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**Reading signs: manuscript cartography sources of the 16th-19th century from the Vilnius University Library**

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**Summary:** Historiography, especially that of the last decade, has manifested a wider interest in the historical geography related topics of the *Grand Duchy of Lithuania* (hereafter referred to as the GDL). Quite a few studies on the GDL frontier history, road network and communication have been published. The history of the GDL settlements and urban developments has been subjected to a more extensive and thorough analysis. However, among the aforementioned studies, researches of the old GDL cartography can hardly be distinguished. The latter should not be understood as the reconstruction of historic cartography where, on the basis of sources, historians and cartographers draw maps reflecting the changes in the territory of the GDL or alterations of settlement dispersion. In this case the attention is drawn by the ancient manuscript maps of the 16th-19th century where contemporary geometers, i.e. the first cartographers, represented local territories of the GDL, drew maps of private landholdings and urban plans of towns and cities.

In this paper will be focused on the manuscript maps and plans of former territories of the GDL of the 16th-early 19th century. The main object is the collection of cartographic documents of the Manuscript Department of Vilnius University Library, introduced as historical sources emphasizing their utilization in the research of the GDL history; and the evolution of symbols and signs of cartographic sources used to represent space in the 16th-19th century.

**Introduction**

Last decade historiography has manifested a wider interest in the historical geography related topics of the GDL: a few studies on the GDL frontier history, road network and communication have been published (Błaszczyk 2007; Bucevičiūtė 2009; Čelkis 2014). However, researches of the old GDL cartography can hardly be distinguished. Scientific inquiry into historiography indicates there being several trends in the research of the GDL and Lithuanian cartography. Among them is the aspiration of scholars to investigate small-scale maps usually reflecting all of the GDL territory, the Polish-Lithuanian Commonwealth (PLC) or the whole of Eastern Europe. The descriptive method based on data statement, for example enumeration of towns, settlements and geographical objects visible on the map, description of state frontiers, where such are indicated, and attempts to establish to what extent their representation is accurate, prevails in the considerations and publications of such maps. Oftentimes researchers pose questions related to the dating and authorship of maps as well as the instrumental materials that cartographers would base their work on. However, the reasons behind the drawing of maps, style of their drawing and analysis of the evolution of symbols are often left aside (Čelkis and Karpova 2013; Čelkis and Karpova 2012). Moreover, it is still rather popular among the researchers to compile catalogues of maps, which have long been known in the scientific world, and reissue them as source publications.
This paper is based on the research and publication “Bird’s-Eye View of the Grand Duchy of Lithuania: Manuscript Cartography Sources of the 16th-19th Century (Funds of the Manuscript Department of Vilnius University Library)” (Čelkis and Karpova-Čelkienė 2015) granted by Research Council of Lithuania the national Lithuanian studies development programme (2009–2015). To complete the research a hundred cartographic sources were selected from the depository of the Manuscript Department of Vilnius University Library, representing private land possessions and settlements as well as administrative units of the GDL and its former territories which became part of the Russian Empire following the dissolution of the PLC in 1795 (Karpova-Čelkienė 2015). Some maps of the early 19th century contain redrawn information from cartographic documents referring to earlier centuries and reflect the little changed territorial structure of the GDL.

Selected manuscript cartographic fall into five categories: 1) maps of estates and landholdings; 2) maps of land delimitations and boundaries; 3) urban maps and plans; 4) schemes and plans of monastery complexes; and 5) maps of administrative units produced on the initiative of state officials and depicting frontiers of the state. These sources offer information on the historical landscape of the GDL and reflect the urban and infrastructure-related system of local territories. Maps also contain ample data on the evolution of landownership processes and activities of officials representing judicial institutions who for the most part are accountable for the production of part of the maps.

