

DISSERTATIONES ARCHAEOLOGICAE

ex Instituto Archaeologico

Universitatis de Rolando Eötvös nominatae



DissArch

Ser. 3. No. 10. | 2022

Dissertationes Archaeologicae
ex Instituto Archaeologico
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ISSN 2064-4574 (online)

Publisher

László BORHY

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DOAJ

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HUMANITIES AND SOCIAL SCIENCES

Budapest 2023

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Short Report on the Excavations in the Legionary Fortress of Brigetio in 2021–2022

The Legionary Bath

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Received 8 December 2022 | Accepted 20 December 2022 | Published 31 March 2023

Abstract: While the legionary fortress of Brigetio is one of the key sites in the province of Roman Pannonia, its inner structure and buildings are almost unknown. Although the *retentura* of the legionary fortress is almost entirely covered by modern buildings, the *praetentura* can be researched using remote sensing methods. Over the past few years, systematic excavations took place in the *praetentura*, based on results of the geophysical surveys. A large building complex was identified as the bath of the legionary fortress, with an area of at least 4,000 m². In the excavation seasons 2021 and 2022, about 1,200 m² of the bath was unearthed. Several cold and hot rooms, pools, sewers, hypocaust systems and *praefurnia* were found, yielding abundant find material. In the present state of research, the chronological periods and building phases of the bath are mostly unknown. The only chronological data comes from the *in situ* stamped bricks of the *Legio XI Claudia*, dating the earliest period of the bath between AD 101 and 105, which was also the earliest period of the legionary camp. From the Late Roman Period, some *tegulae* with the names of Lupicinus *tribunus* and Frigeridus *dux* have been preserved, which indicate building activity in the last third of the 4th century AD.

Keywords: Brigetio, legionary fortress, Roman bath, limes

Introduction

Excavations have been carried out regularly since 2015 in the territory of the legionary fortress of Brigetio, including investigations in the *principia* as well as the eastern part of the *praetentura*.¹ In 2015, we located the courtyard of the *principia* and some details of buildings south of it, as well as a section of the road separating the *principia* and the barracks of *cohors I*. In 2017 and 2018, we excavated a large apsidal building near the *porta principalis dextra* in the south-eastern corner of the *praetentura*. The construction of this aula-type building can be dated around the AD 370s.

