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Understanding the Role of 18th Century Estonian Manor Ensembles in Contemporary Planning and Conservation

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Declaration:
Hereby I declare that this doctoral thesis, my original investigation and achievement, submitted for the doctoral degree at Tallinn University of Technology has not been submitted for doctoral or equivalent academic degree.

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Signature

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Eesti 18. sajandi mõisaansamblid 21 sajandi maastikuplaneerimises: avastamine, mõistmine, tõlgendamine

SULEV NURME

TAL TECH
KIRJASTUS

Contents

Publications

This chapter consists of the summary of publications that make up the body of this work. The following set of articles answer the research questions posed in this study. It also describes the author's role in each publication.

Estonian baroque Manor Park and Today: Discovery, Understanding, and Restoration

Nurme, S. 2014. Eesti barokne mõisapark ja tänapäev: avastamine, mõistmine, taastamine. (Estonian baroque Manor Park and Today: Discovery, Understanding, and Restoration) Rahvusvaheline konverents KADRIORG 295 – Barokne park tänapäeval (Kadriorg 295 – Baroque Park Nowadays). Marika Valk (Toim.). Artiklite kogumik (142−158). Asutus Kadrioru Park 2014.

This Publication answers Research Question 1, 2 and 3.

Abstract

During the last decades a lively discussion on the essence, meaning and even the form of baroque parks has been taking place. Do European royal parks that have been seen as the essential representations of what a baroque park should be, actually provide a universal key to understanding the baroque park space, especially when small country manor parks are concerned? Or should increasingly more attention be paid to the individual character of each park? This very question arises, for different reasons, in the treatment of Estonian estate parks. In Estonia, estate parks first occurred in the 18th century, when the country was recovering from the Great Northern War. Only a few decades later, the first English–style parks were founded and some existing parks were redesigned in that style. The developments in Estonian estate parks remind one of John Dixon Hunt's deliberations on the parallel existence of the English and French park styles and the disputability of opposing the two styles. The Estonian estate parks were at the time most probably designed by the owners themselves and according to their own conceptions and knowledge, hence the use of different styles, co–existing in the same park, were typical of that period. Baroque art of landscape gardening reached Estonia rather late which, is why it is questionable whether older Estonian estate parks can stylistically be treated as "pure" baroque parks at all, excluding only Palmse and a couple of other more evident cases. The situation is further complicated by the shortage of written sources concerning the layout and the later redesigning of the parks, which, is why it is often practically impossible to recreate a detailed model of the original layout or the later changes in the design. Taking into account the versatility (and late development) of the Estonian baroque park space it may be stated that there exists a local Baroque park art here in its universal yet unique way, which, is characterized by traits typical of the Baroque philosophy of design. On the other hand, the scarce source documentation enables us to make conclusions and decisions concerning only the overall principles of composition and not the details. That, in turn, makes the choice of conservation strategies more difficult and, in most cases, renders the probability of restoring and reconstructing an

existing regular park space questionable. The article deliberates on the essence of the Estonian baroque park, its characteristic traits and the specific approaches to its research. The principles of preserving and restoring Estonian baroque parks are also discussed, taking into account the specific nature of the existing source documents and the current state of the preserved parks.

Authors' contribution

The author of this thesis is sole author of this article, responsible for the research concept, methodology, data collection and interpretation. This article was presented at International Conference: *Kadriorg 295 – Baroque Park Nowadays* at Kadrioru Park, Tallinn, Estonia. The article was published in the conference proceedings.

Talking ruins: The legacy of Baroque garden design in Manor Parks of Estonia

Nurme, S.; Nutt, N.; Hiob, M.; Hess, D. B. 2012. Talking ruins: The legacy of Baroque garden design in Manor Parks of Estonia. Landscape Archaeology between Art and Science: LAC2010: First International Landscape Archaeology Conference, Amsterdam. Amsterdam University Press, 115−125.

This Publication answers Research Question 1 and 2.

Abstract

The late 19th–century and early 20th–century 'grand era' of manor parks in Estonia coincides with a period when English gardening ideas dominated Europe. What is less recognized, however, is that manors in Estonia possess formal French–inspired gardens dating from the mid-18th century (the introduction of Baroque design in Estonia was delayed). Today, about 600 complete manor ensembles remain, retaining distinctive structural characteristics, which, date from the 18th–19th centuries. It is quite typical that in old parks of Estonia Baroque and English garden styles have merged, giving them a unique and original character. This research reports on archival study, field investigation and map analyses of 45 protected manor parks in Estonia. The analysis suggests that, despite the relatively short period (ca. 1730–1770), formal Baroque gardening was the dominant style practiced in Estonia. The movement had a significant influence on local garden design, and on landscape planning more broadly. The Baroque elements in manor lands include formal geometric spaces, axial connections between landscape and buildings, orchestrated vistas and tree–lined roadways. Within the Baroque garden, formal plantings, pathways and water features were arranged in classical configurations. Finding physical traces of Baroque artifacts today is difficult because many manor parks were destructed during the Soviet era in the latter half of the 20th century. Nevertheless, archival materials and present–day visits to garden ruins in manor parks suggest that formal Baroque gardens dating from mid-18th century manor lands were vivid and sophisticated ensembles of formal terrain, tree allées, sculptural elements and finely orchestrated water elements.

Authors' contribution

The author of this thesis is the main author of this article, responsible for the research concept, methodology and data collection. This article was presented at the 1st Landscape Archaeology Conference: LAC2010 in January 2010 at VU University Amsterdam, Netherlands. The article was published in the conference proceedings.

The Use of Terrain Maps based on Airborne Laser Scanning Data for Researching Historical Parks

Nurme, S.; Paalo, P. 2013. The Use of Terrain Maps based on Airborne Laser Scanning Data for Researching Historical Parks. *Acta Architecturae Naturalis*, Vol 3 (2013), Tartu, 70–91

This Publication answers Research Question 1 and 2.

Abstract

One of the greatest problems related to the restoration of Estonian manor parks is the scarcity of historical materials. The existing archival materials provide a relatively good overview of the development of the manors as economic units, but information on the buildings, and especially the parks, is limited. Virtually no materials have survived on the design of the parks, and therefore, conclusions can be drawn about the historical park space based primarily on the plans of the manor lands that have survived from the 19th century. Based on these maps, it is possible to generally analyze the land utilization, road networks, and buildings as well as bodies of water, to a greater or lesser degree. In a few instances, it is also possible to analyze more specific aspects like park structures and landscaping. Usually, it is not possible to analyze the terrain based on the plans of the historical centers of the manors. The analysis of park topography is a major component of site analysis, which enables decisions to be made regarding bodies of water, views, axes of composition, etc. This was why Clemens Steenbergen and Wouter Reh used topographic models for demonstrating the composition analyses of Europe's famous historical parks. This article focuses on the opportunities for utilizing the relief maps of Estonia, which, are based on the data collected by airborne laser scanning conducted by the Land Board between 2008 and 2011, for researching the terrain of historical parks. LiDAR-based (Light Detection and Ranging) map analysis is a relatively new research method used in environmental archaeology, among other things. The LiDAR map of Estonia which, are available on the Land Board's Geoportal, can be used as a topographic model in park research for conducting site analysis. The relief map can provide significant additional information in cases where a geodesic map has not been compiled for the park or the areas related thereto. The article deals with the possibilities for researching park terrains, and focuses on the methodological aspects of using relief maps for the analysis of park space, based on previously selected examples. As could be expected, research conducted in the spring and winter of 2013 showed that utilizing the Land Board's relief maps, which, are available to the public, along with historical maps for the analysis of park spaces usually, produces results and is quite easy to carry

out. The available data enables significant additional input to be acquired for the research of regular parks, which can help one gain an understanding of, and interpret park space. Considering the universality and importance of map analysis in landscape architecture, one can assume that the method described in this article can also be useful more broadly, in theoretical and practical work related to landscape architecture.

Authors' contribution

The author of this thesis is main author of this article, responsible for the research concept, methodology and theoretical background. This article was published in peer-reviewed journal, *Acta Architecturae Naturalis,* in 2013.

Restoring manor parks: exploring and specifying original design and character through the study of dendrologous plants in Estonian historical manor park

Nutt, N; Nurme, S; Hiob, M; Salmistu, S; Kotval, Z. 2013. Restoring manor parks: exploring and specifying original design and character through the study of dendrologous plants in Estonian historical manor park. Baltic Forestry, 19 (2), 280−288.

This Publication answers Research Question 2.

Abstract

Manor parks are an integral part of the Estonian landscape, given that we have about 1000 manors with smaller and larger parks of which, about 400 are under nature protection or declared as national heritage objects. Manor park restoration is an important national goal for the country. However, restoration techniques and expertise is not readily available. While there is great interest in cataloguing and inventorying the plant species in the Estonian Landscape, particularly in Manor Parks, knowing the types of different species is far from adequate to understand the original composition and design of the parks for true restoration. While historical documents, maps, writings, poetry and paintings give us useful background information regarding the overall scheme, such as spatial orientation and road patterns, little is understood about detailed plantings, tree species etc. Under specific circumstances the old trees in the park may yield valuable information for restoration decisions. The most important question in restoration is which, woody plants and on what conditions are the part for the original design concept. That is the key question posed by the researchers of this paper. Due to the fact that the development of manors and manor parks in the Baltic countries is similar the topic is equally interesting for all Baltic States. Moreover, the addressed problems of restoration of parks are similar in every place with the lack of primary data. The researchers contend that in addition to the inventories performed by many foresters and naturalists, it is equally relevant to know the actual count of each type of tree to begin composing the original landscape. Furthermore, one needs to understand that these parks have evolved over many years and the current structure might be very different than the original plan. To make it even more complicated, it is difficult to really say what era was original or what were the glory days of the Manors. One of the ways to deal with this issue is to identify the really old trees

from the new or subsequent growth, and focus attention on those. The authors have begun the tedious task of identifying, inventorying (types and number of species) and understanding this footprint in each of the 16 parks in 2003 – 2009. This paper addresses the significance of focusing on the identification and composition of old trees and their influence/ significance in understanding the original intent of the park design and the amount of original matter in todays historical parks, thereby aiding in better restoration efforts.

Authors' contribution

The author of this thesis is co-author of this article, and is responsible for the D60 methodology and for parts of theoretical background. This article was published in peer-reviewed journal, *Baltic Forestry,* in 2013.

Baroque manorial cores and the landscape

Nurme, S.; Kotval, Z.; Nutt, N.; Hiob, M.; Salmistu, S. 2014. Baroque manorial cores and the landscape. Journal of Cultural Heritage Management and Sustainable Development; 4 (2), 166−183.

This Publication answers Research Question 3

Abstract

The concepts of “historically valuable landscape”, “historical landscape space”, “landscape space attached to an object of cultural importance”, etc. seem to be understood by most landscape professionals, yet these terms are highly abstract with many possible interpretations. The protected zone of cultural monuments prescribed by law helps to ensure the preservation of these historic artifacts and signifiers of local heritage. In many cases, especially in towns where different historical layers are closely intertwined, this method is quite sufficient. Yet in low–density areas featuring objects closely attached to the landscape where the surrounding historically developed spaces have become intertwined with the object in question, the protected zone may prove ineffective. Still, many landscapes may contain historically relevant objects and phenomena not protected by law, which, nevertheless form the basis of a unique local landscape. The altering of such a landscape not only changes its natural form, but also may directly impact the cultural identity and milieu of the area, thereby affecting how its inhabitants relate to their environment.

Authors' contribution

The author of this thesis is main author of this article, responsible for the research concept, methodology and data collection. This article was published in the peer-reviewed journal, *Journal of Cultural Heritage Management and Sustainable Development,* in 2014.

1 Introduction

"The manor is a sign of one lost civilization, of which, prediction of riddles requires knowledge of both the general horizons of cultural history and the local genius loci. Baltic manor culture was planted in a strange soil, but nevertheless this exotic plant grew its roots and flourished. After a series of dramatic twists and turns of history, it still calls to get deeper into it. The task of the manor is to invite to think about the real nature of things..."

Juhan Maiste (Maiste 2008, 69)

1.1 *"Where there is a hill, there is a manor..."*[1]

Baroque period in Estonian manor park history occurred between 1680 and 1800 (Nurme 2014 a). With the arrival of firearms, fortified Baltic German manorial cores lost their significance, similar to other European manors (Pirang 1926, 23–24). The process that started in Tuscany at the end of 16th century made its way to Estonia and Livonia later, in the 17th century, when the fortress residences destroyed during the Livonian and Swedish-Polish War were being replaced by open villa-type residences (Hein, 2005, 211). Due to the complicated geopolitical situation and difficult economic circumstances of 17th century (Vahtre, Laur 2003, 15–17) the buildings of most manorial cores during the last decades of 17th century remained quite modest in volume. However, at the same time, more than 100 new manor centers were built in a more representative way (Hein 1998, 129). Even though most of the buildings from that era have been destroyed due to the destructive Great Northern War and the subsequent rebuilding, it can be said that the compact spatial model of manorial cores built after the Great Northern War defined the manor ensembles and landscapes connected to them, their spatial structure, and the nature and look of the landscape pattern. The restoration and building of manorial cores after war was based on the direct ideological need of that era to organize the chaotic world and reflect the characteristics of the architecture inherent to the period (Norberg-Schulz 1986, 10). They followed the theories and practices recognized in Europe (Hein 2005, 222–223) but at the same time local construction was complicated due to modest financial means and the multicultural context inherent to the border areas, which, is why the 18th century Estonian and Livonian manor cores are universal, yet unique as an architectural phenomenon (Nurme et al, 2014). The evolutional process regarding the construction tradition was followed by the redevelopment of planning principles in manorial cores which, resulted in the conceptual connection between the manorial core and its landscapes and they became an architecturally significant whole (Nurme et al., 2009).

Even though practically all manorial cores were built or rebuilt after the Great Northern War, the original network of manors in Estonia and Livonia were largely developed by the end of 17th century, after the Livonian War (Tarkiainen 2009, 85; Maiste, 1996, 44). According to different authors in the second half of 19th century there were approximately 1100–1400 manors in Estonia (Üprus 1975, 6; Rosenberg 1994, 9 table 1). But taking into account all possible different manor types (Särg 2018, 30–35) the number might have surpassed over 2200 (Üprus 1975; Üprus 1977). The sheer

[1] Maiste 2008, 68

number of manors makes it apparent that the spatial influence on the landscape, connected to the manorial core, was extensive.

The spatial development of landscapes surrounding manors has been influenced, on one hand, by the architectonic program of the manorial core and, on the other hand, by the manor as a functional economic unit (Suuder 2012). Based on manorial circle theory (Merila 2003, 144–148; Maiste, Nutt 2010, 12–14) the centre of the manor is the main building complex, surrounded by the manorial landscape, defined by the border circle which, is formed by agricultural lands, manor forest and the buildings and roads that service them. The manorial landscape was defined by the manor core which, marked the visual, political and ideological centre of the landscape and through its spatial program embodied the rest of the architectonic dominants, land use, view axes, locations of main roads, open or closed landscapes etc. Therefore, the large-scale landscape, dominant landscape elements, clear and powerful division and definition of space which, are inherent to Baroque space, are characteristic to almost all of the Estonian manor cores which, were built (or rebuilt) in 18th century or beginning of 19th century. 19th century architectural and planning practice adapted to the Baroque spatial program which, is why the landscape patterns and visuals inherent to the Baroque period were continued and have been recognizably preserved to the present day (Tarkin 2011; Nurme 2009). It can be said that today the manorial landscapes of 18th century largely define the landscape pattern, landscape visuals and milieu of many Estonian rural and urban areas while being one of the most important iconic symbols and carriers of place identity.

The Estonian manor culture and the Estonian manor park culture have had a significant influence on the development of current Estonian landscapes. Manor centers shaped their surroundings for kilometers away and at the same time remained connected with each other through the network of roads. Therefore, the spatial heritage of the manor culture defines a large part of Estonian rural areas' and urban settlements' identities, milieus and landscapes. Manor landscape as a specific spatial structure is characterized by the pairing of natural and built landscape elements with landscape components in a way that they become an architecturally meaningful whole. This often serves as the basis for today's network of roads, openness of the landscape, views, land use, spatial positions of holdings and many other site-based phenomena connected to different manor centers. Due to historical reasons, a renaissance-like villa culture, which favored the fine arts, blossomed here. On one hand it was based on all European classical arts, but on the other the eastern and western thinking mixed here as is custom to border areas. This resulted in a universal, yet unique approach to villa architecture. This is why it is hard to underestimate the importance of manorial landscapes as a legacy in the understanding and interpretation of Estonian cultural landscapes.

1.2 Purpose of this Study

Historical places are seen and valued differently by different people (Mason 2002, 8–10). Different values are mostly attributed to manor ensembles in ways that are important to us in an emotional and meaningful sense, symbolizing the identity of the place and durability over time (Feliden 2003, 1–6; Howard 2003, 147–185). Values define the significance of a place. *"Above all, significance embraces less tangible qualities of character and ethos; also values, meaning and potential. These depend, at least partly, upon subjective perceptions that will vary locally and national, by according to people's familiarity with the place, their knowledge of the site, and their own background. This does not make their perceptions any less valid"* (Sales 2000, 73). Therefore, perceiving

and understanding a manor ensemble as a valuable architectural space depends largely on its context (Howard 2003, 211–243) within the landscape which, means the spatial relations of the landscape and the ensemble as a whole characterize the nature of the manorial landscape (Fairclough 2006, 55–74). The characteristics of the surrounding space are of importance, taking into account the building traditions of that era, for perceiving the architectural look of the ensemble (Norberg-Schulz 1986). Considering that the landscape has been transformed over time (Nurme 2009), it can be said that the bearers of significance in the Estonian baroque landscape are preserved through authentic built environments and their historical spatial relationships.

The exact number of manor cores preserved to date is not known. It can be estimated that there are more than 600 manorial cores recognizably distinguishable in the landscape (Nurme et al., 2012). Considering that in today's landscape the visual expression of the manor core is defined by the ensemble as whole, the number of parks protected as cultural monuments or as nature conservation objects (the objectives of natural conservation and heritage preservation in park protection are similar – the preservation and maintenance of culturally and aesthetically valuable objects[1]. According to the Estonian National Register of Cultural Monuments (ENRCM 2017) there are over 290 manor parks under heritage protection and, according to data of Estonian Environment Agency (EEA 2016), over 370 manor parks under nature conservation. Approximately 270 parks are under both heritage protection and nature conservation (Nutt, et al., 2013, 281). Based on research conducted in 2007–2013, approximately 60% of protected parks (ca 190 parks) have a preserved authentic spatial structure (Nurme 2009, 146). While the spatial impacts of manor ensembles on the landscape have decreased, they still are remaining the dominant component of the local landscape. Considering the above given numbers, the influence of the Baroque manor ensembles on Estonia's present landscape is undeniable and their importance in regional milieu and identity cannot be underestimated.

As the practice of planning and building in the manor cores and their contact zones shows that the significance attributed to them can often be threatened by unfavorable spatial decisions. Even though the Estonian manor ensembles are mostly scattered and building pressures have not directly affected them as the protection system established by the law assures the protection against direct destruction, there are still several specific values connected to manor cores that are threatened by changes happening in the surrounding landscape (Nurme et al., 2014). As a result changes in the physical and visual spatial structure may lead to losses in ensemble significance and identity. One of the indirect reasons is the attitude towards manor culture in 20th century Estonian history with a disregard for manors, characterized by a negative attitude towards protecting manor heritage (Vanamölder 2016; Suuder 2012, 78). This attitude, also towards manor architecture, caused the indescribable splitting of manor cores during the first period of Estonia's independence and random construction activities in manor cores during Soviet times. Intensive and intrusive changes had a devastating effect on manor architecture, which, was followed by irreversible change or even destruction of many manor cores (Sinijärv 2012, 36–37). However, the situation of many manor ensembles continued to erode even after the restoration of independence (Nutt 2004, 81–82, 88). Despite the fact that a significant theoretic and practical base has been developed in the last decades

[1] See Estonian Nature Conservation Act § 1; Estonian Heritage Conservation Act § 2.

to understand manor architecture, it is very difficult to understand and value a specific ensemble as an architectonic phenomenon.

Another aspect of manorial landscape interpretation is being aware of the manorial landscape as a wholesome architectural phenomenon. According to Krista Kodres, *"Wanting to understand an existence and meaning of a specific architectural object within its establishment time so that the "translation" is adequate, it is necessary to know its building traditions and architectural understandings. But wanting to understand a historic building's architecture now, in our own time, we need to know the current understandings and expectations applied on contemporary architecture in addition to the building's history. The less we know of the circumstances, intentions, knowledge and possibilities of the development of architecture, the less communicative it is to us."* (Kodres 1999, 1609–1629). In practical decisions most don't question the value of historical manor buildings but the role of manor landscape as a culturally valuable object of the manor ensemble and as a part of defining the architectonic characteristics and values is less acknowledged. Thus, within and around manor ensembles spatial decisions are made which, when put into practice, cause changes in the perception of the manorial core that result in the alteration of understanding its historical, architectural, social and other spatial aspects (Lozny 2006, 15–26). The main issues related to the spatial restoration of manorial ensembles is the lack of understanding and analysis of the space connected to manorial cores or not acknowledging its importance which, results in inadequate or incomplete interpretation of the ensemble and the space around it. This lack of holistic interpretation is why spatial planning decisions bring about changes in the milieu and spatial manorial structure causing the disruption and disappearance of the significance of the manor ensemble (including the perception of authenticity and age (Mason 2002, 10–13; Nurme et al., 2014). Therefore problems arise in making or failing to make spatial decisions related to the management, conservation, and reconstruction and planning of manor landscapes.

The problem does not occur only in Estonia but has become acute over the last decades in Europe and in the world in general, but especially in the post-socialistic countries of Eastern Europe. The changing attitudes toward culturally valuable objects have been addressed by many authors including Zbigniew Kobylinski (Kobylinsky 2006) and Ljudomir Lozny (Lozny 2006, 15–21) in Poland, Ruslan Gorbatsov (Горбачев 2010) in Belarus, Algimantas Gražulis (Gražulis 2007) and Albinas Mocevičius (Mocevičius 2010) in Lithuania, Aija Ziemelniece (Ziemelniece 2016), Silvija Rubene (Rubene, Lāčauniece 2013), Kristīne Dreija (Dreija 2013) and many other authors in Latvia.

Baroque manor landscapes are also an interesting research object in the history of Estonian garden art and landscape architecture. Even though Estonian manor parks, specifically Baroque manor parks, have been the topic of many theoretical works during last few decades (for example see Nutt 2017, 11–16) including many Master or Bachelor thesis that the author of this paper has supervised (for example Vaine 2009; Heringas 2009; Mihkelson 2010; Tarkin 2011; Paalo 2013; Ratas 2014; Masjagutova 2014; Saarepuu 2015), the Baroque manorial landscape has not been systematically dealt with as a holistic meaningful architectural space. Based on the above, the main objectives of this study are:

- To give an overview of the historical planning and design principles of the Baroque ensemble, based on their era-specific paradigm of spatial thinking;

- To study the formation and development history of Estonian baroque manor ensembles;
- To study the principles of spatial design and practice in Estonian baroque manor ensembles and the role of landscape in the Baroque manor's architectural composition;
- To study which objects and phenomena of the ensemble's architectural structure are critical to perceive the ensemble as Baroque, both in context of the 18th century and present times;
- To give an overview of the dangers posed by spatial decisions which, reduce the significance attributed to the ensemble and its significance;
- To find the most sensitive areas in the Baroque manor ensemble and surrounded landscape, where spatial decisions may impact the values and significance of the ensemble given its Baroque spatial composition;
- Discuss what spatial decisions in the sensitive areas of the ensemble can lead to a) a loss of significance, b) have no remarkable impact or c) can add to the significance of the ensemble.

1.3 Research Questions

This study aims to answer three main questions:

1. What was the architectural composition and spatial structure of the 18th century Estonian baroque manor ensemble and what objects and phenomena were important during its creation in 17th–18th century?
2. What types of spatial characteristics, objects and phenomena are fundamental nowadays, so that the manor core is spatially perceived as a historical Baroque ensemble?
3. What are the possibilities for dealing with the Baroque manor core and its landscape contact zone without modifying or destroying its significance?
    a) What kind of spatial changes in the ensemble or in its contact zone decrease or destroy the significance of the historical Baroque manor ensemble?
    b) What kind of spatial changes in the ensemble or its contact zone do not have a negative impact to the significance of the Baroque ensemble?
    c) What kind of spatial changes in the ensemble or its contact zone may increase or add to the significance of the Baroque ensemble?

The results of this work will first and foremost give an answer to what was the spatial structure of a 18th century manor ensemble and what were its specific nuances, what needs to be considered when studying and dealing with them in theoretical and practical work. The results of this work can be used in further research of manor ensembles, manorial park and everyday practical planning of restoration work. Taking into account that any kind of aesthetic landscape planning deals primarily with aesthetic organization of a space (Simonds, Starke 2006, 6), it means that this work can be useful for dealing with any other valuable historical object in the landscape.

The research questions posed in this work are answered through published articles, authored or co-authored by the researcher, as indicated in the chapter "Publications". In addition to the research articles, the researcher supplements the work through chapters two through five of this study outlined in Section 1.4 of this chapter.