**The Evolution of the System of Signs and Symbols**

*The technical side of mapping*

In the 16th-17th century land-surveyors, at times cartographers or military engineers produced maps, whereas in the 18th century mapping became the business of kamarninkai and geometers. Competences of the latter were tested at the College of Physical Sciences of the Principal School of the GDL (Vilnius University) and they were issued with certificates certifying that they had been trained in the theory and practice of land-surveying (Miškinis and Baliulis 1986: 113; Kijaupia 2012: 102–103). In addition, maps were drawn by monks and clergymen who taught the subject at schools and even after 1773, following the dissolution of the Jesuit Order, quite a few of them continued working in reformed schools (Butvilaitė 2009: 158–159).

Maps bespeak of the perception of the geographical space characteristic of individuals of a certain period in history. For the most part the scope of environmental awareness was framed by people’s mobility and exchange of information on more remote territories. Qualified knowledge of geographical planes is reflected in the descriptions of the German Order’s military campaign routes to Samogitia and Lithuania of the late 14th century (Čelkis 2013a). They speak of special pathfinders who knew short segments of the routes (Čelkis 2015; Nedzinskaitė 2011: 139–141). An individual cognitive-mental map of a limited environment was present in the consciousness of each person, including map drawers. Such elements are detectable in the “language” of signs and symbols of the 16th-17th century maps where settlements were oftentimes indicated as circumscribed with a circle which marked the whole of the inhabited territory and its surroundings (Figures 1, 2).
In the 16th-17th and at times even the 18th century map drawers would consider the sheet of paper representing the map an equivalent of the mapped space and would in erratic manner mark the symbols all around the sheet, including its corners (Kivelson 2006: 3) (Figures 3, 4).

Such map was reminiscent of an abstract painting where all objects were represented in an improvised manner. In the late 18th-19th century cartographers started focusing their attention on the visualization of a strictly defined territorial object, leaving aside the background of the surrounding geographical environment (Figures 5, 6).
Maps normally contained the display of the orientation of the cardinal directions. In the 16th-17th century they were presented as an inscription in a corner of the map sheet. Next age Roses of Winds started prevailing; at times, however, only the North direction was indicated by means of an arrow (Figures 7, 8).

However, there are exceptions to the rule. At times on large-size earliest maps of the 16th century signs or inscriptions representing the landscape or settlements were oriented towards the centre of the map sheet. In the 17th century it was becoming less frequent as the one-direction sign arrangement system, at times reminiscent of the panoramic view, was increasingly gaining popularity.

Some of the maps featured heraldic symbols alongside decorative elements (Figures 9–12).
Figure 9: Decorations of the plan of Vingis (Vilnius, Lithuania) of 1799.

Figure 10: Map of Užpaliai county (Utena district, Lithuania) of 1809.

Figure 11: Heraldic symbols on the plan of Troškūnai town, (Anykščiai district, Lithuania) of 1800.

Figure 12: Coat of arms of the owners of the land, the Sapiega family, inserted on the map of Užpaliai county (Utena district, Lithuania) of 1809.

The former were as though representing the “stamp” indicating who ordered the production of the map and who owned the lands (Bucevičiūtė 2013).

Marking of natural and geographical objects

In the Middle Ages people perceived the geographical environment not only through their knowledge of the inhabited territories and roads connecting them, but also through knowing where impenetrable forests, marshes, lakes and rivers were located (Guizard-Duchamp 2007: 117–122). It was vital to know bridges, passings, and wades in order to cross rivers (Čelkis 2013). Names were
allocated to various geographic and natural objects which facilitated better knowledge of the environment. For example, from the period of Grand Duke of Lithuania Vytautas’ rule on, lands allocated to noblemen by subsequent rulers were localized by indicating the name of the neighbouring forest, swamp, lake or river (Čelkis 2011: 33–34; Čelkis 2013b: 16–18). Prominent smaller objects, including rocks and trees characterized by outstanding features or architectural structures featured in historical stories and legends also facilitated orientation in the surroundings (Vaitkevičius 2003) (figure 13).

Maps of the 17th century are characterized by particularly graphic representation of forests utilizing wide spectra of colours and shades. At times cartographers even took the trouble to indicate the vegetation. On the maps of the 18th century, however, cartographers started representing forests in defined areas, utilizing more standardized symbols (Figures 14, 15).