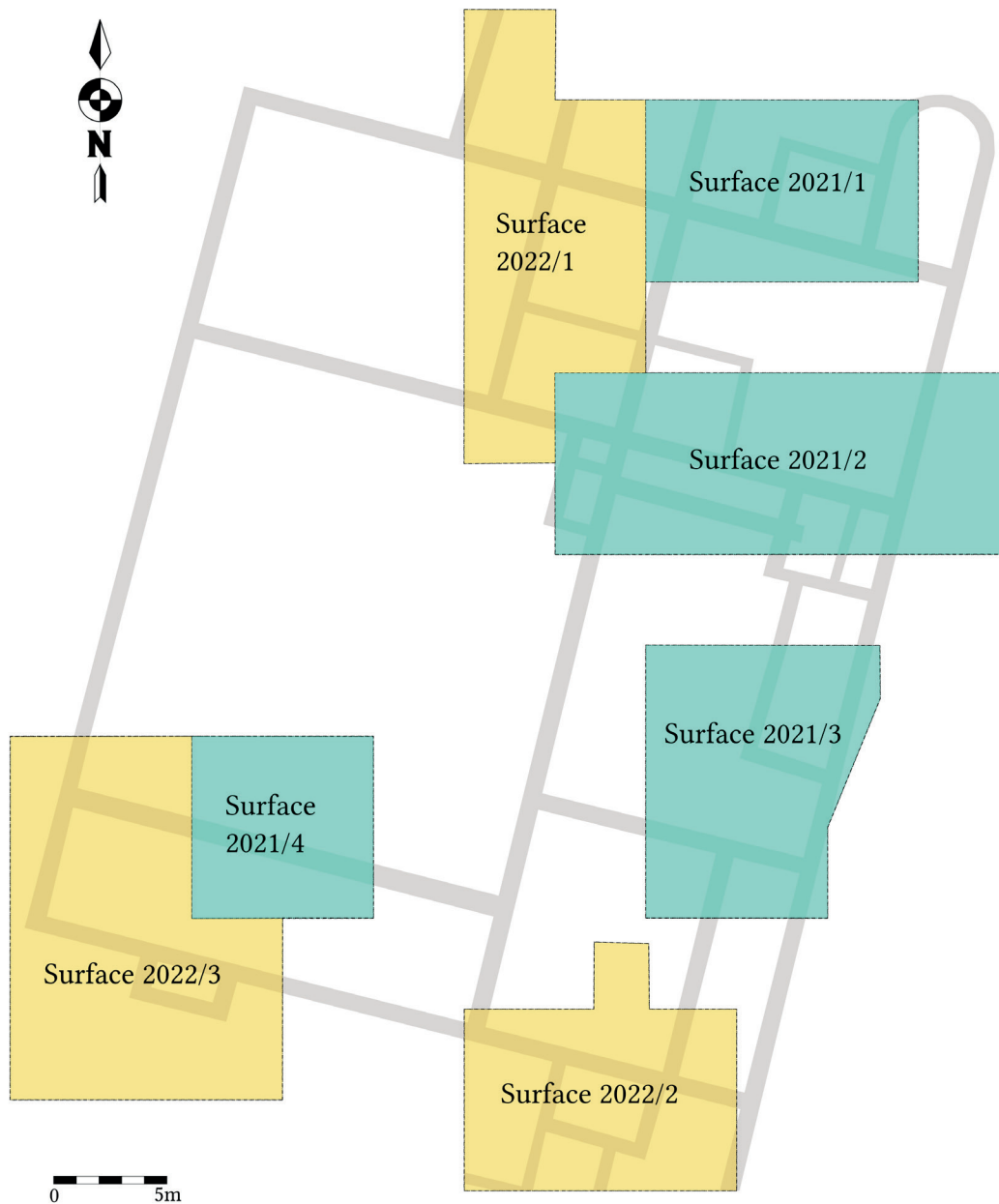


Fig. 1. The surfaces opened in 2021 and 2022

1 For a summary of the excavations in the legionary fortress of Brigetio, see BARTUS et al. 2016; BARTUS et al. 2018b. 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 ELKH-ELTE Research Group for Interdisciplinary Archaeology.

Presumably, it was the venue where Valentinian I received the envoys of the Quadi on 17 November 375, as a result of which he eventually suffered a stroke and died. Several rooms belonging to earlier construction phases have been unearthed below the building.² In 2019, the excavations in Brigetio focused on the area of the northern gate of the legionary fortress, as the geophysical surveys conducted in the previous year allowed the identification of both the *porta praetoria* and the *via praetoria* leading through it. These fieldworks, besides providing new information on the topography of the legionary fortress regarding the *porta praetoria* and the *via praetoria*, were also significant from a methodological point of view, as they allowed to verify the results of geophysical surveys conducted in the area earlier, thus contributing greatly to the planning and fine-tuning of future measurements.³

