

Cartographic circles: maps of Hungary as the Habsburg-Ottoman military border in the 16th century

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Abstract: The expansion of the Ottoman Empire became an all-European military problem after the 1526 battle of Mohács and the fall of the Kingdom of Hungary. A huge zone of defence was constructed between the Habsburg and Ottoman powers, dividing the former country. The first map of the country (Lazarus, 1528) was printed to serve Habsburg, imperial and Christian propaganda. The printed maps in the first half of the 16th century were compiled by humanist scholars (Lazius, 1556), and their representations of the stage of the Turkish wars were circulated in European atlases (Ortelius, 1570). Although proper military maps were rare in the Renaissance, the systematic, military-purpose mapping of the border fortifications indicates a Habsburg military cartography. The cartographic workshop of the Angelinis, an Italian family of military architects in Vienna, produced systematic collections of plans, views and chorographic maps in the 1570s. Map historians rarely consider the transfer of cartographic information between different modes and audiences. In this paper, the exchanges between Renaissance humanistic, military and commercial mapping are studied by map examples. Emphasizing the functional and representational changes the cartographic processes implied we focus on the connections between the contemporary, public and printed and the secret and manuscript cartographies. To expand the scope of the study a cross-cultural example, the representations of the 1566 siege of Sziget on Venetian prints and Ottoman topographical miniatures are compared. The Ottoman-Habsburg conflict, the series of the Turkish wars in Rumelia in 16th century exemplifies an appropriate context for the early-modern cartography of Hungary as a transitional and contested war zone.

Keywords: processual map history, Renaissance cartography, military cartography, propaganda.

1. Introduction

‘Pretty stories, stories, stories, the war of the Turks in Hungary...’

In the 16th century Renaissance comedy, *La Cortegiana* (1525/1534), the Italian playwright, Pietro Aretino introduced a Roman print seller offering journals, pamphlets, maps and views along with the latest news on the Roman market. Because of its European importance, any information about the confrontation of the Christian West with the expanding Ottoman Empire was of public interest, but to hear that the war raged in the heartland of the continent was even more sensational.

Half a century later the importance of maps relating to Turkish matters is illustrated by John Dee’s preface to the English edition of Euclid (1570). The prominent emphasis given to *‘the large dominion of the Turke’* is another example that shows that maps were important tools for transferring visual information in the 16th century.

The critical role of maps and other visual material resides in the inherently geographical nature of information relating to the Turkish wars. The stories or events mentioned in texts were about remote and unfamiliar places somewhere along the borders of western, European civilization (Brummett 2015). Without some elementary, sometimes superficially considered false, knowledge

about the location of cities, castles, fortifications, rivers and other geographical features, even when described in text became almost meaningless.

In this chapter, this general statement about the importance of maps is illustrated by the study of maps of the Kingdom of Hungary in the 16th century. The following case study, demonstrates how information related to the Turkish wars in Hungary circulated the 16th century in the form of apparently similar, but actually different types of maps, representing different genres of mapping. Their distribution and circulation created an ever changing, ill-defined spatial entity, the Habsburg-Ottoman military border zone.

2. The first printed map of Hungary (1528)

The first map of Hungary, the *‘Tabula Hungarie...’*, was printed in Ingolstadt, Bavaria in 1528. The large woodcut on four sheets represented a kingdom which existed no longer: the medieval Kingdom of Hungary fell in the battle of Mohács fought with the Ottomans in 1526. On the map printed two years later, a miniature battle scene marked this decisive historical event.

The cross near to the field marked the place where the army of Louis II was defeated, and where thousands of Christian soldiers, including the young king, died. However, the map was prepared for publication by a group of humanists in Vienna, who were representatives of the second mathematical astronomical school in Vienna. From

the early 1500s the leading scholar of the circle was the Georg Tannstetter or *Collimitius*, the editor of the manuscript (Meurer 2017). The publisher of the work, Johannes *Cuspinianus* and the printer, Peter *Apianus* were also associates of the society and the university of Vienna. These humanists were supported by the Habsburg court in the city. With the publication of a map of Hungary they did not wish to commemorate the former ruler and his heroic effort to save the country.

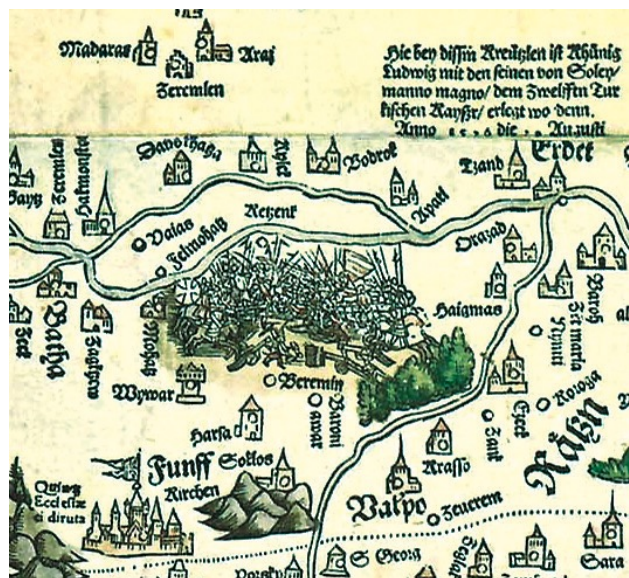


Figure 1. The battle of Mohács (1526). Detail from the printed Lazarus-Tannstetter map (1528).

2.1.1. A Habsburg propaganda map

The motivation behind the publication of the first cartographic representation of the contested territory was more practical. As the Jagellonian king died without an heir, according to the 1515 Vienna treaty, the Austrian Habsburgs inherited the Hungarian crown. King Ferdinand I, who had to fight with the counter-king John of Szapolyai, recognizing the imminent danger of Ottoman conquest. Because of the limited sources available, defending the extensive Hungarian territory, from now on as Habsburg lands, required the financial and military support of the Holy German Empire. The complex political system of the empire made it necessary to explain the military situation and to convince the imperial assembly that stopping the Turks at the Hungarian frontier served the interest of German lands, Western Europe and Christianity (Török 2007).