Marshes were natural obstacles almost unassailable to people most probably is accountable for them being featured on the maps. Sigismund von Herberstein, the ambassador of the Holy Roman Empire, who in the 16th century travelled via the GDL to Moscow, indicated in the record of his
trip that along the Vilnius-Polotsk route there were numerous marshes (Герберштейн 1988: 236–267). On the maps of the 16th-17th century marshes were mostly “framed” (Figures 16, 17).

Figure 16: Dowspuda marsh in Podlachia (Poland), the 16th century.

Figure 17: Hodylev marsh (Mogilev region, Belarus), on the map of 1604.

However, in the 18th and 19th century maps marshes were represented in blocks and marked using fine horizontal dashes as well as indicating their name nearby (Figure 18).

Figure 18: Halec marsh (Minsk region, Belarus) in 1789–1790.

Water bodies stood out from the general context of the space. Their representation underwent little change over the 16th-18th century with the exception of the colour spectrum. There are certain peculiarities related to the marking of natural objects in the 16th-17th century as they were indicated in a simplified graphic manner, focusing on the landscape. As of the second half of the 18th century, the representation of landscape became more schematic; attention was shifted towards the terrain and representation of hills, hill-forts and their slopes (Figures 19, 20).
Reclaimed and cultivated lands and their possessions were represented on the maps by means of various settlements, urban elements as well as indication of cultivated and in other ways used land. On the maps of the 16th-17th century farmlands and fields were hardly ever marked with designated symbols. At times abstract maps make it rather difficult to understand to what extent the layout of the represented boundaries is akin to that which existed in reality. Data derived from the sources suggest that true-to-life representation of boundaries can only be observed on the maps dating back to the 18th century. Ploughlands, fallows, fields and plots of land of other designation as well as their boundaries were represented on the maps (Пичета 1958: 183–483) (Figures 21, 22).

Smaller natural objects came into use in boundary marking as well as designated artificial landmarks, for example outstanding old trees marked by carved crosses, were gaining prominence (Čelkis 2013b: 17–23) (Figures 23, 24).
As of the 16th century, heaps of soil or in damp places piles of small stones were widely used to mark boundaries. Large rocks featuring special at times heraldic signs denoting landownership, also frequently served as landmarks (Figure 25).

Representation of settlements received a large share of attention from the producers of various types of maps. Steadings, villages, estates, folwarks, monasteries, towns, cities and other objects related to the urban structure were marked. Following the Volok Reform of 1557, settlements were re-arranged into linear villages (Пічега 1958: 285–423), and this is clearly represented on the maps (Figures 26, 27).
Pre-reform villages were represented as scattered in an erratic manner with no regular arrangement, what is clearly visible on the maps of Podlachia of the first half of the 16th century (Figures 28, 29).

Figure 28: Arrangement of villages in Podlachia (Poland) in the 16th century.
Figure 29: Długolęka village in Podlachia (Poland) in the 16th century.

Rural settlements were parts of local economic centres, namely manors (Puodziukienė 2002; Dambrauskaitė 2014) and folwarks. This urban structure is well represented on maps of different periods, as manors were oftentimes vividly depicted alongside villages (Figures 30, 31).

Figure 30: Mankowitz manor (Vitebsk region, Belarus) in 1628.
Figure 31: Building of Paparčiai folwark (Kaišiadorys district, Lithuania) in late 18th century.

