

## THERE WAS NO STONE LEFT.

## Additions to the construction history of the observatory in Gellért Hill

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*Over the past few months there have been several reports about the renovation and transformation of the Citadella and its surroundings in Budapest. During the preparation of the project, preliminary archaeological documentation was being prepared, which gave us the opportunity to examine the site using archaeological methods (Fig. 1). The trial trenching was followed by the demolition of the concrete bunker in the upper courtyard, built in the mid-20th century and the archaeological monitoring of this work provided us further important data on its past.*



Fig. 1. The Statue of Liberty and the fortress during the excavation (drone recording)

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Archaeological excavations have taken place on Gellért Hill and its immediate surroundings on numerous occasions during the last century, representing almost every era from prehistoric times onwards. In the narrower area of our investigation, archaeological monitoring has been the only activity so far. The results of the archaeological evaluation carried out prior to the excavation showed that the area had been in continuous use over the millennia, with minor interruptions. The continued disturbance made it doubtful whether evidence of this could be found. The earliest archaeological phenomena from the area around the fort can be dated to the Copper Age and the Late Bronze Age (MARÁZ 2007, 32). Since the end of the Iron Age, we have had much more information about both the settlement structure and the population of the area. The fortified highland settlement of the Celtic Eraviscus tribe occupied a significant part of the hilltop and its slopes, and from the second half of the 1st century BC to the first decades of the 1st century AD presumably also affected the territory of the Citadella (MARÁZ 2007). This is proved by the large amount of scattered pottery recovered during the excavation and the Celtic artefacts from the objects appearing in utility trenches along the promenades on the north side, which were collected by the colleagues of the Budapest History Museum and the Castle Headquarters within 10 meters from the fortress walls. The excavated material fits well into the chronology of the oppidum.

The Celtic population in the surrounding areas and the large number of Roman fortifications suggest that the strategic potential of the area was

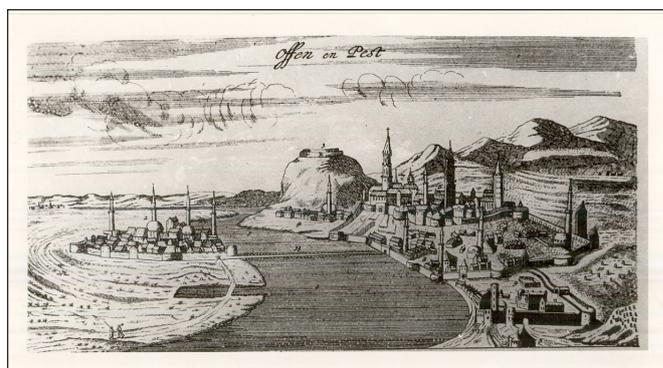


Fig. 2. Engraving of the view of Buda and Pest and the Turkish fortress. Drawing based on a representation by W. Dilich, 1685 (the illustration shows the position of the fortress on top of Gellért Hill). Source: [https://en.mandadb.hu/tetel/297816/Pest\\_es\\_Buda\\_Torok\\_hodoltsag\\_idejen](https://en.mandadb.hu/tetel/297816/Pest_es_Buda_Torok_hodoltsag_idejen)

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exploited in the Roman period either, but we have only sporadic finds dating to this period. No other built remains are known from the area until the Turkish period. Evliya Çelebi wrote about the fortress that stood on the hilltop from the second half of the 16th century. The palisaded fortress built in an excellent location from a military point of view, is known from several depictions (*Fig. 2*), which show that even if in ruins, it survived until the first half of the 18th century (PETŐ 2003, 297). In addition, to the few ceramic materials that have been found, several coins bear witness to the period. The history of the observatory is discussed in detail below, so we will now skip to the second half of the 19th century, when the construction of the Citadella began. After the defeat of the War of Independence, Haynau called for the construction of a fortification system around Buda, which would have kept the whole city and Pest under supervision. Finally, only this fortress was built based on the plans of military engineer Emmanuel Zitta. During the construction work, large quantities of rock had to be mined and blown up. Meanwhile, a number of previously dated finds (coins, swords, cannons) were found, which were reported in the daily newspapers of the period. (*Pester Lloyd-Kalender für das Jahr 1859*, 59.) The present work, therefore, could only uncover scattered remains of the earlier finds. By the end of the century, the fortress had lost its military significance, and after some demolition work it was taken over by the capital in 1899.