In this political-military context, the publication of a map of Hungary served Habsburg-Christian ideology, and the large woodcut that was printed by Apianus in Ingolstadt was propaganda tool. That the publishers intended the 1528 map to support this aim may explain one of its most mysterious features: its strange orientation. Moreover, although the cardinal directions (e.g. 'SEPT(entrío) Mitternacht') are inscribed along the map border, the content of this large map of poster format is not north oriented. The function of the map may offer a practical explanation to the puzzling contradiction: the print was

published as a poster, calling attention to the Turkish danger. Its format followed the model of contemporary broadsides, newspapers, pamphlets because it was the usual framework to talk to an audience outside the humanist world. As this 1528 print was the first printed map of the country most members of the public could not compare it with any previous map. Presumably, they did not notice the disorientation, which makes it so awkward for modern readers.

Lazarus' map depicted a large tract of land along the Danube by a dotted line. This was the territory occupied by the Turks already in 1526. According to the map's legend in the upper left corner, these conquered lands were coloured red, while the Christian territories were in yellow. The first map of Hungary is one of the earliest examples of political colouring in cartography. The line following the course of the great European river represented the extension of the conquest right after the Mohács disaster. At the same time, the Turkish intrusion into the body of Hungary was a graphic argument: the red triangle pointed towards Vienna, the Habsburgs imperial capital, which remained the primary target of the Ottoman campaigns in the following centuries.

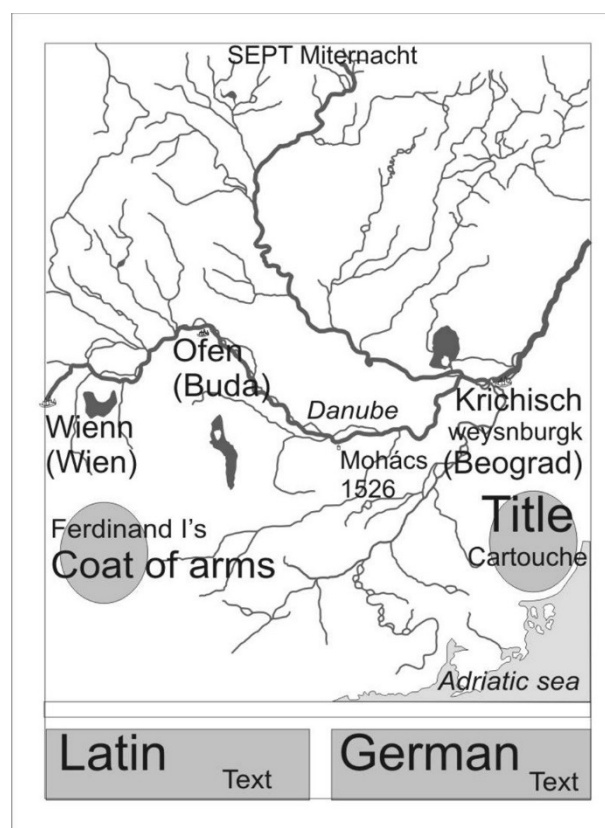


Figure 2. The geometric structure and layout of the 1528 Lazarus-Tannstetter map. © Z. G. Török, 2021.

2.1.2. Humanist cartography

The city of 'Wienn' is represented with a pictorial symbol on the left margin. The tower of famous Stephansdom, the cathedral is still visible at the very edge of the print,

indicating it was an element added to the map because of its importance in the argument. The humanist circle around Georg Tannstetter, the professor of astronomy at the university of Vienna certainly had the opportunity to see the manuscript brought there from Buda by Johannes Cuspinianus. The imperial poet and professor was sent to Hungary as a Habsburg agent in 1527 and, as his note suggests, he found a map of Hungary among the documents that survived the Turkish occupation. The humanist Cuspinianus certainly recognized the importance of the document - and knew how it could serve his patron. However, as a humanist, he could not resist adding some important details to the manuscript.

One of these additions was the representation of the Roman Emperor's, Marcus Ulpius Traian's Bridge on the Danube ('*Pons Traiani*') on the right margin, almost opposite to Vienna. The pictorial symbol of the bridge, built over the river in 105 AD to open the province Dacia for the Romans, had contemporary political-ideological meaning. It was a milestone of classic Roman civilization in antiquity, and the rightful heirs of that power were the Habsburgs.

Upstream the bridge of Traian, there is another small battle scene connecting the map more closely to German, imperial history. As the label explains this note is the reminder of the siege of '*Galombecia*' (Golubac, Serbia) where '*Emperor Sigismund fought an unfortunate battle in 1409 with Mohammed, the seventh Turkish emperor*'. The wrong date (instead of 1428) is probably a typographic error, due to the technology used for the labels, stereotype. The two flags above the fighting figures are symbols of the conflict that started more than a century before the publication of the map. A little below, but upstream the river, there is a note at the settlement symbol '*Zendrin*' (Smederovo, Serbia) indicating that this important castle was captured by Turks in 1439. The next step of the Ottoman expansion is marked by the flag over the city '*Krikhisch Weysnburgk*' (Belgrade, Serbia), another important castle on the Danube in 1521.

The the city '*Sabaria*' (Szombathely, Hungary) in West-Hungary is placed above the territorial name '*Pannonia Superioris sive Austriae Pars*'. This is a reinterpretation of classic history when considering a former Roman province, actually a part of the Kingdom of Hungary, as Austrian territory - and hence connecting the Habsburgs to the Roman Empire. The short reference to the city as the place of birth (c. 316) of Saint Martin, bishop of Tours, France, emphasize the long history and continuity of Christianity in the region. Ferdinand, the Habsburg king was the defender of not only his territory but also of the true faith.

2.1.3. Lazarus' manuscript map

Although it was a detailed and highly accurate map with about 1,400 settlements, the printed map of the Kingdom of Hungary offered little help in military matters. This failure was, however, not the fault of Lazarus, who is mentioned as the 'primary author' of the map in the large floral cartouche. Although he is mentioned as an expert

and the secretary of the archbishop Thomas of *Strigonium* (Esztergom, Hungary), there is no documentary evidence supporting this statement. However, the fact that an unknown and untitled person is listed among the acknowledged humanist suggests that the author of the manuscript worked at the Hungarian royal chancellery. In the early 16th century, the influential cardinal, Thomas Bakócz was not only the archbishop and leader of the Catholic church in the country, but practically he managed the royal Jagellonian administration as well. The secretaries of the period are all known by name - but Lazarus is not among them. However, the title makes sense if we suppose that an experienced clerk, a lower rank notary could have an honorary title. If this explanation is accepted, it becomes even more difficult to explain why his name is mentioned on the printed version.



Figure 3. The title cartouche of the '*Tabula Hungarie*' attributes the map to *Lazarus Secretarius* and mentions the Viennese humanists with their contribution to the publication of the work.

