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Finding the tomb of Suleiman the Magnificent in Szigetvár, Hungary: historical, geophysical and archeological investigations

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Abstract

Exploration in search of the tomb of Sultan Suleiman I and the buildings around it in the vicinity of Szigetvár, Baranya county, southern Hungary, has been going on for some one hundred years and on a number of sites (on the banks of Almás stream, at St. Mary's Church in Turbék). On the basis of newly discovered documents and map representations, the authors have carried out a reinterpretation of earlier known sources and have abstracted from these information appropriate for a renewed geographical identification of the site of the tomb. The results have been construed in a reconstructed end-17th-century landscape using geoinformation methods. Identification of the Ottoman settlement at Turbék, which can be associated with the construction of the Sultan's türbe (tomb), was made possible through the collection of finds on the surface of the archaeological site at the Turbék vineyard, the increased intensity of finds and through geophysical examination. The little town was a unique settlement in occupied Hungary, standing between 1574 and 1692 as a symbol of the Islamic conquest of the region.

Zusammenfassung

Untersuchungen auf der Suche nach der „Türbe“, dem Grabmal, des Sultans Süleyman I. und der umgebenden Gebäude sind seit ungefähr einhundert Jahren in der Umgebung von Szigetvár, Komitat Baranya, Süd-ungarn, im Gange, an mehreren Standorten (am Ufer des Almás-Baches, an der Marienkirche in Turbék). Auf der Grundlage neu entdeckter Dokumente und Karten haben die Autoren eine Neuinterpretation der früher bekannten Quellen vorgenommen und daraus Informationen für eine neue Identifizierung des Standorts des Grabmals gewonnen. Die Ergebnisse werden als mit Hilfe eines Geographischen Informationssystems rekonstruierte Landschaftssituation des ausgehenden 17. Jahrhunderts präsentiert. Die Identifizierung der osmanischen Siedlung von Turbék, die mit dem Bau der „Türbe“ in Verbindung gebracht werden kann, wurde durch Funde an der Oberfläche der archäologischen Ausgrabungsstätte am Weinberg von Turbék, durch die zunehmende Intensität der Funde sowie durch geophysikalische Untersuchungen ermöglicht. Die kleine Stadt war als Siedlung einzigartig im besetzten Ungarn und kann als ein Symbol der islamischen Eroberung der Region zwischen 1574 und 1692 gelten.

Keywords Hungary, Ottoman, Suleiman the Magnificent, historical geography, landscape reconstruction

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1. Introduction

Sultan *Suleiman I* died in Hungary in his tent during the Siege of Szigetvár (1566) and, according to legend, his internal organs were buried there. His successor, *Selim II*, decreed that a *türbe* (Ottoman mausoleum) be erected as a shrine over the place where he died. In 1692 or 93 the tomb and surrounding buildings (teqe, mosque, military barack, palisade) were demolished during the liberation war. In the eighteenth century memory of the settlement was lost, local tradition and research up until now marking several places as the site of the tomb.

In the course of some 110 years of exploration, possible sites and two main standpoints have

emerged. From the beginning there was much support for Turbek's catholic church of St. Mary, which in 1913 received a memorial plaque to the one-time sultan's tomb, worded in Hungarian and Ottoman Turkish. A number of historians and archaeologists believed this to be the probable site (Németh 1903; Hal 1939; Kováts 1971; Gőzsy 2012; Szabó 2014). Researchers supporting the theory called upon the legitimizing role of folk tradition, certain archaeological anomalies (the secondary placement of Turkish building materials) and the supposed ordering of the siege camp (including the sultan's camp). In 2009, Hancz and Elcil (2012) carried out an archaeological control excavation here, but found no traces of Ottoman remnants.

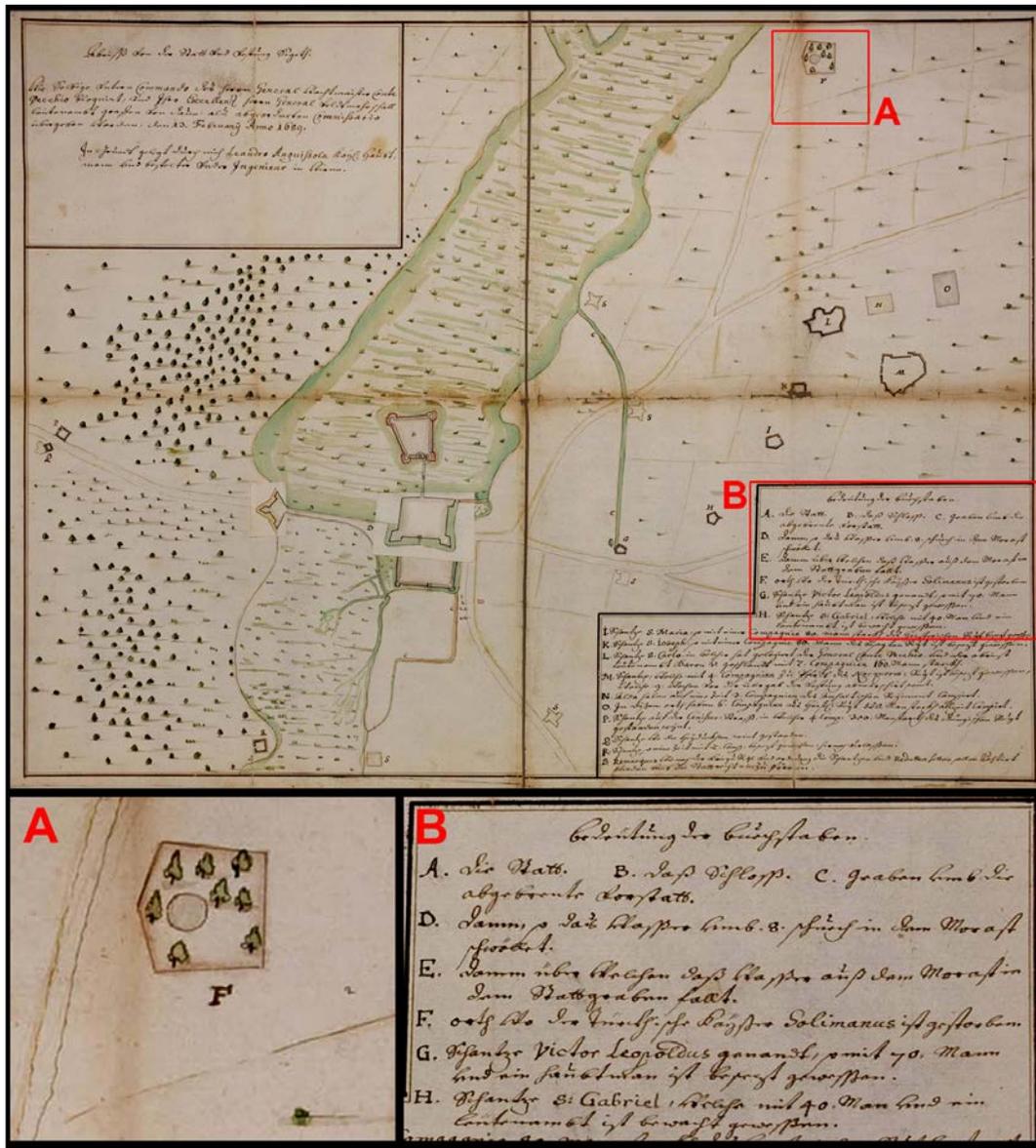


Fig. 1 Sketch of Szigetvár and its surroundings in 1689 (drawn by Anguissola)

According to another view the shrine was built on the bank of the Almás stream, which local folk tradition also has as the place of the sultan's death, at Sztrácsova Well (*Pesti* 1982). Not far from this latter stands the Hungarian-Turkish Friendship Park at the "Turkish cemetery", created in 1994 on the occasion of the 500th anniversary of *Suleiman's* birth. A memorial *türbe* was also erected here as a symbolic tomb of the ruler. *Molnár* (1965) also placed the site along the Almás stream, on the basis of site "F" on the 1689 map by *Leandro Anguissola* ("F: Orth wo der Türkische Kaiser Solimanus ist gestorben / The place where the Turkish Emperor Solimanus died") (*Fig. 1*).