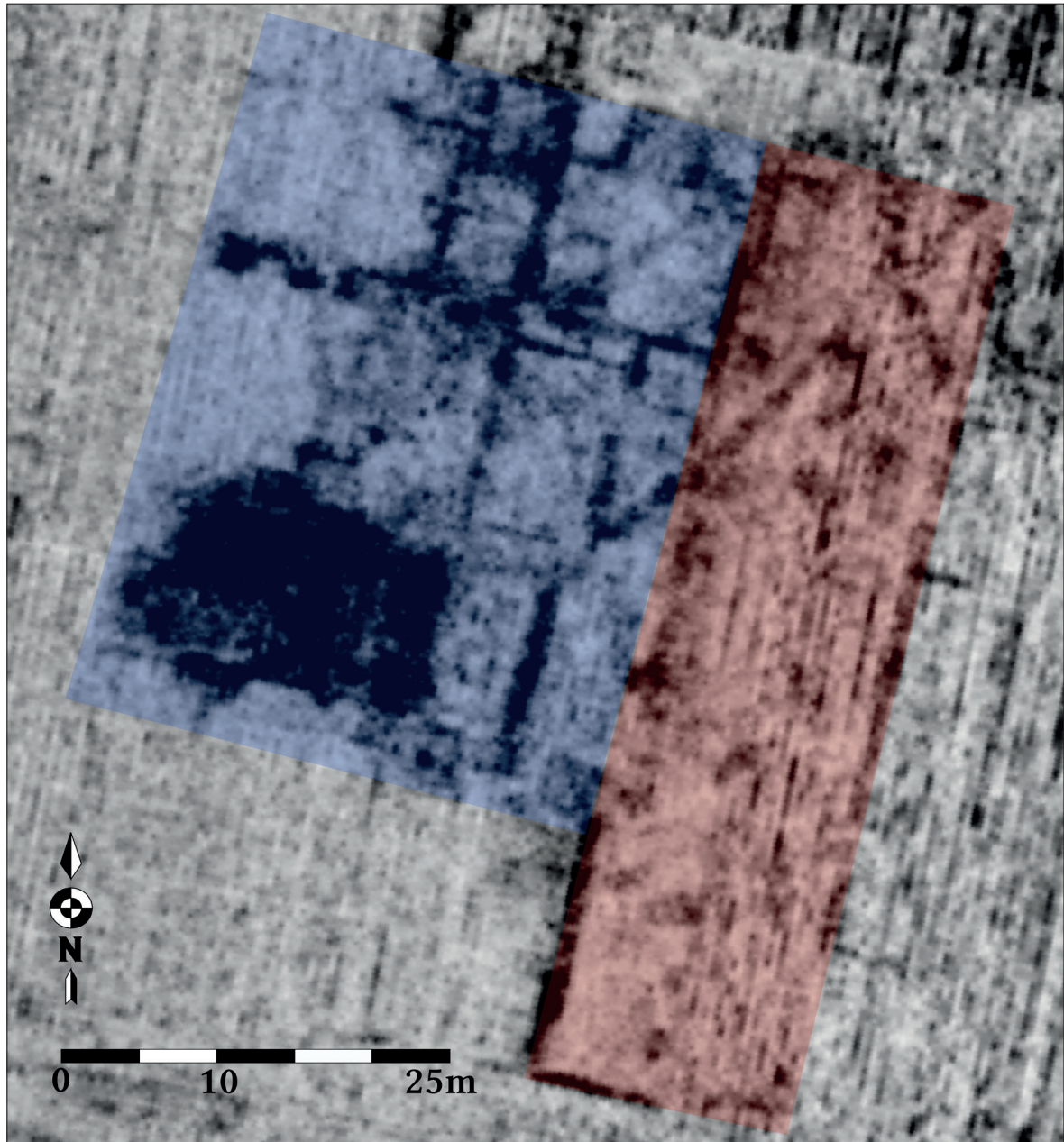


Fig. 2. GPR image of the bath (blue) and the *basilica thermarum* (red)

2 BARTUS et al. 2018a.

3 BARTUS et al. 2020.

The geophysical surveys of the last seasons resulted in detailed images of the *praetentura*, allowing us to concentrate on one of the most densely built-in part of the legionary fortress: the area west of the *via praetoria*. According to the GPR images, a large building complex was situated there, covering a territory of at least 4,000 m², which could be identified as the bath of the fortress even before the fieldworks started.

Excavations in 2021

Four trenches were opened in July and August 2021, in a total area of 600 m² (Fig. 1). The partially excavated bath consists of numerous rooms of different sizes. Two pools were unearthed, and several rooms had hypocaust flooring; however, in the lack of knowledge of the ground plan of the bath, the function of the rooms can hardly be identified.

The largest building that could be connected with the bath is a basilica-like structure east of the excavated area. The monumental building, measuring 80×20 m, runs along the *via praetoria* and has two aisles divided by a row of large pillars. A stone threshold indicates that the building was in direct connection with the rooms of the bath, and one of the main sewers built of *tegulae* carried the wastewater out from the bath under the floor of the basilical building. Only a very small part of the building was excavated in 2021, but the whole structure can be seen on the GPR images (Fig. 2).

In the eastern half of the northern excavation area (Surface 2021/1), an apsidal room with hypocaust heating was unearthed (Fig. 3.1). The room was separated by a thick, massive wall from the adjacent pool (Fig. 3.2) that belonged to another room southwest of the apsidal one. The pool has four building periods; it had terrazzo flooring in the first three, while becoming covered with limestone slabs in the last one. No hypocaust system was found under the pool. A small section of a terracotta drainpipe was found in the southern wall of the pool; the pipe used to carry out the



Fig. 3. Aerial photo of Surface 2021/1. 1 – Apsidal room, 2 – Pool, 3 – Western room, 4 – Late Roman well

water to the sewer running southeast from the pool. A large room was found south of the pool to which it most probably belonged. The floor of this room was renewed at least two times. In the earliest period, the room had a terrazzo pavement, which was later covered with an *opus spicatum* flooring. The latter was used as priming for the limestone slabs that belonged to the latest definable period of the room (Fig. 4). In the western half of the northern excavation area next to the pool, the section was disturbed by later pits, but the flooring presumably consisted of the same three layers also there. In this western section, a room with hypocaust heating was unearthed (Fig. 3.3). Originally, an east-west wall separated two rooms there. Later this wall was demolished, and a hypocaust flooring was built for the new room on the top of the wall's remains. A Late Roman well (Fig. 3.4) was also found there, filled with the material of an antler workshop specialised in making combs.



Fig. 4. Building periods of the floor in Surface 2021/1. 1 – Period 1, 2f – Foundation of Period 2, 2 – Period 2, 3f – Foundation of Period 3, 3 – Period 3

Supposedly the southern part of the same room came to light in the north-western corner of Surface 2021/2, with surprisingly intact hypocaust columns (Fig. 5.1). Next to this room in the east, a smaller room was discovered, which also had hypocaust flooring (Fig. 5.2). A bigger, unheated room (Fig. 5.3) occupied the eastern part of Surface 2021/2. The flooring of this room was not preserved, leaving only the imprints of bricks or limestone slabs to observe. The eastern wall of this room was the one between the bath and the basilica (Fig. 5.4). The threshold (Fig. 5.5) of the door leading from the bath to the basilica was well-preserved.