1.4 Organization of this Study

The paper is composed of six main chapters.

Chapter One gives an overview of Estonian baroque manor development and preservation status to date, discusses the purpose of the study and poses the research questions that will be answered through this work.

Chapter Two focuses on the theoretical and historical aspects inherent in spatial planning and design approach to the Baroque Era. The chapter is based on the review of literature and gives an overview of the historical and philosophical context that shaped Baroque architecture and the principal spatial structure of the Baroque ensemble and of its characteristic parts. Chapter Two answers Research Question 1.

Chapter Three focuses on the evolution and impacts of Baroque manorial landscape within the Estonian context. Chapter Three focuses on answering Research Question 1.

Chapter Four focuses on specific examples based on historical map analyses and describe the development, character and peculiarities of Estonian baroque manorial landscape. Chapter Four focuses on answering Research Question 2.

Chapter Five focuses on baroque manor ensembles within the present spatial context. This chapter also describing the preserved spatial structure, design elements and phenomena in Estonian baroque manor ensembles, and refers to problems associated with space decisions related with manor ensembles and their contact zone. Chapter Five focuses on answering Research Question 3.

Chapter Six – defines the main structural elements and characteristics as dipicted in the landscape and discusses their importance in understanding and interpreting the Baroque manorial landscape. At the end of the chapter the principles for making spatial decisions in the Baroque manorial landscape are presented. Chapter Six answers Research Question 3.

Chapter six also summarizes the findings and concludes with the broader significance of this work.

1.5 Methodology

1.5.1 Research object – the Baroque manor landscape

One of the starting points for this paper is based on the thesis that today's Estonian landscape image[1] and landscape pattern[2] are greatly defined by the landscapes that formed after being influenced by the manor cores that developed during the end of 17th and 18th century (Tarkin 2011). Even though majority of 17th century manor architecture

[1] This work deals with the image of landscape as a general look of the landscape, this type of field of view or a certain agreed upon reach of a region (also see Arold 2005, 396).
[2] This work deals with the pattern of landscape as a field of view of the configuration of landscape elements or a certain agreed upon reach of a region (Vroom 2006, 238).

has been destroyed due to historical events (Hein 1998, 128–131), a dense network of manors was formed by the end of 17th century which, even nowadays can be noted and which, defined the spatial development of the landscape connected to the manor core (Tarkiainen 2009, 86–87). Taking into account the scale and specifics of the Baroque approach to landscape (Steenbergen, Reh 1996, 136–145) it is necessary to deal with the landscape connected to the manor ensemble in a way that considers the influence of manor core's spatial reach (Merila 2003, 144–148; Maiste, Nutt 2010, 13–15). Therein, it is important to look at the manorial core and the spatial parts of the landscape which, have been systematically, visibly and perceivably connected to each other as a meaningful whole and as a unified spatial structure which, can be called a manorial landscape (Figure 1). When interpreting the manorial landscape it should be considered that it is a cognitively defined space (Figure 2) that has been interwoven with other historical layers (Relph 1976, 25–26).

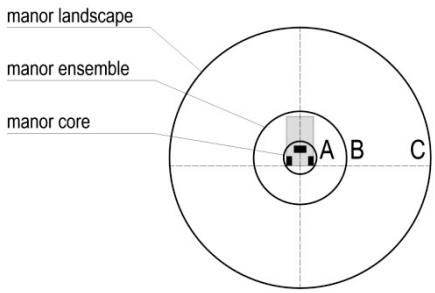

Figure 1. Concept of manor landscape in current thesis: A – heart circle; B - economic Circle; C - border circle (Merila 2003).

Manor as a cultural phenomenon is, on one hand, a universal expression of the era's European cultural space and, on the other hand, a manifestation of the regional political power, which rhetorically presented its ideological message largely through architecture (Maiste 2007, 382). In the spatial program of a manor the main building or buildings connected to it were undoubtedly the central focus, but the richness in expression of the Baroque ensemble as a wholesome meaningful architectural structure, as artwork, is perceivable only when all its spatial phenomena within the ensemble and in the landscape are perceivable (Turner 2005, 166). This is why the research object in this work is the Baroque manorial landscape as an architectural space, focusing on the original layers of 18th century manor landscape and their contemporary transformations.

1.5.2 Spatio-temporal context of a manor landscape

Every element of a manor landscape is part of the larger whole, which, is characteristic to manor landscapes since 18th century, and has importance and significance in the spatial composition and in the regional rhetorical sign system. Each manor core is universal as it is a universal expression of constructional art and space design philosophy from the moment of creation to subsequent rebuilding phases. At the same time the studies of Baroque ensembles from late 20th century and early 21st century have started to question the timeless universality of Baroque spatial composition (Conan 2005, 1–36). Baroque is mostly defined as an independent and unique style "which, is not a strange

dissonance anymore but an intellectual production" (Toman 2008, 8). Baroque ensemble is the reflection of a dialogue between the period's "producer" and "audience" and it's understanding depends on the spatio-temporal context of the ensemble and on its interpreter.

Estonian baroque manor landscapes have the spatial philosophy and inspirations directly from Europe within them (Hein 2007, 36) but are still the product of Baltic-German cultural tradition (Adamson 2018, 9–28). Thus, the Estonian baroque manor cores cannot directly be compared to complexes that developed in a completely different narrative, for example Vaux-le-Vicomte, Versailles or Kadriorg. They are mostly used as fundamental keys for understanding the spatial concept of the era. On the other hand, every manor core is unique due to its spatial configuration, milieu and development, and they directly reflect the economic, cultural, political and social events that guided the spatial development of the manor core and the spatial preferences and beliefs of people connected to it (Tilley 1994, 7–11; Maiste 2009, 14–15). Therefore, it is of primary significance to understand the general philosophy of the period's space design and the cultural context of Estonia during that era – an overview of both of these is given in chapters 2 and 3.

1.5.3 Spatio-temporal structure of a manor landscape

Due to its character manorial landscape can be dealt with as a dual system that consists of physical (visible) structure and intrinsic (perceivable, immaterial) structure (Relph 1976, 30–31). The physical structure is formed by preserved authentic landscape elements, such as buildings, network of roads, fences etc. Intrinsic structure is perceivable and it is formed by connections and meanings attributed to the physical structure which, in general can be dealt with as *genius loci* (Calnan 2001, 191, Norberg-Schulz 1984, 18–22). The bearer of *genius loci* is the physical structure of space and the people to whom it is meaningful through personal experience and through local cultural tradition in its broadest sense (Norberg-Schulz 1984, 11–18; De Jong 1996, 12–13). Intrinsic structure is a key to determining the values attributed to a historical space (Feliden 2003, 6), physical structure is a prerequisite for defining the values and is also the main bearer of values (Maiste 2008, 12–15). The physical structure of manor ensemble and manor landscape is also dual in nature consisting of both living and nonliving parts. Nonliving part is compiled of structures, such as buildings, constructions, roads etc. Living part consists of natural environment, mostly vegetation, such as trees, undergrowth, and spatial design elements defined by them, such as lawn areas, hedges etc. (Nurme 2008 a, 234–242). Both parts of physical structure are variable in time but the changes are expressed differently, dynamics intrinsic to the living part is one of the causes of changes happening in nowadays landscape image which, is why, when studying historical landscapes, it is necessary to consider the specifics of living part's changes, both in composition and in the natural background system (Lovie 2007, 119–120). The nonliving part largely defines the nature, character and architectonics of a manor ensemble. When the nonliving parts of manor ensembles have fallen into ruins, then their role in spatial composition can primarily be assessed in its volume. The details of buildings and constructions can speak volumes when making local restoration decisions within the ensemble, but in the space of an ensemble as a whole, their importance is secondary. Therefore, this work does not deal with the architectural details of buildings and other constructions. However, due to the inevitable change through time, the changing of the landscape as an architectural structure is inevitable. Generally only

stands of trees have preserved from the original elements that compile the living part of the park, but even they are complicated to interpret due to the morphological changes of a tree's living cycle, vegetative and generative renewal and the planting and cutting down trees over time which, is why the information received from plant studies mostly characterizes the general spatial structure of an ensemble (Nutt et al., 2013). The interpretation of demolished nonliving parts and of faded living part remains hypothetical even with specific research. Taking into consideration the scarcity of historical source materials and the many interpretation ways of today's detailed physical structure of the manorial landscape, the definition of today's Baroque ensemble space and retreats to the study of general authentic spatial composition parts and to their connections (Steenbergen, Reh 1996, 14–15). This work proceeds from that.

1.5.4 Architectural space of manorial landscapes as a semantic field

The basis for reading a manor landscape is the definition of the semantic field attributed to this manor landscape: the space cannot be understood, explained or valued without understanding its significance (Calnan 2001, 7; Tilley 1994, 11; Avrami et al., 2000, 7–10). Landscape as a space is giving sense to through objects and phenomena and through the meanings attributed to them, these meanings are constantly changing and the change continues during present observation which, increases the ways for interpretation each day and this is why the significance attributed to the ensemble is subjective and relative (Tilley 1994, 9–11). "*The endeavor to understand what the world was like "to themselves" is an unbreakable humanitarian cognitive principle, even more – an ethic imperative"* (Bernštein 2009, 15). Despite the current framework of thought the objects and phenomena in today's manor landscape should be interpreted in the context of their development period taking into account their role and significance in the period's everyday life (Wylie 2007, 144–147). The study of older layers of Estonian manor landscapes is complicated due to the lack of source materials, the spatial changes that happened due to the events of 19th–20th century. This is why the spatial state of some of the 18th century manor cores is difficult, sometimes impossible to study in detail (Nurme et al., 2014). Thus, the focus should stay on the authentic objects and phenomena that are still perceivable in the manorial landscape and have significance from the point of view of the ensemble as an architectural space (see also Watkins, Wright 2007, 30–35). The objects and phenomena and their qualities in the manorial landscape can be considered to be authentic when they most truthfully expressed and carry on in time the ensemble's historical-spatial values (Drury, McPherson 2008, 29–34). Values of the ensemble can be defined through buildings, constructions, park space and its elements.

Focusing on the manorial landscape as an architectural space the objects and phenomena that help understand the original configuration of the landscape and its architectonic structure are considered to be valuable (Norberg-Schulz 1984, 11–18; Steenbergen, Reh 1996, 14–15, 136–145). In the context of this work the *values* that are considered primary are the ones that carry on the nature of 18th century architectural space in today's manorial landscape. This is why one of the most important aims in studying any layer of the manorial landscape is to determine the values and the according value carriers that define the landscape (Howard 2003, 211–243).

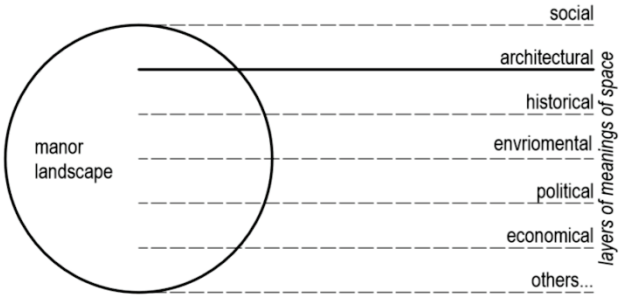

Figure 2. Definition of Values: Architectural space can be defined as one layer of the historic landscape.

Baroque manorial landscapes cannot be defined today in a uniform manner based on a specific historical static spatial situation that is fixed in a specific moment, but it can be defined as a result of social-economic formation that shaped them through history (Cosgrove 1988; Relph 1976, 29–33). Even when making practical spatial decisions based on the Venice and Florence Charter one historical layer cannot be preferred to another (Feliden 2003, 9–11). When making specific spatial decisions the object and phenomena that have more value in the perception of historical ensemble as an architectural whole hold more weight. As can be seen from the research based on the typological analysis of historical ensemble and landscape spatial relations by Clemens Steenbergen, the architectural concept of the ensemble's core defines greatly the spatial relations with the surrounding landscape (Steenbergen 2008, 129–233). Based on the research about Estonian manor parks carried out in 2007–2011 under the guidance of the author of this paper it can be said that the original Baroque spatial approach is mostly perceivable (even today) in the 19th–20th century rebuilt manor ensembles and it defines the stylistic characters that carry the ensemble's composition (Vaine 2009; Heringas 2009; Mihkelson 2010; Tarkin 2011; Paalo 2013, Ratas 2014). This is why, when studying manor ensembles built in the 18th century, the focus needs to be on two temporally different situations that could be called the original condition and the current condition when using the conservation terminology of art heritage (Appelbaum 2007, 182–185). The first situation can be fixed in time by comparing and synthesizing the historical source materials and current situation, second is fixed in current spatial situation. Comparing these two moments enables one to assess the character of the changes that have occurred. The result of both of the fixed moments is a virtual description of space that can be presented in different ways, as an image or text that enables the comparison and synthesis of fixed moments (Cosgrove, Jackson 1987, 96–97). The problem with fixing both of the situations is that the definition and description of the spatial situation in the moment is relative. Dating the original condition and virtual reconstruction based on historical sources and preserved data collected during site observation can remain relative due to insufficient and inadequate historical materials (Appelbaum 2007, 182–183). The same problem occurs when trying to fix in time the current spatial situation where changes occurred over time and the specifics or scarcity of historical sources available influences the possibilities for description and interpretation of current space.

At the same time each manorial landscape as a pictorial sign system gives a conceptual meaning through its historical structural logic to the spatial situations, objects and phenomena within itself (De Saussure 2006, 105–107). For example in general within the

Baroque ensemble, even in topographically very different situations, the hierarchy and placement of ensemble's spaces is specifically defined which, gives an important input for describing current condition and also for describing the selected historical condition. Therein, comparing the observation data collected *in situ* with a historical map, it is possible to derive a more complex semantic field that might be the key for interpreting and later describing other objects or phenomena. At the same time, the previously described process does not say anything significant about historical, economic, political or social facts but this is one of the most important aspects of understanding the architectonics of Baroque landscape and ensemble. Therefore, studying manor ensembles and landscapes connected to them where the research object and spatial context might change (or are impossible to define in a uniform way) an architectonic analysis of the ensemble gives a more representative result for describing a specific ensemble or a spatial design inherent to the era (Steenbergen 2008, 20–21). Therein, the composition and its qualities and the spatial context can be studied but compositional experimentation (virtual montage of composition elements, disassembly, reduction etc.) might also be a research method (Steenbergen 2008, 20–21; Leupen et al., 1995, 18–21).

1.5.5 Iconographic approach to manor landscapes

In 1932 Erwin Panofsky developed an iconographic model for interpreting works of art (Panofsky 1955, 40–41) according to him, artwork should be interpreted in the wholesome context of its time of creation (Büttner, Gottdang, 2014, 24). According to Panofsky, a work of art needs to be interpreted on three levels (*Table 1*) and as a result, the intrinsic meaning of the creation can be defined which, enables the interpretation of this creation in the context of general art history (Büttner, Gottdang, 2014, 24–25). The Panofsky's iconographic interpretation model has been one of the starting points for studying and formulating the second half of the 20th century context based meanings of landscape where landscape is interpreted through iconographic analysis (Cosgrove, Jackson 1987, Cosgrove, Daniels 2002, 4–11). Iconographic interpretation of landscape that stands for the observation and interpretation of landscape on the Panofsky's third level of interpretation has been criticized because in the process of iconographic interpretation the interpreter views the object as an image which, means they place themselves outside the object. However, in the phenomenological study of the landscape (for example approaches of Merleau-Ponty or Tim Ingold (Wylie 2007, 157–162)) the observer is part of the landscape. Dmitri Lihhatšov has referred within the iconographic interpretation of historical ensembles that within the last hundred years the ability to understand the meanings of symbols within the architecture has drastically decreased which, is why the buildings, sculptures and avenues are seen but the world views true to the era that they contain are not understood (Лихачев 1984, 12–14). Thus, the result of interpretation might remain superficial and may not present the real deeper meanings perceivable in the landscape (Wylie 2007, 138–186; Cosgrove, Jackson 1987, 98; Tilley 1994, 25–26). If we remain on the first and second levels of Panofsky's hierarchic system of interpretation layers (Panofsky 1955, 40–41), where the interpretation of an art piece is based on the iconographic analysis, then the choice of methods and result is determined by the field of data related specifically to the object of interpretation which, is why the relations of the interpreter or point of view are not primary for the result and thus, the interpretation is much more objective.

This work interprets manor ensembles and manorial landscapes connected to it within the spatial assessment based on the Panofsky model's first and second level of

interpretation where the object of interpretation, in a broader sense, is the manorial landscape as an architectural space. The act of interpretation is an iconographic analysis, the instruments of interpretation are historical and literary sources that lead to the research results from iconographic analysis. The results of the interpretation are adjusted according to the context of art history and general history. Therein, the starting point for iconographic analysis is a graphic approach based in the context of the original as well as current condition (view and map analysis and a typological analysis which, is based on the latter) (Steenbergen 2008, 20–21).

Table 1. Iconographic approach to manorial landscape interpretation.

OBJECT OF INTERPRETATION	ACT OF INTERPRETATION	INSTRUMENT OF INTERPRETATION	ADJUSTING INSTRUMENT OF INTERPRETATION
MANORIAL LANDSCAPE AS AN ARCHITECTURAL SPACE • composition inherent to the style • physical structure • intrinsic structure • meanings and values attributed to the original condition • meanings and values attributed to the current situation	ICONOGRAPHIC ANALYSIS • fixation and description of the original and current situation of manorial landscape • manorial landscape as an image/text of original condition • manorial landscape as the image/text of current situation	PRACTICAL EXPERIENCE • research results *in situ* • results of map and view analysis HISTORICAL DOCUMENTS • historical maps • historical views • historical descriptions LITERARY SOURCES • literature about manor ensembles • practical works about manor ensembles	HISTORICAL CONTEXT • context of general history • context of Estonian and Livonian general history • context of art and style history - Baroque CONTEXT OF ARCHITECTURAL THEORY • architectural theory • landscape architectural theory • planning theory

When studying the architectonics of manor landscape or manor ensemble in the context of Estonia and Livonia, it is purposeful to use iconographic methods (Cosgrove, Daniels 2002, 4–9) of which, the more important ones are the description of landscape based on map and view analysis and typological analysis of space based on latter analyses (Steenbergen 2008; Steenbergen, Reh 1996).

This thesis tries to find connections between two different spatial situations from two different time periods: 1) a virtual reconstruction from the 18th century spatial pattern that lacks detail due to available data and myriad changes; and 2) the current situation interpreted through measurements and on-site observations. Based on these two spatial patterns, the researcher aims to changes in architectural space drawing primarily on the researcher's background, knowledge, and the uniqueness of each manor assessed. As such, the main research method is phenomenological, an approach that concentrates on the study of consciousness and the objects of direct experience (Hirsjärvi et al., 2005, 155–157). However, many detailed aspects such as lengths of axis, dimensions of courts, numbers of trees etc. can be measured. While these quantifiable measurements might be unique to a particular manor, comparisons and generalizations across manor cores are possible. In essence, the researcher employs mixed methods, common to studies in the built environment, to determine the unique Estonian baroque Manor ensemble (Amaratunga et al., 2002).

1.5.6 Methods of work

The following aspects are essentially most important in the spatial analysis of a Baroque ensemble (Steenbergen 2008, 37; Steenbergen, Reh 1996, 14–15; Turner 2005, 164–167) and they are also the basis for this work. In the context of Estonia, this means that the focus is on the architectonics of the ensemble's core and on its relations with the landscape:

- Position of the ensemble in the landscape, its views, axial and functional connections with the landscape;
- Spatial structure of the ensemble (relations between its spatial parts, division and locations) according to the compositional axes of the ensemble's core;
- Design principles and use of shapes in ensemble's parts.

Definition and analysis of the ensemble's landscape's compositional details can generally only be hypothetical due to the lack of preserved parts and source materials (Nurme et al., 2014).

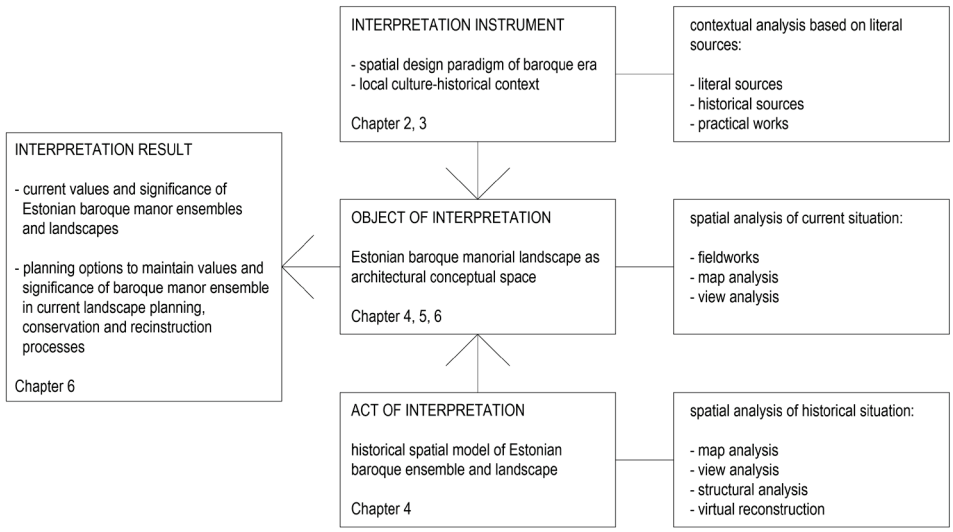

Figure 3. Methodical structure of current thesis.

Iconographic approach to Baroque manor ensembles as architectural creations in order to understand its values and significance in this work is conditioned by the choice of typical work methods resulting from procedural theory (Murphy 2005, 58–62, 77–79) in object study of landscape architecture and landscape planning (Figure 3).

Inventory compiled in the 1970s (Suuder 2012) gave results that are the basis for important studies (Маисте 1983) and publications (Maiste 1996; Hein 1998; Hein 2003 etc.) and based on these it was possible to derive the number or manorial cores in 18th century; the key question was – which, of them have preserved recognizable Baroque characteristics to date. Taking into consideration the study object, a prerequisite was that the ensemble should be preserved as wholesome as possible which, means that the ensemble's core and park currently exist in an intelligible manner. As expected the ensembles under protection are better preserved, so the manors where the buildings

and parks were protected were chosen for this study. Some 158 manorial ensembles, whose main building construction dates back to the 18th century, were pre-selected.

All of these manor cores in the selection list were visited in 2006–2007 in order to verify their preservation. The final list of manor ensembles was compiled during fieldwork and archival studies and their analyses of spatial structure were used as a base for this work. The selection was done based on the following conditions:

- There is at least one historical map that enables an assessment the manor ensemble's composition and relations between the ensemble and landscape;
- Ensemble's spatial structure is in accordance with the written sources' principal spatial model based on the spatial structure of Palmse, Vaux-le-Vicomte and Chateau de Balleroy (Nurme 2007);
- Ensemble differs from the landscape today and is perceivable as a conceptual Baroque spatial system.

The extensive use of primary data and observations attributed to the researcher's more than 20 years of field experience and guided student thesis work represents a significant contribution to the body of work and establishes the researcher as an expert in the field of cultural preservation of Estonian baroque manor ensembles. The researcher longitudinal on-site observations, landscape analysis, dendrologous (woody) plant inventories, historic sites conservation projects, review of current planning policies and inclusion of 62 manor study sites (see Appendix 1) speaks to the depth of study, as represented by the methods employed, is a strength of the research and dissertation text.

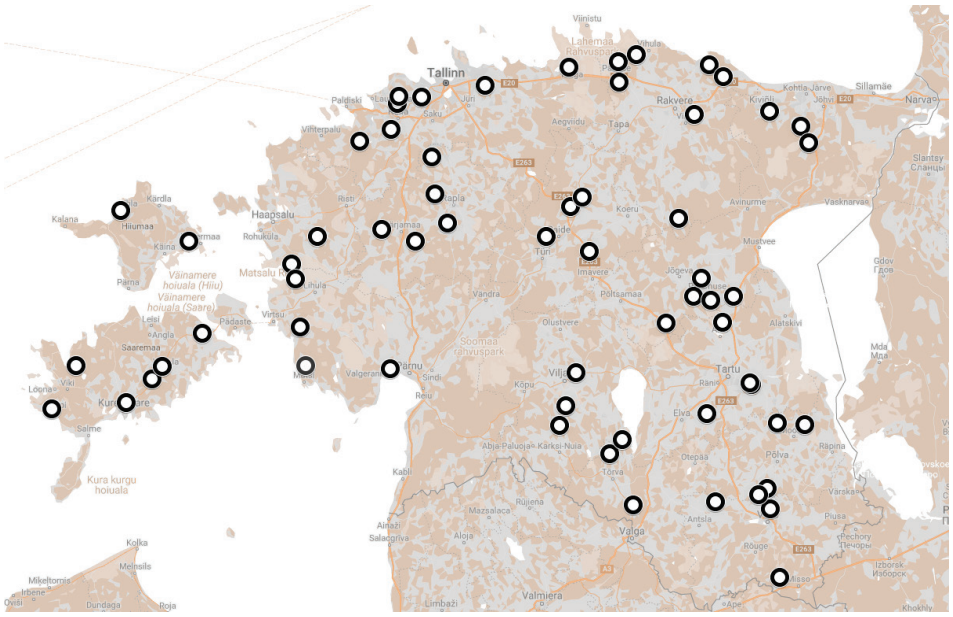

Figure 4. Locations of manor ensembles used in this research.