The authors argue that due to the confusions of folk traditions and the scarcity and contradictions of historical sources, and also because of remembrance political considerations, research activities have been unresolved and misguided. The geographical environment of the *türbe*, its changing nature, the underlying geography-related information in the sources have not been considered so far, during the interpretation thereof. The discovery of additional sources and the application of new examination methods (map-based inspection, geoinformation modelling and geophysical examinations) are necessary to achieve a successful localisation. The authors argue that there is a new, third site, that is located beyond the Almás stream and St. Mary's Church, in the eastern direction, on the top of the Turbék-Zsibót vineyard. It is in the vicinity of the location where the fragment of "an Ottoman public building" was already uncovered in 1971 (*Kováts* 1972) but was later registered as merely a "Turkish ruin" or watchtower (*Pesti* 1982).

2. Methods

2.1. Historical written sources

During the course of the research, a significant volume of written sources was discovered in Hungarian, Turkish and other archives, in Hungarian, German, Latin and Turkish language, e.g. from the 18th and the 20th century which include geography-related information (Office of the Prime Minister Ottoman Archives {Ankara}; Bibliothèque Nationale de France {Paris}, Moravská Zemská Knihovna v Brně {Brno}, Hungarian National Archives {Budapest}, Somogy County Archives {Kaposvár}, Szigetvár Parish). In addition, the geographical re-evaluation of the already known sources has been performed. These data were also used during the landscape reconstruction work.

2.2. Landscape reconstruction

During our research we used Geographical Information System (GIS) techniques. The fundamental goal was to model the relief, the hydrography and the land use of the 16th-17th century landscape around Szigetvár. With the help of the GIS model the contemporary sources, which are related to the siege of Szigetvár and to *Suleiman's* death, burial and tomb, could be interpreted more precisely.

Contemporary descriptions show that the sultan's tent was raised on at least two sites during the siege. On the spot of the second a *türbe* was erected after the sultan's death. The sites of the tent are not known exactly, but there are several hints at the physical environment of the tent and the *türbe*, e.g. lake shore, hill, oak forest, lime forest, shrub, vineyard, garden, maize field and names of some roads etc. The archives and the contemporary descriptions involved references to lakes, swamps, forests, pastures, arable lands, vineyards and orchards in the examined area, but we could not digitise these forms of land use on maps with adequate precision, as the sources did not contain any spatial dimension and no maps or well-detailed descriptions had remained. GIS modelling was the solution. To reconstruct land use in the 16-17th century we used the Land Change Modeller (LCM) module of the Idrisi software. This GIS module calculates the trend and rate of land use change from two known land use maps (e.g. for the 18th and the 20th century) and extrapolates for a third date (e.g. the 17th century). We have to emphasize the word "modelling", as the results depend on the input data and the mathematical model that was used.

The first step of the analyses was the examination of the relief. Szigetvár lies on the southern margin of the Zselic Hills, in the South-Zselic, a region where broad hill ridges covered with loess and streams running in broad valleys formed along deep faultlines are typical. Today most of the area is under large-scale agriculture. There are various soil types in the South-Zselic: on the hills: Ramann brown forest soil, chernozem brown forest soil, lessivated brown forest soil and in the valleys: meadow alluvial soils (*Agrotopográfiai térkép* 1987, *Kapronczay* 1965, *Lehmann* 1971, *Lovász* 1977, *Lovász* and *Wein* 1974).

We calculated the soil loss of nearly 450 years in the area with the Universal Soil Loss Equation (USLE) model. The USLE model was developed in the United

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States and became a standard for soil loss estimation in Hungary in 1998 (Centeri 2001). The model calculates sheetwash erosion induced by rainfall over extensive areas. Soil loss depends on slope angle, soil type, vegetation and the direction of tillage. Then we examined the relation between the slope steepness and the soil loss (counted by USLE) with statistical methods. The relation between the two factors is very close according to the result of the R^2 test (0.99), which was performed on the linear trend-line fitted to the diagram that showed the correspondence. We found that there are hardly any slopes with a steepness of

higher than 6 % in the examined area. In addition, the type of soil is the same in the examined area. Consequently, we could surely state that the erosion should have been between 6 and 43 cm in the majority of the area in the last 448 years. Consequently, over the past 448 years sheetwash removed ca. 6 cm thick soil from gentle (1-2 %) slopes, while it removed ca. 43 cm of soil from the steepest occurring (ca. 6 %) slopes. Modelling results are confirmed by literature data. It is widely accepted that in hill regions average soil erosion rate is ca. 50 t/ha/year, which corresponds to ca. 1 mm annual surface lowering. Over 448 years this