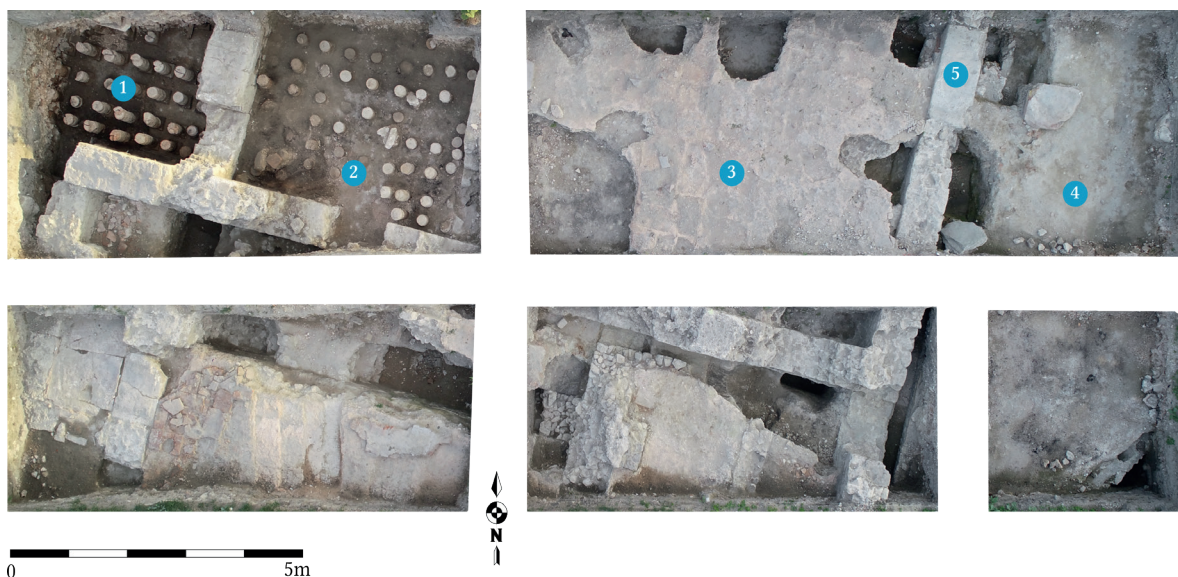


Fig. 5. Aerial photo of Surface 2021/2. 1 – Room with *hypocaustum*, 2 – Smaller heated room, 3 – Unheated room, 4 – *Basilica thermarum*, 5 – Threshold between the bath and basilica

South of the described rooms we found the next unit of the bath, which consisted of different rooms. In the western part of Surface 2021/3 a small room with red limestone flooring has been unearthed. The flooring of the next, bigger room towards east was renewed several times. In the first two periods, the room had terrazzo pavement, but later it was covered with floor tiles. First smaller, 20×20 cm tiles were used, but in the latest period they were changed to bigger, 40×40 cm tiles (Fig. 6.1).⁴ A pool with an east-west dimension of 3.8 metres was found in this room (Fig. 6.2); unfortunately, its complete size has remained unknown. The pool was covered with 30×30 cm tiles in a terrazzo base that was perhaps the actual covering of the pool in an earlier period. Most part of the pool was ruined by a later pit, but as a result of disturbance, the sewers under the pool came to light (Fig. 6.3). On top of the eastern wall of the bath, imprints of terracotta slabs were preserved in the bonding. In the same trench, a similar wall also found, was attached to the eastern wall, and two rooms south of it. The western room was mostly destroyed by later pits but, thanks to this damage, the drains under these rooms also became visible. The flooring of the eastern room was renewed several times. In the earlier periods the room had terrazzo flooring, which has become replaced by a limestone slab cover later (Fig. 6.4).



Fig. 6. Aerial photo of Surface 2021/3. 1 – Room with terracotta floor, 2 – Pool, 3 – Sewer, 4 – Southern room

4 Similar techniques and phases were preserved in Aquincum; see KABA 1991, 18.

The connection between the parts of the bath mentioned above and Surface 2021/4 was unknown at the time of excavation. The remains of a two-period hypocaust system, divided in two by an east-west wall, occupied the total area of the trench. The space between the columns of the earlier heating system was filled with clearly separate layers of ash, clay, broken bricks, and construction debris.