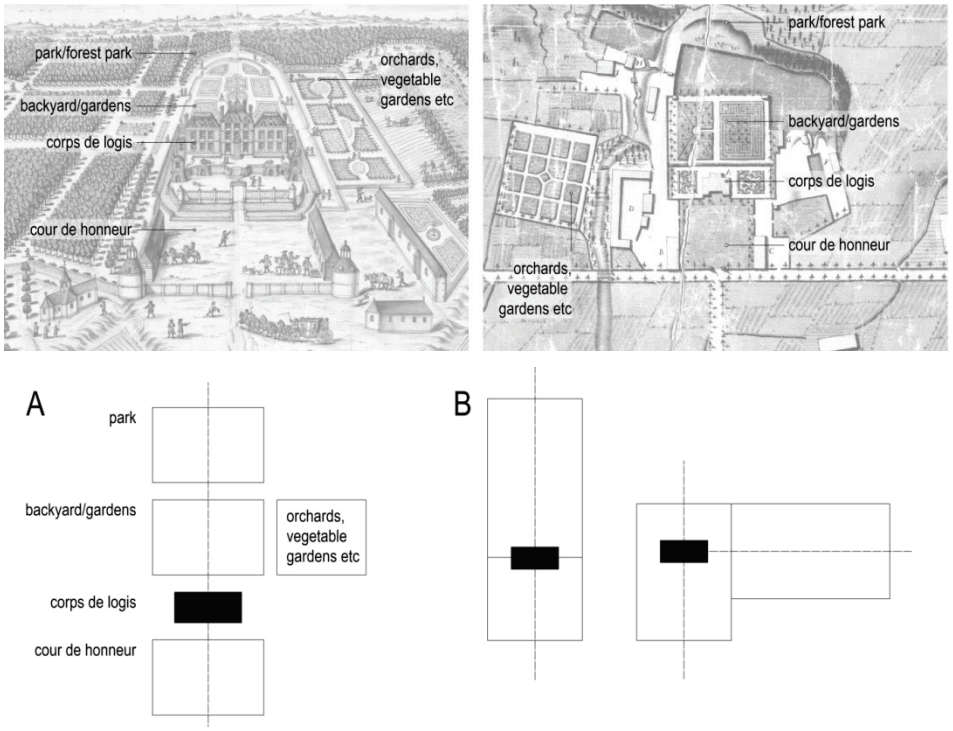

Figure 5. The principle spatial model of a Baroque manorial ensemble based on a 1715 engraving of Chateau de Balleroy by Louis Boudan (EST VA-402) (top left) and 1753 manorial plan of Palmse (EAA 1690.1.34) and its possible typical variations in Estonia.

The only exceptions in the previously stated list are Salla and Väimela manorial core that have no historical plan preserved but which, are indisputably Baroque ensembles based on the preserved ensemble's space and written sources. Generalisations about Estonian baroque manor cores can be made based on the historical data and current spatial situation of selected ensembles. These ensembles were studied through in Masters' theses about 18th–19th century formal parks supervised by the author of this work. Additional archival studies, fieldwork, view and maps analyses were carried out in multiple stages in 2008–2010 (Vaine 2009; Heringas 2009; Mihkelson 2010), 2011 (Tarkin 2011) and 2013–2014 (Paalo 2013; Ratas 2014) based on the research instructions compiled in 2007. These methods and samples were used in the article by Sulev Nurme and Priit Paalo "*The Use of Terrain Maps based on Airborne Laser Scanning Data for Researching Historical Parks*" (Nurme, Paalo 2013, 81–83).

Cesare Brandi's (1996) restoration theory states: *"Restoration must aim to re-establish the potential unity of the work of art, as long as this is possible without producing an artistic or historical forgery and without erasing every trace of the passage of time left on the work of art"* (Brandi 1996, 231).

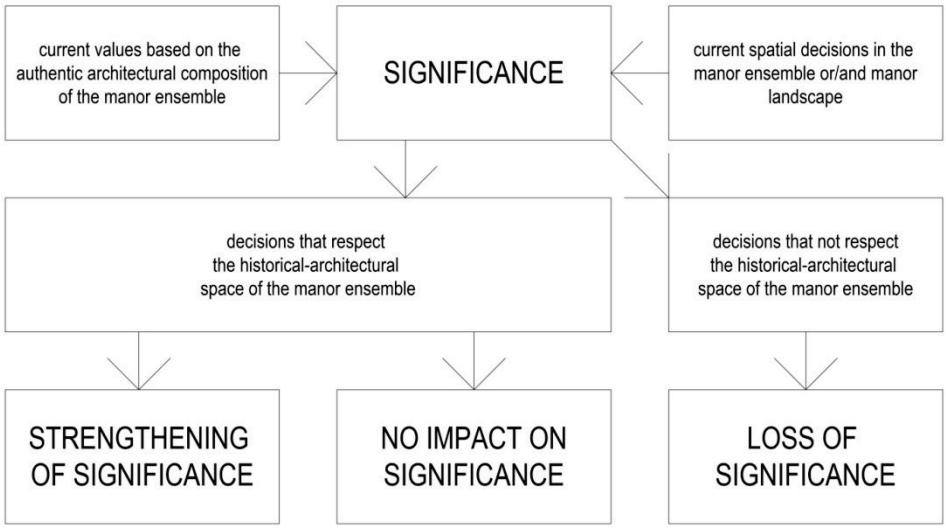

Figure 6. Changes of values and significance, caused by spatial decisions in the manor ensemble or in the manor landscape.

In order to study the manor ensembles chosen for this work, typical architectural and landscape architectural methods for graphic analysis were used (Brawne 2003; Dee 2001, 13–22, 32–79; Simonds, Starke 2006, 108–111; Treib 2008; Steenbergen 2008; Steenbergen, Reh 1996); analysis of aerial photographs, maps and views (engravings, drawings, paintings, etc.) by various graphical methods specific to architectural graphical research (Leupen et al., 1995; Unwin 2003 18–23; Waterman 2009, 114–136). The analysis was based on generally accepted practices in the study of cultural monuments (Watkins, Wright, 2007, 25–44; Goulty 1993, 42–66 etc). In the graphic analysis for the interpretation of materials (views, plans etc) the following analyses were used (Nurme 2007):

- Map analysis;
- Analysis of spatial structure;
- View analysis.

Map analysis and architectonic structure analysis was based on methods for spatial analysis of the landscape (Steenbergen 2008; Steenbergen, Reh 1996; Treib 2008) which, have been used in many similar works, including in the studies of source materials of this study (Järvela 2009, Vaine 2009; Heringas 2009; Mihkelson 2010; Tarkin 2011; Paalo 2013), as well as in the studies of views of Vaux-le-Vicomte (Grbić et al., 2016), graphic analysis of views of Versailles (Szántó 2010), spatial analysis of Latvian historical manor parks (Ziemelniece 2016) and in the spatial analysis of surrounding landscapes of the Červený Hrádeki Castle ensemble (Šantrůčková et al., 2016). View analysis also took into account the aspects of previously referenced interpretations of historical views (Harris, Hays 2008; 23–41).

During the selection of historical manor ensemble plans, digitalized materials from the National Archives of Estonia were used. In addition, the digitalized maps of 19th century were used which, were available in the Estonian Land Board's Geoportal's historical maps application. For example, Russian Empire's 1-verst map, Schmidt's map of Estonia and Rücker's map of Livonia (in the Geoportal of Estonian Land Board). The selection of maps

entailed the preference of maps from the period of 1670–1800 first and from the period of 1800–1917 second. As most of the detailed historical manor plans date back to the 19th century (Nutt 2008, 211–221), it was preferred to use the earlier plans (see also Maiste, Nutt 2005). To compare the historical situation with the current situation, aerial photographs and maps of the Land Board were used as of October–December 2018 (in Geoportal of Estonian Land Board). For map analyses, the historical and contemporary maps were approximately put into same scale, historical maps were orientated according to aerial photos (North direction going upwards). The approach used to compare the maps was similar to that used in the research of the Tartu County manors (Nutt 2004). Map and view analysis were executed with the vector graphics software Vectorworks 2019.

View analysis used the author's private photo materials (if existed) and the photo materials available through web application Google Streetview. The manorial cores were mostly photographed during 2008–2013 and 2017–2018. A photo montage was executed with the program Corel Photopoint X7. The 3D model in chapter 6 used for view analyses was compiled in January 2019 with the software Sketchup Pro 2015 based on the historical maps of Palmse manor heart in 1753 (EAA 1690.1.34) and in 1840 (EAA 1690.1.36 page 1) and based on the contemporary aerial photo.

The multi-case study approach enables the researcher to generalize findings to a wider context of historical cultural landscapes within and outside Estonia. The inclusion of 62 manor ensembles creates a solid foundation for the recommendations found in Chapter 6 of this thesis and can potentially have a broad influence on Estonian planning and policy across multiple governing levels and across geographic areas.

2 Baroque space

"Be a painter. The fields, the nuances without shade
The jets of light and the masses of shade,
The hours, the seasons, varying one by one,
And the enameled meadows, the rich broderies,
And the laughing hills, the green draperies,
The trees, the rocks, the waters, and the flowers,
There are your brushes, canvases, and colors,
Nature is yours; and your fertile hand
Has, for creation, the elements of world"

Jacques Delille. *Les jardins: poème en 4 chants* (Le Dantec 1993, 132)

2.1 Baroque ensemble as an architectonic form

In Western culture, the Baroque period is conditionally considered to have lasted from 1580–1780 (Bazin 1964, 6–7; Bazin 1968, 14). In general this definition applies to Estonian and Livonian manor ensembles, however, there is not much preserved or known about what was built in 17th century due to complex historical events (Hein 1998, 128–131). Estonian manor ensembles were built in a more grandiose scale, which, we can see nowadays, after the Great Northern War in 18th century (Маисте 1983, 54–60). Baroque style which, was the main style of architecture at that time, was introduced in Estonia and it defined the development of Estonian construction art until the beginning of 19th century, and in some manors, even decades later (Nurme 2014 a, 142–143). The style was influenced by the practice of Italian and French architecture through German, Swedish, Polish and Russian contacts as is common in border areas (Maiste 1996, 11–13). As a result, a unique, yet universal approach to space in the context of European villa culture was born. In order to understand and interpret the architectonic nuances which, Christian Norberg-Schulz has characterized keywords such as expansion, centralization, system and movement (Norberg-Schulz 1986, 7–14); it is important to examine the background system of the era and the reasons that directed the spatial development of villa ensembles.

When analyzing an architectural ensemble as an architectonic form in landscape, the most important elements are the principle form of the ensemble (relationship between the ensemble and landscape and the regularities resulting from it), spatial form of the ensemble (basic principles of architectural design), visual structure (system of views and factors influencing it), metaphoric form and functional form (spatial arrangement), more precisely (Steenbergen 2008, 37; Steenbergen, Reh 1996, 14–15):

- The position of the ensemble in the landscape, its axes, views and functional relations to the landscape;
- The spatial structure of the ensemble (the relationship between different parts of the ensemble room, their division and location) resulting from the compositional axes of the ensemble's core;
- The basic design principles of different parts of the ensemble space;
- The use of shapes in different parts of the ensemble.

This approach enables the researcher to divide the ensemble into thematic layers (defined by time and space), which, makes it possible to concentrate on the objects and phenomena that define the spatial presence of the ensemble. When dealing with Baroque ensembles, it is generally not so important to concentrate the attention to a specific part of the space (for example a single building) but to the ensemble space as a whole. Therein, the most important thing to study in a Baroque ensemble is the structure of the space, the hierarchy of the volumes and meanings of the objects within the ensemble, their interconnected relations and architectonic form.

The following gives an overview of the use of space and shapes within the Baroque style in the context of *villa rustica* as an architectural ensemble. Therein, the focus is on the inherent and intrinsic phenomena of the Baroque ensemble. The most important ones include the coordination of the composition to the ensemble's endeavor for wholesomeness, the dominance of the parks' and gardens' volumes, the key role in the ensemble's spatial arrangement and the systematic linking of the ensemble to the surrounding landscape. The following discussion brings out the main phenomenon of the cultural history and the forms of their manifestation in palace and villa ensembles. The overview is necessary for highlighting the general universal and also specific landscape architectural nuances of the Baroque ensemble, which, need to be known as a paradigmatic background system in order to understand and interpret the Estonian and Livonian manor ensembles of that time.

2.2 Order, dynamics and expansiveness

"The age of Baroque and rococo was the golden age of Western art. This was a time when life was impregnated with art; life itself was an art. The artistic creation of this period cannot be considered in isolation from its milieu; but this is not to say that we should follow Taine in his determinist view of the history of art; on the contrary, art was not so much conditioned by life as life by art", wrote German Bazin (Bazin 1968, 8). Baroque period was revolutionary in world history: the human-centered and balanced renaissance view of life fell apart due to the expansion of social classification, devastating wars and reformation, later, counter-reformation, absolutism, and the fast development of formal sciences and industry. In addition, the discovery of new lands and the colonial economy followed (Silver 2012, 85–86). The paradigmatic changes that followed this eventful and turbulent period were revealed in every aspect of life, including arts and architecture. The Baroque period had a unique and characteristic style, which, is characterized in *Renaissance und Barock*, published in 1888 and written by Heinrich Wölfflin (Lambert 2006, 18), the man behind the contemporary approach to Baroque style. He describes it through linearity, monumentality, through the duplication of surfaces, lines and shapes and through the amplification and deformation of these characteristics (Wölfflin, 1964, 38–55). At the same time the basic treatment of space was based on the classical order, which, was more loosely interpreted in a rhetorical way typical of that era (Lemerle, Pauwels 2008, 36; Vaga 2007, 530). The main conceptual difference came from the transformation of the architectural idea – the renaissance human-centered inward looking classical shape was replaced by a strong outward looking approach due to the need to restore the reputation of the Catholic Church in Rome and to prove the divinity of absolutism in Paris (Steenbergen, Reh 1996, 137; Busch, Lochse 1962, III). The Roman Catholic Church and the monarchs of Europe needed influential and convincing symbols, which churches and palaces were very suitable for (Claus, Charles 2009, 16). Therefore, the Baroque arts, especially architecture, had a

purpose to portray the ideological content (Toman 2008, 7) through captivating and aesthetic setting and through the grandiose volume, its allegorical background system and clever anamorphosis (Steenbergen, Reh 1996, 139–141), it was meant to involve, convey and surprise the viewer (Norberg-Schulz 1986, 10).

In the 17th century, strong centers developed in Europe. The first and brightest was Rome (Briggs 1914, 33), which, was soon followed by Paris (Steenbergen, Reh 1996, 137; Gothein 1928a, 51–108). *"Religious, political and economical centers were on the focus for radial forces which, had no spatial borders when viewed from within the center"* (Norberg-Schulz 1986, 8). This principle characterized the way of life and manifested as a universal principle in architecture. Spatial composition was created by outstanding and meaningful centers, which had visually endless beam–shaped axes branching out of them (Baridon 1998, 12–15). The characteristics of Baroque style –powerful centers, dynamics and expansiveness (Norberg-Schulz 1986, 10) are expressed most vividly in park sketches of that era (Toman 2003, 88). Using axes is common to the early Italian villa to a certain extent. For example Villa Medici (Fiesole) which, is the prototype of a renaissance villa, had gardens divided into terraces and a central axis, but these did not relate to each other or the main building. However, each garden was connected with the façade of the main building, either with pergolas, roads or other functional ways common to that period (Sica 2007, 65) but there was no axis-symmetry (Mazzini 2004, 17–21, 147) which, was characteristic to Baroque. When it comes to views the ensemble was connected to the Villa Careggi across the Arno valley and with the cathedral and palace of Medici located in the centre of Florence, but the directions of the view axis did not form a geometrically whole system and they lacked the directional vectorial endeavour for infinity. Views with strong directional axis appeared after Domenico Fontana designed streets that connected all the major churches in Rome in 1580s–90s by the order of Sixtus V (Norberg-Schulz 1986, 19). Straight streets connected to and oriented to visually important landmarks and city space where quarterly unified facades became a standard in 17th–18th century urban planning. Military architecture of that time had a significant impact on the axial structure of the space. In 17th–18th century they developed a refined star–shaped fortification system with a regular geometric layout in order to find an optimal design (Lemerle, Pauwels 2008, 20–28). They often influenced whole settlements when built as complexes, which, is why the bastion fortification system can be seen as one of the major influencers of Baroque urban development. Systematic geometric space design and multi-level system of fortifications that came from military architecture was also reflected in the concept of the ideal city (Cummings 1986, 993–994). Illusory endeavour for infinity in French villa architecture adopted the axis as an equivalent for direction, destination and movement, and implemented it knowingly within the ensemble to connect the ensemble as axes connecting the most important focal points with the surrounding world.

Architectural piece, whose spatial volume mostly consists of the cognitively important park, was built on allegory using sculpture, paintings and topiary art (clipping of trees and shrubs into defined shapes) (Wimmer 2001, 31–34) as mediums and their presentation follows pre–agreed rhetoric (Toman 2008, 10). Italy became the cradle of triumphant Baroque church architecture due to the lead of the Catholic Church, but France was the place where basic principles of palace architecture (Gombrich 1997, 437, 447) were defined during the building of Vaux-le-Vicomte and Versailles. These principles set the tone for Europe's villa architecture for the next few hundred years.

The philosophical space alphabet of the so-called French garden (Adams 1979, 6), which defines the character of the ensemble as a whole, determines the general conceptual approach offering possibilities and tools[1] for it, more specifically it gives options for the basic spatial arrangement and modules and combinations with what to fill it with. The park is bigger in volume and has a greater spatial impact (Conan 2005, 15), which is, why the Baroque villa ensemble cannot be studied without the park. The most important attributes of the ensemble's voluminous arrangement were dependent on the park's design: views towards the main building and from the main building to the surrounding landscape. This is characteristic to villa and palace architecture's garden art whose universal language was accepted by Catholic and Protestant communities. On one hand, it results from the villa culture's inherent universal philosophy (Sica 2007, 17–36) in which, the garden – *giardino secreto* – has a leading role (Wengel 1987, 76–77) and on the other hand it results from the Baroque garden art being a universal so-called toolbox suitable for the paradigm of power and religion of the Baroque era. In a context where the difference between the Catholic and the Protestant sacred architecture is very general and in sacred architecture a significantly different design (Lemerle, Pauwels 2008, 29–41) remains regionally, defined and refined space and ensemble through garden design is one of the intrinsic characteristics of Baroque architectural style.

Visual and philosophical connections and qualities are inherent to the Baroque approach to space. These can be characterized through widening, centralization, systematization and movement (Norberg-Schulz 1986, 8; Baridon 1998, 8). The design techniques of the villa ensemble in essence were based on the principles formed in Italy during the Renaissance (Barlow Rogers 2001, 194). According to these the space around the building was treated similarly to the building itself (De Jong 2000, 34). The proportions of the room and shapes were directly based on the ancient traditional system taken from the Classical order and fitted into the Renaissance spatial philosophy (Snodin, Llewellyn 2013, 79). The order expressed nature's harmony in the same principle as the human body, as symmetric, proportional and bilateral (Vitruvius 1914, 72–73). In addition, villa architecture was influenced by the philosophical background of *villa rustica* as a cultural phenomenon, which, dates back centuries. According to this, villa life represents a healthy, luxurious and mental retreat from city noise, which, also means as Ackerman writes: *"…relaxation and rest – reading, conversating with your virtuous friends, contemplation and beautiful views onto the landscape*" (Ackerman 1995, 14).

[1] "The baroque does not correspond to an essence, but rather to an operative function, to a feature. /…/ The defining feature of the baroque is passage to infinity of folding" (Deleuze 1988, 5 trough Conan 2005, 9)

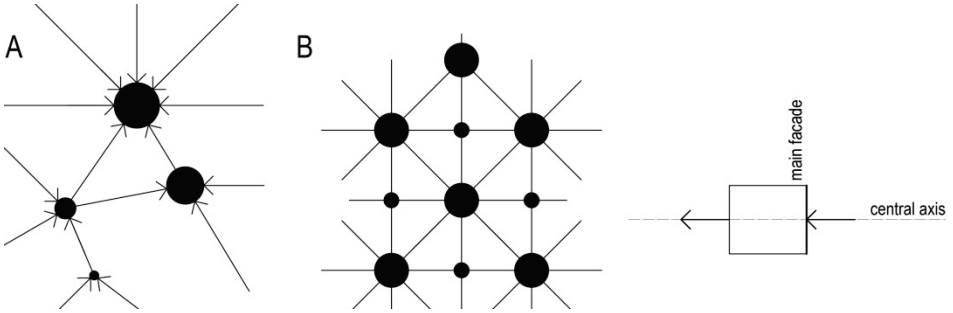

Figure 7. The spatial planning ideology of the Baroque era. On the left – general dynamics of spatial structure built on strong centers: A – on landscape; B – in ensemble. On the right: general principle of spatial presentation of a Baroque building according to Christian Norberg-Shulz (Norberg-Schulz 1986, 8).

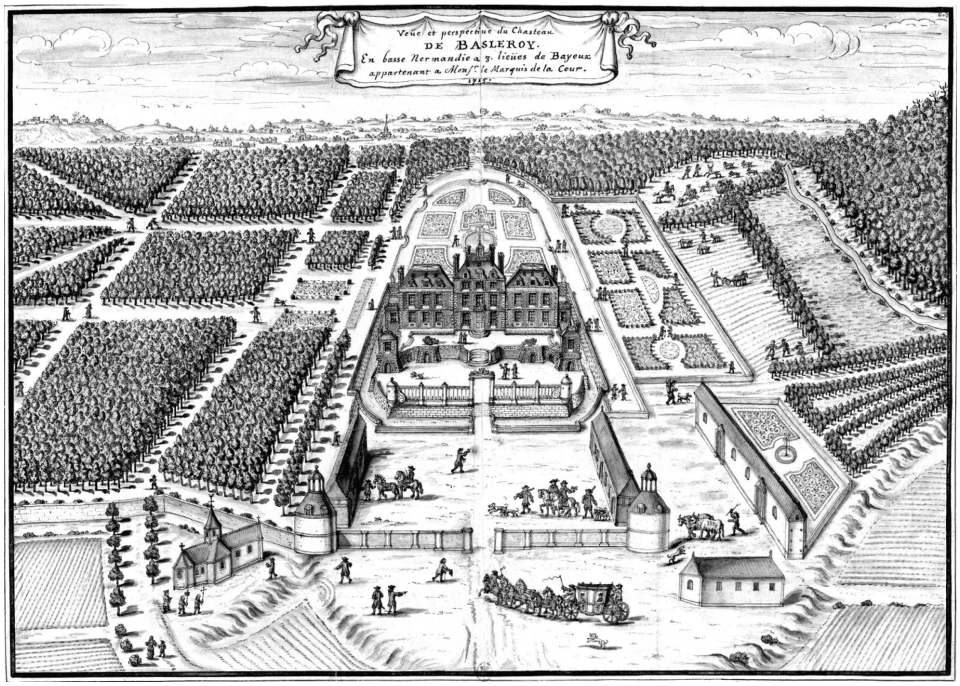

Figure 8. One of the earliest examples of compact Baroque villa-architecture: Chateau de Balleroy in Normandie. Engraving by Louis Boudan in 1715 (EST VA-402).

Baroque adopted these principles and put them in a changed context, the order and the physical room structure resulting from it, were directly the metaphor for the harmony of the universe (Taylor–Leduc 1998, 44). In particular, it entailed the refinement of the Renaissance ensembles with regular spatial model, during which, the buildings and the surrounding garden and landscape were merged into one seemingly endless wholesome space. The transformation of the main building played a key role in that – a closed medieval fortress – *chateau fort* – turned into *chateau plaisance* (Hein 1998, 130; Aben, de Wit 1999, 71–81). A good example is the Palazzo Barberini in Rome, designed by Gian Lorenzo Bernini in 1629, where a closed courtyard was abandoned and an open-air courtyard with protruding wings was created (Gympel 2006, 56). This process is

characteristic to the whole Italian Renaissance villa-architecture, the best examples of this are villas designed by Andrea Palladio (Marton, Wundram, Pape 2008). The French castle architecture adopted these ideas at the beginning of the 17th century. Therefore, smaller compact manors built in the 1630s and 1640s can be considered as prototypes of a later typical Baroque ensemble. Some of the earliest examples are Chateau de Blerancourt (1612), Chateau de Balleroy (1631), Chateau de Beaumensil (1640) and Chateau de Maisons (1642) (Lemerle, Pauwels 2008, 121–130). These examples illustrate the typical 17–18th century French chateau concept, which included all the arts and in which, the ensemble composition and space structure was determined by the *corps de logis* (*Figure 8*).