Graphic representation of buildings on maps demonstrates that map producers considered chimneys as an indicator of a wealthy owner, as they suggested that the building was equipped with other than the smoke stove. Similar situation is with manor-house windows represented on the maps, as large windows require large quantities of rather sparse and expensive glass. Representation of mills owned by manors or monasteries was very frequent as they were an important attribute of economic life used not only to make flour, but also to produce spirits, make paper and gunpowder (Milius 1997; Baranowski 1977). Mostly watermills were depicted on the maps. There were cases where the waterwheel was not indicated on the drawing or where the mill was represented as a structure by the river featuring the inscription “mill”. With the increasing use of abstract arbitrary signs, maps of the 19th century feature watermills indicated in the shape of the waterwheel drawn on the bank of a river or pond (Figures 32, 33).
Producers of maps visualized also towns. On most maps towns were represented rather graphically, expressing their exceptional nature by drawing a few larger structures with one or several towers, which suggested their having been a church or a town hall. These symbols were used both in the 16th and in the 18th century (Figures 34, 35).

Churches, however, were represented not only as part of towns. At times they were drawn isolated, in a certain distance from a manor or a settlement. This most probably suggests that cartographers opted for focusing on the representation of the documented object on the map, rather than depiction of the general panorama. At times when mapping church lands, complexes of monasteries that administered them were represented. On the maps of the early 19th century churches and chapels in general were oftentimes represented by a simple cross.

Roads were the arteries of the territories, facilitating communication between settlements. By the 16th century, the system of roads in the GDL had already been developed and consisted of small routes connecting minor settlements and steadings; larger routes covering longer distances and serving as the communication arteries between towns; private roads were usually winding through noblemen’s lands and were built and maintained by the owners of the land; the most important,
however, were public roads, also known as the big roads, the King’s roads or the eternal roads, as they had the status of strategic state routes and connected the largest cities (Čelkis 2014a; Čelkis 2015a) (figure 36).

Figure 36: “Vytautas’ Road” indicated on the map of Podlachia (Poland) of the 16th century.

On the marked segments of roads leading though marshy areas people would set up žemgrindos – segments of the road made of ground, logs, tree branches and gravel and flattened (Karalius 2009: 19–24) (figure 37). Medgrindos, log pavements wide enough for two carriages to pass, were installed in swampy and waterlogged segments of roads to facilitate communication were also represented on the maps of the 18th century (Karalius 2009: 14–19; Čelkis 2014a: 41–61) (Figure 38).

Figure 37: A žemgrinda indicated on the road leading from Prūdninkai (Kašiadorys district, Lithuania) in 1785.

Figure 38: A medgrinda near Skomaičiai village, (Radviliškis district, Lithuania) in 1753.

Near the roads cartographers usually indicated inns and bridges over rivers and marshes (Figures 39, 40).

Figure 39: Bridge over the Vilnia River (Vilnius, Lithuania) in 1799.

Figure 40: Bridge over the Juosta River on the plan of Troškūnai town (Anykščiai district, Lithuania) of 1800.
Conclusion

Generally speaking about the map symbols utilized by cartographers to represent the peculiarities of factually existing territories, one can notice a frequent interweaving of several perceptions of space. Firstly, the scenery and the view of landholdings were conveyed in the form of a landscape. A more attentive eye, however, could have noticed that at times cartographers would depict certain symbols in such a way that they acquired an illusion of a 3D image. Semiotics specialist Felix Thürleman analysing the topic of the extra-aesthetic visual context, briefly dwelled on the conception of space representation in cartographic sources, applying the metaphor of the “bird’s-eye view” and its semiotic analysis to them. He observed that the “bird’s-eye view” perspective was employed to represent most objects (towns, structures, and road networks) featured on old maps. They first and foremost presuppose the orthogonal – vertical view of the depicted object which is then followed by the diagonal one (Thürlemann 2009: 54). The paradox of this phenomenon lies in the fact that an individual in the Middle Ages and later periods had no technical possibilities to get the orthogonal view of the geographical space until the late 18th century! On the maps of the GDL one can also notice that part of the symbols expressing space were depicted orthogonally, whereas representation of the other part was diagonal where the symbols were rather graphic, at times bearing the illusion of a 3D image.

Analysis and comparison of symbols utilized on the maps of the 16th-19th century exhibited the dynamics of their longevity and variation. The examined cartographic sources allow us an insight into the shifts of the panorama of the GDL historical landscape.

References