Excavations in 2022

In the summer of 2022, three trenches were opened, with a total surface of approximately 600 m² (Fig. 1). The northernmost one (Surface 2022/1) consisted of different heated rooms and service rooms (maybe outdoor). Two heated rooms were unearthed in the centre of this area, the two sides of a large, north-south directed wall. There was a difference in floor level between the two rooms as the floor of the eastern room was a bit higher. The room at the eastern side of the wall (Fig. 7.1a–b) was renewed several times, in a phase even having been divided in two. The foundation of the dividing wall is still visible among the columns of the hypocaust system. The imprints of *tubuli* are preserved in the mortar on both sides of this wall. North of this room a *praefurnium* was unearthed (Fig. 7.2). The nearest columns to the *praefurnium* were made of stone instead of bricks like all the other ones in the trench. Even though they were built of a material stronger than clay, they were in poor condition because of the direct heat of the *praefurnium*. The room was probably reshaped during the construction of the *praefurnium*. The *praefurnium* is connected to a west-east wall that contained a *tegula* with the stamp of the *Legio I Adiutrix*, which means that the *praefurnium* was not built in the earliest period of the bath. A later pit destroyed the northern wall of this room, but under the *praefurnium* the foundation of the hypocaust system continues to the north; conclusively, this section of the hypocaust must have been demolished when the *praefurnium* was built.

West of the large north-south wall (Fig. 7.3) we could not observe similar rebuilding phases. There were no remains of any later walls dividing the huge room, and only a small part of the northern wall was excavated. This wall is identical with the northern wall of the room with the



Fig. 7. Aerial photo of Surface 2022/1. 1a–b – Eastern room, 2 – *Praefurnium*, 3 – Western room, 4 – Service rooms, 5 – Southern room

praefurnium. The rooms on the northern side of this wall could be service rooms (Fig. 7.4). A few ash layers were found west of the *praefurnium*, which could be the remains of the cleaning of the *praefurnium* and wood storage. Besides, the place of a wooden pillar was preserved next to a north-south wall in this trench, that could be part of a lean-to for storing tools, wood, etc.

South of these two large rooms we found another room (Fig. 7.5); however, the excavation area only overlapped a small part of it. The excavated parts of the room featured *in situ* hypocaust columns. The columns and the *tegulae mammatae* found in the debris layers of the room show that it was also heated. The room was connected to the hypocaust system of the room in the north by a vault. Under the vault and near it on the flooring, a well-visible ash lane was preserved. It is unknown at the moment whether this ash lane is the silt of the hot air coming from other premises, or was this part used as *praefurnium* for a short time.

A cold-water pool was discovered in the centre of the second trench opened in 2022 (Surface 2022/2, Fig. 8.1). The pool was connected to a room (Fig. 8.2) on its north side by a scale. The pavement of the room was renewed a few times. In the earliest period, the flooring was a white mortar layer, replaced later by a terrazzo floor. The terrazzo flooring was rebuilt later, and then has been covered by stone slabs. On top of the slabs, remains of terrazzo flooring were preserved in small parts, but it is not sure whether these belong to an independent flooring layer. Based on the floor remains, the room has at least four building periods, identical to the ones observed in the room next to it in the east (Fig. 8.3).