2.3 Spectacular performance

Systematic architectural space as an allegoric rhetoric medium inherent to Baroque style developed in 15th–16th century Italian villa culture (Baridon 1998, 6–9). Primarily through the voluminous structure of the ensemble, the volume's vertical and horizontal articulation, sculpture (statues, fountains, vases etc) and through specific buildings (channels, grottos etc) they conveyed the desired message. For example Villa Lante in Bagnaia designed by Giovanni Fatica on Vignola's instructions expressed the journey from the source of life to death through water mirrors, water stairs, grottos and fountains (Nurme 2011, 31). Baroque adopted the allegoric language of shapes and transformed it into an inseparable and carrying idea for the geometric and calculated built space. Baroque composition influenced the viewer cognitively through the use of illusory room manipulations, synthesis of different art forms and use of human figure as a voluminous and meaningful benchmark (Snodin, Llewellyn 2013, 90). Never before in architectural composition had they paid attention to the spectacularly orchestrated whole in which, they used all art forms and each part was supposed to affect the viewer in a fascinating, abundant and meaningful way (Snodin, Llewellyn 2013, 74–75). Therefore, Baroque ensemble was mostly not a sole creation of one architect or artist, but was a collaboration of many artists or masters. For example, in artistic history, three men are usually mentioned as the creators of Vaux-le-Vicomte: Andre Le Notre as a park architect, Louis Le Vau and Charles Le Brun as architects, but in the team also were included fountain master Claude Robillard, stone construction master Villedo, who designed grottoes, master gardener Antoine Trumel, and several other sculptors, painters, etc (Adams, 1979, 84–86; Kluckert 2007, 187–190; Lemerle, Pauwels 2008, 127). *"At the same time irresistible needs to express feelings and accentuate passion, pathos and expression is characteristic to Baroque art",* writes Voldemar Vaga (Vaga 2007, 529). Baroque period has been compared to the allegoric play – The Great Theatre of the World (*El Gran Teatro del Mundi*), written by Calderon de la Barca in 1645, in which, people are the actors in God's play (Toman 2003, 7). In 16th century Baroque garden art[1], the most important part of the garden (the view onto the open parterres of the back court) was called *theatre.* Although the term in its meaning has ceased to exist, it illustrates figuratively the metaphoric connection between the meanings (Baridon 1998, 17). Special sections of the garden for open–air shows became part of the garden design in the second half of 17th century following the example of Versailles (Adams 1979,

[1] Apparently, it is not quite correct to talk about a baroque park in the modern sense of landscape architecture - the baroque operates with the word *"jardin"* - a garden, *"parc"* denotes a hunting park or a forest park that bounded and closed the garden space; the word "park" comes into play more with the English style - as discussed by Jaan Kaplinski (Kaplinski 2001).

68). Furthermore, William Adams compares the garden and theatre with linking them both into one cultural context: *"Garden, like the theatre, is visual art. Only, the theatre is a derivative from literature and formal garden is a child of gardening, but both are closely connected to painting, sculpture and of course architecture. Traditions and patterns shared by garden designers who used painters', sculptors' or also tapestry artists' creative language, were based on religion, medieval legends, classical mythology, national history and allegoric imagination"* (Adams 1979, 63). The design language of Baroque ensemble which, was presented to the viewer using clearly thought out visual, geometrical and optical methods which, directly formed the background for celebrations and ceremonies, is always characterized not only by visual quality but also by dualism, allegory and fixed rhetoric (Toman 2003, 15). Park was a stage for show where its' hidden symbols spoke a metaphoric story. Technically it meant that space was planned based on one dominant focal point and all the elements used on that view were chosen following uniform shapes and meanings. One of the first complexes, where this approach was systematically used was Belvedere in Vatican by Bramante (Adams 1979, 63). Antero Sinisalo concludes the influence of Belvedere in Vatican as follows*: "It has been said that Belvedere in Vatican by Bramante dictated the planning principles of garden art for the next century. Italian gardens took example of it and in turn became the source of inspiration for French gardens. By themselves, they were all variations of it by origin –the followers to the brilliant design of Belvedere's garden Renaissance symmetry and ideal proportions*" (Sinisalo 1999, 70). Example that demonstrates the ensemble as a show piece in a spectacular manner and inspires the whole era is based on the rhetoric of Apollo Versailles (Berger 1985, 20–28). The design of different parts of the park was greatly dictated by king's specific moving trajectory (Szanto 2010, 54–55). In compliance with this, fountains were set off; the musicians planned their performances and so on. In 1674 (10 years after the park was opened) official guidelines were created for the guests, so that that they would unequivocally understand the beauty and the message of this park (Szanto 2010, 55).

2.4 *Jardin de l'intelligence*

Baroque treatment of space relates strongly to the development of science and philosophy inherent to the era. The model nature and universe was explained through mathematically proven logical systems. The term "formal style park" refers to geometrically built space and to parallels between the spatial arts and sciences of that time (Baridon 1998, 10). The 17th century expanded pluralistic world arranged in details and based on new principles gave a person at least a theoretical understanding of the political, economic, philosophical or religious views – in order to find one's place in the system a person could lean on a theological worldview filtered through the prism of the Roman Catholic or the Protestant church, on the divine right of a strong royal power or on the philosophies of Descartes, Spinoza, Pascal and Leibniz (Norberg-Schulz 1986, 7). Discourse on the Method by Rene Descartes separated the scientific explanation of nature from its theological context: *"After this I inquired in general into what is essential to the truth rid certainty of a proposition; for since I had discovered one which, knew to be true. I thought that I must likewise be able to discover the ground of this certitude. And as I observed that in the words I think. hence I am, there is nothing at all which, gives me assurance of their truth beyond this, that I see very clearly that in order to think it is necessary to exist, I concluded that I might take, as a general rule the principle, that all the things which, we very clearly and distinctly conceive are true, only observing,*

however, that there is some difficulty in rightly determining the objects which, we distinctly conceive" (Descartes 2008, 31). The Cartesian approach dealt with nature as a wholesome structural mathematical system, in which, each creature and phenomenon has its own specific role (De Jong 2000, 18). Even more so, in the context of *La Monadologie* by Leibniz the world can be explained by the original particles –monad – which, themselves being the single parts of the world substance reflect a whole world and that way all the other monads characterize the infinity of the world (Prominski, Koutroufinis 2009, 163). Leibniz illustrated the endlessness of the world through a fold. For example, if the fold emerges on fabric it can contain other folds and transform infinitely (Deleuze 2006, 33–35). This Leibniz's metaphoric approach to natural processes is considered the most important intrinsic approach to Baroque aesthetic in contemporary approaches (Prominski, Koutroufinis 2009, 152). Gilles Deleuze, who was influenced by Leibniz's ideas, published a philosophical approach The Fold in 1990s about Baroque and it defined the aesthetics of the era as a way, a possibility to the infinity of folding (Conan 2005, 9–10). Thus, Baroque can be interpreted as an aesthetic system, which, used, interpreted and manipulated operatively with the architectural language of Renaissance and created a suitable space based on the context of the era.

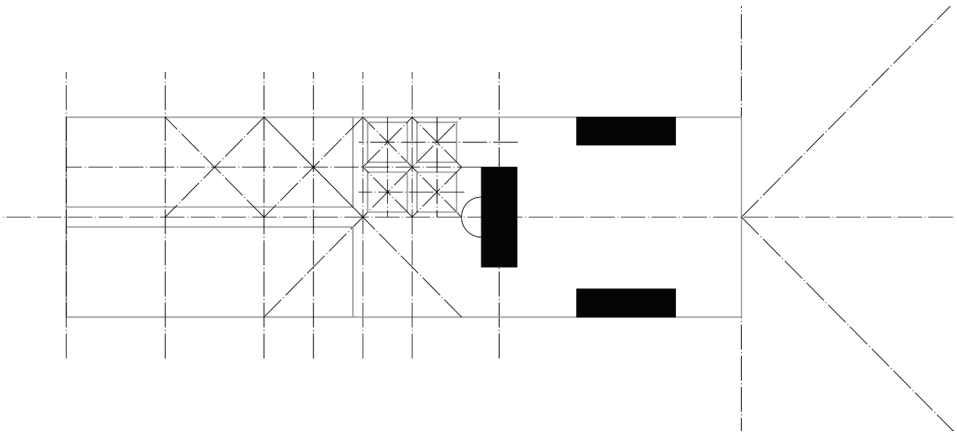

Figure 9. The principle order of the composition of Baroque ensemble.

The previous discussion is important in particular for explaining the transformation of Renaissance design language into Baroque. As architecture is always closely related to the area's paradigmatic understandings of nature and the universe, the Baroque design language, expressed through spatial composition with the simplicity, systematic order, and through the unity of inner and outer approaches with general understandings of the structure of world and universe (De Jong 2000, 18, 33–34). Spatially it was expressed in axis-symmetry as geometrical shapes, in the endeavour for illusory infinity and in spatial design that as a whole has a general principle, which, is reflected, in individual parts of the ensemble. In order to create a dimension of illusory infinity for the palace or villa ensemble, it is necessary to create a visual widening of the interior towards outside which, turned out to be the most important focus of the ensemble –the main building – and the park axially connected with the landscape. Therefore, the Baroque garden is also mentioned as the Cartesian garden or as *jardin de l'intelligence* (Turner 2011, 225; Adams 1979, 76), which reflected the space and the order in it through allegory and mathematically constructed space that extends axially to infinity. Versailles was the

ultimate embodiment of this type of space. At the same time, it is useless to look for direct references to Descartes or his contemporary philosophy. It was rather a confirmation of the art than a realistic way of depicting what is hidden in nature. Therefore, the room built on geometry and perspective of that era depicts perfect nature (Taylor–Leduc 1998, 46).

Figure 10. Theatre of the de Vaux-le-Vicomte. Due to anamorphosis, the axial views seem to be longer. Photo by Sulev Nurme.

In a technical sense of composing, the development of theory and practice in land surveying, geometry, optics, and perspective studies was important. Spatial design was conceptually mostly influenced by studies dealing with perspective. The use of perspective phenomena in art and architecture was not anything new in 17th century. One of the first artists to use it cognitively in paintings was Giotto in 14th century (Gombrich 1997, 223). The revolutionary painting method became one of the starting points for the theoretic works of Cennino Cennini, Brunelleschi, Leon Baptista Alberti and many other Renaissance thinkers (Nurme 2011, 21–26). Many works of 18th–19th century were, in turn, based on them. The most important perspective works of 17th century for Baroque spatial design are the treatise on perspective phenomenon dealing with room manipulation, foremost the works of Salomon de Causi and Jean-Francois Niceron (Steenbergen, Reh 1996, 140–141). The inseparable part of axial composition is a spatial design concept based on the focus, which defines the orientation of the axes. Of key importance is the focal point on the agreed horizon, which, is determined by the design. By using different technical methods, different historical periods in the development of space can be recognized (Turner 2005, 166–167). The view points, the open and closed areas in the front and middle, local focuses and so on, were set by the alignment of axis. Therein, they took into account the functionality of the garden while composing the views in different garden parts. They used optical differences (Baridon 1998, 12–13) and lighting effects *(clair-obscure)* (Steenbergen, Reh 1996, 140–141) (for example the length of the shadow, the change in the tones of surfaces due to the tonality of sunlight,

the change in colors due to aerial perspective etc) resulting from differences in daylight during different times of the day in order to magnify the character of views.

A specific method for seemingly extending space – *quadratura (trompe-l'œil)* – based on perspective was developed in paintings and architecture. This enabled to extend the view corridor with an illusory focal point, which was a painting on the wall at the end of the view. As further development of this phenomenon the park space was manipulated with a series of mathematical shapes based on a changing interval, with the reduction of views in the middle part (for example lowering of surfaces, raised focal points), with the division of objects bordering the middle part (called coulisses) or with the visual raising-lowering of the horizon that enabled to define the focus point according to the wishes of the architect, either closer or further away from the viewer, and to create an infinite illusion within the limits of existing land and within fixed views (Nurme 2004, 24–25; Steenbergen, Reh 1996, 140–149). Small single–leveled parks had a *quadratura* constructed with one focal point. On terraced slopes they could have a focal point on each terrace or even on different parts of the terrace (Baridon 1988, 7).

Mathematical perspective approach to garden design became a universal tool which, was already keenly practiced at the end of 15th century, as can be seen on lunettes depicting palace complexes of the Medici family painted by Giusto Utens in 1599–1602[1]. Interesting example of experimenting with different perspective possibilities is the garden of Villa di Castello which, has a rectangular pond in the back with parallel garden walls that are set at an angle to each other and when the viewer moves away from the palace it creates an illusory expression of focusing in the distance which, in turn, optically lengthens the garden (Wright 1996, 38–39; Nurme 2011, 25–26). Andre Le Notre masterfully used the perspective phenomenon in his practice. One of the most beautiful examples of using the perspective of the ensemble design is Vaux-le-Vicomte (Grbić et al., 2015; Hautecoeur et al., 1964, 24).

2.5 Theory and practice

Francis Bacon notes in his essay "Of Gardening" (Bacon 1625, 1876) at the beginning: *"…garden is the ultimate satisfaction, it is the greatest source of spiritual purity and without it buildings and palaces remain just works of crafts…"* One of the most important architecture theorist of Renaissance era, Leon Battista Alberti recommends in *De re aedificatoria* to compose the garden as a space divided into squares with trimmed hedges and to use geometrically planted trees, pergolas and gazebos in garden designs (Hobhouse 2006, 131). He based his work on *Liber rurarium commodorum* by Pietro de' Crescenzi, ancient authors (Sinisalo 1999, 64) and possibly on the Spanish maoric garden art (Lautenbach 1996, 149). Gardeners and architects needed directions for composing their spectacular shows, so they went on grand tours[2] straight to the source in Italy and later, to France (for example Androuet du Cerceau, John Evelyn and many others (Laird 1988; Hobhouse 1986, 142–148; Couch 1992)). The books that were published on their expressions and the architecture and gardening theory of classical, medieval and renaissance traditions became the basis for garden art theory in the 16th–17th century (see Hobhouse 2006, 120–167; Nurme 2011; De Jong 2005, 37–84). Including this,

[1] For example Villa Caffagiolo 1430, Villa di Castello 1477, Villa di Poggio a Caiano ca 1474 etc (Ballerini, Scalini 2003).

[2] Well known are also John Evelyn descriptions (see Laird 1998).

the war march to Naples in 1494 by the French king Charles VIII was of ground-breaking importance because they "discovered" the Italian garden art (Wengel 1987, 84).

The experiences of Italy were quickly and carefully put into practice as seen in the drawings of Loire valley castles by Jaques Androuet du Cerceau (Du Cerceau 1870). Using the Italian experience directly was complicated by the differences between the French and Italian landscapes. The castle ensembles of Loire valley, around Paris and North of France in which, the approach of Baroque ensembles developed, were mostly located in flat areas with a lot of natural forestation. Meanwhile most of the Italian gardens were located in open areas with mountainous terrain that was heavily influenced by agriculture. Due to this the space around the villa was terraced which, enabled it to showcase the surfaces from a top view designed with patterns and run elaborate active water systems which, was difficult to do in the flat French terrain (Hobhouse 2006, 141). Therefore, the French garden design focused on increasing the surfaces reach and on their visual division. Conceptual starting point for contemporary theory and practice was the universal proportioning system (Kruft 1998, 79–80) created in the works of Philibert de l'Orme'i (*Le premier Tome de l'Architecture;* see Lemerle, Pauwels 2008, 35–41; Hobhouse 2006, 147), Sebastiano Serlio (*Tutte l'Opere d'Architettura;* see Kruft 1998, 79–80) and his student Giacomo Vignola. They influenced the theoretical works of many garden practitioners and theorists like Etienne du Perac, Olivier de Serres (*Le Theatre d' Agriculture et mesnage des champs;* 1600), Andre Mollet (*Le Jardin de plaisir, contenant plusieurs dessins de jardinage;* 1651), Claude Mollet (*Le Theatre des Plans et Jardinages;* 1615), Jean Baptiste Quintine (*Instruction pour les Jardins Fruitiers et Potagers*; 1690) and Jacques Boyceau (*Traite du Jardinage selon les raisons de la nature et de l´art*; 1638 (see Barlow-Rogers 2001, 195; Hobhouse 2006, 120–167)). Du Perac is considered to be one of the earliest creators of the *parterre broderie* prototype, following the examples borrowed from Italy (Sinisalo 1999, 72; Gothein 1928a, 608). As the key element of French formal garden is the parterre, then previously mentioned works of Claude Mollet, Jaques Boyceau and Sebastiano Serlio pave the way to the most influential garden art work – *La théorie et la pratique du jardinage'*le by Antoine-Joseph Dezallier d' Argenville published in 1709 (Barlow-Rogers 2001, 195). Mollet focuses on the detailed design of the parterre. There are several dozens of engravings of different parterre patterns in chapter 23 of his book (Mollet 1652, 199–203). He recommends adding the flower broderie in addition to the classic evergreen broderie – a technique that becomes very popular in the first decades of 17th century. In order to extend the views, he suggests designing parterres on flat terrain as terraces, or raise/lower the surfaces towards the view point (Gothein 1928a, 616). Boyceau thought it was important to take into consideration the proportions of horizontal and vertical shapes. He based garden design on symmetry, but it could not become monotonous (Sinisalo 1999, 91). Therefore, the shapes of Boyceau's parterres were more structured (unlike the Renaissance-like coarse simplistic designs of Mollet); patterns more refined and had arabesque motifs (Laird 1998, 187; Boyceau 1638, 108-256). Sebastiano Serlio did not go into details with parterres, but his approach is significant because he gives specific parterre designs for specific building types (see Serlio 1584, 53–55, 175, 219 etc).

La théorie et la pratique du jardinage was published in France as many reprints and was translated into English few years after it was published (1712) and a little later into German (1732) which, is why the book became the most influential garden design work in 18th century Europe (Hansmann 1983, 159). What separated it from all the previous works, mainly from the works of Boyceau and Mollet, was its wholesome practical

approach to space design, which included the building process. Text was illustrated by detailed diagrams and drawings that gave an overview of the whole process starting from the planning and marking down the landscape and finishing with construction details. Wilfried Hansmann, who analyzed the D'Argenville's handbook, thinks that the most important part includes the two whole ensemble layouts with different topographic situations that simultaneously give an overview of the whole and of the details (Hansmann 1983, 163–164; D'Argenville, LeBlond 1728, 38–39). Dezallier d'Argenville's book was greatly based on the practice of one of the most influential Baroque park architects – Andre Le Notre (Hansmann 1983, 88–158; Thompson 2006) – and on the experience in Versailles. Versailles was the embodiment of the new spatial concept and new world order, which symbolized the ambition of Louis XIV to be the organizer, conciliator and leader of the restless world. Rhetorically it was expressed as the motif of Apollo – the leader of muses and the creator of harmony in the universe (Toman 2008, 154–155). Thanks to his ambition Versailles became the central symbol of national heritage in 17th century France being the introducer of the contemporary *crem de la crem* of science and art (Snodin, Llewellyn 2013, 263). Therefore, Versailles can be considered to be the conceptual expression of the ideology of Baroque era that inspired royal ensembles all over Europe for the next hundred years (Snodin, Llewellyn 2013, 88; Barlow-Rogers 2001, 196). At the same time volume wise it was an unique extreme phenomenon from its genesis and space (Graafland 2003, 73–128) which, figuratively demonstrates Louis XIV's lust for power (thus, characterizing the whole era, see Adams 1979, 84–94), but due to the enormous scale of the ensemble and all the objects fitted within, it loses Le Notre's primary endeavour for a sense of completeness (Hobhouse 2006, 152–153). Therefore, from the point of view of villa architecture, Vaux-le-Vicomte which, was the compact prototype of Versailles with extremely refined spatial arrangement, is more significant because its inherent groundbreaking principles were, on one hand, the discipline for form and the other, dynamics (Turner 2005, 170) which, was expressed through a system of parterres working as a whole, through a middle axis going through the whole ensemble towards so called infinity (following it through the garden the reach of space continuously seems to change) and through water mirrors (Lemerle, Pauwels 2008, 130; Hobhouse 2006, 152).

Although the handbook of Dezallier d'Argenville is intended for all who are interested (D'Argenville 2003, 35), it should be considered that it was based on the practice of Versailles (Barlow-Rogers 2001, 195–196; Hansmann 1983, 161) and thus, in its "Grande scheme" is more suitable for the nobility. Therefore, in the context of villa culture the work of Jacques Francois Blondel *De la distribution des maisons de plaisance* published in 1737 which, is heavily illustrated is worth mentioning. It teaches how it is possible to create impressive gardens without having the royal resources (Taylor–Leduc 1998, 46; Barlow-Rogers 2001, 196). At the same time, it should be mentioned that even though in *La théorie et la pratique du jardinage's* (and in many previous and later works) concrete examples and instructions are given to design gardens (D'Argenville 2003, 235–260). The approach was modified outside of France in order to fit regional geographic peculiarities and cultural context and therefore, one cannot speak to one unified static spatial model – each specific ensemble has its own unique design (Turner 2005, 167).

2.6 Baroque *villa rustica*

The structure of a classic Baroque *villa rustica* ensemble consisted of two volumes, of which, the more important one was the main building and the building complex connected to it (*corps de logis*) which, bordered the *cour d'honneur* and the park (Nurme 2014 a) (*Figure 5*). In general, the Baroque park space is divided into three main parts which, are connected to each other spatially and axially (Nurme et al., 2009):

- Open frontcourt in front of the main building;
- Open area with parterres behind and on the sides of the main building (Nurme, Nutt 2012, 58);
- Enclosed part of the park that follows the back court and/or is bordered with bosquettes and forests.

Baroque style court in the front is traditionally characterized by a wide main building and a rectangular square – *cour de'honneur* – that has three or more buildings symmetrically surrounding it (*Figure 5*). The visitor's attention from the main allée heading towards the frontcourt was strongly directed on the main building. The culmination of the view was the front square from which, a direct and prominent view was presented onto the most important building – the main building – front facade (Steenbergen, Reh 1996, 166–168). When constructing the view the wings of the building and separate ancillary buildings (pavilions) formed U–shaped composition with the focus on the main building. Side buildings and wings bordered the space as coulisses and directed the view. Even though a view alongside the middle axis allée was pointed towards the landscape, the view onto the front square was more important. Therefore, the ensemble's design of the volume relied on a one-way dynamic of the view (Norberg–Schulz 1986, 50; Steenbergen, Reh 1996, 167). The front square was the ensemble's business card from its function. The main allée connected with the main building's central axis and side allées oriented perpendicularly or radially. The three-way structure of roads heading towards the ensemble – *patte d'oie* is one of the inherent characteristics of a Baroque ensemble (Nurme, Nutt 2012, 45). Taking into account that the front square is traditionally flat (some exceptions may be the older complexes, rebuilt from medieval fortresses whose design was determined by the location of the fortress and the character of its volume; e.g. Chantilly in France or Porkuni, Padise or Lihula manors in Estonia), covered with gravel or paved in some complexes of powerful noblemen. Landscaping was not used or was used on the squares next to the buildings connected with the main square. In the beginning of 19th century grass was used in the court of honor when the English style started to spread.

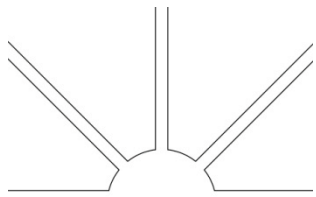

Figure 11. Patte d'oie one of the inherent characteristics of a Baroque ensemble.

The more extensive and presentable part of the formal park was formed by the open square behind the main building (*Figure 5*). The dynamics between the views of the back square and the *parc* that borders and finishes it worked counter wise to the front square when you take the ensemble as whole-away from the main building, into infinity (Norberg–Schulz 1986, 50). On the other hand, a system of views between symmetrically located garden parts, either local, perpendicular to the main axis or radially connected, was created. The most important views were on the main axis looking back and on the side axes directed towards the main building. In the back square the *patte d'oie* type radial and/or four-way roads and view–directions composing principle was also decisive. The composition of the back square was based on surfaces (Baridon 1998, 9): vertical surfaces – bosquettes (Hansmann 1983, 165–180; Turner 2011, 174–176; Wimmer 2001, 44–50) – or terrace walls (D'Argenville, LeBlond 1728, 140–149) created by raising/lowering of horizontal surfaces were in contrast to large horizontal surfaces – parterres. The vertical structuring of surfaces enabled to lengthen or shorten the room seemingly by manipulating the center of the view or the focal point of the main view. The back square was often divided into terraces on the basis of Italian Renaissance garden principles for the better viewing of parterres. The terraces were designed as surfaces located symmetric to the main axis, which, is defined by the main building. This included the building of retaining walls, stairs and/or slopes. The later, in addition, gave a vertical scale to the horizontal surface offering many additional possibilities for the visual and allegoric enrichment of the general garden view. Retaining walls were an excellent background for the sculptures and enabled to build grottos, balustrades, cascades and so on.