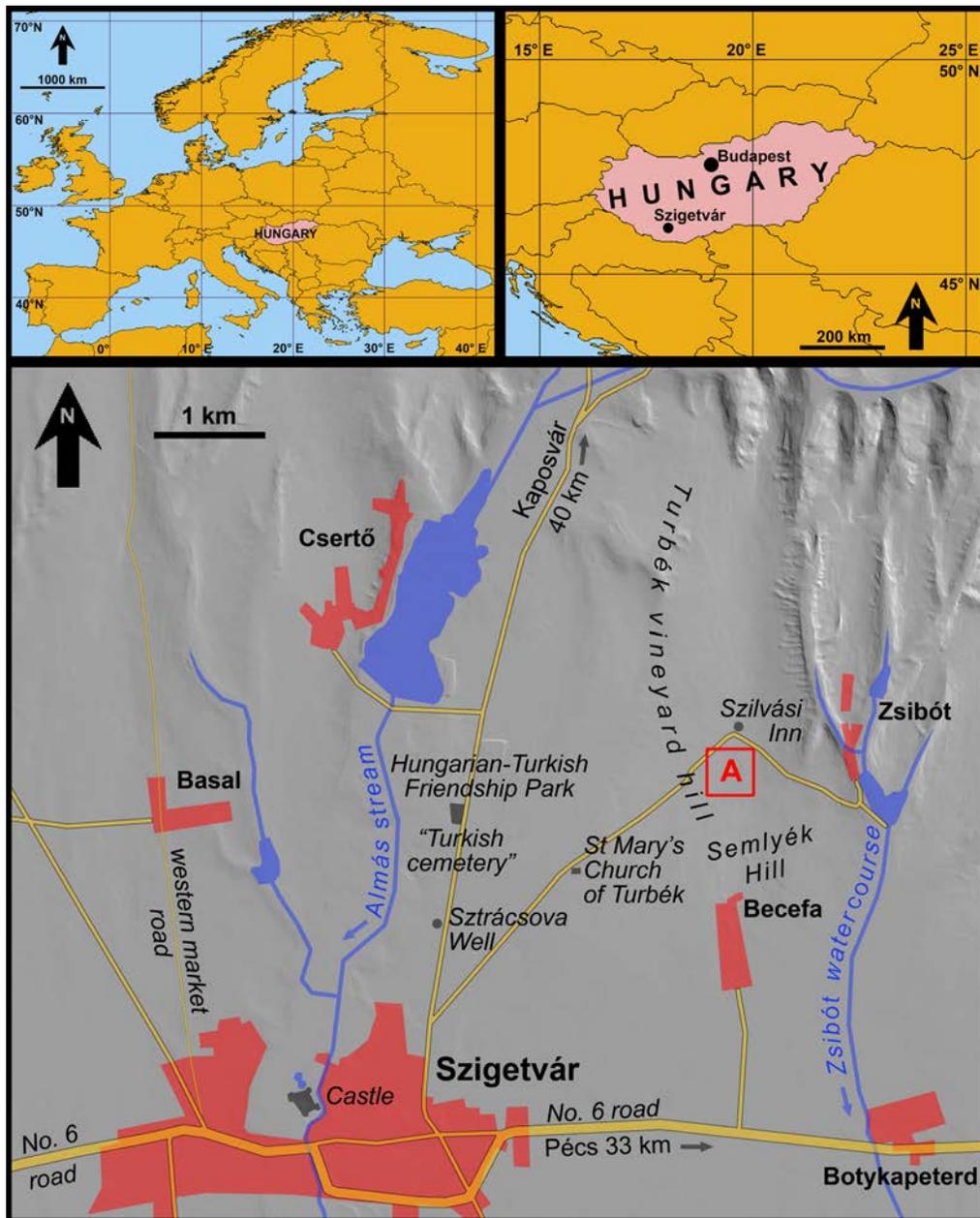


Fig. 2 Szigetvár and its surroundings in Hungary (drawn by P. Gyenizse)

means ca. 44.8 cm (Eródi et. al. 1965, Horváth 1981, Kertész 2004, Schmidt 2011). It is to be noted that the ridges of the South-Zselic are lower than average and the slopes are gentler than average. Therefore, here lower rates of soil erosion are probable. This slightly influenced the visibility of the castle, which we took into consideration in the further examinations. With the help of the Viewshed module of Idrisi software we calculated which areas the castle could have been seen from. We examined only those areas, where the whole castle was visible from. *Suleiman's* tent was moved at least once or probably several times during the siege. The tent of the chief commander must have stood at a site with a perfect view upon the besieged castle, allowing the soldiers to see the tent, from where they could "gain encouragement". The descriptions claim that later the *türbe* was raised on the spot of the tent. Using the visibility model, we can identify the areas of the hillside from where the castle was visible and those from where it was certainly not visible.

The relief model also played an important role in the reconstruction of the hydrography of the areas around Szigetvár. But in this case we applied the map representation, too. The modelling of the hydrographical circumstances was essential as these elements appear in the old descriptions of the sultan's camp.

A central task of our research was the map reconstruction of land use in the 16th-17th century, showing the distribution of land use types mentioned in contemporary texts. Major land use types were digitized from the First (1783-84, at 1:28.800 scale), Second (1859, 1:28.800), Third Military Survey (1880, 1:25.000) and the 1950-51 military survey of the South-Zselic Hills (1:25.000). For the analyses the original resolution was reduced to 20 x 20 m pixel size to eliminate minor spatial errors.

Input data were processed by the LCM of the Idrisi software. This is primarily suitable for modelling physical processes. Therefore, changes in the extension of settlements and gardens were not studied.

The program draws conclusions from land use maps from two dates for land use at a third date. Thus, for the reconstruction GIS layers which only shows land cover had to be prepared.

Then the model produces statistics and a map which shows how the individual land use classes changed (in which direction and to what extent) in compar-

ison of the two maps drawn at different dates. For instance, we calculated which areas were forested on the initial maps and changed to arable land by the other date. After these statistical calculations an input into the software was the Digital Elevation Model of the area modified on the basis of the map of soil loss as well as the GIS layers of soil angle and exposure. These were also considered in the modelling of the 16th and 17th-century land use.

Using the LCM, land use was reconstructed for 1689 and 1566. On the basis of the digitized maps reconstruction was made in three pairs. The highest reliability was achieved for land use data from the 1950-51 survey and the First Military Survey (1783-84) maps. The program only considered land use changes larger than 130 hectares area. As evaluated by the software, the reliability of landscape reconstruction was 40.9 % in this case.

As the last step of processing spatial data we aggregated the model of the vegetation changes with the hydrography reconstruction and with the main roads shown in the first military survey. We compared these results with the written sources.

2.3. Fieldwork and geophysical examinations

In October 2014 we carried out measurements using a ground conductivity meter (EM-38) and a vertical magnetic MagMapper G-858 at St. Mary's Church and at the Szilvási Inn and ground penetrating radar on the top of the hill. During the examinations, we performed on-site surveys and collected the archaeological artefacts available on the surface. During the on-site surveys we used a GPS device (Garmin GPSMAP 60CSx Handheld GPS Navigator) and recorded the observations on a map. We took photographs of the surface artefacts and recorded them.

3. Results

3.1. Geographical changes, analysis of the landscape

With regard to the relief it can be said that the changes are slight; these can have had a minimal effect on the change in visibility or the morphology of the settlement (a 6-43 cm variation in level). It can be said that in the period under scrutiny the area was considerably richer in waters and wetlands than today,