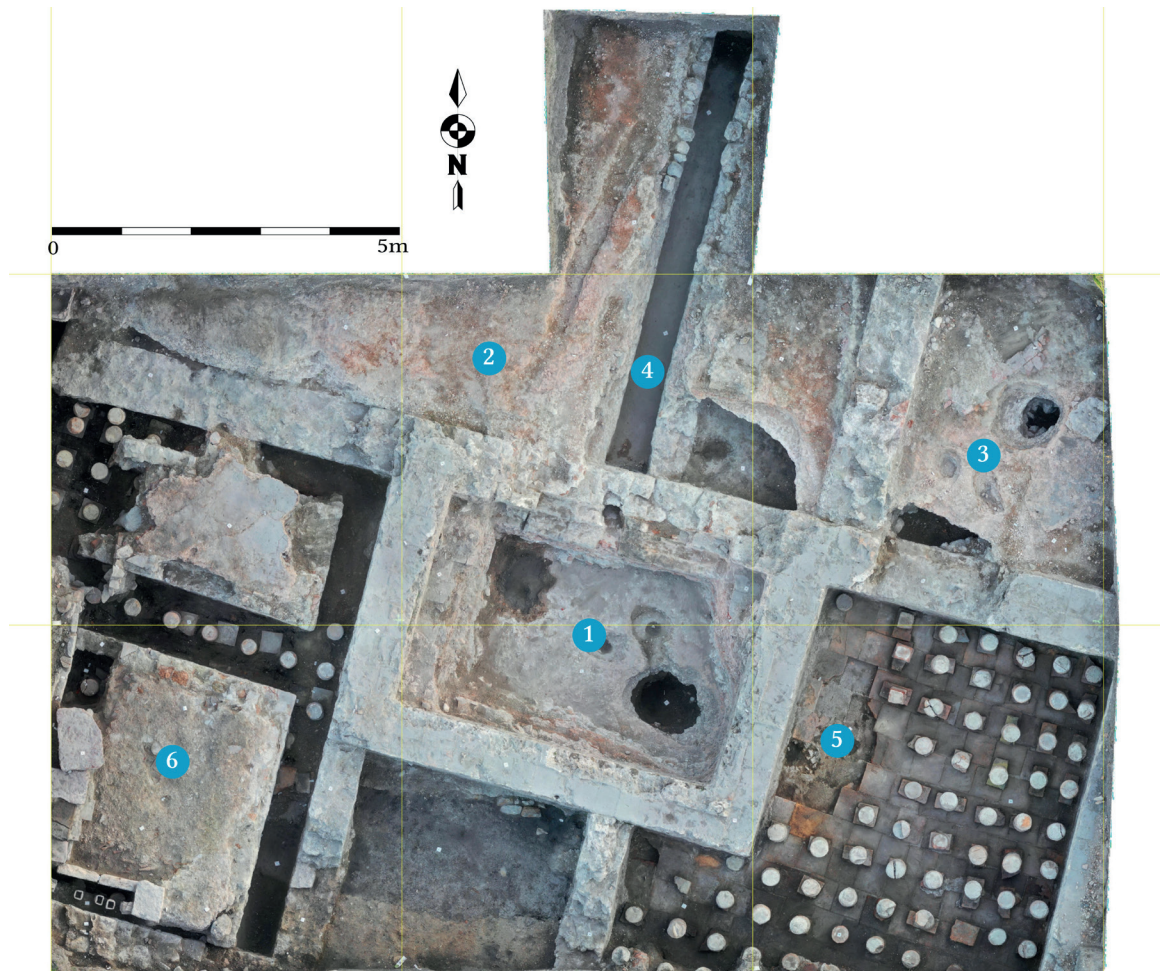


Fig. 8. Aerial photo of Surface 2022/2. 1 – Pool, 2 – Northern room, 3 – North-eastern room, 4 – Sewer, 5 – South-eastern room with terracotta tiles stamped by the *Legio XI Claudia*, 6 – Western room

The pool could be accessed through a three-step scale along the longer side. It had three renewals. The foundation layers are visible on each side of the pool. In the first three periods, it had terrazzo flooring, and the last one has become replaced by rectangular slabs in the latest renewal phase. There was difference between every foundation layer: the first consisted of bigger stones topped with mortar, the second was made of crushed brick and mortar, while only the terrazzo floor served as base for the slab cover.

The sewer (Fig. 8.4) connected to the pool was under the scale heading north. Luckily, a 3.75 m-long section of a lead waterpipe, connected to this pool, was discovered *in situ* next to the sewer. For placing the pipe, a channel was scooped into the terrazzo floor layers, indicating that the waterpipe was built in when the stone slab flooring was made, and in the first periods of the bath some other pipe or method was used for supplying water.

A heated room was found east of the pool (Fig. 8.5). The columns of its hypocaust system were made of circular bricks, while the floor, of large bricks (Fig. 9). All tiles in the floor of the *hypocaustum* had the stamp of *Legio XI Claudia*, which means that the earliest period of the bath can be dated to AD 101–105.⁵



Fig. 9. *Hypocaustum* and terracotta tiles with stamps of the *Legio XI Claudia*

The another, heated room west of the pool (Fig. 8.6) had three renewals. In the first period, the room was heated with a hypocaust system under its entire area, akin to the room on the other side of the pool. Then a new system was built with heating channels, which was renewed at least once. A coin hoard from the middle of the 4th century was found in the infill of the earlier period of the heating channels.

The western trench of the excavation campaign (Surface 2022/3, Fig. 10) was connected to Surface 2021/4. The two hypocaust systems built on top of each other (examined during the previous year) continued in Surface 2022/3 (Fig. 10.1).⁶ The first layers of the first *hypocaustum* were ash white, coal black and burnt clay. These were the remains from use in an earlier period of the bath.

5 BORHY 2012, 23.

6 The *Thermae Maiores* in Aquincum had a similar hypocaust system (NÉMETH 2005, 138).

When the space between the columns was almost completely filled, the hypocaust was probably not able to produce enough warmth, so they decided to renew the whole system. The floor was smashed, and its debris of mortar and tiles was used to fill the remaining space between the columns. On top of this refill rectangular tiles were placed, which served as a foundation of the next *hypocaustum*. Similar to other parts of the bath, the columns of the earlier hypocaust system were made of large disc-shaped bricks. A cluster of large rectangular pillars (Fig. 10.2) built of brick and mortar instead of regular hypocaust columns was discovered 2.2 metres away from the western edge of the earlier hypocaust system. These pillars could be the mounting of an archway or a wall. The pillars were built at the time of the first hypocaust system, and still remained in use in the second period. The columns of the later *hypocaustum* were not made of bricks, as in the other rooms, but stone. The western section of the second heating system consisted of rectangular brick pillars. The use of these stronger mounting structures indicates a large, heated pool⁷ or other heavy architectural construction above. Based on the huge amount of coal, ash and clay filling the earlier *hypocaustum*, the room here, at least in the first period, was constantly heated to high temperature.