Park *(parc)* was usually created by stands of trees designed with natural forest or by planted trees (*Figure 5*). The roads and views cut into them contrasted the strong vertical volumes of surfaces (Wimmer 2001, 51). The most important direction was from the main building heading to the landscape and it was sometimes emphasized with an allée (see, for example, John Bowles engraving of Hampton Court (Wengel 1987, 126)). It was connected with the central axis of the main building and it emphasized the ensemble's general view dynamics. Perpendicular directions were sometimes also designed as allées. Radial four–way (based on *patte d'oie)* or star-shaped road networks connected with the general spatial language of shapes but came from the hunting traditions already developed during Renaissance (Wright 1996, 53–58). *Parc* was sometimes divided into parts, which had a geometric road network designed into it but in general it was kept as a natural forest. The parts of the park close to the castle were usually designed as bosquettes with different intensities and they were not bordered with trimmed hedges or allées (by D'Argenville theory the park *(parc)* or the forest *(foret, bois)* could consist of two types of boskets – *forets et grands bois de haute futaie* and *bois taillis* – both were without pruned crowns; see Hansmann 1983, 174).

2.7 *Cabinet de verdure*

The part of the ensemble most rich and spectacular consisted of planting beds and structures designed in the back square. Most typical of them being (Hansmann 1983, 165–180; Turner 2011, 225–226): *allées, parterres*, *bosquettes*, hedges, bordures, *berceau*s, pavilions, gazebos, retaining walls, stairs, water structures and channels. The main part of the horizontal volume consisted of parterres *(parquet;* see Baridon 1998, 16) – ornamental planting beds that, could be seen as a whole from the main building (for example from the *sala terrena;* Nurme, Nutt 2012, 55) or from the raised

terrace of the back façade. *La théorie et la pratique du jardinage* presented four different types of parterres where each had a different type, pattern and selection of plants (Hansmann 1983, 165–180; Nurme, Nutt 2012, 44)[1]. Andre Le Notre, who's design was presented in Dezalliers book, was inspired by the work of former theorists and practitioners, especially Boyceau's works (see Boyceau 1638), but his design was also greatly influenced by studies with Charles Le Brun in Simon Vou's studio, where they saw Simon's sketches done during his grand tours in Turkey (Adams 1979, 76). Most presentable and classical parterre type, developed by Le Notre, was *parterre broderie* designed with *Buxus*-hedges and colorful gravel and it was typically in front of the view to the back square, other parterre types were located further away or outside the main view (Wengel 1987, 118).

When composing parterres, the garden space was axially divided into four equal parts (motif of *patte d'oie* (*Figure 11*)). The centers that were created as a result were classically emphasized with fountains, sculptures or with a basin and through diagonal or central axes they were connected with the general axial structure of the ensemble. The main design of a parterre consisted of an arabesque plant ornament that had lines created by flower bordures, grass, low cut hedges (usually of *Taxus* or *Buxus* plants) or strips of sand. The surfaces between bordures were filled with low-growing plants, grass, gravel or other colorful pouring materials, compositional centers were emphasized with topiaries, vases, sculptures, plants in pots, basins or fountains (Hansmann 1983, 168–169). For a better view the parterre surfaces were proportioned taking specifically determined relations into account. The surfaces of the parterre could be lowered in relation to the road or designed as a slowly rising inclined surface towards the view point (D'Argenville, LeBlond 1728, 39–45). Due to the cultural context of different countries and the decorative horticultural practice, a lot of regional variations of parterres were created. A part of it was Blondel's *De la distribution des maisons de plaisance*, which gives his vision of parterre design (Hansmann 1983, 186).

Bosquettes (*bosquet*) were the contrast to parterres vertically – usually delimited spaces with high trees or trimmed bushes (Wimmer 2001, 44) which, is why they were located behind or sometimes on the sides of parterres in the main view (D'Argenville, LeBlond 1728, 38–39, 74–75; see also NUM FOL EST 139). Roads for walking between the trimmed bosquette walls formed narrow view corridors that, directed the eye towards the important compositional centers (fountains, sculptures, pavilions and so on). Bosquettes formed an effective dark tone, which is why light sculptures or decorative vases were put next to the bosquette walls or into their niches (Nurme, Nutt 2012, 40, 63). D'Argenville separates six different bosquette types[2], according to which, the bosquettes were designed out of the existing or planted forest, volume was designed with a high hedge (*palissade*) or with rows of trees *(allee)* or were planted in masses using *quincuinx*-planting or matrix planting (D'Argenville, LeBlond 1728, 74–75). Usually the species used were linden, white beech, horse-chestnut, cornel or chestnut tree (Wimmer 2001, 44–45; Couch 1992, 188). The outer sides of bosquettes were trimmed as walls or were, in addition to trimming, bent to hold their shape on wooden frames. The frames were usually tied with regular *bois verts* and *berceaus* – stoas and arcades

[1] According to D'Argenville types of Parters were: *parterre de broderie, parterre de compartiment, parterre de pièces coupées, parterre a l'anglaise* and *parterre de l'orangerie* (D'Argenville 1728, 39-50).

[2] Types of bosquets according to D'Argenville: *forets et grands bois de haute futaie, bois taillis, bosquets de moyenne futaie a hautes palissades, bosquets decouverts et a compartiment, bosquets plantes en quincones* and *bois verts* (see Hansmann 1983, 174-177/Wimmer 2001, 44-50)

designed with trimmed plants (Hansmann 1983, 177–178; Laird 1998, 190–192) *(Figure 12*).

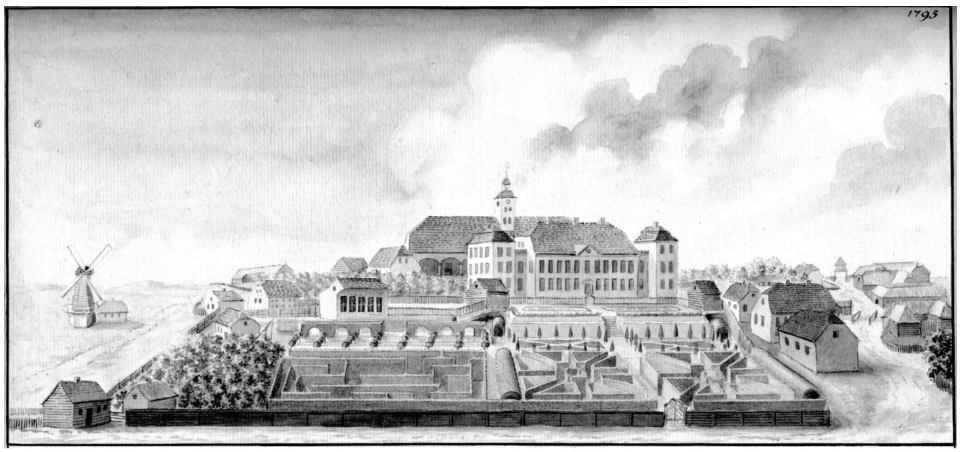

Figure 12. View to Stukmani Manor in Latvija about 1795 by Johann Christoph Brotze. In front can be seen labyrinth (on left) and bosquettes (on right) (Brotze 1771–1818; vol 7 p. 36; see also Janelis 2010, 76–77).

Bosquettes, especially in the perimetral part of the ensemble, could sometimes consist of only large dense tree plantings but often private spaces were also created within bosquettes – *cabinet de verdure,* that was designed as an interior space (Aben, Wit 1999, 94–95). The design of "green spaces" was very varied. They had thematic decorative gardens, *boulingrin* (Hansmann 1983, 176), places for plays, but also vegetable gardens, orchards, storage rooms for gardeners and so on (D'Argenville, LeBlond 1728, 74–75; Berger 1985, 29–40), larger masses had labyrinths inside them (Hansmann 1983, 176; D'Argenville, LeBlond 1728, 74–75). At the same time *potager* (Nurme, Nutt 2012, 48) – vegetable garden – was usually built as a separate part of a garden which, could but might not have been connected with the general composition of the volume of the ensemble and when it was built separately, its design remained in the medieval form until the beginning of 18th century (Adams 1979, 12). As the design of bosquettes was very versatile, function and visual form were taken into consideration while choosing their location. Generally *bosquets decouverts et a compartiment* were located closer to the parterre, it was followed by *bosquets de moyenne futaie a hautes palissades* and others according to the spatial arrangement (Hansmann 1983, 174–176). Bosquettes or the "green cabinets" were structured with high hedges, *espallieres* (Wimmer 2001, 41–44) and with pergolas and gazebos designed with frames already dating back to ancient traditions (Landsberg, 1995, 49–50).

The tradition of using allées *(allée)* dates back to ancient times. Renaissance garden art "discovers" allées and uses them traditionally mostly for marking the gardens borders within the ensemble, rarely for the division of a garden (Sica 2007, 63–96). Contemporary architecture theorists (like Andreo Palladio, Vicenzo Scamozzi and others) reference to using multiple rows of allées for highlighting the entrance to the villa. For practical purposes trees were planted next to roads in France in 16th century in order to get wood (Couch 1992, 174). Baroque ensemble unites the practices of that time and uses allées for connecting the ensemble with a neighborhood settlement or with an important landmark (Hansmann 1983, 173). Allée in a Baroque ensemble is of principle importance:

spatially there are few objects in the landscape that have such visual influence – straight allées directed towards the landscape for kilometers carried a message of the owner's influence and control of the landscape and all its participants. Allées can be seen as one of the most important phenomena of the Baroque period's architectural space (Couch 1992, 173–174, 176). Main allées were designed up to four row of trees, as alternate or matrix plantings and a lot of attention was given to the distance between trees and rows of trees (Evelyn 2007; Couch 1992, 184–192; Wimmer 2001, 34–40): *"When allées are well proportioned and correctly located, then they are one of the most beautiful parts of the garden",* Hansmann references d'Argenville (Hansmann 1983, 173). Side allées were proportioned more modest. Their design was mainly dependent on the function: for directing the local views and to border the bosquettes they were designed as trimmed hedge walls, the connecting roads between garden parts and the sides of walking roads were designed as tunnels open from the sides, crowns joined from the top (D'Argenville, LeBlond 1728, 51–62; Wimmer 2001, 34–40; Hansmann 1983, 173). Most commonly the allée trees were linden (little leaf, large leaf and common), elm, horse-chestnut, oak, ash and beech. The use of a species was dependent on the regional climate and technical possibilities (Couch 1992, 179–184).

An intrinsic part of Renaissance and Baroque garden art is topiary art fashioned after ancient examples. It was used for creating single topiaries of complex "green" architectural shapes. Plants cut and bent on frames were designed to be ornamentally trimmed hedges, colonnades, arcades and others (D'Argenville, LeBlond 1728, 51–62, 86–96). High hedges *(pallissade)* designed to be arcades –espaliers (Nurme, Nutt 2012, 57) *(espallier)* and plants bent on frames made into pergolas, portals *(portico)* and gazebos *(berceau artificel)* or pergolas made of trimmed rows of trees *(berceau naturel)* were mostly used to structure the inner spaces of bosquettes or to border bosquettes or whole parts of the garden (Nurme, Nutt 2012; Wimmer 2001, 41–44; Hansmann 1983, 177–178). Single topiaries were used for emphasizing the compositional centers of parterres similar to plastic arts (*Figure 13*).

The shapes of *berceau*s and *espallier*s were based on the era's architectural interpretation of classical order, which, is why their usage and design was based on the buildings of the ensemble and the owner's resources (Hansmann 1983, 178). The garden structures were designed similarly – pavilions, grottos, stairs, retaining walls whose materials, location and shapes were strictly in accordance with the compositional axes of the ensemble or with the architectural details of the main building or with the views. Most of the time they were intensive in construction and expensive structures (pavilions are more like summer palaces which, were a part of the residences of nobility; see Hansmann 1988, 40), which, is why they were made into important focal points in general views or side views originating from the locations of other buildings (Adams 1979, 40). With smaller ensembles they often limited the construction to smaller and less ambitious gazebos and pergolas. Plastic arts were chosen according to the principle key motifs of the ensemble or parts of it, taking into consideration the suitability of the allegoric motifs to the structure's function and character so that the figure, grotto, fountain, decorative vase etc, would speak to the viewer in a meaningful way while fitting into the general and local context (Hansmann 1983, 179). Sculptors discovered Ovidius' poetry for themselves in 16th century and the mythological motifs and characters based on it were often used in garden and park design during Baroque period (Adams 1979, 32). Plastic art was used as vertical accents in order to illustrate horizontal parterre

surfaces (located alongside the perimeter or in the compositional centre of the parterre) and vertical bosquette walls.

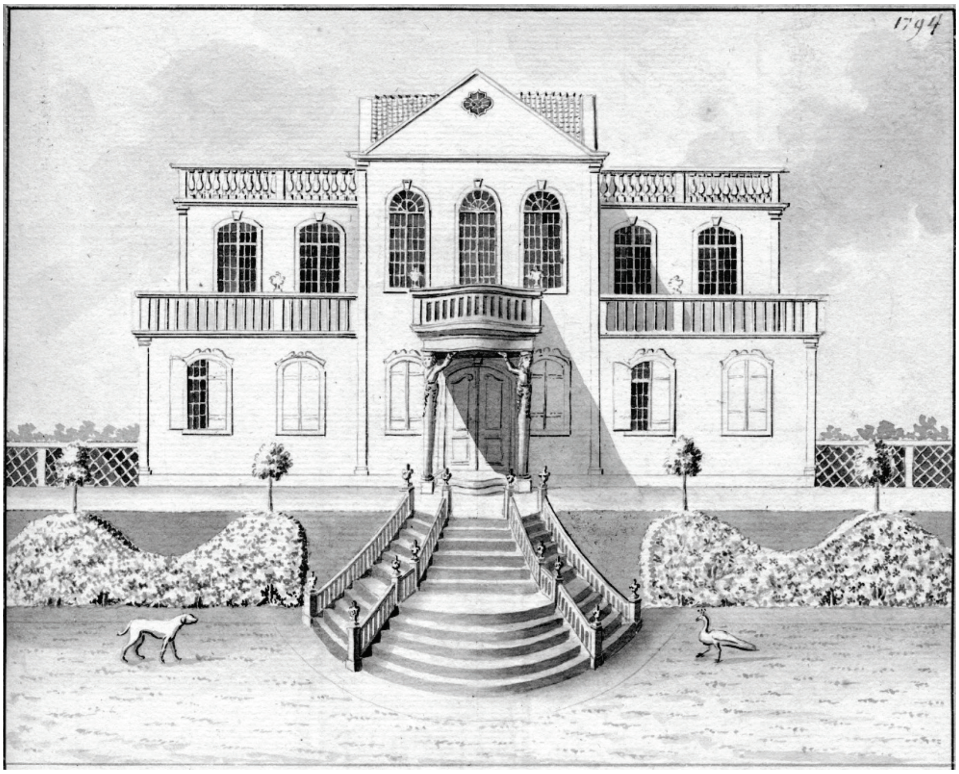

Figure 13. On the 1794 drawing by Johann Christoph Brotze of Baltā Manor in Livonia topiary trees and artfully pruned hedges can be seen (Brotze 1771–1818; vol 5, p. 149).

"The waters are to the landscape what the soul is to the body", wrote Jean-Marie Morel in 1776 (Morel 1802; Hunt 2011, 235). One of the characteristics of Renaissance and Baroque ensembles is playful water structures where the movement of the water, in particular, gave vertical dynamics to the composition; the term related to the movement of the water – *jet d' eau* – was, therefore, more of a technical than artistic term (Baridon 1998, 8). Fountains, grottos etc were widely used in Italian architecture but spread during Renaissance to French villa gardens, where they became a normal part of the ensemble in 15th–16th century (Adams 1979, 19). The composition was made more surprising using the movement of the water and water mirrors and sounds accompanying the water movement, and reflections of light, depending on the weather and time of day different moods were represented which, became an effective tool for changing the reach of the space in an illusory manner (Adams 1979, 27). Using water was also practical: sprayed water cooled the air; the water from the water system could be used for irrigation, larger bodies of water could be used for fish farming (Huny 2011, 233). "Water games" were combined with sculptural shapes that could be used for an effective and playful way to increase the allegoric meaning of the garden or its parts. One of the more important sculptural structures that were axially oriented focus points was fountains (Turner 2005, 166) and they played an important role in the back spatial arrangement. For example, the prototype of the Baroque ensemble – Vaux-le-Vicomte – had three

fountains, grotto and a channel in front of it illustrating the main view of the back court (Steenbergen, Reh 1996, 158). Cascades, grottos related to springs and basins were designed as symbolic artificial caves with nature-like details as was common in Renaissance garden art inspired by ancient mythology (Nurme, Nutt 2012, 33). Grotto remains one of the most loved structures connected to the water in Baroque, but its rustic characteristics were cast aside and replaced with arcades enriched with sculptural shapes which, were interpreted as “the pure” order of Palladio-like design (Adams 1979, 59).

The channels, ponds and water systems were created for practical purposes and were characteristic to French villa landscapes of the 16th century. As operating the fountains required large quantities of water, which was a problem in areas with flat terrain, encouraged the building of water reservoirs and channels. For example, after many years of constructing additional channels, a "Marly" machine was built to supply water to the fountains of Versailles which, drew 3,200 m3 of water from the Seine per day, but the actual water demand was 12,960 m3 (Dunlop 2003, 297; Toman 2008, 155). The channels and moats of former castles, which, were rebuilt knowingly, became the compositional water mirrors which, in specific places magnified the view onto the main building or to other important phenomena of the ensemble (Adams 1979, 26–30). A water mirror refined to detail in an ensemble was first used by Le Notre in Vaux-le-Vicomtes (Bazin 1964, 118) where the *Grand Canal* on a lowered terrain reflects the whole main building in front of the grotto towards the main axis looking back (Steenbergen, Reh 1996, 165–186). Water was also used by the example of Italian Renaissance villa (for example the bottom terrace of Villa Lante; see Gothein 1928a, 270–274) for ornamental water mirror design. The water parterre of Versailles –*Parterre d'eau* was inspired by the water surface and was the inspiration to many later ensembles (Friedmann 2012).

3 Baroque Baltic *villa rustica*: Historical Context

"Oh, what a beautiful time that beauty and wonders now rose to Else! He thought he was in the sky! One beautiful garden, filled with apple and berry trees, stood in front of him. Birds, like beautiful butterflies, were sitting on the branches of trees, some with gold and silver feathers covering. And the birds were bold; the children could catch them with the paw as they wanted. In the middle of the garden, the house was built of glass and ring stones, so that the walls and the roof gleamed"

Friedrich Reinhold Kreutzwald (Kreutzwald 1978, 39)

3.1 Estonian baroque era periodization

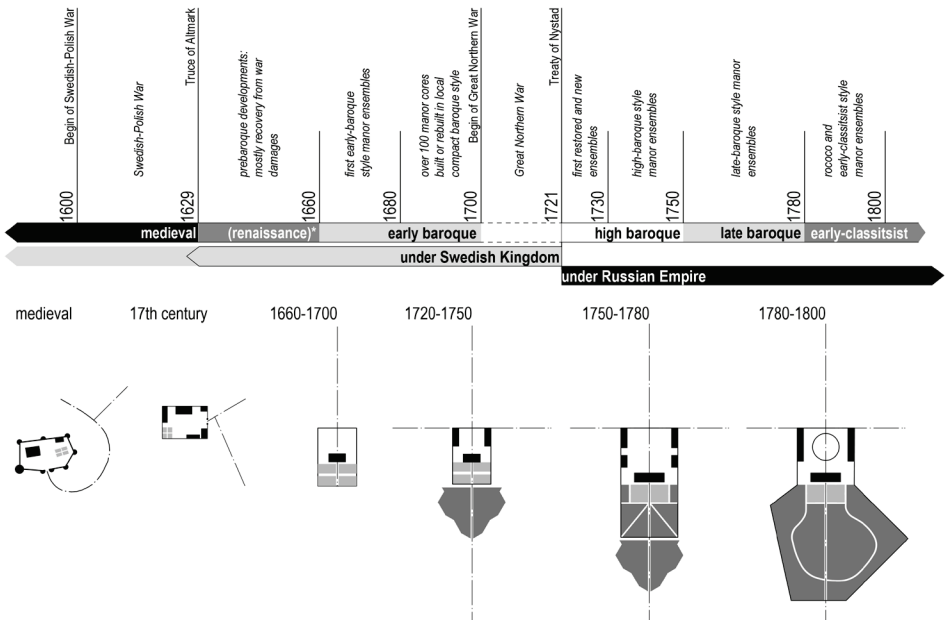

Figure 14. Spatial development of the composition of Estonian baroque villa-ensembles[1].

Even though there are interruptions and differences in timeline due to regional history, the spatial development of 17th–18th century manor cores portray the different stages of development of Baroque ensembles in Europe (Turner 2011, 225). Peculiar characteristics inherent to Estonian baroque manor cores and parks can be distinguished between the pre- and post-war (the Great Northern War) developments. (Sinijärv 2009, 57–58). The spatial appearance of characteristics that describe the changes which,

[1] *The term *"renaissance"* is used illustratively and marks the period when fortified manor centres were rearranged spatially in more open way. This is because practically nothing of manorial architecture, exept medieval fortifications, before Great Northern War have been preserved in the present times.

occurred in the relations between the spatial structure of the ensemble and landscape, make it possible to conditionally divide the development of 17th–18th century, known as the period of the Baltic *villa rustica,* into two longer periods. The first period was approximately 1660–1700 and second 1720–1800. During the first period the Baroque approach to spatial design made its way to Estonia and by the end of it a primitive model of the Baroque ensemble was developed. During the second period a compact and established Baroque ensemble, characteristic to Estonian and Livonian manor architecture, took shape. The latter period, in turn, can also be divided into three periods: 1720–1750 and 1750–1780 and 1780–1800, based on the aspects of spatial reach of the ensemble and the axial relations of the landscape (Nurme 2014 a, 144–145). The following gives an overview of the phenomena that characterizes the previously mentioned time periods taking into account the context of the era.

3.2 Estonian manors in 17th century

The 17th and 18th centuries were eventful and turbulent for Estonia. Local manors and fortresses were almost completely destroyed in the Livonian War (ended 1583) and in the following war 1600–1629 between Sweden and Poland (Praust 2005 a, 14–15). The most damage was done in the South–East region of Estonia (Praust 2012, 34–35). There are records of construction works being done in manorial cores as early as the 1580s, directly after the Livonian War, but it was mostly limited to essential repairs (Hein 1998, 103–104). From the point of view of manor cores, the beginning of Baroque era in the Estonian manor culture could conditionally be in 1629 when all of the continental Estonia became part of Sweden with the Truce of Altmark signed between Sweden and Poland. This was the end of military activity for a while which, gave an opportunity to renovate and improve manor cores. This also explains why nothing from the renaissance-period has survived in Estonian manorial architecture (*Figure 15*).

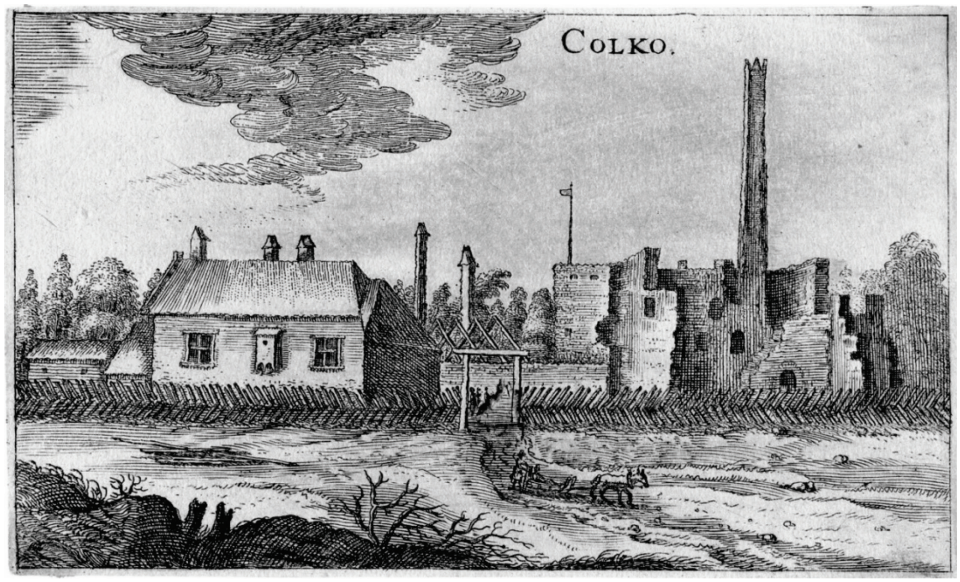

Figure 15. Kolga Manor in 1619 engraved by Anthonis Goeteeris. Manor core is only partially restored from war crusades (BM M, 35.41).