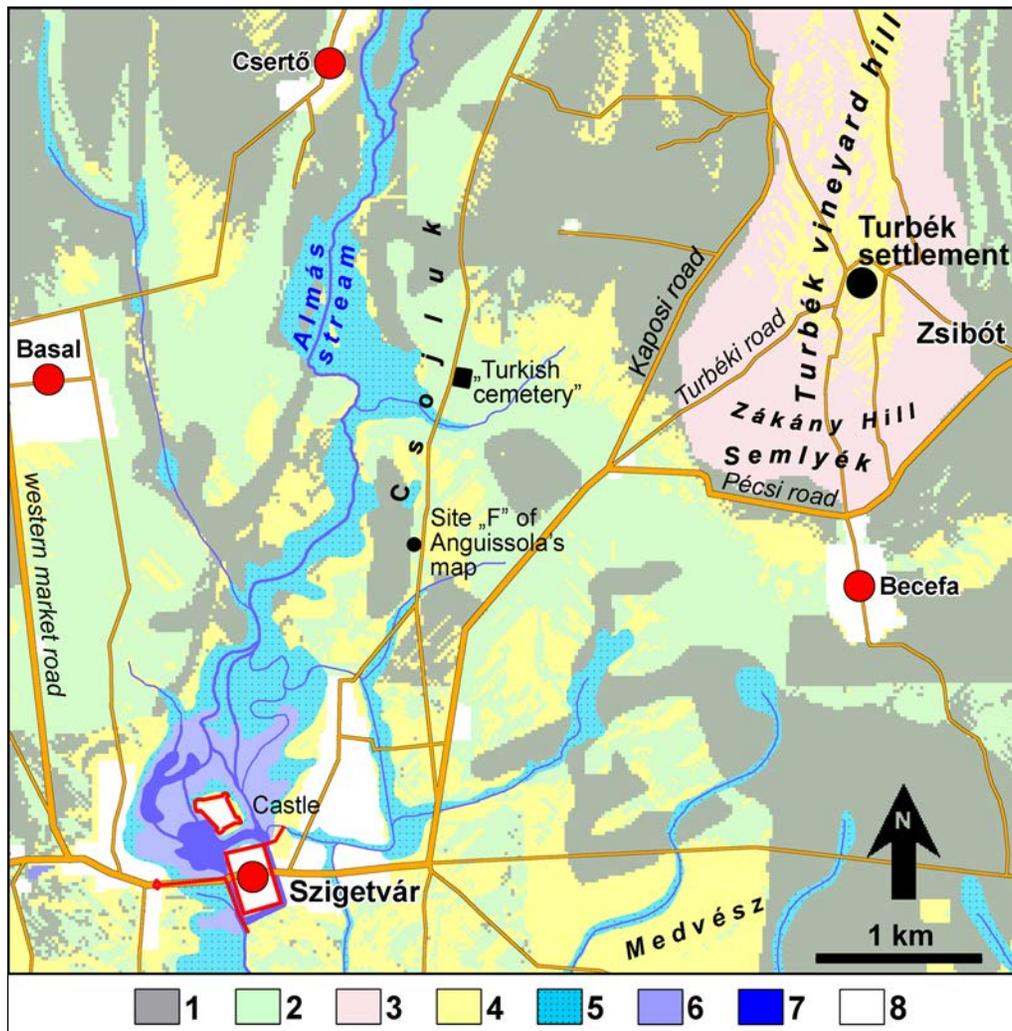


Fig. 3 Modellized land use, watercourses and roads in the surroundings of Szigetvár at the end of the 17th century (drawn by P. Gyenizse and Z. Bognár). 1: forest; 2: meadow, pasturage; 3: vineyards and orchards; 4: arable field; 5: marshes and wetlands; 6: temporary wetlands; 7: lake, open water surface; 8: built-up, non-modellized area

or than what researchers had hitherto surmised. Extension of dry landmass will have played a minor role in the fight for the nearby castle. The landscape of the day was wilder, and beyond the boggy areas the ratio of forest and pasture greater at the expense of arable land. Besides all this the vineyard areas were characterized by a variety of uses, something reinforced by the regulations introduced for villeins in the early eighteenth century (Fig. 3). Traffic and routeways followed the drier, higher relief.

The location of the sultan's death (Kováts 1971) and the *türbe* was assumed to be along the Almás stream by certain researchers (Molnár 1965). For these reasons, the symbolic tomb of the Sultan was also erected here in the Hungarian-Turkish Friendship Park in 1994. The model assumes that the areas along the Almás stream were periodically under water during

the 17th century, so it is very unlikely that permanent settlements or a place of cult was located there.

In the vicinity of St. Mary's Church the arable land use is typical nowadays – from the 19th century certainly – and the distance from the gateway to the vineyard hill is more than 600 metres. Land-use modelling assumes (late 17th century), and the second military survey proves (19th century), that the forms of land use in the direct vicinity of the *türbe* mentioned in the sources (vineyard, cornfields) were collectively typical on top of the vineyard hill (Fig. 4).

Regarding St. Mary's Church and its vicinity, based on geoinformation modelling, it is safe to say that it was a flat, marshy area. The castle is not visible from here (Fig. 5), so it is unsuitable to be a commanding point, and it is not very suitable (or not ideal) for the

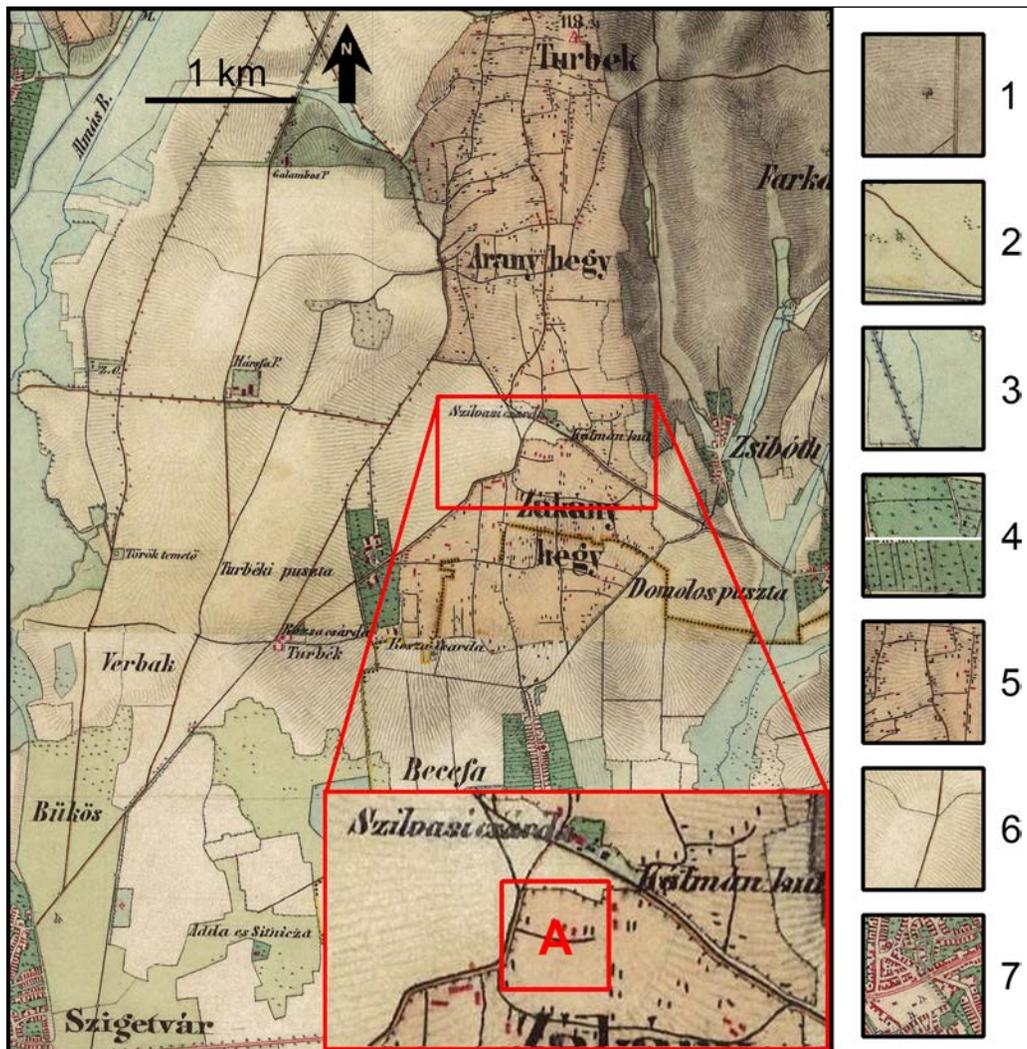


Fig. 4 The area around the Turbék site in the second military survey of 1859 (edited by P. Gyenizse). Legend: 1: forest; 2: dry meadows; 3: pasturage; 4: orchards, gardens; 5: vineyards; 6: arable land; 7: built area; A: study area

purposes of erecting a camp-site or a settlement. The excavations performed here in 2009 also uncovered artefacts from the 18th century (and later) only, unilaterally supporting the assumption (Hancz and El-cil 2011). Building materials and church accessories from the Ottoman age were also identified in the form of subsequent, secondary installation in the church.