The explanation of this oddity is in our opinion was the manuscript map, representing a mapping mode that did not fit into humanist chorographic cartography. The map of Lazarus was certainly an impressive work but, it presumably lacked the Ptolemaic, mathematical-geographic framework. As we suggested earlier (Török 2007) that early map of Hungary represented an example of a never promoted, soon forgotten and very little known early modern cartographic mode of map making based on itineraries, route measurements. This was the practical solution to the problem of accuracy in the mathematical-astronomical methods. The large errors in the determination of the positions of the places (c. 30-70 km) made it impossible to construct maps of smaller regions with consistent spatial structure. Route surveys solved not

only the problems of topology but also resulted in more accurate, relative positions.

2.1.4. *A forgotten tradition: Renaissance itineraries*

In the history of early modern cartography, the importance of practical travel aids is generally underestimated. However, as the Klosterneuburg collection of distance lists as well as hydrographic sketches from the mid-15th century suggests, itineraries could be organized into a spatial network for map-making. At the end of the century, Erhard Etzlaub's map showing the roads to Rome (Nuremberg, c. 1500) and its later editions were widely known applications of the simple mapping methods described first by Sebastian Münster in 1528 (Török 1996).

Lists of road or river distances were certainly available in mediaeval Hungary as well. During the reign of king Matthias Corvinus artists and scholars were attracted by the Renaissance court in Buda. In the largest library of Europe, the *Bibliotheca Corviniana*, in Buda the king collection included the works of Strabo, Ptolemy, Vitruvius and Renaissance scholars. From our point of view, it is important to mention the work of the Italian historian, Pietro Ransano. In 1488 he was invited from Naples by Queen Beatrix and was commissioned to rewrite the printed history of György Thuróczy. Ransano's work, *Epithoma rerum Hungararum* (1490), was historically not original, but it included a remarkable detailed geographical description of Hungary. His treatment follows the administrative structure of the kingdom when he describes the counties, their major cities, important products, the inhabitants, famous persons and mentioned fortifications, roads, ferries and river crossings. The work also describes the section of the Danube from Ulm in Bavaria to Belgrade. The places listed demonstrate detailed knowledge, moreover, the text includes their distances with high accuracy.

Ransano notes that he collected information from persons with locational knowledge. However, this locational knowledge about seventy counties in a large kingdom had to exist in some usable, manageable form for royal administration. Ransano's topographic description suggests the use of a practical tool in early modern state administration: a map. A graphic representation was probably available when Antonio Bonfini, another Italian humanist was invited by the king himself to write a history from a different point of view. Bonfini's geographical introduction in his *Rerum Ungaricarum decades* (1497) based on Ransano's text, and the historical works he used supports the hypothesis that he used those sources in the library of the Klosterneuburg monastery. In the last two years of the reign of Matthias (1488-90) the Hungarian royal court was kept in the surrendered Vienna, Austria and both Italian historians could visit the famous library.

The Lazarus manuscript probably lacked geographic coordinates, and this is why the 1528 printed edition did not show latitude or longitude, but distances between the places. The Latin explanatory text below the map explicitly mentions that the work is a 'chorography and a road map' (*Totius Hungariae Chorographia,*

itinerariaq(a)...). The lower margin is a scale bar and the divider as well as the note between its legs makes it clear that distances between the cities could be measured directly from the map. The arrangement of the settlements suggests roads it is also probable that the manuscript included a detailed road and river network. However, following the humanist mapmaking tradition, that road network was not copied from the manuscript by the editor, Tannstetter in Vienna. Although the title mentions that the professor of mathematics and astronomy revised the manuscript, he could have made minor changes, e.g. included the large cartouches, but the structure of Lazarus' map was preserved on the 1528 print. As the map content was placed into the upright format, the indication of the cardinal directions became misleading.



Figure 4. Example of addition to the map's content: 'Wienn' is represented along the margin. To the right of the city is the lake 'Neusiedler see / Fertew', measured on the manuscript map found c. 1527 by Cuspinianus.

Anyhow, Lazarus' manuscript map was a work suitable for measurements to be made on it. This aspect is corroborated by Cuspinianus, who mentioned the dimensions of *Lake Fertő – Neusiedler See* on the Austrian-Hungarian border measured from the manuscript map of Hungary. An accurate and detailed map of the country was made at the royal chancellery in the early 16th century for practical reasons. Jacob Ziegler noted in a 1529 letter that he worked on the compilation of a map with Lazarus at the time of a peasant revolt, most probably in 1514, when Ziegler stayed at Buda. This was the year when cardinal Thomas Bakócz, after not elected pope in Rome, returned from the city with the bull of Pope Leo X and announced a crusade against the Turks. Lazarus and Ziegler could discuss map-making in 1514 and the Bavarian humanist was an eyewitness of the birth of modern European cartography. That Lazarus was not the only mapmaker is proved by Ziegler, who could see another map of Hungary made by Stephan Brodarich, the chancellor of king Louis II and a survivor of the battle of Mohács in 1526.

To conclude, despite the sporadic documentary evidence and no surviving map, cartography was a known tool at the

Hungarian royal chancellery at the end of the 15th century. The manuscript maps made by Lazarus and his contemporaries could serve state administration and, considering the Ottoman expansion, their importance in military matters was certainly recognized. Maps of Hungary were constructed for practical purposes, including military defence of the country, in the 1510s. One of the manuscripts, attributed to Lazarus, was published by a Viennese humanist circle in a dramatically different political-military situation as Habsburg propaganda.

3. The Turkish wars in Hungary

In 1528 the Ottoman expansion directly threatened the Habsburg lands. In the following year, the Suleyman the Magnificent besieged the Habsburg imperial city. Although Vienna was protected in the following decades the central part of the Kingdom of Hungary was occupied by the Ottoman Empire. The former capital, Buda was taken in 1541 and the new military frontier between the two powers divided the country (Dávid – Fodor 2000). According to a new military doctrine, a chain of border fortifications was created by the Habsburgs. A two thousand-kilometre long border zone was organized and maintained by the Aulic War Council in Vienna. Medieval castles were modernized and a few bastioned Renaissance fortifications were built by Italian military architects. The defence of these fortifications was based on the effective use of cannons and firearms (Agoston 2010). Even if they could not hold long against a massive Ottoman army, the siege used up their sources and precious time to reach the target. As Vienna was at the very edge of the scope of effective logistics for a large Ottoman army, the system of border fortresses was a solution to defend large territories with their always limited sources.

