Lupicinus *tribunus* and Terentianus *tribunus* have been preserved. These stamps can be dated to the end of the AD 360's and beginning of the AD 370's. One Bommus stamp was also found, dating to the 4th century AD. None of these were found *in situ*, they were mainly found in the upper layers of fill and rubble in the central section of the bath (Surface 2021/2 and part of Surface 2022/1 that borders this area).

8 BARTUS et al. 2022, 359.

9 BARTUS et al. 2022, 364.

10 BARTUS et al. 2022, 361.

11 BARTUS et al. 2022, 363.

12 According to the traditionally accepted chronology the *Legio I Adiutrix* was stationed in Brigetio between AD 97–101 and after AD 114/118, while the *Legio XI Claudia* was stationed here between AD 101–105. For more information about the legion history of Brigetio see BARKÓCZI 1951, 19–20; LŐRINCZ 1975, 349; DOBOSI – BORHY 2022, 141.

13 BARTUS et al. 2022, 363–364.

14 Both are possible because *Legio I Adiutrix* was certainly stationed in the area between AD 97–101 and after AD 114/118. *Legio XI Claudia* was in Brigetio from AD 101–105. See DOBOSI – BORHY 2022.



2023 was a truly exceptional year in terms of coins with 1159 pieces discovered. The majority of the coins were found by metal detectors from disturbed layers, which even without context provide valuable information on the coin circulation in the legionary camp. It is impossible to give a detailed study of these finds since most of them are still waiting to be cleaned. However, we can give a general picture of the denominations and periods. The earliest coin so far from 2023 was that of Nerva, followed by the ones of Trajan. Not surprisingly, most of the coins are 4th century AE 3–4 particularly the ones minted by the sons of Constantine. Also numerous are the Valentinianic pieces and the *antoniniani* from AD 260 to 270. We have far fewer coins from the other periods Roman occupation. It was mostly during the preliminary cleaning process that 2nd century AD coins and other *antoniniani* were discovered, so the picture is more varied and thus fits nicer into the tendencies previously outlined by K. Bíró-Sey.<sup>15</sup>

Unfortunately, we have not discovered a coin hoard this year, as we have done in 2021 and 2022.<sup>16</sup> However, the most interesting piece in 2023 was a Greek provincial medallion discovered in the northern part in the *hypocaustum*. This was minted by Caracalla in Byzantium between AD 209 and 212, the reverse depicting the emperor with his brother, Geta clasping hands over a prize crown.<sup>17</sup> This rare find is not unusual at all in Brigetio, we have also found two further medallions since 2020 in the legionary camp. However, other pieces were previously known, so in total we now have information on almost 20 Greek provincial medallions from this ancient town.<sup>18</sup> These were primarily minted in Byzantium, Perinthus and some also in Philippopolis. Their unusually high number in a Pannonian town, where Greek provincial coins, yet alone medallions are extremely rare, was put forward by L. Barkóczy and A. Kerényi. They saw these as prizes for the soldiers of the vexillations that took part in the eastern campaigns of Caracalla, Severus Alexander and Gordian III.<sup>19</sup> These had to be shipped over the Bosphorus either from Byzantium or Perinthus, where festivities and sporting events were held in the name of the emperor.

The 1159 pieces are of the last campaign and are more than double the 520 pieces unearthed in the previous year. This, together with the 296 pieces from 2021, means that all in all we have almost 2,000 coins from the legionary baths alone. The number is especially striking, when we compare it with some 7,300 coins published by Bíró-Sey K. in 1977 from the whole of Brigetio.<sup>20</sup>

## Summary

Based on the three seasons of excavation and the results of previous ground-penetrating radar surveys (Fig. 13), the exact function of each room of the bath cannot yet be determined. Not all parts of the building have been discovered at this time. The rooms are roughly aligned along an east-west axis of symmetry, but later alterations seem to have disrupted this. The rooms and pools found in the eastern half of the bath were not provided with heating, with only one or two exceptions, but the *hypocaustum* of these rooms were not as heavily used as those found on the western side of the bath. All rooms and pools excavated in the western half of the bath so far, have been heated. The north-south extent of the bath is not yet known. It is bordered to the east by the *basilica thermarum*, and its western wall has probably been determined, although beyond that there may have been smaller service rooms attached to the bath from the west.