The existence of large water surfaces and the swamp around the fortress suggest that dry land was scarce there; the attacking army constructed its camps on a much more extended area than presumed earlier. Therefore the Szigetvár vineyard hill (that would be considered too remote, according to Ottoman camp alignment traditions) appeared as an ideal guidance point and location for the camp-site. Accordingly, it is likely that the sultan's camp (in the narrower sense) could have been on the vineyard hill (Fig. 2). Some

contemporary sources also confirm this, indicating that the camp was "on the top of the hill" (Ruzsás and Angyal 1971 {Cserenkó 1566}).

3.2. Historical written sources

According to our investigations the *türbe*, the image of which takes shape before us from the various sources (cf. Table 1), stood on a hilly relief about an hour (4 km) east or north-east of Szigetvár Castle, amid gardens (vineyards and orchards), but since the eighteenth century primarily arable land (cornfields).

Using the sources, we can mark out the structure of the "Turkish fortification". The immediate surroundings of the *türbe* were bounded by a "fence", within which dwelt the Turkish sheik and the der-

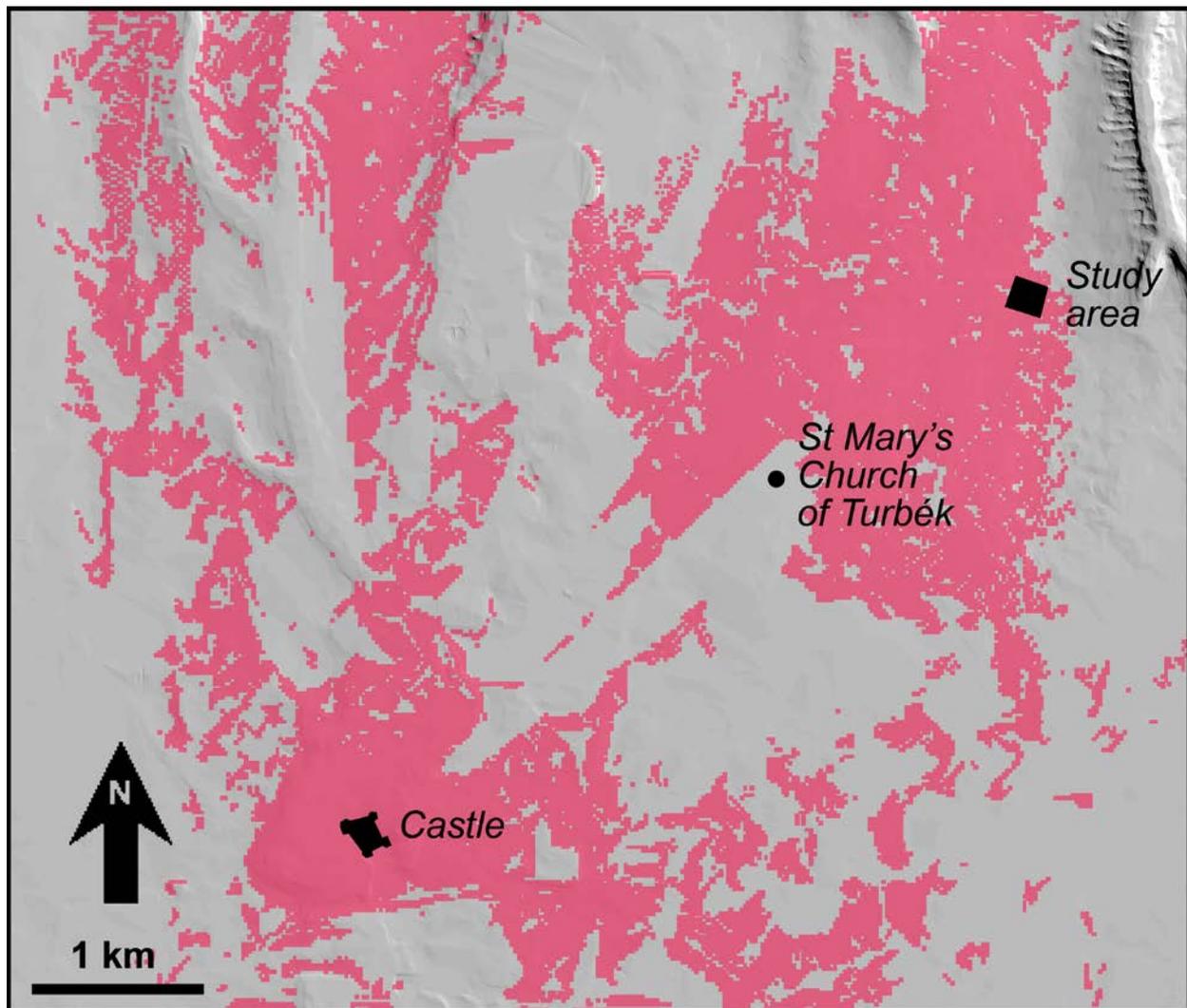


Fig. 5 The visibility map of Szigetvár and its surroundings (edited by P. Gyenizse)

vishes. This was protected by fortifications covering a greater area, within which the Muslims resided, while the Christians lived outside the fortifications, or in the outskirts (Prothocollum 1738). Our archive researches established that St. Mary's Church was founded not in 1692-93, at the time the *türbe* was destroyed, but only in 1705 (Collectio Prayana, Tom XX). Besides all this, 18th-century sources held the "Turkish fortifications" and St. Mary's Church to be two separate locations (Szigetvár Presbytery, Prothocollum Parochia Magno Szigethana No. 1774).

3.3. Mapped and graphic depictions

Information gleaned from the map representation of the area known to us and made in the 1680s and 1690s is also valuable (Sandrart 1684; Cantelli 1686; Fer 1687; Coronelli 1688; Colloredo 1689; Coronelli

1691) (Fig. 6). Without exception, these six documents placed Turbék's relative position east of Szigetvár, further off from Almás stream and closer to the Zsibót watercourse. The sketches each have a legend system which, though differing one from the other, is internally consistent. On the basis of these, Turbék stands out from the order of depicted Hungarian settlements, yet lags behind the more important centres such as Szigetvár, Kaposvár or Pécs. Based upon the legends, it would appear to have had midway importance, like the market towns of Kecskemét (Coronelli 1688), Bátaszék, Tolna, Bács, Bácsmonostor or even Szabadka/Subotica (Colloredo 1689).

Two of the maps highlight that this was the place where *Suleiman* died in 1566 (Sandrart 1684; Fer 1687), while this is indirectly expressed in Coronelli's French-language map of 1688 and his Italian one of 1691: "The fortress of Turbék built for Soliman, where

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Table 1 Geographical content regarding the buildings in the surrounding of Suleiman's grave (türbe/tomb, Török sánc/Turkish fortification, place of death of Suleiman) in the main historical written sources. – Sources: 1: Ruzsás and Angyal 1971; 2: Molnár 1978; 3: Vatin 2005; 4: Sinan Bey oğlu eski Sadrazam Şehit Mehmet Paşa Vakfı 1574; 5: Vass 1993; 6: Dağlı et al. 2003; 7: Wagner 1700; 8: HNA, Urbaria et Conscriptioes, 50: 57; 8; 9: HNA, Urbaria et Conscriptioes, 136: 30; 3; 10: HNA Hoffinanz Ungarn, W2279; 11: HNA, Urbaria et Conscriptioes, 66: 21; 1; 12: Szigetvár Presbytery, Prothocollum Parochia Magno Szigethana (1717-1734) No. 1774; 13: Szigetvár Presbytery, Prothocollum Parochia Magno Szigethana (1738) No. 1774; 14: HNA, Urbaria et Conscriptioes, 94: 30; 5; 15: SCA Contracts 1789 (1604-1891)