By the second half of the 16th century, Hungary became a huge battlefield and geographical knowledge became important for the Habsburgs. Not only knowledge about the actual location and the environment of the fortifications was needed for military commanders, architects or state administration, but chorographic information was also important to make decisions with the whole system of defence in mind.

Humanist maps of the period were not suitable for these practical purposes, although they remained in general circulation during the century. The demand for geographic information about the Turkish war was illustrated above by the reference to Aretino's comedy. The map of Lazarus was printed in a new edition from a new block by Valvassore, in Venice in 1553. For the Italian market, two editions were published in Rome in 1557-58. These later editions by the publishers Tramezini and Lafreri were printed from copper plate. The Orlandi ownership of the Lafreri-plate and the date 1602 suggests that prints from the plates were available as late as the 17th century. The reason why an almost century-old map was considered for publication can be explained by the fact that the military and the political situation did not make extensive new

survey possible. This is why printed maps of Hungary remained almost all versions and derivatives of early 16th-century country maps, first of all, Lazarus' manuscript.

3.1. Lazius map of Hungary

The large map of Hungary, which was published by Wolfgang Lazius in 1556 in Vienna may seem an exception, however. At first sight, this woodcut is a very different representation of the Kingdom of Hungary, mainly because of its landscape format. Lazius' map is almost double the size of the 1528 Lazarus-Tannstetter print, moreover, this is a north-oriented map (Oberhammer – Wieser 1906).

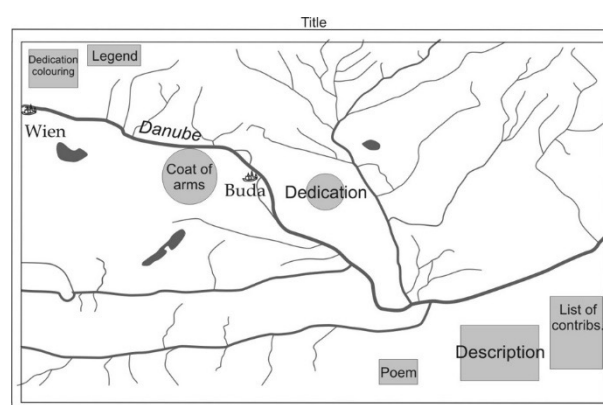


Figure 5. The hydrography and structure of Wolfgang Lazius' 1556 wall map of Hungary. © Z. G. Török, 2021.

Lazius was a medical doctor, professor of the University in Vienna, whose primary humanist interest was in history. Geography and map-making were considered part of his historical studies, which served Habsburg political-ideological purposes. His large map of Hungary, *Regni Hungariae description vera*, was printed in the year of the establishment of the Aulic War Council, and it was a wall map to allow a group of users to discuss places, distances and plan military actions at large scale. Lazius emphasized the civil content of his map, remarking its usefulness not only for “men of war” (*Kriegssleuten*) but also for merchants and historians, and this statement made it clear that the wall map was made specifically for the Turkish wars. The map was first printed in Latin, but soon after a German edition was published with an explanatory booklet. The change of the language indicated the expansion of the audience beyond the Humanist circle. In the booklet, the author directly expressed the usefulness of his maps for the everyday man (*gemeiner man*) in the condition of war.

3.1.1. A Humanist model

Lazius was a scholar and his map followed humanist models, first of all the work of Tannstetter's circle. His achievement was a Renaissance *chorography* with latitudes and longitudes, references to Roman and Christian history, and it even included a poem, begging the help of Jesus and the Virgin Mary against the Turks (Török 2007). As an ambitious courtier, Lazius was anxious to

emphasize that Hungary was a Habsburg country, ruled by Ferdinand I. In the central part of the country, he placed a large cartouche with the imperial eagle and a text dedicating the work to his patron, as well as his father, Emperor Maximilian II. The map simply ignored the fact that the central part of the former kingdom was under Ottoman administration, Transylvania in the east existed as a vassal province.



Figure 6. The coat of arms of Ferdinand I, the Habsburg king of Hungary.

In the bottom right corner panel, the author listed twenty-four prominent Hungarians, who contributed to the map's content. The biographical data of the persons included suggests that the list was probably created in 1552 for the following reasons. Pál Istvánffy died in the following year, and János Bornemissza, mentioned as bishop of Veszprém was already bishop of Kolozsvár in the spring of 1553. How they contributed to the map's content is unclear, but the list was impressive and suggested support for the project.

Lazius' map is an early work with a legend in three languages: Latin, German, and Hungarian. In addition to categories of settlements (cities, market places, and villages), castles and cloisters are also represented. Places of economic importance, such as vineyards, mines, and natural spas are marked with pictorial symbols, while ancient ruins are marked with black dots. As on Wapowski's map of Poland (after 1526), Lazius' map marks bishopric seats by mitre and crozier signs.

3.1.2. Lazius and Lazarus' manuscript

In the dedication Lazius mentions the observation of the Polus, some measurement of geographical latitude in Hungary, perhaps in 1541, when the author himself served as physician in the imperial army and took part in the military campaign in North-Western Hungary.

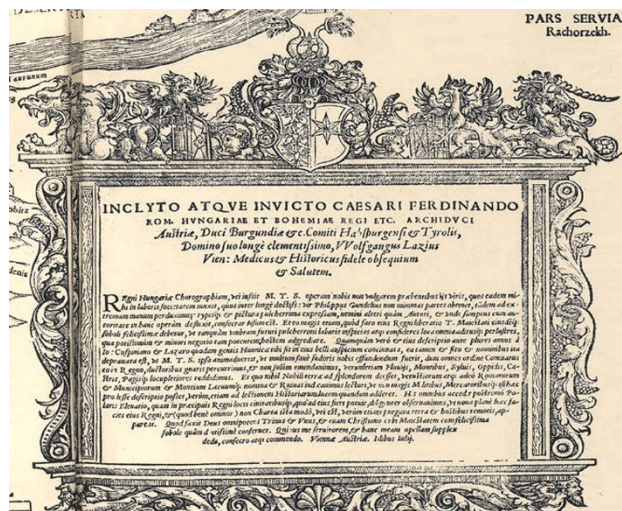


Figure 7. The dedication and explanatory text referring to the earlier map of Lazarus and Cuspinianus.

The author referred his dedication to an earlier map made *because of the war* for the Emperor by 'doctor Cuspinianus and Lazarus of the Hun nation (*gentis Hunnicae*)'. On some surviving fragments of the German edition of the same map, the text mentions the map was made by 'Lazarus, ein ungarischen Diakhen'. This is documentary evidence that Lazius knew important details about the maker of the manuscript. It is the only source where Lazarus is called a Hungarian. Perhaps he was also aware of the manuscript, which disappeared after the death of Cuspinianus in 1529. Nevertheless, Lazius' intention to improve the 1528 map is a piece of evidence that he certainly used the printed map. He may have had access to the material Tannstetter worked with two decades earlier, including some manuscript from the material attributed to Lazarus.