Throughout the 20th century, the fortress was used alternately for military and civilian purposes, with the last major construction taking place around the World War II, when a concrete bunker was constructed in the upper courtyard, largely on the site of the observatory's administration building. It almost completely destroyed the remaining parts of the 19th century building. A large number of buttons belonging to the uniforms of the armies stationed here and many period-appropriate coins were found, even from the 1990s.

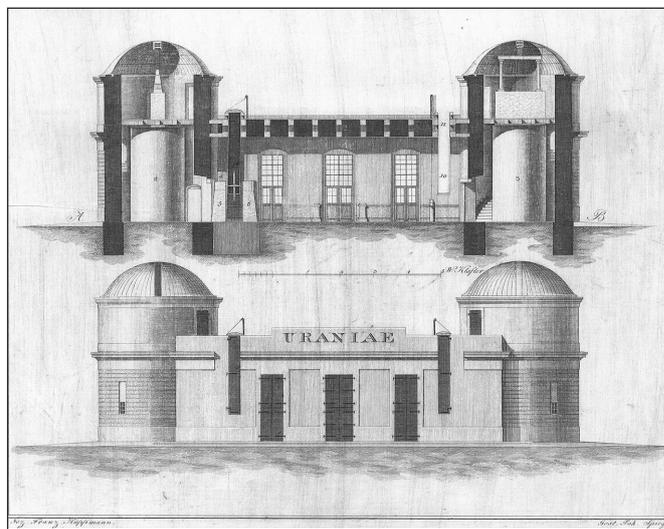
From the 1960s onwards, the building complex was used for tourism purposes with a restaurant, a hotel and a nightclub operated here until the early 2010s. Since then, the fortress has been unused.

### A BRIEF HISTORY OF THE URANIAE

The construction of the Gellért Hill Observatory has a troubled history. In 1777, the University of Nagyszombat (now Trnava, Slovakia) moved to Buda, during the transition Jesuit astronomer Miksa Hell, head of the Vienna Observatory, was asked to find an ideal place for the observatory in the city. First, it was constructed in the Royal Castle (HELLER 1878, 250), and in 1802 János Pasquich, university professor and second astronomer, applied to the Emperor Joseph II for the construction of a new, preferable observatory building (*Fig. 3*), which was inaugurated on 15 October 1815 at a ceremony attended by Emperor Francis I of Austria, King of Hungary, King Frederick III of Prussia and Tsar Alexander III of Russia (HELLER 1878, 257).

The building consisted of a central observatory room and towers on each side, with carved stone pillars measuring approximately 3×5 m on which the measuring instruments were mounted. In 1817, a 43×22 m two-storey residential building was constructed next to it. The director lived upstairs, and the library and the chapel were also located here (HELLER 1878, 260).

The building had to be thoroughly repaired as early as the 1820s, because planning did not take into account the exposure that the structure on the hilltop was exposed to the weather. In the spring of 1849, at the beginning of the siege of Buda Castle, the fate of the observatory was also sealed. The Hungarian soldiers set up their cannons on Gellért Hill to attack the Castle, which became one of the main targets



*Fig. 3. Facade and longitudinal section of the observatory. Plan of Franz Hüppmann, circa 1813. (Source: BHM Kiscell Museum, Collection of Architecture, id. 61.29.2).*

of the Austrian defenders. The assistant astronomer, Ferenc Albert tried to secure the devices, and managed to evacuate a few of them. One night during the siege, the building, by then in ruins, was systematically looted (HELLER 1878, 342).

In the early 1850s the observatory was renovated and the Citadella was planned around it so that the height of the fortress walls would not interfere with observations. In 1866, the neglected building was taken over from the university by the military treasury. The exact date of its demolition is unknown, it may have happened sometime around 1870–71. The survey drawings from that period show only the three rooms in the basement of the administration building (Fig. 4).