	Source, date	Distance/time	Geographical feature	Land use	Buildings
1	<i>Cserenkó, Ferenc</i> (1566)	a quarter mile (c. 4 km) from the fortress	"Szemplóhegy" hill, "up on the hill"	n.d.	n.d.
2	<i>Budina, Sámuel</i> (1566)	a quarter mile (c. 4 km) from the fortress	"Szemplóhegy"	near the vineyards	n.d.
3	Ottoman source (1573)	n.d.	n.d.	orchard	not yet built
4	Ottoman registry (1574)	n.d.	n.d.	n.d.	Tekke (dervish monastery), a mosque where <i>Suleiman's</i> body was buried temporarily
5	Ottoman registry (1579) of Szigetvár and its neighbourhood	"near Szigetvár"	<i>Suleiman Khan's</i> monastery ("kasaba")	1 vineyard, 5 ploughed land	two "mahalles" (districts): <i>Bayazid's</i> son <i>Mehmed</i> mahalle: 23 households, <i>Ali's</i> son <i>Veli</i> mahalle: 28 households
6	<i>Evlia Çelebi</i> (1664)	an hour to the east of the fortress	on top of a major hill	in an area of gardens/hills	a longish building
7	<i>Wagner, Ch.</i> (1689)	more than half an hour, outside of Sziget	on the hill referred to as <i>Türbe Daghi</i>	vineyards and orchards	n.d.
8	Urbarium (1692)	a quarter mile (circa 4 km)	village of <i>Turbék</i> on a hill	orchard, vineyard and ploughed land	"church" made of bricks with a high tower
9	Urbarium (1692)	a mere hour from town	on the <i>Turbék</i> vineyard hill	vineyard, orchard	abandoned Turkish mosque
10	Hoffinanz Ungarn (1693)	n.d.	<i>Turbék</i>	n.d.	"chapels" made from marble with lead roof, a tower where <i>Suleiman's</i> tomb used to be
11	Urbarium (1720)	n.d.	vineyard hill	vineyard	"there was a mosé in the shape of a tomb here once"
12	Prothocollum (1717-1734)	n.d.	"Turkish fortification"	ploughed land (corn) and uncultivated land where once a fortification was	the account of a witness refers to the fortress and a disassembled well
13	Prothocollum (1738)	n.d.	"Turkish fortification"	ploughed land (maize)	there used to be a tekke (dervish monastery) here
14	Urbárium (1747)	n.d.	"Turkish fortification"	ploughed land	-
15	Contractus (1789)	n.d.	"Turkish fortification"	ploughed land	-

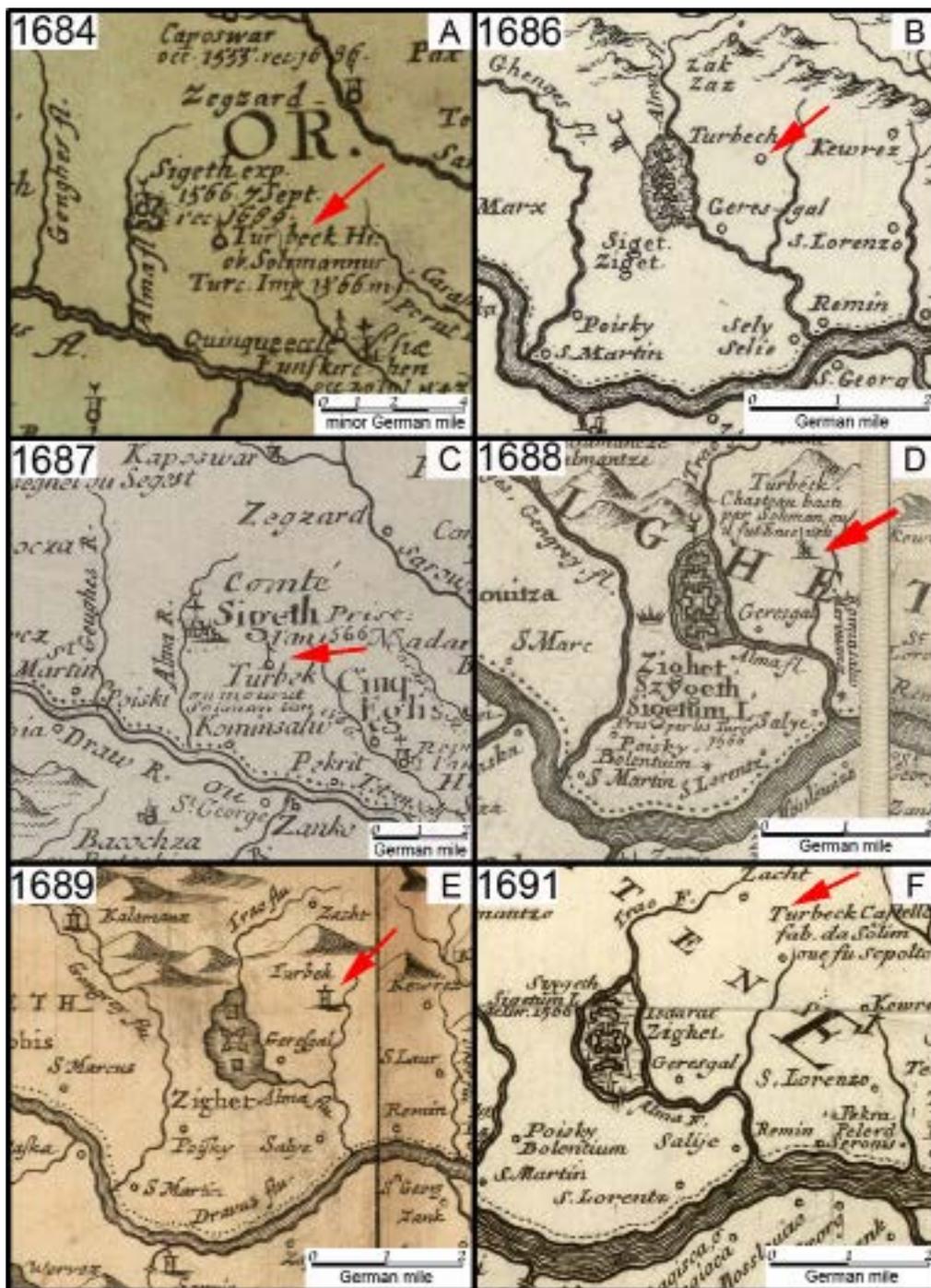


Fig. 6 Depictions of Turbék on late seventeenth-century maps (edited by Z. Bognár). Sources: A: Jacob von Sandrart, B: Giacomo Cantelli da Vignola, C: Nicolas de Fer, D: Vincenzo Maria Coronelli, E: Fabius Antonius Colloredo, F: Vincenzo Coronelli

he was buried” (“Turbeck, Chasteau basti par Soliman, ou il fut Enseveli/Turbeck castello fab{ricato} da Solim que fu sepolto”). This latter is in keeping with sources from the seventeenth and eighteenth centuries, according to which this is where *Suleiman’s* grave stood, where his internal organs were interred.

Finally with regard to the graphic depictions we must not forget the copperplate made by an un-

known master in the second half of the seventeenth century (HNM HG 55.1341) which features *Pál Esterházy* on horseback with the important stages of the winter campaign (1664) in the background (Fig. 7). In this picture Szigetvár is portrayed as lying on a plain, while Turbék is placed on top of a hill. The depiction is clearly stylized, but the geographical setting agrees with the documents presented above.