15 BÍRÓ-SEY 1977, 7–17.

16 Both of the coin hoards close under the Constantinian dynasty.

17 <https://www.corpus-nummorum.eu/types/8013> (last accessed 13 December 2023).

18 FEHÉR – JUHÁSZ 2021.

19 BARKÓCZI – KERÉNYI 1958.

20 BÍRÓ-SEY 1977.

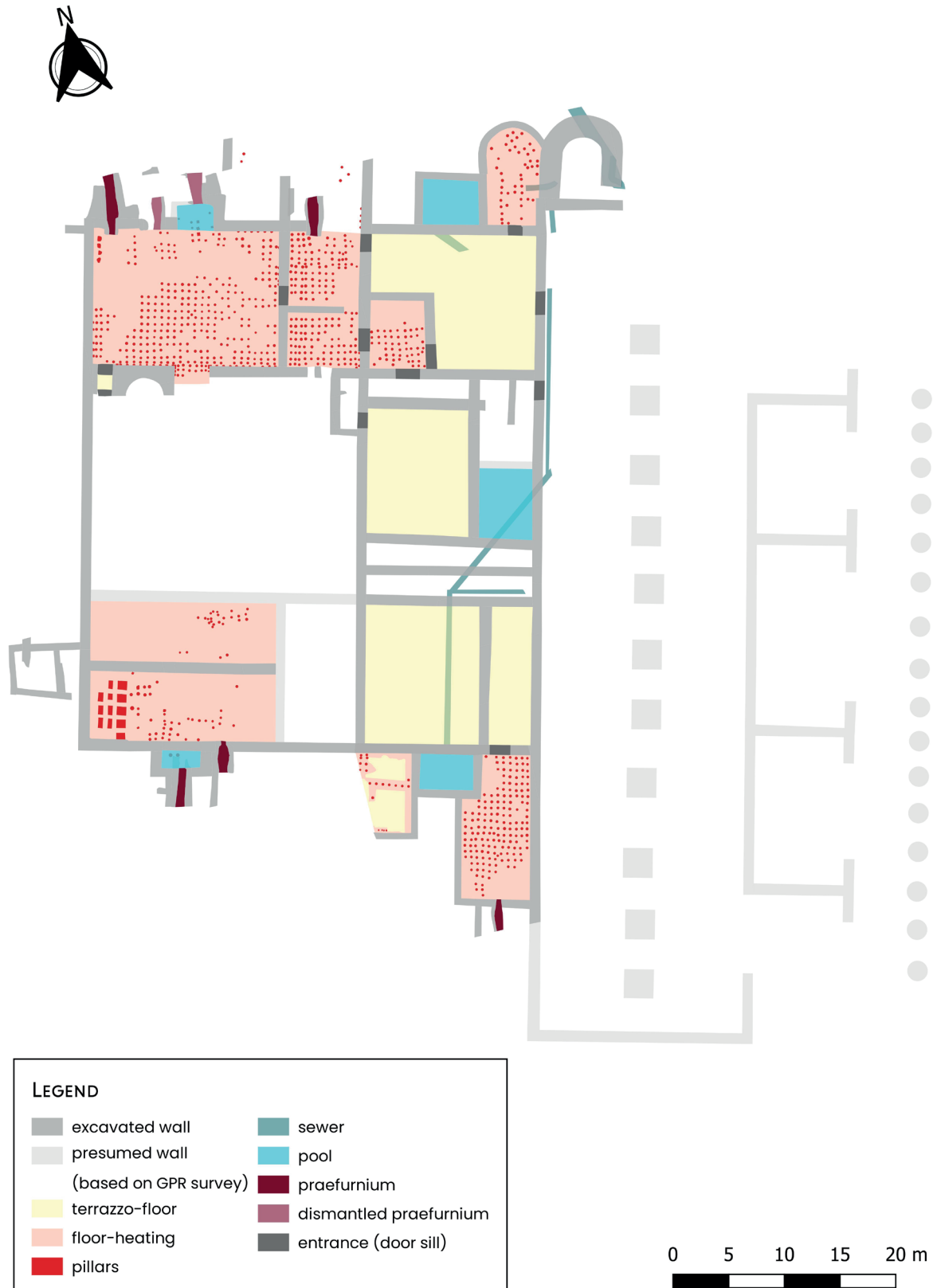


Fig. 13. Hypothetical reconstruction of the floor-plan of the bath, according to the excavations between 2021–2023

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