A few years later, Ágost Heller describes the building as follows: “Between two round towers – 16 feet (4.8 m) in diameter and 25 feet high – one to the east and the other to the west, there is a detection room 25 feet wide (7.5 m), length 45 feet (13.5 m), height 15 feet. The main walls are built in the meridian and in a direction perpendicular to it, so that the main front wall of the building is strictly perpendicular to the south meridian, so it faces south. Inscription: Uraniae. The thickness of the walls are 21/2 feet (0.75 m) and the depth of the base is 3 feet (0.9 ~ 1 m)” (HELLER 1878, 258).

The observatory has a significant cultural-historical aspect, as the center of the eastern tower’s observation pillar is the starting point of the Hungarian cartographic coordinate system since 1821 (LUKÁCS 2003, 25).

## SUMMARY OF RESEARCH RESULTS

Prior to the trial excavation, we tried to map the area by soil radar measurement. Taking the results into account, we opened 12 trial trenches. One of our aims was to identify and pinpoint the location of the observatory building, and on the other hand, we examined the archaeological impact of the area.

The fieldwork was started by examining the remains of the observatory’s east tower based on geophysical measurement results, written sources, and pictorial representations (Fig. 5). In this area, at a depth of 30–40 cm, the rock of the hill had already appeared, only mortared remains of the foundations of the walls could be revealed, but there were sections where even these traces were missing. During the research, a large metal object was found, which was identified as the base of a World War I anti-aircraft gun by the staff of the Military History Museum. (For more about the object, visit the Museum of Military History’s [website](#).)

The southern closing wall of the observation room was successfully identified in three trenches, the demolished remains of the foundation of the

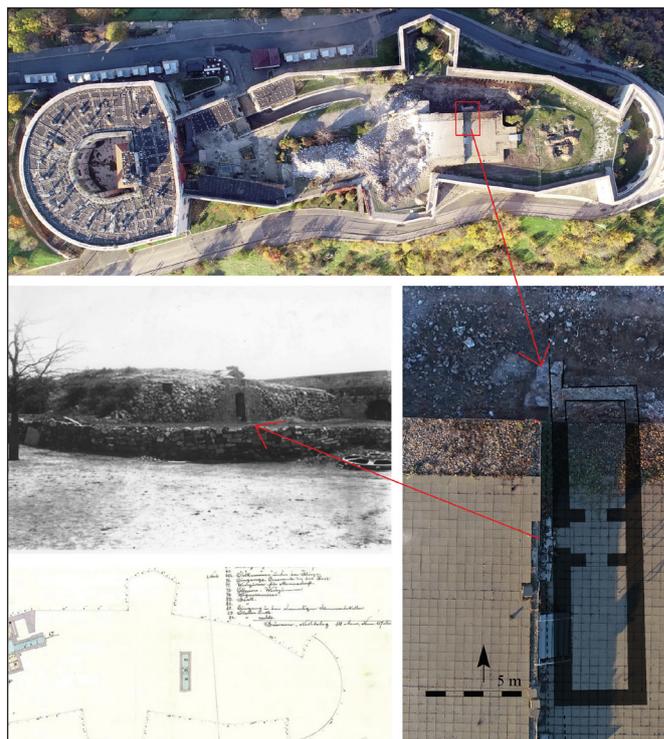


Fig. 4. Excavated remains of the basement of the administration building in the fortress area. Archival photograph of the entrance to the cellar from the 1920s. Detail of the 1871 survey

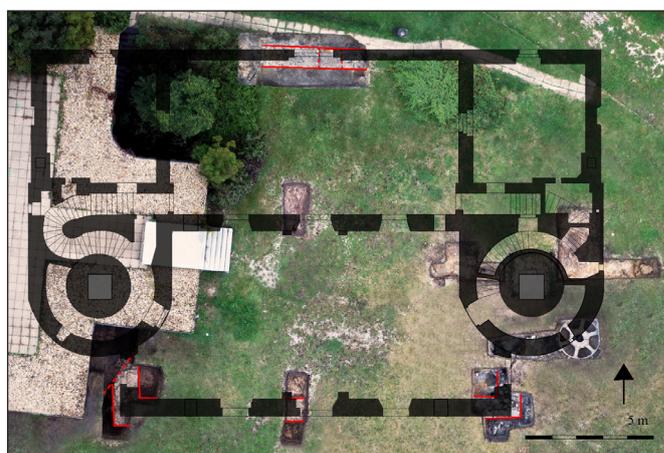


Fig. 5. Orthophoto of the observatory site, reconciled with the former floor plan