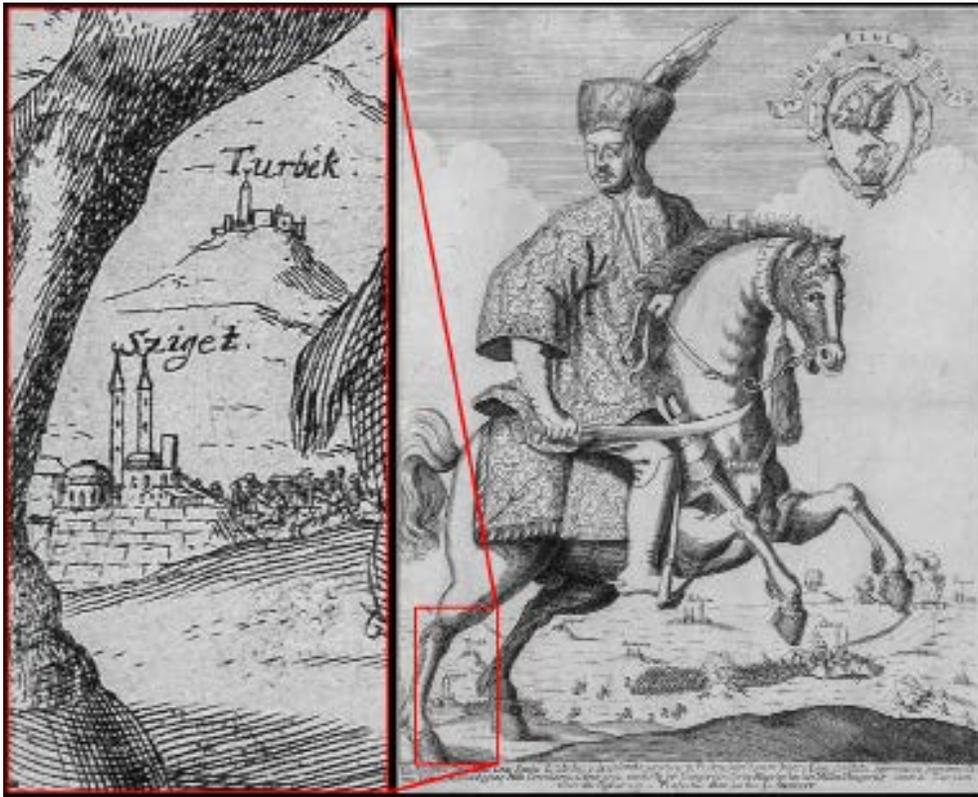


Fig. 7 Pál Esterházy at the age of 30 in front of the table of winter operations; copperplate engraving on paper by unknown artist (photo: Stiller, edited by P. Gyenizse). Source: Hungarian National Museum, Historical Gallery, Inv. No.: 55.1341

In our opinion, the main value of the Pál Esterházy sketch of Turbék castle on the occasion of the 1664

campaign lies in the relation between and situating of individual buildings (Fig. 8).

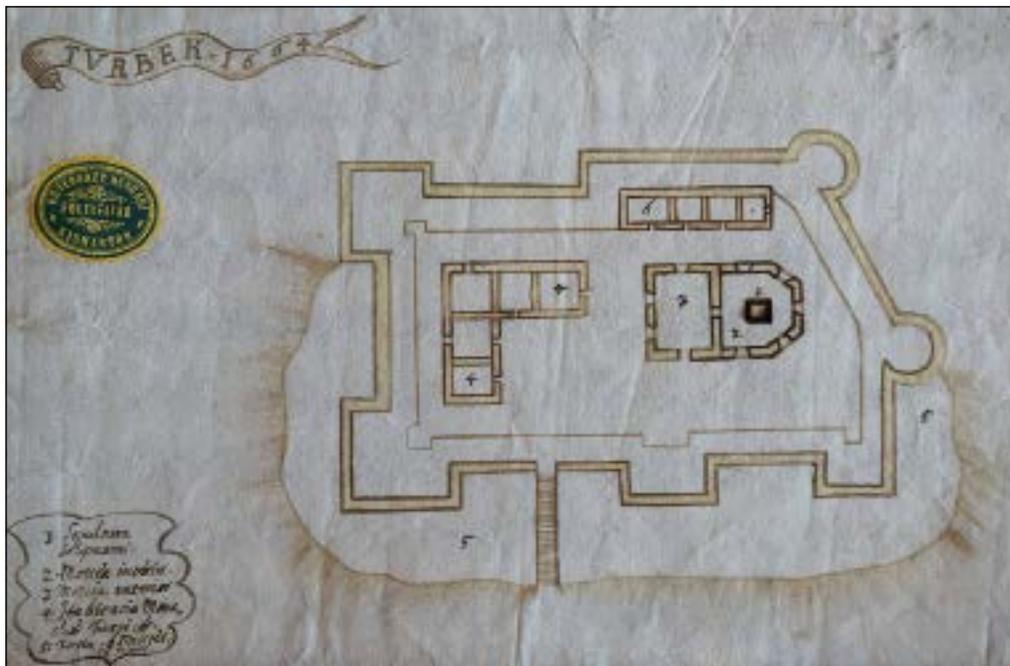


Fig. 8 Turbék in 1664, based on the "Pál Esterházy" drawing (photo: Stiller). 1. Sepultura Solymani/sepulchre of Suleiman, 2. Moscea interior/inner mosque, 3. Moscea exterior/outer mosque, 4. Habitatio monachorum turcicorum/dwelling of Turkish monks, 5. Fossa/trench, 6. Milites ex Sziget/soldiers from Sziget

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The function of the building in the illustration called a “mosheé” was indeed that of a mosque, it clearly faces south-east along with the other buildings. It is our supposition that the fort, satisfying local geographical conditions, was surrounded by a dry dyke rather than a moat.

3.4. The geophysical examinations of the sites

The geophysical inspection carried out at St. Mary’s Church yielded nothing that could be identified either as a collection of buildings or traces of a fortress.