Sweden, being one of the strongest and most cutting–edge countries in Europe during that era, was very well informed about the latest architectural and garden art theories, mainly originating in France (De Jong 2005, 50). Swedish architects, who had studied in and travelled around France and Italy, were very well informed and they put their experiences into practice in the residences of most powerful Swedish noblemen (Scott 2006, 630; Lindhal 2004). The experience gained was not directly implemented but it was fitted to suit Swedish conditions (Spārītis 2009, 89). In the context of Baroque garden art, the publication of Andre Mollet *Le Jardin de Plaisir* (Mollet 1652), based on his experience as ornamental gardener in the Netherlands and Sweden (De Jong 2000, 79; Hopper 1982, 34–37), was of significant importance and it became one of the era's most influential approaches to garden art in France, Netherlands and Sweden. Therefore, by the time he left Stockholm in 1653, he had laid the foundation to Swedish garden art principles, which, were, carried on by Jean de Vallee and Nicodemus Tessin the Elder (Olausson 2005, 188). The top architecture in the Swedish Kingdom was mediated by the ruling noblemen of the province, mainly by the Governor of Estonia and General–Governor of Livonia Jacob De la Gardie and after his death by his son Magnus De la Gardie. Magnus de La Gardie was very well informed with the works of leading architecture and garden design theorists of that era. He often sketched out the garden designs for his residential grand projects (De Jong 2005, 59–62; Lindhal 2004, 175–179). In Estonia De la Gardie created grandiose rebuilding plans for medieval fortresses in Haapsalu and Kuressaare in the 1650s. For example, he ordered a complete reconstruction project for Kuressaare Castle from Nicodemus Tessin the Elder in 1651, according to the medieval fortress was to be turned into a palace (Maiste 2007, 323–324). Unfortunately, the project was never realized. Even more, the construction works based on Matthias Holl's designs in Haapsalu, according to which, the former fortress was to be turned into one of the fanciest residences in Sweden, were discontinued (Hein 2005, 212). Other Swedish high noblemen, who were given a lot of land in Estonia and Livonia as a favour for being in the war, made rather grand plans for castle constructions elsewhere, but the designs remained mostly unrealized, due to the restless political and economic context, and were implemented in a more humble form in some of the larger country manors like Kolga, Malla, Raasiku, Lihula and Matsalu (Hein 2005, 213–214).

Restoration and development of manorial cores, even though with less ambitious plans, still continued until the end of 17th century, when the Great Northern War began. Thanks to the connection with Sweden, modern construction theory made its way to Estonia in the second half of 17th century. This is proved by the fact that the most well-known military engineer and architect of 17th century, Jacob Stael von Holstein worked in Estonia during that time and his library already included the works of Philibert de l'Orme, Vignola, Scamozzi and the top publications of the period's garden art like *Le Jardin de Plaisir* by Andre Mollet (previously mentioned) and *Le Theatre des Plans et Jardinages* by Claude Mollet (Hein 2005, 222–223) in the 1660s. During the Great Northern War, numerous manorial cores were destroyed again. However, based on historic maps and descriptions, it can be noted that by the end of the 17th century, the basic principles of later Estonian manor core spatial model was developed. The increasing importance of the volume of an unfortified main building in a manorial core (Pirang 1926, 23–24) is characteristic to the 17th century Baltic–German manor architecture, similar to the construction art of villas of that time. Fortifications and fortified castles had lost their importance after the appearance of firearms, which, is why most of them were not rebuilt during peacetime (Maiste, 1996, 42). New buildings were built on the ruins

(for example Kasti Manor onto which, walls main building was later built on (Tuulse, 1942, 121)) or a new unfortified manorial core was built away from the old location – an enclosed main building as a fortress was replaced with an open *villa* (Hein 2005, 211).

Figure 16. Kunda Manor in 1647 by Adam Olearius (TÜR KAF 4714).

Manorial cores remained very modest in the first decades of 17th century, even primitive as written by Ants Hein or Heinz Pirang (Hein 2005, 210; Ränk 1971, 136–171). The buildings and the layout of the manor core remained rural and practical, the buildings and fences were, as a rule, built from timber (Maiste 1996, 44). An engraving of the manorial core of Kunda in 1647 by Adam Olearius (*Figure 16*) portrays a compact and functional building complex with an enclosed courtyard that has a rectangular layout but doesn't have a Baroque approach to space yet (Nurme 2014 a, 143–144). The spatial design looks more like a fortified castle from the old German cultural space dating back to early medieval times. It is characterized by a compact, enclosed yard area surrounded by buildings on the perimeter courtyard (Ränk 1971, 39–41)[1]. The most important building of the complex is the landlord's house, which, was usually located in South-East or South-West (Pirang 1926, 37). Similar layouts can be seen on the early plans of Livonian manor cores of that era (Nurme 2014 a, 143–144; Janelis 2010, 38). A manor core with a central open courtyard, which, is bordered by buildings and a fence, can be noticed on the 1648 year plan of Lokuta Manor (Hein 2005, 210–211). Two gardens with their own borders can be distinguished. One of them is most likely a space for the cattle and the other might be a kitchen garden. The previous examples confirm the fact that generally the manor core was always bordered by high wooden fence, even in places where there was no lack of stone materials. For example, in Saaremaa limestone as a construction material was rather accessible (Ränk 1971, 39). Presumably the yard areas

[1] Also see the descriptions of Pidula or Paadla manorial cores (Ränk 1971, lk 41-42).

of manor cores were flattened, but the basic structure of the terrain primarily depended on the local topography and character of fortifications. The previously mentioned examples make it possible to assume that in the middle of 17th century there were no opportunities or knowledge to put the Baroque ideas spreading in Europe into practice.

Paradigmatic shift can be noticed in 1670s and 1680s. A remarkable event was the construction of Maardu manorial core in 1660s designed by Jacob Stael von Holstein, which, significantly differed with its Palladian style from the residences of Swedish high noblemen built in mid-17th century in Malla, Kolga and Varangu (Hein 1996, 46–47). In the 1692 plan of Maardu Manor (EAA 1.2.C-III-11 page 1; *Figure 19*) a typical Baroque space is not clearly portrayed, but for example in 1690s plan of the garden complex located next to Cēsis Castle (Janelis 2010, 38; *Figure 20*) or the same year plan of Raasiku Manor (*Figure 17*) it is clear that the space was created in the Baroque style (Nurme 2014 a, 145;). Previously referenced Raasiku Manor plan clearly portrays a spatial structure connected to the central axis, its center is formed by the main building, an open frontcourt in front of it and a presumable garden of beauty behind it. A clearly divided spatial structure can also be seen on the 1692 and 1693 plans of Anija Manor (Nurme 2015 a, 12) or in the 1701 plan of Matsalu Manor (EAA 1.2.C-IV-196 page 1). A small garden with fruit trees, shrubs, flower and vegetable beds was, as a rule, part of the manorial core (Maiste 1996, 44; Sinijärv 2009, 58).

Figure 17. Raasiku Manor in 1690 shows typical Estonian early Baroque villa concept: A – main building with cour d'honneur; B – gardens; C – paddock for horses, with its location directly near ensemble, is quite typical of Estonian manor planning in 1680–90s; D – main road with alleé. The main axis is clearly highlighted with alley, which, is designed in his place for aesthetic reasons (EAA 1.2.C-III-37 page 1).

The fact that horticulture was more than a distant snobbish idea from across the Baltic Sea was confirmed in two practical handbooks of gardening and horticulture by pastor and gardener Gregorius Franciscus Holyk printed in Riga (*Versprochenes Bluhmen- und Küchen-Garten-Büchlein; Worinnen Kürtzlich; doch gründlich die Handgriffe gezeiget werden* (1687), *Lieff- und Außländischer Garten-Bau* 1684). Those books were amongst the first gardening publications directly written for Baltic German manor owners (Hein 2007, 28). What the manorial core could have looked like back then, is best conveyed in a watercolor painting by Carl Otto von Gyllenschmidt of Vasula Manor in 1783 (Figure 18).

On the forefront of the view a court of honor and the main building can be seen behind the additional buildings, on the left side of the view between the trees there is presumably a garden pavilion with a round layout (Pirang 1926, 38). The part of the park behind the main building that has a formal layout is not clearly depicted on the watercolor painting but can be seen on the plan of 1809 (EAA 2072.5.483 page 1), the massive greenery next to the bridge that leads to the main building is most likely the natural vegetation on the opposite shore.

Figure 18. Vasula Manor core in 1783 by Carl Otto von Gyllenschmidt (AM 4646:21 G 6930).

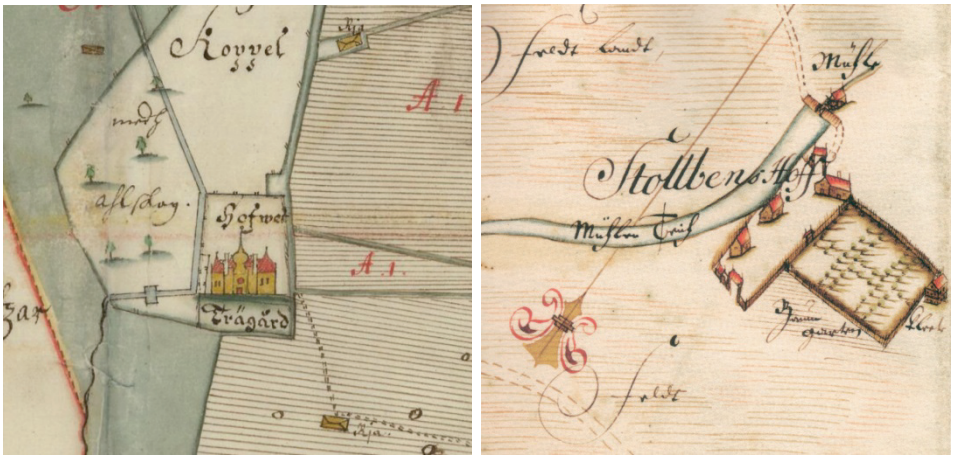

Figure 19. 17th century manor gardens. On the left is Maardu Manor in 1692. Compared to the foreground, the gardens are relatively small (EAA 1.2.C-III-11 page 1). On the right is Stalbe Manor (1695) in Livonia. The map shows a classic Baroque spatial plan, with a regular park section designed with alleys (Janelis 2010, 42).

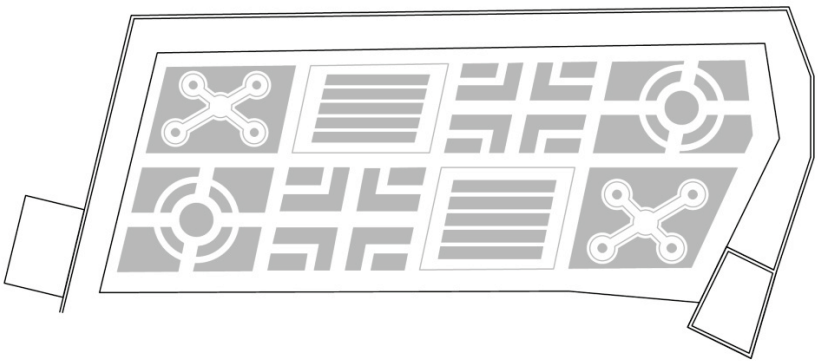

Figure 20. Reconstruction of Cesis Castle gardens general layout. The reconstruction above is based on a partially damaged map from 1690–s (see Janelis 2010, 38).

Latvian art historian Ojārs Spārītis has mentioned that the local Baltic German manor culture definitely lowered the influence of Swedish culture, but the structure of ensembles and even the choice of building colors were followed by the lead of Swedish role models at the end of 17th century (Spārītis 2009, 88–90). Therefore, the architectural language in some of the wealthier manors, before the Great Northern war, could have been up to date taking into consideration the context of the era and the status of peripheral region. However, the size and expressiveness of Estonian manor ensembles, built in last decades of 17th century, cannot be compared to the spectacular and imposing manor complexes of Sweden, that can be seen in the Erik Dahlberg's 1694 book *Suecia Antiqua et Hodierna (Ancient and Modern Sweden)* (Dahlberg 2014). This can be explained by the fact that the intensity of construction activities decreased after the 1650s Swedish–Russian and Swedish–Polish military conflicts creating insecurity about the Eastern border within the Swedish noblemen (Hein 1998, 128–129). The Great Reduction in 1682–1700 which, included manors (Vahtre, Laur 2003, 15–17) resulted in the manor owner's strong opposition to nationalization (Von Transehe-Roseneck 1890, 68–70), which, in turn, created an even tempered attitude towards development. However, approximately hundred manors are known to have had a main building built from stone by the end of 17th century (Hein 1998, 129), this could indicate that whole ensemble was planned using Baroque principles. Furthermore, map analysis based on manor maps from the end of 17th century, illustrate manor cores as with an early Baroque spatial structure.

In summary, the Swedish period in Estonian manor culture was pioneering, firstly because by the end of 17th century a network of Estonian and Livonian manors had evolved (Maiste 1996, 44) and secondly because the basis of spatial model, that blossomed during 18th century, was already developed before the Great Northern War.

3.3 Estonian manors in 18th century

The Great Northern War that started in 1700 ruined life all over the country for longer than two decades and took most of the manors back to the post-Livonian War times or even worse. The slaughter and deportation by the Russian army (Vahtre, Laur, 2003, 35) and the famine and plaque cleared the land of people and turned the manors into piles of stones. The destruction was thorough: majority of the manors were burnt to the ground. The worst situation was in South-Estonia – where in 1707 for example, only

empty ruins remained between Äksi and Tartu. Buildings were torched and people were killed or imprisoned (Praust 2008, 26; Praust 2012, 43). In North-Estonia the destruction was somewhat smaller, but after war and several waves of epidemics the population was dramatically decreased (Praust 2005 a, 18). The consequences of the Great Northern war are the main reason why there is not much left of the 17th century early Baroque manor building heritage and why the manor recovery was so arduous on the first half of 18th century.

The destroyed land slowly started to recover from the consequences of the Great Northern War by regaining the pre-war population and approximate economical level but not until the mid-18th century (Hein 2007, 33). A rather fast development in construction of manorial cores can be explained by the enshrined rights of German-Baltic nobility in the Baltic's, which, enabled a cultural, economical and political autonomy and stable economy for the noblemen (Vahtre, Laur, 2003, 45–46). They preserved the archaic feudal economic model (Hein 2003, 16), which, resulted in the ruling of the land becoming the privilege and opportunity for couple of hundred noble families. It has been said that the situation became the foundation for the so-called Baltic-German cultural model in the 18th century as we see it today (Hein 2007, 33). Due to enshrined rights most of the nationalized manors during reduction were given back to their previous owners: in the mid-18th century there were approximately 1130 manors in Estonia, of which, 900 were private manors, 100 state manors, 30 corporate owned manors and 100 church manors (Hein 2005, 231). The density of manors was the highest in the current Lääne-Virumaa**,** Harjumaa and Saaremaa counties and the least in Võrumaa County (Üprus 1975, 6). When comparing these numbers with manors counted in the middle of 19th century – according to Helmi Üprus there were approximately 1166 (Üprus 1975, 6) manors in Estonia based on Rücker's 1883 map, it can be said, that most of manorial landscapes were developed in second half of 18th century. The increase in vodka, linen and agricultural products' sales to Russia and the close connections between the Baltic noblemen and St. Petersburg (Hein 2005, 232) ensured the financial means for quite spectacular construction of manorial cores by the mid-18th century (Nurme et al. 2014, 166–167).

In smaller European manors the manorial cores were designed by the owners themselves according to their own wishes and knowledge by taking an affordable manor as an example (De Jong 2000, 34–37). There is no reason to think that things were different in Estonia – the Baltic-German manors were built by the Baltic-German noblemen, wrote Heinz Pirang (Pirang 1926, 25). Although there are reports that few wealthier manors could afford to hire architects, builders and gardeners even from abroad (Hein 2005, 238–241). Local landlords' close connections with Europe, their *grand tour*s and the availability of architectural literature made it possible to take over and put into practice working designs (Hein 2003, 16). *"Although Livonia has beautiful buildings to show, our building art is nothing else but a copy. Everything that is in Rome, Naples, Dresden and Berlin, must be here. It would be better if we thought more ourselves"* wrote Heinrich Johann von Jannau in 1781 (Jannau 1781, 65). On the other hand, local practice was strongly based on local experience and tradition, which had a defining importance in an end result in Estonia as a unique blue-blooded "cultural refuge" (Nurme, Nutt, Hiob, Kotval, 2014, 166–167). Influential local noblemen probably had direct contacts with Czar Court in Sankt Petersburg which, granted them extra income, but perhaps more significantly, architectural knowledge, practice and experiences obtained in the planning and building of St. Petersburg by numerous European architects, sculptors and artists

bought to Russian Capital by Peter I orders (Лисаевич 1971, 56–58). Especially the French architect Alexandre Le Blond, who was a pupil of Andre Le Notre and made engravings for Dezallier d'Argenville *La Theorie et la Pratique du Jardinage* (Strandberg 1974). But also Francesco Bartolomeo Rastrelli, Niccolo Michetti etc. Of course, local manor owners could not hire famous architects from the capital, but local noblemen would be aware with their works. For example Sagadi Manor ensemble design is influenced probably of Rastrelli's works (Маисте 1983, 55–56). In Õisu Manor ensemble, which is one of best Baroque ensembles in Southern Estonia, planning and design can be found parallels with Tsarskoe Selo palace in Sankt Petersburg (Maiste, Paju 2008, 10).

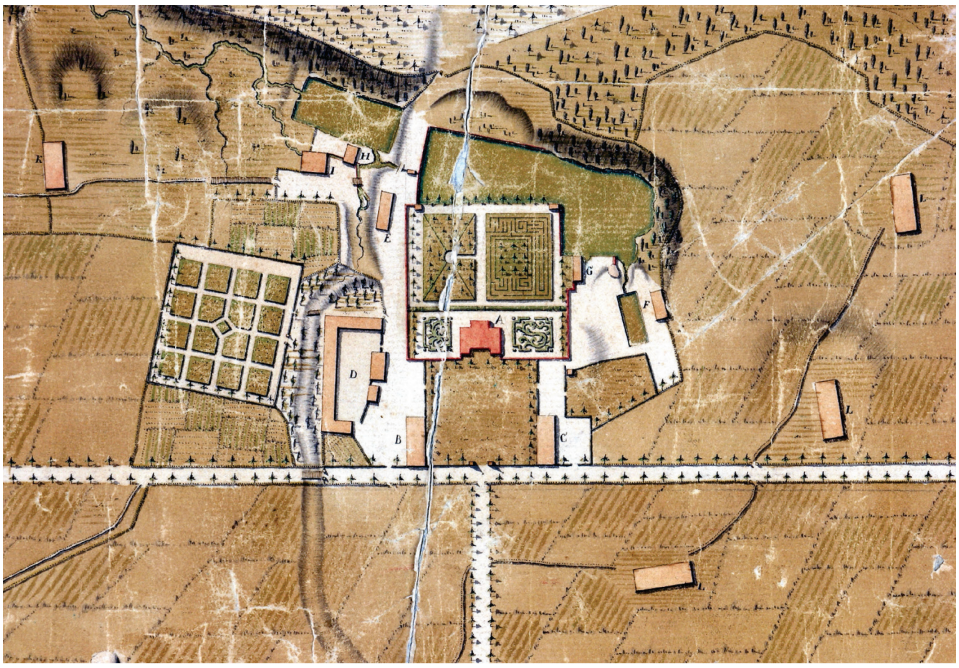

Figure 21. Palmse Manor in 1753 (EAA 1690.1.34 page 1).

The first decades after the war manor cores remained modest by following the construction traditions of 17th century (Maiste, 1996, 62–63), but by the mid-18th century a typical Baroque approach in architecture had become a common practice in manor ensemble design. The manor cores of that era are characterized by a Baroque way of thinking – departing from the agrarian and natural landscape – this was visually emphasized by the decorative garden and the park (Tarkiainen 2009, 93). The biggest difference between the second half of 17th century and first half of 18th century in the layout of manorial cores is the change in the more formal placement of buildings and the decorative gardens. By the 1750s, ensembles with a classically Baroque space were formed in the richest manorial cores of Estonia and Livonia which, were primarily compact and tried to connect all the buildings into a wholesome ensemble's volume (Hein 2007, 242). The spatial order reflected classical axial arrangement of Baroque villa architecture. However, characteristic compact manor core spatial model which, best example is shown in Palmse Manor map about 1753 (EAA 1690.1.34 page 1) was quite dynamic and ensemble spatial layout varied greatly (due of local topography and of the financial possibilities of the landlord) in different manors. This explains also, why simply

designed manorial cores, characteristic to the beginning of 18th century, were found in some places even in the second half of the 18th century, as can be seen on the drawings of 1790s manor cores in the collection of Johann Christoph Brotze *Sammlung verschiedener Liefländischer Monumente, Prospecte, Wapen* (Brotze 1771-1818).

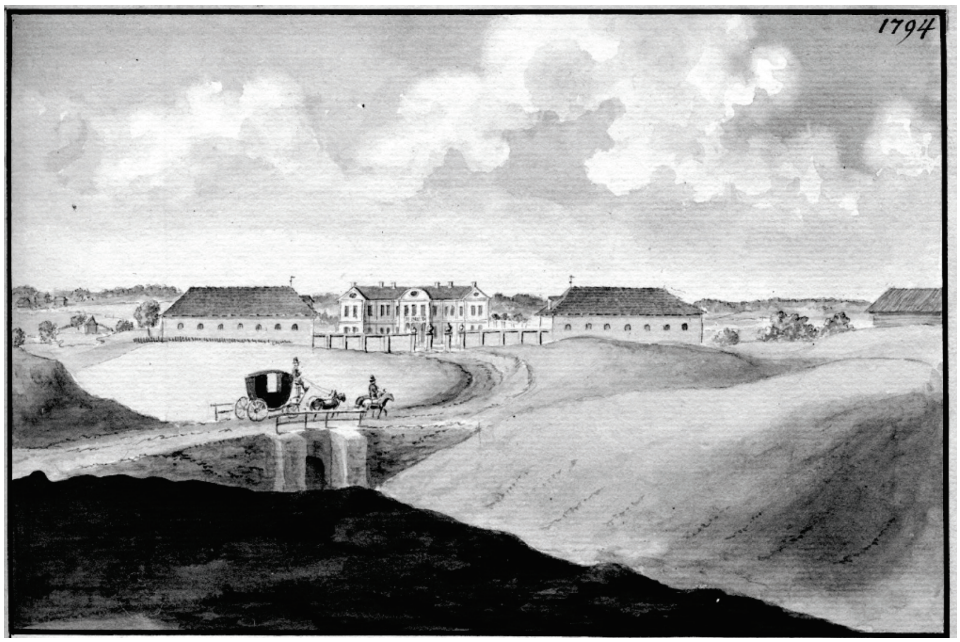

Figure 22. View of Õisu Manor frontcourt in 1794 by Johann Christoph Brotze (Brotze 1771–1818, vol 6, p.113).

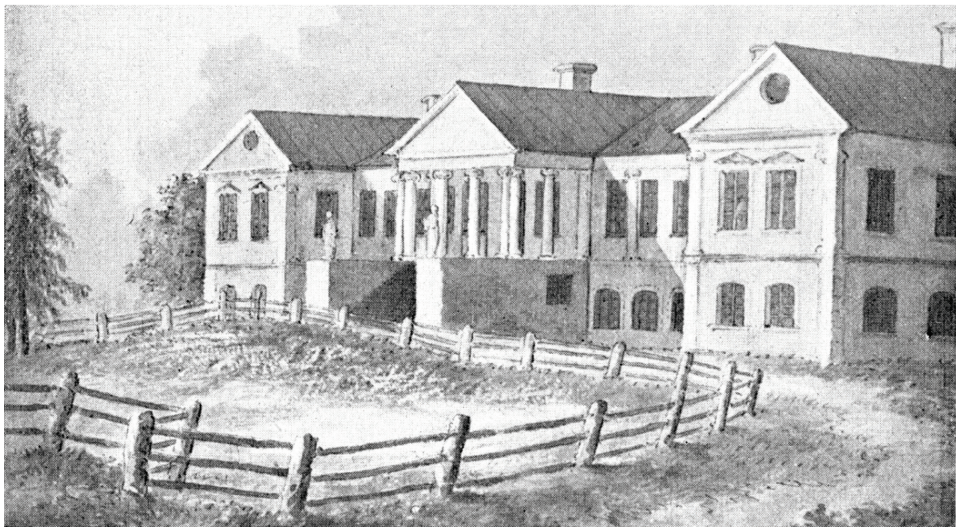

Figure 23. View of Õisu Manor frontcourt in 1821 (Pirang 1928, 34; Taf 59).

What the manorial cores and gardens could have looked like in the second half of 18th century can be seen on drawings in the previously mentioned Brotze's collection (Brotze 1771–1818). Unfortunately, there are very few of them as detailed as Brotze's 1795

watercolor painting of Stukmani Manor on the Southern border of Livonia and Mazstraupe Manor in West-Livonia (Janelis 2010, 75–80). However, in general, few graphical historical documents about planning and design of manor cores were preserved (*Figure 22* – *Figure 27*). Most of the watercolor paintings, drawings and engravings are from 19th century (Sipelgas et al., 2013, 24). Also, the detailed plans of manor cores, like have been compiled of Palmse Manor in 1753 (EAA 1690.1.34 page 1), are exceptions.

Figure 24. View of Õisu Manor Park and back court in 1800 by Johann Christoph Brotze (Brotze 1771–1818, vol 8, p. 11).

Figure 25. Landscape view near Õisu manor. In the foreground is The Tobacco Factory of Õisu Manor (Brotze 1771–1818, vol 8, p. 200).