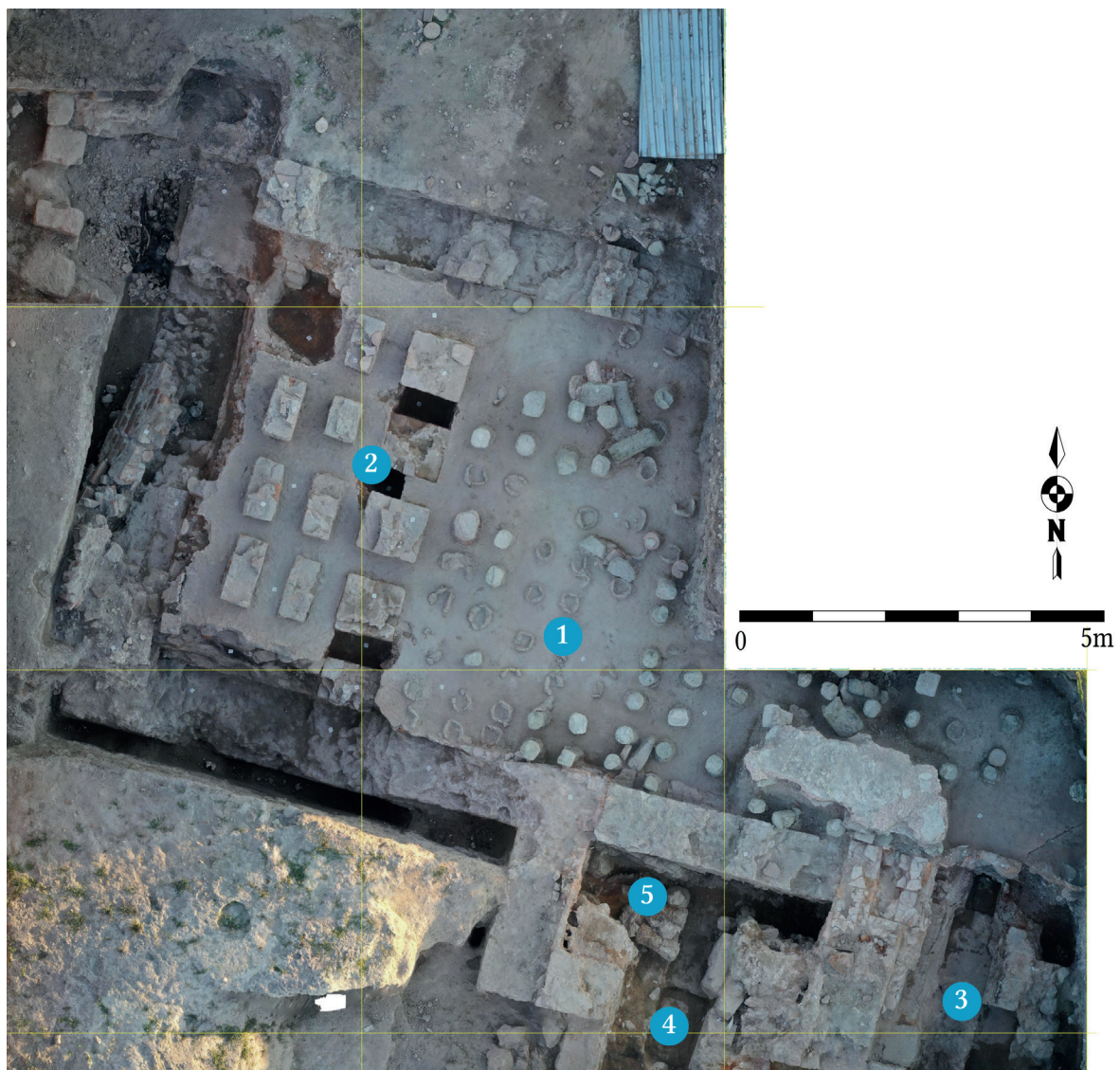


Fig. 10. Aerial photo of Surface 2022/3. 1 – Room with double *hypocaustum*, 2 – Rectangular *hypocaustum* pillars, 3 – Eastern *prae-furnium*, 4 – Western *prae-furnium*, 5 – Heated pool

7 See, for example, the Villa San Marco in Stabiae (SCHIEBOLD 2010, 54–55).



Fig. 11. The eastern *praefurnium* in Surface 2022/3

The remains of a *praefurnium* (Fig. 10.3; Fig. 11) were discovered in the eastern zone of Surface 2022/3; more specifically, the heating tunnel belonging to the first period of the room mentioned above. The superstructure of the *praefurnium* was not preserved; only the arch heading to the hypocaust system remained visible. The tunnel was made of big stone slabs, which were heavily burnt, just like the bottom of the tunnel.

A few metres to the west we found the remains of another *praefurnium* (Fig. 10.4). The two *praefurnia* could heat the same hypocaust system simultaneously, because the room connecting to them was quite big. However, it is not sure whether this *hypocaustum* was used during the first or the second period. The same problem emerges in the case of the heated pool (Fig. 10.5), situated above this *praefurnium*.