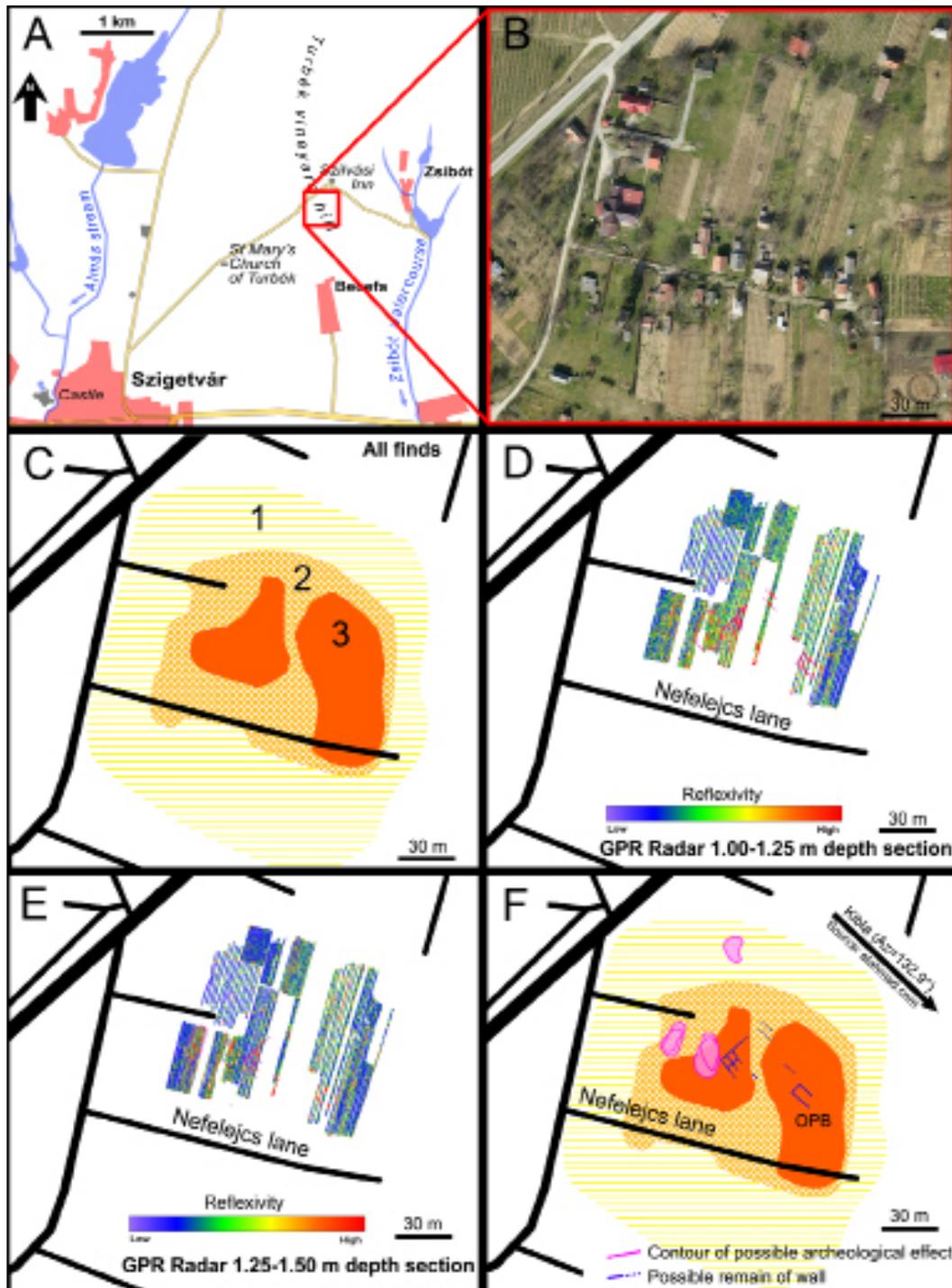


Fig. 9 The results of the fieldwork examinations in the Turbék study area (edited by P. Gyenizse). A: The study area in the surroundings of Szigetvár; B: The study area on an aerial photo; C: Density of archeological finds on the surface (1: low, 2: medium, 3: high); D and E: Results of GPR radar; F: Wall reconstruction based on fieldwork examinations (OPB – Ottoman Public Building suspected by Kováts 1971)

As in the matter of locating the *türbe* certain contemporary Ottoman-Turkish sources, as well as Hungarian, Latin and German sources from after the Turkish era, pointed to a hilly area further off from Szigetvár and east of St. Mary's Church, the area had to undergo archaeological inspection. The extent of the identified site nearby Szilvási Inn so far investigated spreads over three hectares, but judging from the historical road network and the particular characteristics of possessions it is likely that there may be further objectives to the south of the Nefejejs lane (*Fig. 9C*).

On the north side of the three-hectare area traces of a dyke could be observed, visible to the naked eye to be investigated in the near future. On the next archaeological field trip we could observe and partly collect a large quantity of brick rubble from the time of the Ottoman occupation, as well as remains of white mortar and traces of material culture. In this respect it is important to stress that nowhere else on the vineyard hill or east of the Almás stream was there so much intensity of finds from the Ottoman age. The material relics for the most part comprised fragments of single-coloured green glazed pedestaled bowls, green glazed elements of tiled stoves, fragments of Balkan pottery, fragments of red-glazed containers for storing liquid and a small amount of reduction Balkan ware as well as a smattering of fragments of Ming age Chinese porcelain. There were also tiny fragments of glass and iron among the finds. If we add to these the gigantic mass of brick rubble which according to oral reports was transported from here by garden owners, we can take the site to have been an intensive and permanent Ottoman settlement.

The geophysical research carried out after the inspection of the intensiveness of the site produced encouraging results regarding the identification of subject matter (stone foundations and possibly rotted-away palisade). In October 2014 we carried out measurements using a ground conductivity meter (EM-38) and a vertical magnetic MagMapper G-858, but these were unsuccessful due to the territory's unsuitability (the presence of a mass of metal wire and reinforcing iron) for such a measurement. In the end we were partly successful in measuring using a ground-penetrating radar, carried out by experts of Geomega Ltd. This resulted in the discovery, at a depth of 100-125 cm below ground level, of a square building facing Mecca (*Fig. 9D*). To the north-east is an L-shaped building made up of small cells, north of which can be seen the foundations of yet another building, also facing more

or less south-east (*Fig. 9D-F*). The siting of the square building deviates only one degree from the direction of Mecca. We cannot take this as coincidental. The intensity inspection of the surface finds displays a strong correlation with the positioning of the identified buildings, in the vicinity of which there is a strikingly high incidence of mortar and Turkish brickwork.

4. Conclusions

During the last centuries, the landscape has undergone major transformations due to water regulation works and large-scale agriculture. At the two previously considered locations, due to the floodplain along the Almás stream and waterlogging around St. Mary's Church, the environment was not entirely appropriate for the sultan's camp, and it was absolutely not suitable for establishing a significant, permanent settlement. The archaeological examinations conducted so far, and the geophysical examinations we carried out in the vicinity of St. Mary's Church, contradicted significant Ottoman presence at this location. References in written sources suggest an entirely different environment, which is much more likely to be pointing toward the top of the Turbék-Zsibót vineyard hill, in the northeastern direction, 4.2 kilometres from the castle. Depictions of historic maps and imagery also suggest a significant settlement further away from the Almás stream, with a fortification and large structures at its centre, surrounded by a dyke. There is a large Ottoman archaeological site at this location in the vineyard (3 hectares). In its central part the high intensity scattering of artefacts suggests a significant building made of bricks, and the settlement of a wealthy population that used many luxury items. Geophysical examinations identified three buildings at the centre of the site. One of these is a square building facing Mecca accurately, and its dimensions are identical with the size of the major Hungarian mosques from the Ottoman period. The other major building is made up of small cells, it is presumed to have been a dervish monastery. There is also an additional large building to the north of these. Based on our surface observations, the area with the large building was presumably surrounded by a dyke. The lesser intensity of artefacts in the areas beyond the dyke suggests the presence of additional, smaller structures. On-site survey data comply well with the drawings and textual descriptions. If we take into consideration the siting of the buildings then the organisation does not contradict the elements of the Esterházy ground plan (*Fig. 8*), which depicts the

türbe, teqe, barracks and the surrounding palisade as well as the dyke. According to our understanding, this is the only urban settlement the Ottomans created in Ottoman Hungary, there is no other known simultaneous establishment. Based on all the above, we believe we have identified the Ottoman town of Turbék, in which the sultan's tomb and the service structures could have been in the centre. Excavations will have to determine the exact functions of the buildings.

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