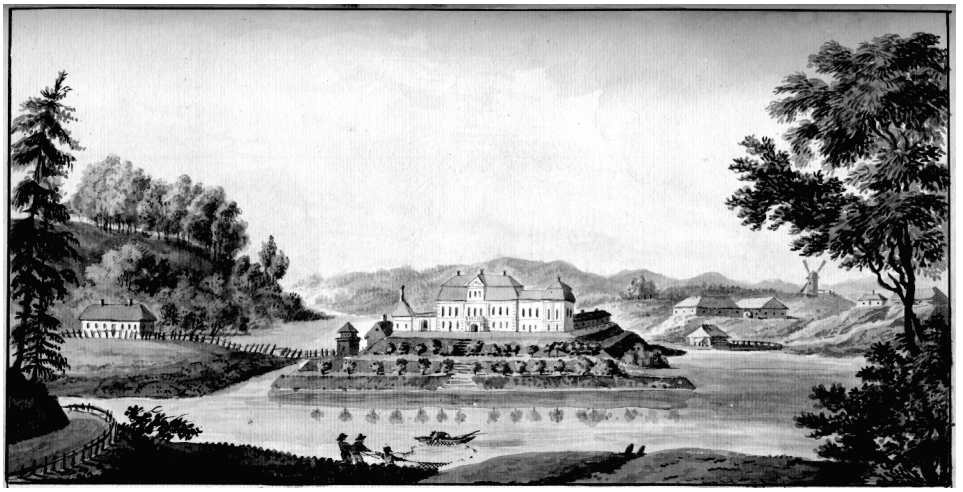

Figure 26. View of Rogosi Manor gardens by Johann Wilhelm Krause in 1795 (Brotze 1771–1718, vol 6, p. 79).

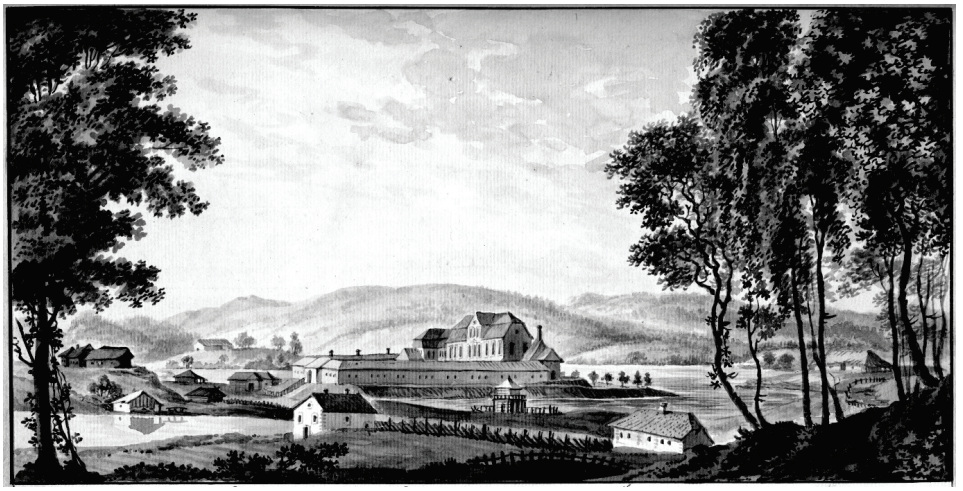

Figure 27. View of Rogosi Manor by Johann Wilhelm Krause in 1795 (Brotze 1771–1718, vol 6, p. 78).

3.4 Royal experiment in Kadriorg

Kadrioru Palace is a special and independent standing Baroque ensemble from the 18th century and therefore the best example of Estonian baroque architecture. Its construction started in 1718 on the orders of Peter I (Tamm 1988, 14). Detailed historical materials about the Palace and Park of Kadriorg Palace have preserved. The ensemble has been studied in detail, including its history, architecture and development. Perhaps the most comprehensive studies were published in 2010 (Kuuskemaa et al., 2010), and in 2013 (Maiste 2013). The Kadrioru Palace and Park are designed by Niccolo Michetti, a student of a well known Italian architect Carlo Fontana (Kuuskemaa, Kodres 2005, 268). Compared to the ensembles of Saint Petersburg the volumes of Kadriorg remained modest, but the approach to space was not overshadowed

by the ambition of outstanding European royal palaces. Kadrioru Palace remains a shining example in Estonian architectural history.

Kadriorg was a royal summer residence close to town and its everyday operation and general functions of the spatial structure are principally different from a typical manor, whose primary function was to produce agricultural goods. This functional and aesthetical difference expressed mainly in differences between a "typical" manor core and Kadriorg palace site-planning structure and in architectural and garden design. Biggest differences are in the size of ensemble and in the building structure. The royal residence did not require numerous specific agricultural buildings as it was common practice in manors. Similar approach is seen in many other royal ensembles that are located in or near the town, for example: in Peterhof Palace, Drottningholm Palace, Belvedere Palace in Vienna and others. Time factor should also be taken into account. Kadriorg was built in a time *"when Estonian peasant was living near extinction and when even the landlord was sometimes forced to live in a smoky kiln room with no chimney…"* (Maiste 2007, 376). This stood primarily for royal economical means which, enabled to build never before seen palace complexes in the local context of that time – resources which, local landlords did not have back then or afterwards, were put into practice. The latter statement is supported by the fact that peak of building Baroque manor cores in Estonia was in the second half of 18th century and role models from West or directly from Sankt Petersburg were used as examples rather than abandoned czar's residences (Tamm 1988, 37–44). The spatial program of Kadriorg reflects intrinsically the somewhat earlier and more Italian influenced spatial model which, has a strong inner symmetry axis but the central axial connections to landmarks outside of the ensemble are not first priority.

How significant a source of inspiration Kadriorg was to local Baroque manor architecture is hard to say. When comparing the spatial structure of Baroque manorial cores to Kadriorg, certain similarities in different parts of the park can be seen. For example there are some similarities between Suure-Lähtru (EAA 2486.1.3216 page 13), Puurmani (EAA 1396.1.475 page 1) and Kõrgessaare manors (EAA 2486.1.3303 page 38) to Kadriorg Park in their spatial form. Similar motifs can also be seen in Viti (EAA 3724.4.360 page 1) and Triigi (Väike-Maarja) Manor (EAA 1687.1.1 page 7) parks. However, taking into consideration that the spirit of that time is characterized by a universal understanding, unique to the era, that the surrounding world can be simplified to simple geometrical shapes (Maiste 2007, 380–381), then, the presented examples reflect the design language of the era as a whole rather than as direct influences of Kadriorg. Kadriorg can be a certain source of inspiration, especially in North-Estonia where most of the active builders were hired from Tallinn, but its influence cannot be overemphasized.

Based on the previous statements, it can be said that even though Kadriorg as a palace ensemble is undoubtedly of significant importance in Estonian architectural history, it remains from the point of view of Estonian manor architecture a separate phenomenon due to its function, genesis and structure and therefore, is of less importance in the context of manor ensembles. For this reason, the Kadriorg Palace complex is not taken into account in this paper.

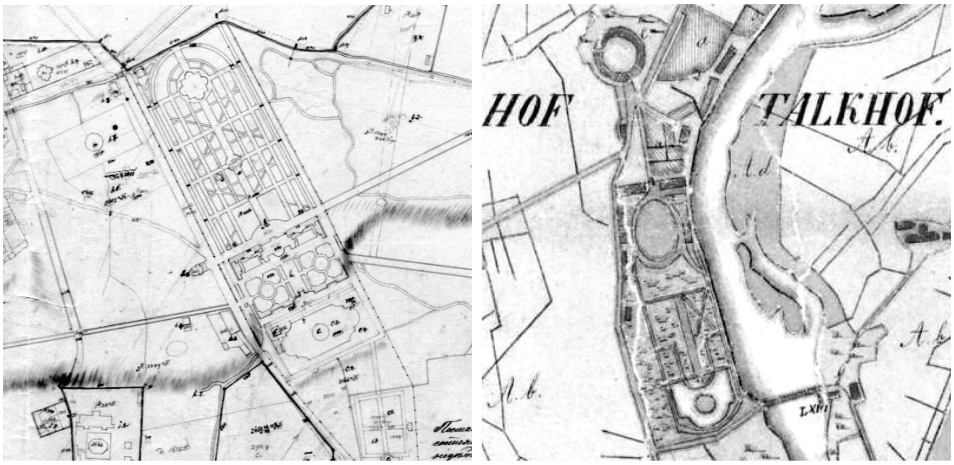

Figure 28. On the left is general map of the Kadrioru Palace ensemble in 1870 (EAA 854.4.77 page 1). On the right is map of the Puurmani Manor about 1860 (EAA 1396.1.475 page 1). Although some similarities can be seen with Kadriorg when comparing plans, they may also stem from general 18th century architectural practice.

3.5 The end of Baroque era

The second half of 18th century can be characterized by spectacular ensembles with a clear systematic Baroque spatial structure. In order to achieve that spatial program the terrain and network of roads was as a rule changed (Nurme 2014 a, 145). Estonian manor ensembles of the last decades were as a rule characterized by strictly axis-symmetric structures, which, were connected to the landscape with long distinctive view axes. The size and spatial reach of ensembles varied, but mostly bigger ensembles were dominant (for example Suure-Lähtru, Vatla, Õisu, Roosna-Alliku and so on), they had a large frontcourt and a large open backcourt.

In few late-Baroque and early classitsist manor complexes, like Sagadi, Mäetaguse, Raikküla, Klooga manors, design language (primarily in park design) characteristic to early-classitsist park design can be seen (also see Pirang 1926, 50). Changes in the parks' spatial design and layout are recognizable: the parks designed in the last decades of 18th century are characterized by recognizable English park design influences (*Figure 29*). One of the phenomena that defined and perhaps changed design principles of that era was the introduction of foreign woody plant species, including conifers, following the lead of German role models in the second half of 18th century (Sander 2004, 42–43).

Despite the upward referred nuances, it can be said that the general spatial structure of the manor ensemble at the end of 1800s does not principally differ from the spatial model that had developed by the 1750s. This is why the majority of older manor ensembles that have preserved have a recognizable Baroque structure; however, their details are influenced by classitsist ideas (Nurme 2014 a, 145). Therefore, if one is to decide on basis of historical maps, there was no right time or place for the rich and playful rococo, which reflected the transition from the Baroque period in Estonian manor culture and art. It mostly remained a style that influenced the interior architecture (Masjagutova 2014, 70). The changes appear at the end of the century mostly in the size of buildings, in the designs of roofs and facades and outdoor décor (Hein 2007, 244–249).

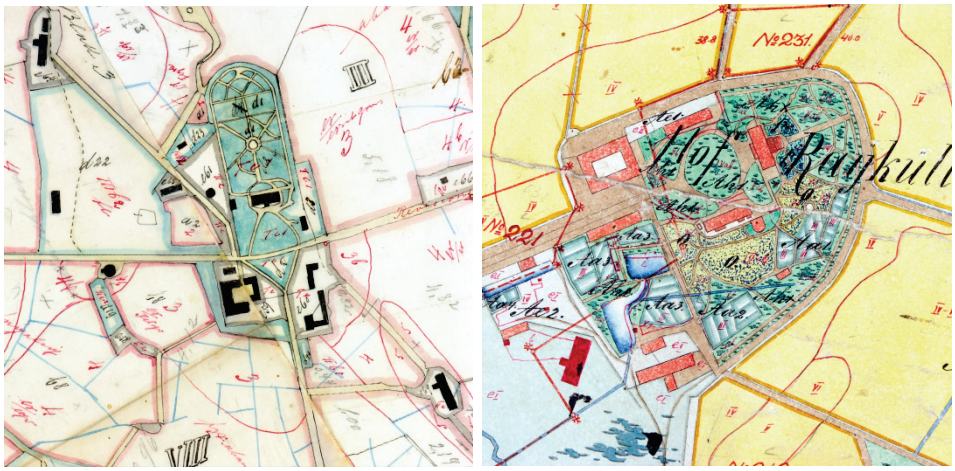

Figure 29. On the left is map of Suure-Lähtru in 1878 (EAA 2486.1.3216.1311) and on the right Raikküla in 1878 (EAA 3724.4.259). If Suure-Lähtru map displays typical Baroque structure, then in Raikküla central axis is recognizable, but backcourt and park layout is rather typical of the early 19th century.

4 Estonian Baroque manor landscape as a spatial structure

"Moreover, I would prefer to locate the house of a gentleman somewhere dignified, rather than in a particularly fertile stretch of land, where it could enjoy all the benefit and delight of breeze, sun, and view. It should have easy access from the fields, and a generous reception area for the arrival of guests; it should be in view, and have itself a view of some city, town, stretch of coast, or plain, or it should have within sight the peaks of some notable hills or mountains, delightful gardens, and attractive haunts for fishing and hunting".

Jean Battista Alberti (Alberti 1988, 145)

4.1 Location and Position

4.1.1 Rebuilt medieval manor cores

Like with any other construction, the nature of the Baroque ensemble, as an architectural creation, is defined by the peculiarities of local landscape and the historical genesis of the manor core. Two different types of manor ensembles can be identified after the Great Northern War when manorial cores were being restored and rebuilt. Rebuilt old, medieval manor cores form one type manor ensemble and 17th–18th century manor cores form the second type. The difference between them arises mostly in the context of the surrounding landscape: medieval manor centers could only be expanded within a limited area due to fortification structures, but there were no such spatial limitations on new manor cores built in the new locations.

When choosing the locations for the buildings and constructions of medieval manor cores the primary goals were to be protected and functional as the economic activity of that era and to be practical. Generally the fortified group of buildings was located on a hill (for example in Helme, Lihula, Porkuni) or in an area that was surrounded by natural bodies of water, making them difficult to access (Tuulse 1942, 104–124). Areas with a flatter terrain had moats and entrenchments built (for example in Vana-Antsla, Koluvere) but the central group of buildings was often surrounded by just fortified wooden fences (Pirang 1926, 37). Local network of roads was determined by the access road to the manorial core and the connecting roads to the most important objects in the neighborhood, for example mills and churches.

Building new, open manor cores on top of the old fortified ruins was technically complicated. Construction needed more space which, former fortified buildings did not have and the topography set its own limits. Only in relatively few cases the old fortified residence was rebuilt, like in Kiltsi, Koluvere, Vana-Antsla (Hein 1998, 114–115; Maiste 1996, 42–43) (*Figure 31*). In 17th century drawings by Samuel Waxelberg of Lihula and Porkuni Manors (TÜR KAF 37591; TÜR KAF 39024) (*Figure 30*), old fortress ruins can be seen in the foreground and new manor buildings can be seen in the background (Tuulse 1942, 73). When the old fortified residence was reconstructed or when the new manorial core was built on the location of the old medieval manor core or near it then the fortified buildings set the architectonics and the character of the new manorial core: positions of buildings, axial orientation, views, order of ensemble spaces, hierarchy and so on. In most cases the lack of space around fortified buildings did not enable the reconstruction of a

wholesome, axially connected, Baroque ensemble. As such, only sections most suitable for construction were designed and reconstructed.

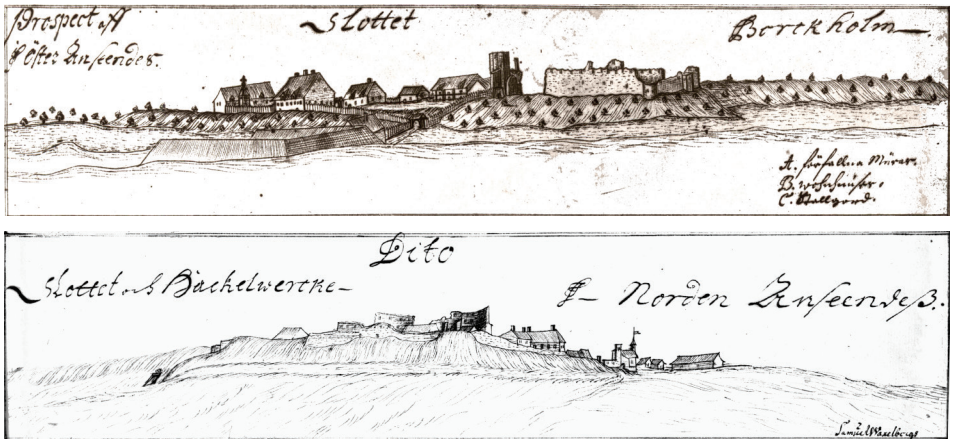

Figure 30. Views of Porkuni (up) (TÜR KAF 37591) and Lihula Manorial core in 1683 (TÜR KAF 39024) drawn by Samuel Waxelberg.

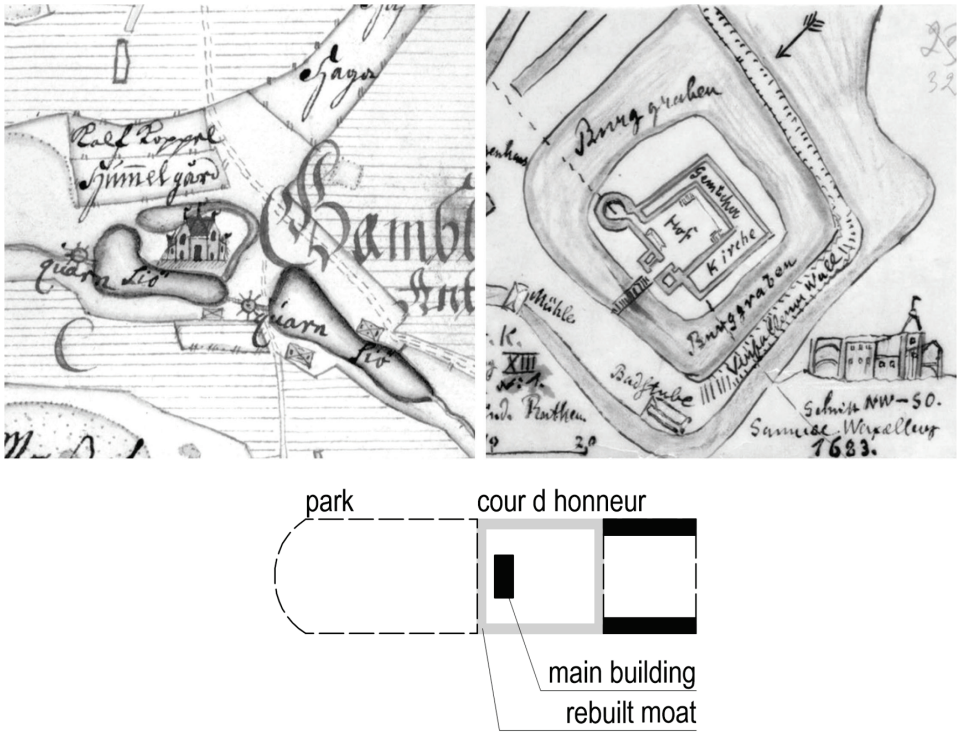

Figure 31. On the left: Manorial core of Vana-Antsla in 1688 (EAA 308.2.186 page 1). The position of the manor core is set by the moat and artificial lakes. On the right is a plan of Koluvere Manorial core (EAA 854.4.469 page 32): the position of the manorial core is set by fortified residence and fortifications connected to it (moat, entrenchment), also by the access to the fortified residence and river that was flooded for the purpose of protection. Below: the classical spatial configuraton of the rebuilt moat in French chateaus.

Due to the distinctive position of the medieval fortified manor core in the landscape new main building and other important buildings connected to it were built on its location or near it. Other parts of the ensemble – buildings, park and kitchen garden – were built next to the manor core in places where there was enough room for them. In manor ensembles that were well preserved (in volume) after the Great Northern War (for example Vana-Põltsamaa (EAA 3724.4.1445 page 1) (Figure 34), Laiuse (EAA 2072.3.41a page 4 foolio III) or Koluvere (EAA 854.4.469 page 32) (*Figure 31*) the space was planned in a way that preserved spatial hierarchy inherent to the period by trying to subject all parts of the ensemble to one continuous view axis, but due to the peculiarities of existing buildings and fortified constructions the axis-symmetric structure was not possible.

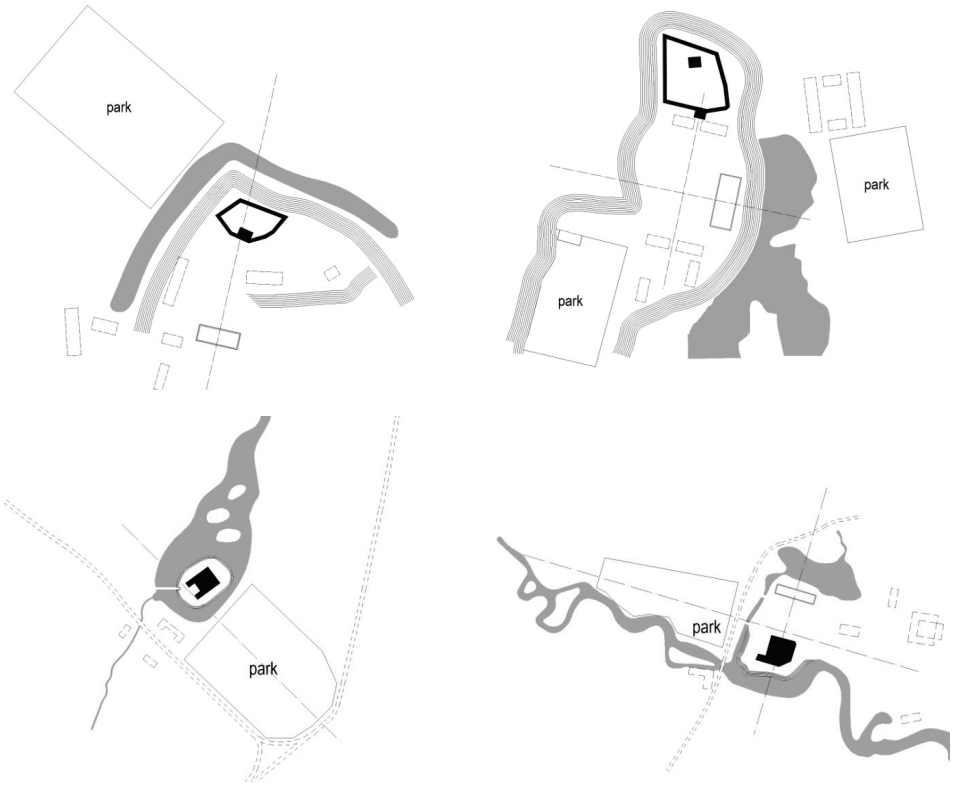

Figure 32. Variations of redesigned fortified medieval manor cores. The location of the fortified medieval manor core is portrayed in black, main buildings, built after the Great Northern War, are marked with a double line and administrative buildings with a dashed line. On the top left, is a plan of Lihula Manor core (EAA 854.4.469 page 8). On the top right is a plan of Porkuni Manor core (EAA 854.4.469 page 5). On the bottom the left, is a plan of Koluvere Manor core (EAA 854.4.208 page 1). On the bottom right is a plan of Padise Manor core (EAA 2072.4.8 page 1).

If it was possible the manorial core was designed to be on the former fortified area or near it as a symmetrically positioned building group (for example Porkuni Manor). An excellent example is the Suure-Rõngu Manor where the main building and park were built on the plateau of the hill next to the ruins of the fort and other buildings that typically define the *cour d'honneur* were built on the footstep of the hill (*Figure 35*). In some cases the spatial structure of a manorial core remained rather vague, for

example in Lihula (*Figure 36*) or Helme (EAA 2072.9.469 page 1) where regularity was revealed in the axial relations between the main building and old fortified structure or in the axial relations within sections of the ensemble. The main building was connected to the park visually but as a rule the main building did not form a unified proportional whole with a continuous central axis through other parts of the ensemble.

Fortified manor cores located on flat terrain did not have a moat or large-scale entrenchment built around them and thus offered more possibilities for developments, which, is why these manor cores were rebuilt in a similar way as the manor cores built in new locations. A good example is Vana-Kasti Manor, former Kasti fortress where the main building was built on its foundation walls and basements after the Great Northern War (Tuulse 1943, 121). With the building of new manor core in the second half of 18th century, the medieval constructions disappeared (Hermann 1973, 14–15). At the same time the context of landscape connected to the manor was largely preserved (*Figure 33*). Even in Anija Manor there are no traces of earlier medieval buildings preserved. Taking into consideration the results of archaeological excavations (Kalm et al., 2012, 258) the earlier building was partially located in front of the current main building. The main building built in the second half of 17th century was probably located at the same place (Hein 2009, 10) but the location was changed in the mid 18th century after the Great Northern War due to the construction of a new manor core. The principal structure of the ensemble that developed at the end of 17th century was preserved including the orientation and position of the ensemble in the landscape (Nurme 2015 a). In both cases the medieval manor core was rebuilt in a Baroque spirit but generally the context of landscape that developed was not changed in a way that was usual to the manor cores built in 17th and 18th century.

Figure 33. Kasti Manor core in 1687 (EAA 1.2.C-IV-240 page 1) and in the second half of 19th century (EAA 3724.4.567 page 1). Comparing maps it is visible that the site plan, including network of roads, has not changed (marked with dotted line).

Figure 34. Vana-Põltsamaa Manor core in 1816 (EAA 3724.4.1445 page 1). Dashed line portrays the compositional axis that connects Põltsamaa Castle and Park and an intersecting axis is directed towards a bridge that crosses Põltsamaa River and is orientated towards the island.