During the two seasons of our excavation, approximately 1,200 square metres were unearthed, containing both cold and warm rooms. Without knowing the full plan of the legionary bath, it is hard to say anything in detail about the function of the discovered premises. The two

rooms with unheated pools show an east–west axis of symmetry in the bath, but the other unearthed parts do not reflect this symmetry perfectly (Fig. 12).

In the present state of research, the chronological periods and building phases of the bath are mainly unknown. The only chronological data comes from the *in situ* stamped terracotta slabs of the *Legio XI Claudia*. This means that the earliest period of the bath can be dated between AD 101 and 105, which was also the earliest period of the legionary camp. From the Late Roman Period, some *tegulae* with the names of Lupicinus *tribunus* and Frigeridus *dux* were also preserved, indicating building activity in the last third of the 4th century AD.

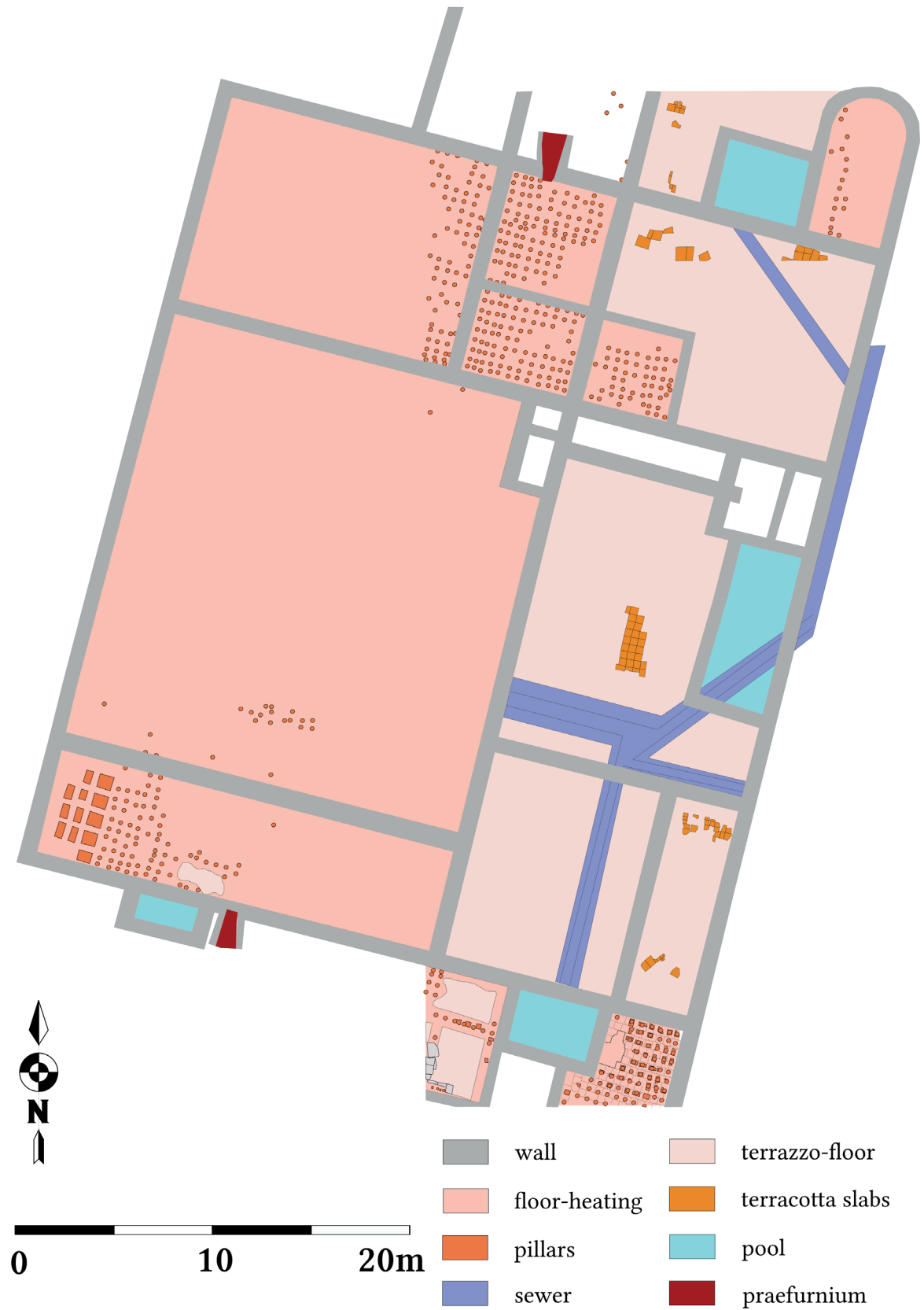


Fig. 12. Hypothetical reconstruction of the floor-plan of the bath according to the results of 2021 and 2022

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