wall appeared directly below the humus layer. In the foundation trench at the western end of the building, it can be observed that the stones were just thrown in and the mortar was poured on the top, and after making a horizontal surface the foundation was laid by hand. This could probably have been spread at the start of construction, and archeological finds were found from this layer (Figs 6–7). At the south-eastern corner of the bunker, a hard, concrete-like, poured layer was excavated at a depth of 80–120 cm. It seems that this could have been the unified, poured foundation of the western tower, to which the southern closing wall was added. A crumbling, modern decay layer was observed on both the outer and inner sides of the walls. The northern end of the building was also identified during the observation. Based on the known plans, this section of wall could have been the wall of the courtyard enclosure connecting the two northern rooms. The former walkway is running along the wall, which was made up of hard, tamped ground. The foundation was built on the rock and earth fill, during the demolition of its inner plane we proceeded in an extremely artifact-rich layer (Fig. 6). When the concrete bunker was demolished, a 3.8 m long, roughly 70 cm wide, stone-laid wall foundation was found west of the observatory, which turns north-south, and its continuation was destroyed during the construction of the bunker. Under the masonry, the artifact-rich filling, which was spread on the crumbling rock surface, was also observed here. At the other end of the wall foundation, a new brick wall was certainly built, probably per-



Fig. 6. Coins from the excavation area: 1. Celtic drachma; 2. Turkish Akts, son of Sultan Mustafa Mehmed Khan (1622–1623); 3. Passau pfenning 1518–1520 (Many thanks to Zsolt László and Balázs Nagy for the identification)



Fig. 7. Stray finds from the excavation: 1. Stamped Viennese pottery flask; 2. Glazed earthenware pipe; 3. Military button decorated with the Hungarian Holy Crown

pendicular to it in a north-south direction. The phenomenon described above is the remains of the basement of a management building, which was built a few years later than the observatory. This is stated in the above-mentioned 1871 survey (Fig. 4).

After geophysical survey and test excavations, it can be said that the former observatory was built according to the known plans. In the light of the new information, it is also worth trying to make a simple sketch of the history of construction. Prior to construction, the rock surface was levelled by spreading an earthen fill, from which mixed archaeological remains were recovered. The two towers were then constructed, the foundations of which were laid together with their central pillars, creating continuous foundation on a large surface. The two rooms to the north of the towers and the southern boundary wall were added to the towers afterwards, in another construction phase. The ascending wall section belonging to the excavated 120 cm wide foundations was not found. After the observatory was demolished, the area was filled with rubble mixed with earth, which was later disturbed by further fieldworks. Photographs of the basement of the directorate building were taken in the early 20th century, but its remains were destroyed during the construction of the bunker.

The only evidence of its former existence is the section of wall that has been recovered.

In conclusion, although no archaeological finds were recovered in situ during the excavation and monitoring, it can be proved from the scatterings that the Citadella area and its immediate surroundings were used and inhabited during the periods listed in our historical summary. Over the centuries, the land use associated with the highest point of the hill has severely damaged and destroyed the traces of previous periods, of which only scattered remains have been collected.

Additional archaeological presence will be required in the coming months in connection with the planning work related to the development of the Citadella and the preparation of the construction. This work will provide us with additional archaeological data and finds. Although it is only 170 years old, the building of the Citadella is an important cultural and historical monument, and its further investigation is essential using archaeological methods.

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The archaeological work has so far unearthed the only find dating back to Roman times, an antoninianus dating from the reign of Emperor Tacitus. Marcus Claudius Tacitus became Emperor of the Roman Empire at the age of 75, the last of those who were elected by the Senate. During his short reign (September 275–June 276), he led campaigns against the Goths and the Alans, largely in the eastern provinces. One of his decrees required all libraries to have copies of the works of the historian Tacitus. We have a firm understanding of the era through the books *Germania*, *Annales* and *Historiae*, thanks to this presumably fictitious kinship.

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