3.1.3. Lazius method

The compilation of the wall map of Hungary was not a simple task. It was not sufficient to correct the orientation of the earlier work and because of the new format, the space needed did not require more content. But Lazius' map is about twice the size of the 1528 print. The reason why the map maker needed more space was most probably the amount of additional information received from the Hungarian contributors, who knew the geography of some regions in the country. Their affiliation to counties in the list suggests that they revised administrative units. Moreover, Lazius' map is the first representation naming counties. How the author worked is not known, but his working method could not involve geographic coordinates because he could simply insert new information into an existing structure by interpolating the distances between places on his base map). This method explains why the southwestern part of the country had more than expected detail as he had more contributors and therefore more detailed reports. This method resulted at the end of a very distorted spatial structure when compared with the 1528 map, while its appearance is more in line with the general framework of European cosmography (Török 2021). This

is the main reason why the Lazius map was adopted by a fellow humanist, Abraham Ortelius, for his *'Theatrum orbis terrarum'* from 1570. Lazius' work was published and distributed with the most popular collection of maps and became the primary source for compilers of similar maps of Hungary in the 16-17th century.

3.1.4. *Lazius' manuscript: a military map*

There is documentary evidence, in the form of some sketch maps from the period, partly by Lazius himself from c. 1541); and based on these we suppose that new information, mainly settlements and their names, could be available in graphic form. By the mid-16th century, Border fortresses were recognised as important and lists of them were created by landlords and military leaders.

In 1566, in the year when Lazius' map was printed by Michael Zimmerman in Vienna, the Lower Austrian delegation presented a list of the castles in Hungary and Croatia at the Imperial Assembly (Reichstag) in Regensburg. That list included 262 castles and fortifications in regional groups and indicated that the Turkish conquest demonstrated the huge gap in the defence system hinting that help was needed. The German Estates understood this situation and accepted the tax, *Türkenhilfe*, to help the defence against the Turks. Those fortified places are all indicated on the 1556 wall map of Hungary. It is possible that Lazius' manuscript map, or a similar cartographic work was used for the compilation of the list. About then, a similar list of the Habsburg border fortresses was created in Vienna as part of the preparations to establish the War Council. To be able to work out that new system the compilers needed a geographical overview of the military frontier, and such a complex task could hardly be completed without maps.

3.2. Fortification atlases

The construction and maintenance of the two-thousand-kilometre long chain of fortifications became a priority by the 1550s. Italian architects were invited to serve the Habsburg emperor, They introduced the technology of Renaissance fortification building with geometrically constructed, complex defence structures with pentagonal bastions for the cannons. The master builders working in a foreign country modernized castles, built some new fortresses and fortified cities beginning with Vienna (Oppl et al. 2017). These tasks required the knowledge of the actual situation of the sites and their environment. Moreover, these strongholds were organized into districts in a comprehensive defence system. This required detailed geographical knowledge, thorough planning and the extensive use of natural land barriers. Military architects regularly visited the fortifications to survey their condition and prepare detailed reports for the military leaders, the war council in Vienna. The very high costs of the fortification work was discussed with military experts but decisions were made by the high command.

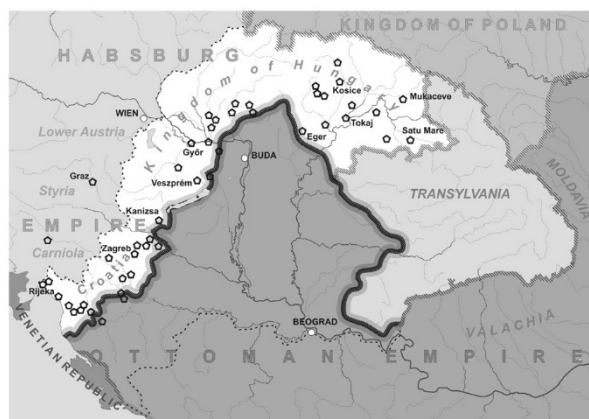


Figure 8. The system of Habsburg fortifications is represented by plans or views in the Angielini atlases. © Z. G. Török, 2021.

Among the Italian master builders who entered into imperial service the Angielini brothers, Natale and Nicolo, came from Lombardy and started to work in Styria. The older brother, Natale is mentioned as an architect in Graz, Styria, in 1557. Later he was appointed 'imperial master builder' in the southern border region, and from 1573 he served as chief military architect in Upper Hungary. He remained in this office until his death probably in 1574. From documentary sources, we know that for a short period his son, Paolo, was also in imperial service as a military architect in 1575 (Pálffy 2011). The other Angielini brother, Niccolo, appears in the imperial documents first in 1567 having a long but little known career in Habsburg service. He was still active as a military architect in Vienna as late as 1577.

3.2.1. *The Angielini atlas*

The 'Angielini Atlas', as a novel conceptual framework visualizing the Habsburg defence system, was their cartographic invention. The term '*Angielini Atlas*' was interpreted as the concept behind their project (Török 2010). This manifested as unique manuscripts, systematic collections of fortification plans and maps. These atlases were produced for military and political leaders, who were involved in the construction and maintenance of the border fortresses and the defence of Habsburg territories. The Angielini Atlas is seen as an effective tool for the total vision and control of a contested space, the Habsburg – Ottoman border zone in the 16th century. The systematic arrangement of the varied cartographic material makes this one of the earliest special atlases in the history of cartography.

At least five similar books of maps and plans have been identified in European collections, and probably they were all produced by the Angielini family in Vienna in the 1570s. The plans in the fortification atlases are not signed, but there are three regional maps, preserved in different atlases, with Nicolo or Natale Angielini's name. On this cartographic evidence we proposed that the concept be attributed to the Angielinis workshop. The cartographic output is a significant example of the interconnected cartographic mapping modes of the period.

3.2.2. Fortification plans

Each atlas contains about fifty fortification plans, fine pen and ink drawings, painted by watercolours. The drawings are on large, unframed folio sheets of hand-made paper. The uniform style of each set suggests that they were the handiwork of an individual at about the same time. In Renaissance architecture, following the classical tradition *Vitruvius* work transferred, the three types of geometric representation were known as '*orthographia*, *ichnographia* and *scaenographia*'. While the expert architects preferred the ground plan and the horizontal section, the perspective views by the artists or chorographers were powerful images for those not familiar with geometry (Pollak 1991).

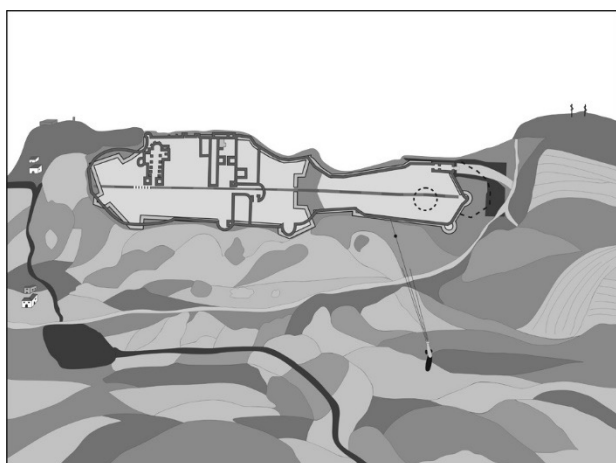


Figure 9. The representation of the castle of *Vesprinium* (Veszprém, Hungary) in the Angielini atlas. © Z. G. Török, 2021.

In the case of *Vesprinium* (Veszprém, Hungary) the castle is represented in ground plan, while its situation on the top of the local hill is shown by the profile of the hill as seen from the south. The hillside is painted and shaded to create the illusion of relief in the manner of Renaissance pictorial art. The illusion of the oblique view is enhanced by pictorial details, added to the abstract plan. The firing cannon is a symbol of the symbiosis of attack and defence.

3.2.3. Chorography as military district

Apart from the better-known fortification plans, the fortification atlases included chorographic maps devoted to the military districts in Hungary and Croatia. These maps were made by military architects and gave a visual impression of the natural environment in a region. The method of representation was pictorial, particularly of relief and vegetation. These important factors in the defence system were shown in detail. Although the master builders certainly had detailed personal knowledge of places visited during their service, they did not survey the area. The name of the author, Nicolo Angielini, is given on the large map of Hungary, and this remarkable work connects that fortification atlas, as well as other similar works to the Angielinis. The general map is a detailed and relatively accurate depiction of the military border zone. It is a special purpose, a military map explaining the geography as well

as the strategic and political context of the Habsburg defence system against the Ottoman Empire in Hungary.

The Dresden map of Hungary does not match the standards of modern cartography. It is not a representation of geometric space according to the Ptolemaic model, although the scale bar in the lower-left corner suggests the measurements of the distances. The digital reconstruction of the map revealed an irregular geometric structure with higher accuracy in the west and increasing distortions in the eastern part of the country (Török 2013). This is clearly not a humanist cosmography as there is no geographical grid on the map. For the military strategists, it was unimportant to put the battlefield into a mathematical cosmographic framework. Their more practical concern for the representation of the location and characteristics of the fortifications, as well as the natural features were useful from their point of view.

Although Angielini's map of Hungary is not a humanist map intended for a different audience, the basis of the general overview on the border zone was constructed based on earlier geographic or chorographic maps. As mentioned above, as the master builders did not survey the entire country, and their local measurements were related to the construction of fortification plans they should use other sources for their overview maps. Moreover, the country map in the Dresden atlas covers a much larger region than the former Kingdom of Hungary as it extends from Bavaria in the west to Transylvania in the east and includes Venetian territories, as well as Croatia, Serbia and Dalmatia on the other side of the Adriatic Sea. This coverage may be explained from a military-political and strategic point of view as it was the context of the border zone and it included the lands of existing or projected Habsburg influence. extensive regions of the fortresses. As their primary task was the representation of the border zone and its fortifications, their maps focused on military aspects. They nevertheless contributed to mapping by making corrections and additions.

The German text on the title page of one of the fortification atlases in Vienna, formerly in the library of the emperor (ÖNB, Vienna, Cod. 8609), explains the function of the Angielini atlases. They made the collections of maps and plans 'for the daily use of military leaders to give them better knowledge about the border between the Kingdom of Hungary and the Ancient Enemy'. In the following paragraph the reader is informed that, for practical reasons, the map of Hungary is described in five parts in the atlas. These five parts correspond to the five military districts of the Habsburg-Ottoman border zone.

The reconstruction of the original arrangement of the fortification atlases demonstrated that the material covered hierarchically and systematically the border zone. The arrangement of the fortification plans followed a geographic pattern. Starting from the Adriatic Sea in the southwest and stretching to Transylvania in the northeast, the fortifications were placed along the border in the correct order.

3.2.4. *Angielini's map of Hungary*

In one of the Dresden atlases is found a unique map of Hungary. In another, the geographical map of Croatia is known in an atlas from Vienna. The manuscript map of Hungary was first dated before 1566, but it was demonstrated by the present author that this map was constructed about a decade later (Török 2010). The evidence of the later date in the representation of the fortification of Szatmár. This strategically important place in the northeast was still depicted on a 1565 broadsheet by Natale Angielini as a rectangular, medieval castle. However, this old castle was destroyed during a military campaign and replaced by a new one. On the Dresden map already a modern pentagonal fortification is depicted. We know from documentary sources that that new castle was built between 1569 and 1573. As Nicolo Angielini surveyed the new fortification, we assume his general map was made around the time the constructions was finished, in the mid-1570s.

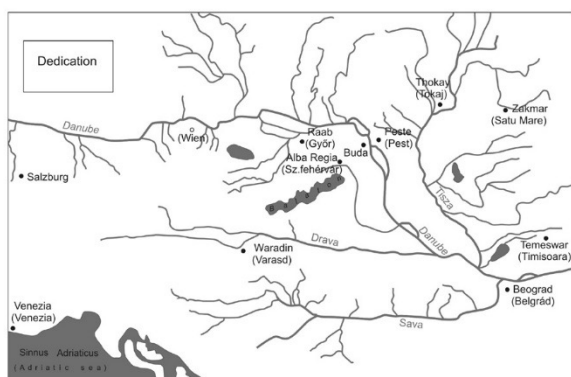


Figure 10. The structure of Niccolo Angielini's map of Hungary. . © Z. G. Török, 2021.

The central part and most of the area was part of the former Kingdom of Hungary. That territory was claimed by the Habsburg king, and this explains why the map was given the title '*Ungaria loca precipua descripa...*'. The construction of such a complex map of an extensive region in the second half of the 16th century could be based only on existing maps as surveys were not possible. For this reason, the base maps Angielini and perhaps other contemporary military architects used maps most probably compiled from earlier regional or chorographic maps. In the case of Hungary, as we could see above, these manuscripts of printed works certainly existed in Vienna from the 1520s.

Apart from the Lazarus manuscript and its derivatives by Tannstetter and Cuspinianus there is documentary information about the making of a map of Hungary by Augustin Hirschvogel in 1552. There is no surviving map or fragment: only his 1539 map of the Croatian border region is known in a 1565 print (Török 2007). Despite many references in the literature, this map was not the large map of Hungary. On the other hand, some Hirschvogel's manuscript might have existed in Vienna when Wolfgang Lazius map-making was documented in the city (1552). It is not known if these projects were

connected or not, but both mapping projects were related to urgent military matters, the defence of the country and the construction of the border zone. Lazius' 1566 map, as a printed map was intended for a much wider audience, presumably involving some changes in the form and content.

3.2.5. *Common source: Sambucus' printed map (1571)*

The map of Hungary printed by Johannes Sambucus in 1571 is an example of exchange of cartographic information between different cartographic circles in Vienna. Although he published an edition of the 1528 Lazarus-Tannstetter print in 1566, he was also anxious to amend the earlier model how this was emphasized in the title: '*Ungariae Tanst. descriptio nunc correctata...*'. The fact that the map was attributed to Georg Tannstetter could possibly reflect the use of his cartographic material. In the explanatory note, Sambucus offered this hastily amended work to fill a gap until a better one, using more accurate distances were published. This may referred to some itinerary map, perhaps from the Lazarus-material, he had access to.

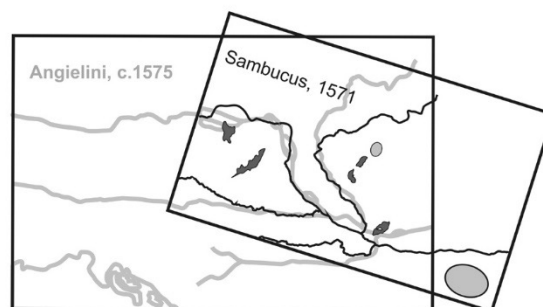


Figure 11. Comparison of the structure and orientation of the Angielini's military map (c. 1575) and Sambucus printed humanist work (1571). . © Z. G. Török, 2021.

However, the work printed only five years later was a map dramatically different from both the Lazarus' and Lazius' maps. It is not known when the 1571 map was prepared, but the Sambucus map is more similar to the structure of Angielini's military map than to the humanist works (Török 2010). His sources are not known, but it seems that he had access to an unknown manuscript, a c. 1566 map of the military defence system in Hungary. As the use of such military maps was strictly limited in the period, Sambucus was probably given some imperial permission to use such a document, copy the outlines of a larger and more detailed map in the use of the war council in Vienna.

3.3. *Military cartography in print: Sziget, 1566*

The case of the Sambucus' map is not the only example of the circulation of cartographic information between different circles of makers and users. Unlike the chorographic representations, the fortification plans were always classified 'confidential'. However, commercial cartographers who were anxious to publish the latest maps in the form of views of sieges and battles needed the information in visual form. One option was to leak some

information from the secret sources - and use the power of propaganda; alternatively, the information was acquired through agents or personal contacts publishers could have access to the material prepared by military architects. These could be copies of the fortification plans or visual reports of actual sieges. In the example below, The source was not yet known but the evidence of the group of the views of the 1566 siege of Sziget in Hungary is telling evidence for this transfer of cartographic information.

In the early 1560s the castle of Sziget was the property of the Croatian-Hungarian viceroy, a talented military leader and wealthy landlord, Miklós Zrínyi (Croatian: Nicola Subic Zrinski). The place in south-western Hungary was a four parts defence complex, consisting of the old and new towns, and the fortification and castle of Sziget. These four parts were connected by bridges as the walled town was defended - beyond the bastions, cannons and resolute soldiers - by the surrounding marshland, while the inner castle was surrounded by a lake. The fortification itself was neither very strong nor important but the because of its situation and strategic position Sziget was an obstacle confronting the Ottoman army's march towards Vienna.

In the August of 1566, forty years after his great victory at Mohács, the seventy-one-year-old Sultan, Suleyman the Magnificent, arrived at the walls of Sziget with his massive army. The actual siege started on the 5th of August and lasted more than a month. The approximately 2500 Croatian-Hungarian defenders would not surrender, fought heroically and resisted for weeks against the Ottoman superiority. The inner castle, where count Zrínyi and his remaining troops of some 600 men retreated, was set to fire on the 7th of September. Zrínyi and the rest of his troops opened the gate and started a suicidal charge. They fell, Zrínyi was killed and his head was exhibited on a pole in front of the tent of the Sultan.

However, only two days before the victory Suleyman the Magnificent died in his tent. His heart was buried on the spot, where a 'türbe' was erected later. Although the news was kept secret for a while it soon became known by spies and agents and the word was spread in Christian Europe. It was already great news that the Ottoman campaign was stopped, and the large army could not reach its primary target, Vienna. But as soon as news about Suleyman's death reached Europe, the siege of Sziget became a Christian symbol of hope and trust in providence.

3.3.1. Venetian prints of the Turkish wars

1566 was an important year in Venetian map and print publishing, which, with Rome, dominated European map trade in the mid-16th century. This year brought a peak of map publishing in the city: of some 36 plates published in that year the majority represented the world, continents, countries and regions - but eight were with subjects related to the Turkish wars. The new generation of commercial publishers and engravers rapidly responded to market forces, and they produced copper plates and printed smaller but cheaper maps and views for the curious public in Italy.

Domenico Zenoi and Paolo Forlani were the two Venetian engravers, printers and publishers who introduced a new type of cartographic product in the city, the printed town book. In series, illustrating the events of the war in Hungary, in 1566 they produced views of the siege of Sziget. Their engraving shows the actual arrangement of the fortification system and can be considered as a realistic representation of the major military events during the siege. The Ottoman flag on the fortification demonstrated the final act of the siege, the reader could see the battle in the Old and New towns, as well as the Ottoman troops attacking the Outer Fort using the ramps they built.

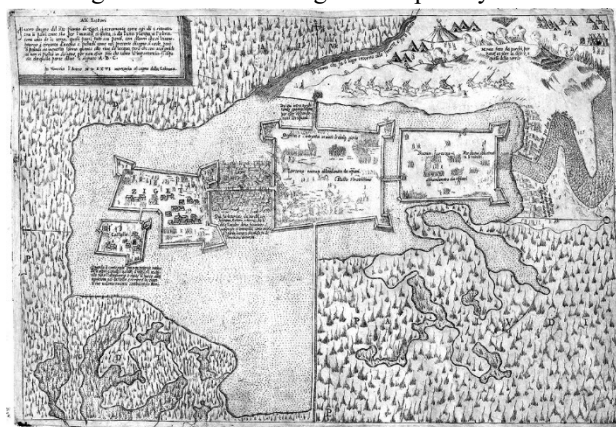


Figure 12. Paolo Forlani's 1567 view of the siege of Sziget. From private collection, Budapest.

Forlani's view is a reduced version of Zenoi's earlier, larger view (Woodward 1990). In a note on this, it was mentioned that the engraving was based on a drawing that just arrived from Hungary. This model could have been an accurate work, drawn to scale by an architect because the shape of the towns is correctly represented on the Venetian compilation. Among the other elements, demonstrating first-hand information, the most remarkable ones are the representation of the huge, cylindrical medieval tower in the inner castle, the palisade around the fortification, and the parting of the ways west of the town.

3.3.2. Ottoman representations of the 1566 siege of Sziget

Kanuni Sultan Suleyman, the Law Maker, was one of the most powerful Ottoman rulers. In the historical chronicles made in Ottoman court by a group of court historians and miniature painters (*nakkash*), his last victorious military campaign in Hungary was celebrated in the form of a series of Ottoman-Turkish miniatures. At the same time, creating a visual memory of the ruler who died during the siege, including views of the fortification Sziget in Hungary. The Ottoman account of the siege, *Nüzhet-i Esrâri 'l-Ahyâr der Ahbâr-ı Sefer-i Sigetvar*, was included in the *Sülyemanname* (Topkapi Seray, Istanbul, ms. H. 1339) and compiled by the chronicler Ahmed Feridun for Sokollu Mehmed in 1569 (Fehér 1975). The large, double-page topographic view follows the pictorial tradition started by Matrakçı Nasuh.

The miniature shows the direct influence of the printed Venetian views. At first sight, it looks realistic, that is a

European style representation of Sziget before the siege. A closer look, however, would reveal the differences, most probably due to the intentional adaptation of the original image. First, the orientation of the Venetian print is changed. Turning the Venetian model upside down, and taking a western point of view, the castle of Sziget is shown here from the opposite side. This change could reflect the intention to give the reader the impression of how the siege could be seen by the Great Sultan from his tent.

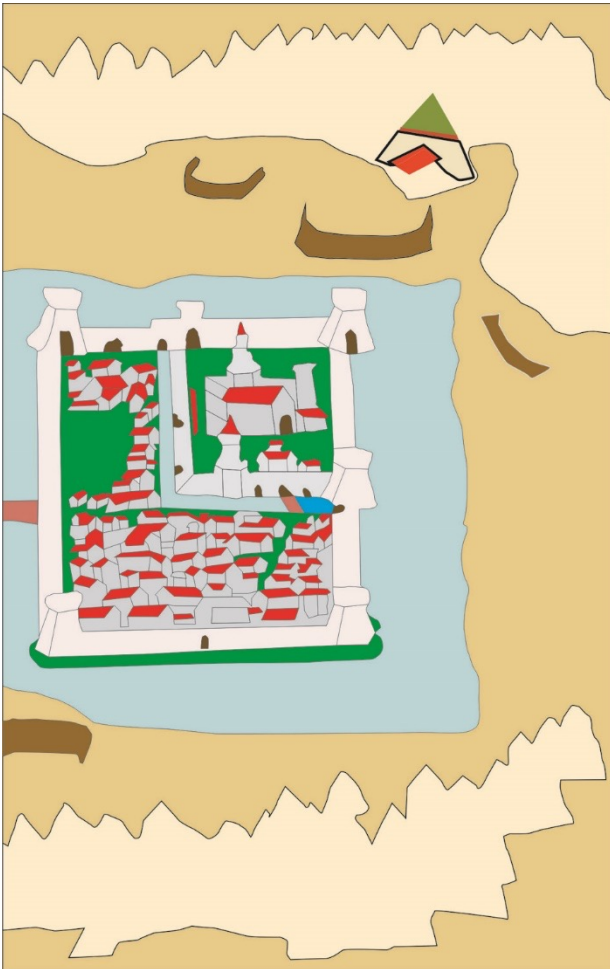


Figure 13. The representation of the castle of Sziget on the right half of a double-page miniature. © Z. G. Török, 2021.

The imperial view is monumental: the large and complex fortifications with strong and high walls, circular towers and bastions suggested an important defence system, encircled by the tents of the massive Ottoman army. The visual rhetoric of the image is most apparent in the representation of the inner and outer castles. The comparison of the Ottoman miniature with the Venetian model reveals the distortion of the proportions and the huge exaggeration of the fortification. These distortions might be explained by the difficulties and losses of the siege. The sheer size of the fortress in the painting underlines the importance of the Sultan's last victory.

By the the 1580s the geography, the actual location of the historical events in Suleyman's life lost its importance.

The focus of the other miniatures representing the siege of Sziget the castle is already in the background and the painter emphasizes the prominent figures, and the huge tent of the sultan is now in focus. The four-part fortification in the background is still similar to its models, but details became symbolic, and, instead of the representation of the actual place, the reader is offered a visual aid for longterm memory.

4. Conclusions

A closer study of the interconnected cartographic representations of different mapping modes delineates the general interpretation of the 16th history of cartography of the Kingdom of Hungary and mapping in the region from processual point of view. Instead of one monolithic enterprise of map making, an intricate process leading to different types of maps being made, used and distributed (Edney 2019).

Because of their distinct functions the same maps could be used or read differently by different circles of readership. Socially distinct groups of contemporary users were interested in different aspects of spatial information. However, visual representation, based on common geographic features remained a common element in the mappings discussed.

This visualisation created a common ground of geographical depiction of the region in the period. Although 16th-century makers or users would mention maps as *tabula*, *carta*, *prospect*, *descriptio* etc., already their early modern readers recognized that the same cartographic depiction can be read differently, and different stories can be told to various audiences. The common elements of the maps had practical consequences in the construction or compilation of cartographic works, and they implied rather sophisticated patterns of using the available cartographic information for different cartographic genres. Information from one type of maps, representing one mapping mode, could be translated to another one by the maker. On the other hand, maps created and intended for certain purposes were read by users who could have different intentions.

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