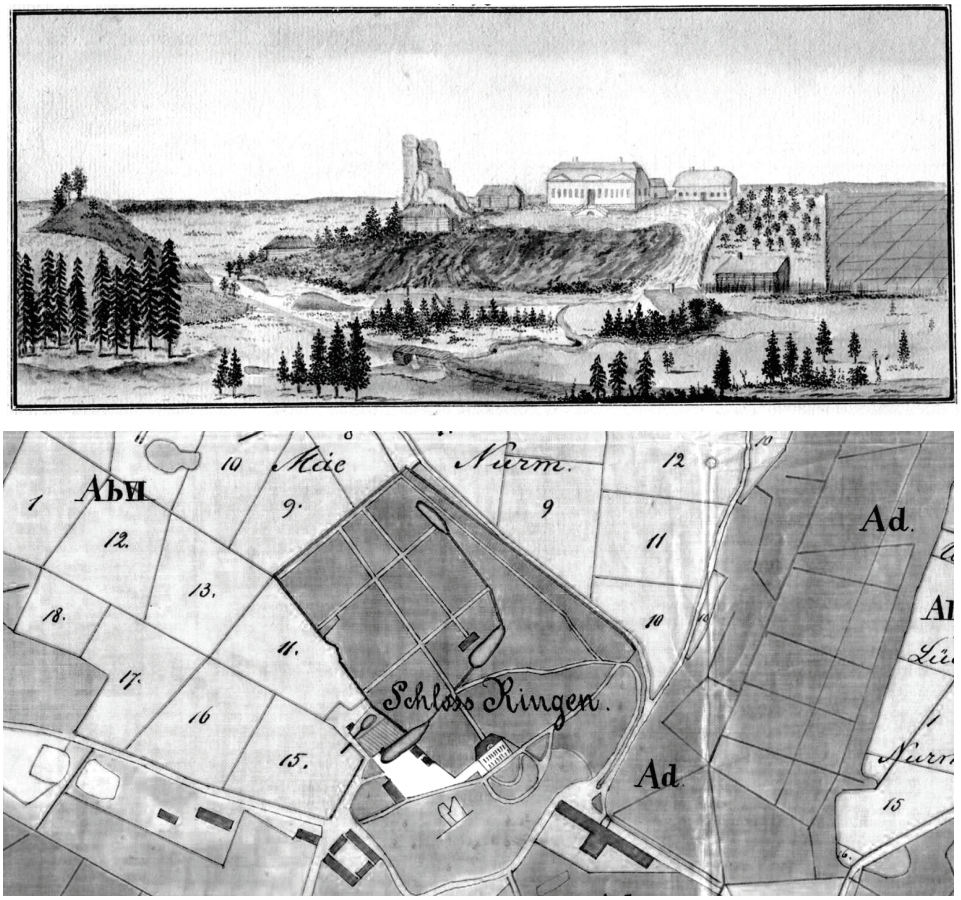

Figure 35. Manor core of Suure-Rõngu. Above a view of the manorial core in 1754 (Brotze 1771–1818, vol 3, p. 138; see also Ose 2008, 228)). Below is a map of manor ensembles position from the second half of the 19th century (EAA 2469.1.681 page 1). The front courtyard remains atypical due to the terrain and the main access road that is directed towards the fortress.

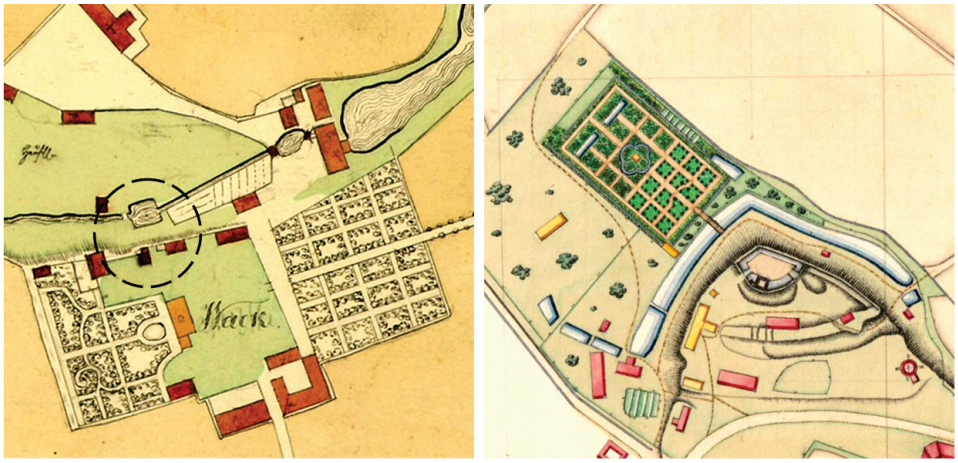

Figure 36. Map of Vao Manor (on the left) in 1828 (EAA 854.4.469) and Lihula Manor in 1840 (EAA 854.4.469 page 8). Vao Manor planning is generally Baroque; fortifications (marked with dotted circle) are incorporated into new Baroque design. In Lihula fortifications despite the new developments, medieval planning dominates.

4.1.2 Manor cores built in the 18th century

Based on this research, one can presume that the landscape, primarily former buildings, network of roads, terrain and bodies of water which, were previously developed, greatly defined the position and the look of the Baroque ensemble that was redesigned from medieval manor cores. This was true even in cases when the medieval buildings were not preserved by the time of rebuilding. Based on previous examples it can also be said that in the rebuilding of medieval manor cores the Baroque approach to space was directed to the ensemble or sections of it, spatial intervention in the landscape remained modest. Therefore, in medieval manor ensembles rebuilt in the 17th century, the manor landscape, typical of the Baroque ensembles, was often not developed.

Aspects that directly affect the manor's functions became decisive when choosing a new location for the manorial core. Primary aspects were the manor's most central location and locations of fertile arable lands within the feudal estate. New manor cores were, as a rule, built on farmlands, often on the lands of deserted villages. Manorial centers eliminated farms and villages over time and created specific manorial settlements that stood alone and can be distinguished from the landscape even today (Tarkiainen 2009, 85–90). On one hand the Baroque manorial centers needed space and openness to take effect. On the other hand the emerging villa culture also valued privacy and beauty (Maiste 2008, 29–74) which, is why a naturally beautiful place became a prerequisite for choosing the location (Särg 2018, 43) and it could be redesigned in the spirit of the era. For example, in the Kuremaa Manor, which, was designed by Jacob Stael von Holstein, the building had a Palladio-like architectural design, which, took into consideration the beautiful landscape that surrounds it (Hein 1998, 63). The ensemble was axially and visually directed towards the Kuremaa Lake. The network of roads which, can also be seen on its 1800 plan (EAA 1388.1.1235 page 1) (*Figure 37*), have been redesigned according to the ensemble. Juhan Maiste has written: *"Garden of beauty was in front of the manor building, rows of rose bushes gave way on lower terraces to orchards. The whole wide world was open to the eye – the field digged into terraces and a sparkling lake beneath which, was filled with blossoms in spring and with fruit aromas*

in summer that created a sensual addition to the rich Baroque architectural language. Because the manor stood for beauty alongside profit – utilitas was supported by vensutas. In the symbiosis of these two the landscape was connected as a whole and it created a unique "aesthetic oasis" in the middle of crop fields and roads receding from Kuremaa. The views across the lake highlighted the spire of Palamuse church – as a part of „Brueghelic idyll" smoking chimneys, drays and, as is inherent to South-Estonia, a cattle of red cows appeared in the picture" (Maiste, Nutt 2006, 7). Therein, the peculiarities of the landscape set certain limits to the architectural design of the manor ensemble but principally the landscape surrounding the manor ensemble was changed within the limits set by the needs of the manorial core's aesthetic spatial program (Steenbergen, Reh 1996, 15).

Figure 37. Kuremaa Manor in 1800 (EAA 1388.1.1235 page 1).

Spatially, the key question was where to locate the new main building and its architectural composition according to which, they designed the whole ensemble and defined the spatial connection between the ensemble and the landscape. It can be said, based on the map analysis of manor ensembles that the following considerations were decisive when choosing a precise location for the manor core:

- Place in the landscape that enables spatial dominance;
- Peculiarities of the local landscape (mainly the existence of bodies of water, suitable terrain) that could be used to achieve the spatial-aesthetic goals of the manorial ensemble;

- Connections to the roads that enable a harmony with the architectural composition.

The most important views along the central axis opened to the manorial core when approaching the main building and behind the main building towards the garden and park. As was common to the Baroque way of building, they tried to connect or suppress the local network of roads to the ensemble in a way that enabled to create a view corridor, as long as possible, on the main axis (Nurme et al., 2012). The local villa-architecture's spatial design philosophy of that era is best represented in Palmse, Ravila, Maardu, Ingliste, Ahja and Saare (Maiste, 1996, 63–66) all of which, have a symmetric structure clearly built on a central axis which, connects the main building to the landscape. The scenogprahic representation of the ensemble on the main axis inherent to the Baroque architectural paradigm was a priority when choosing the location for the manorial core. Therein, it is not of first priority, as the research shows (Mihkelson 2010, 29–30) that the manor core should be located on the highest part of the terrain but its location should enable the best portraying of the core of the ensemble on its central axis as a presentative axis-symmetric composition that originates from the ideology and dynamics of the Baroque spatial program (Norberg-Schulz 1986, 17) and offers the most possibilities for building the designed garden (d'Argenville 2003, 36–45;). The limited financial means of Estonian manor owners did not enable the extensive and demanding changes in the landscape for creating the suitable landscape situation, which is why the terrain peculiarities and existence of bodies of water were decisive when choosing the precise location for the manor ensemble. In the context of flat Estonian terrain both aspects are closely related to each other, especially in North and West of Estonia where even places with a little bit of articulated relief are connected to the shores of bodies of water.

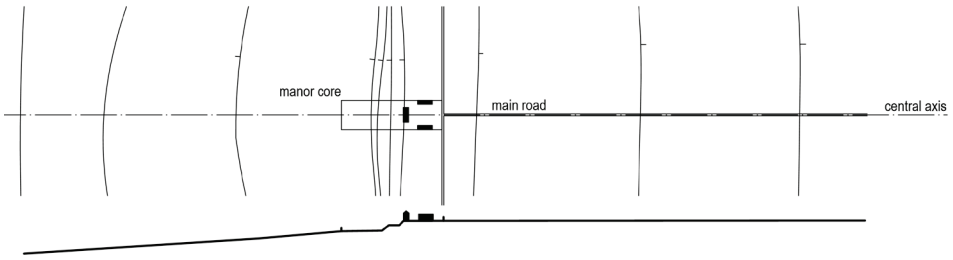

Figure 38. The ideal location for the manorial ensemble on the terrain.

Baroque manor core is compositionally divided into three structural parts of which, the main building and buildings connected to it are visually and meaningfully central. The buildings form a *cour d'honneur* with the square in front of them. Behind them is a more private courtyard, which, is formed by gardens and the park. Frontcourt expects a square that is horizontally as open as possible and makes it possible to grasp the main building as a whole when getting closer to the manor core. Basically the main building was located on the same level as the frontcourt; necessary influence for the *cour d'honneur* in the manor core was ensured by the main building's facade design and the size of the frontcourt. However, a better overview from the backcourt's garden towards the main building was ensured by the descending terraces in the terrain (also see Argenville 2003, 244–245) (*Figure 38*). Studies show that as a rule the location for the

manorial core was chosen to be near a body of water or in a near a location where a body of water could be built (Mihkelson 2010, 24–26). In the context of Estonia, ideal locations were slopes and valleys next to bodies of water, which enabled one to build the frontcourt and main building on the edge of the valley and the backcourt on the slope that starts to descend from the main building (*Figure 39*). This was the way to achieve the most optimal views onto the main building from outside the ensemble and the seeming extension to landscape with a view from the main building (see also d'Argenville 1728, 140–141). The most characteristic examples include Purdi, Rakvere Väimela, Uue-Suislepa, and Tilsi manors, which have all been built on sea, lake or river shores. In single cases the opposite ascending river shoreline was associated with the ensemble which, allowed the use of anamorphosis effects in order to visually affect the spatial reach through the seeming change in the horizon. One of the rare anamorphosis examples in Estonian manor architecture is Palmse Manor core (*Figure 40*) where the regular park descending step by step is followed by a water mirror that amplifies the view direction cut into the forest that grows on the slope behind it. Even in areas with a relatively flat terrain, natural slopes were used as much as possible to structure the backcourt and park vertically in order to create descending (or in rare cases ascending) flat terraces (for example Sargvere, Purdi etc). In places where the terrain was completely flat articulation was not used (Salla, Saare etc) or the terrain was slightly articulated with the relocation of ground within the ensemble itself (Tumala, Väätsa etc).

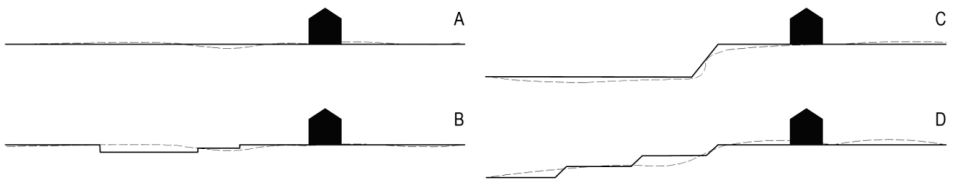

Figure 39. Positions of main building on terrain. A – flat terrain; B – flat terrain, articulated; C – on the shore; D – on the slope.

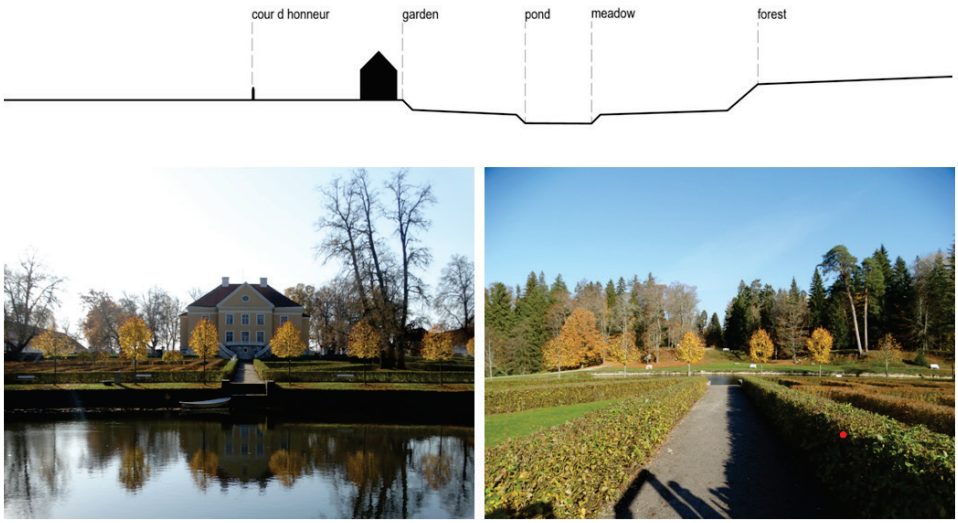

Figure 40. Above: position of Palmse manorial ensemble on the terrain. Below: Anamorphosis in the backcourt of Palmse Manor ensemble. On the left – a view o the back facade of Palmse Manor. Due to ascending surfaces the building appears to be taller than it actually is. On the right a view from the garden towards the central axis: view appears to be extended due to surfaces that are located on different levels (photos by Sulev Nurme).

As the terrain's relation to bodies of water was one of the architectonic shape bases for Baroque manorial cores, it is obvious that the existence of the body of water is primary when choosing the location (the availability of water was also primary for the manor as it also operated as an agricultural production unit). As bodies of water as compositional parts of the ensemble will be addressed later, it should be said that the existence of water could only partially influence the location of the ensemble. The body of water directly defined the spatial configuration, including articulation, reach, and orientation with the character of its shoreline and slope when they bordered with manorial cores. Unquestionably the situation was redesigned according to means but for example in the backcourt, the placement of water dictated the views, park's spatial structure and reach: in Baroque ensembles the ground is always planned to descend from the main axis which, is why it was easier to choose the orientation of the ensemble according to the existing terrain. Thus, in Tilsi Manor the reach of the park is on one side defined by the shoreline and on the other by the waterline of the lake, which is why the park was planned to be atypically wide crosswise in relation to the central axis. Ahja manorial core is also unique as its location and character are defined by the expanded lake between the frontcourt and main building.

Figure 41. Positions of manorial cores in relation to bodies of water. A – away from water, Tumala (EAA 2072.3.426d page 49 folio 1); B – on the lake or artificial lake shore, Tilsi (EAA 3724.4.1934 page 1); C – at the seashore (gulf), Pilguse (EAA 2072.3.66 page 1); D – Ahja manor along the river, enlarged by artificial lakes (EAA 2072.5.542 page 1).

A characteristic part of Baroque manor ensembles is the park itself. Presumably locations with forests or wooded meadows were preferred, in order to create a vertical contrasting background for the backcourt's open gardens as is necessary for the volume in Baroque ensembles. These locations could be redesigned or used as park extensions, for example, for hunting (Ränk 1971, 54). In 17th–18th century first regulations for forest management were applied which, among other things gave attention to the role of forests in landscape design (Örd 2000, 8–9). It can be said based on historical maps that the border of the forest defined the openness of the landscape around the manorial core according to which, the ensemble was built generally half-open which, means that the frontcourt and main building opened towards the landscape while the park closed the ensemble from the back and sometimes from the sides (for example in Palmse, Sagadi, Õisu, Vatla etc). This type of configuration supported the ideological and architectonic expression of the Baroque ensemble in the landscape. What the exact situation in specific manorial cores during the end of 17th century or 18th century might have been is

not possible to say due to fragmented map materials, repetitive changes in 19th–20th century forestry (Kuresoo 2015, 44–52) and the change in openness of the landscape in 20th century (Nurme et al., 2014).

In the 18th century Estonian manor cores, attention was concentrated on the views related to the court of honor and on the directional views planned towards the roads (*Figure 42*). Views were planned directionally as vistas (Nurme 2004, 26–29; Vroom 2006, 287–288) that concentrated the attention to the gate structure and to the central avant-corps of the main building that can be seen through the gate structure. The façade of the main building, in all its expressiveness, was shown to the viewer only when they reached the main gate or briefly before that. This type of concept presumed a rather extensive creation of view axes in the landscape that are orientated towards the main building's central axis. This, in turn, presumed the existence of extensive flat or with an even descent area in front of the court of honor. Ensuring the views from specific places created a precondition and need for planning regular network of roads that reach into the landscape and connect with the ensemble's core – the most important views opened from the main road towards the ensemble. The main roads heading towards the frontcourt were planned in a regular "goose foot"-shape (*patte d'oie*) in larger Baroque ensembles in Europe which, stands for a symmetrical network of roads that typically branch out from the main gate as three or five rays into the landscape (Nurme, Nutt 2012, 45). In Estonian manor cores the *patte d'oie* in its classical sense, where the emphasis is on the diagonally branching roads, was less common and it was more preferred to plan the branching roads crosswise from the main road. The emphasis of the representative main axis was most important and was already articulated in manor cores built during last decades of 17th century.

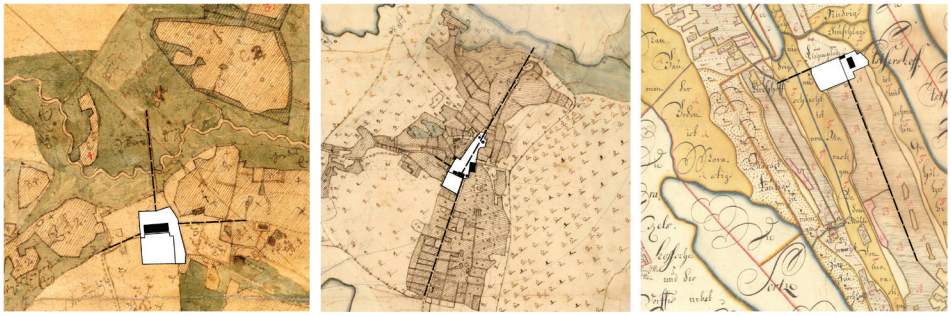

Figure 42. Examples of axial orientation and positions of roads in the beginning of the 18th century: on the left, Raasiku Manor core at the end of the 17th century (EAA 1.2.C-IV-42 page 1); in the center Matsalu Manor core in 1701 (EAA 1.2.C-IV-196 page 1); on the right Elistvere Manor core in 1730 (EAA 1691.1.201 page 1).

The following types of manorial cores can be distinguished according to the position of network of roads with a supportive compositional axis (*Figure 43*):

- The location of the ensemble's core remained the same in relation to the previously developed main local roads, direction from the main axis was not emphasized – characteristic mostly to manorial cores rebuilt from medieval manorial cores (for example Kasti, Porkuni, Lihula, Laiuse);

- The core of the ensemble was built away from the main local road, the access road to the manorial core was planned as a long straight compositional axis from the main road (for example Ääsmäe, Järlepa);
- Manorial ensemble was built away from the main road, the trajectory of the main local road was changed and planned as a long straight compositional axis heading towards the manorial core (for example Väimela, Sagadi, Koigi);
- Manorial ensemble was built away from the main local road; trajectory of the main local road was changed and planned as a straight axis that crosses the compositional axis in front of the court of honor (for example Palmse, Tumala and Kõljala).

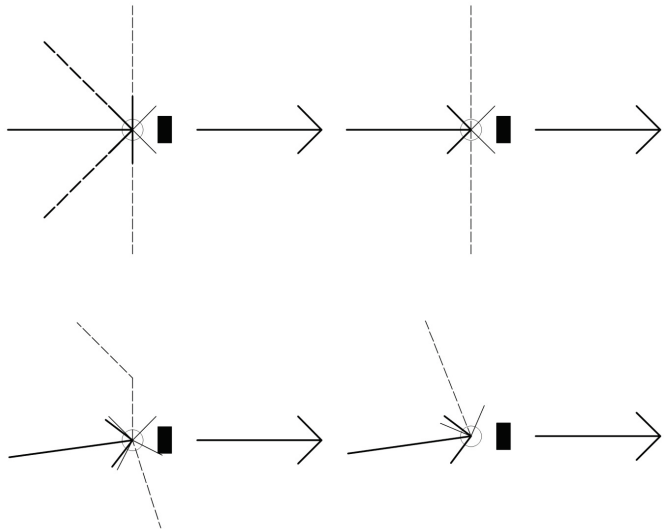

Figure 43. Positions of main roads, in Estonian manor cores, with relation to the central axis. Top left: classical patte d'oie partition of roads in front of the court. Top right: side roads positioned horizontally from the central axis. Bottom figures show different, atypical side road configurations.

The emphasis of the main-axis road is figuratively illustrated by Palmse Manor core where a new road, approximately 1.6 km was planned heading towards the main axis (Nurme 2010) and its functional significance was marginal but it very clearly defined the orientation and scenic design of the manorial core (*Figure 45*). Similarly the central axis of Vasta manor is emphasized which, was marked by the road and avenue that do not exist anymore but might have been approximately 800 m long according to Russian 1-verst maps (Nurme et al., 2009; Nurme 2005). In *Figure 44* displays old road corridor through Väimela Manor core in 1688. New roads built with a new manorial core in 18th century. Parallel to artificial lake on the central axis of ensemble there is a ca 950 m long new main road built that connects manor with the old road. Old road mostly remained on its historical place during 18th–19th century (EAA 308.2.176 page 1). Multitudes of similar examples can be found in other places around Estonia and Livonia (*Figure 44*; *Figure 46*).

Figure 44. Old road going through Väimela Manor core in 1688 (continuous line) and the new roads built with the new manorial core in 18th century (dashed line) (EAA 308.2.176 page 1).

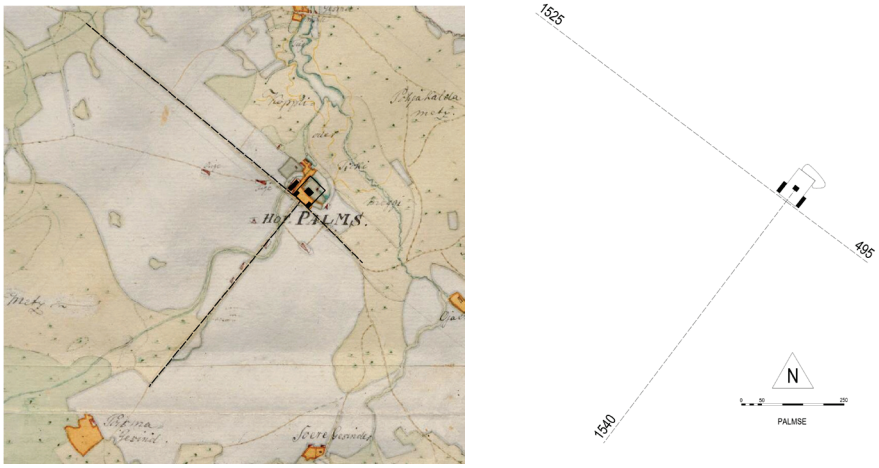

Figure 45. Main roads of Palmse Manor core showing ensemble orientation and axial reach in landscape (EAA 1690.1.33 page 1).

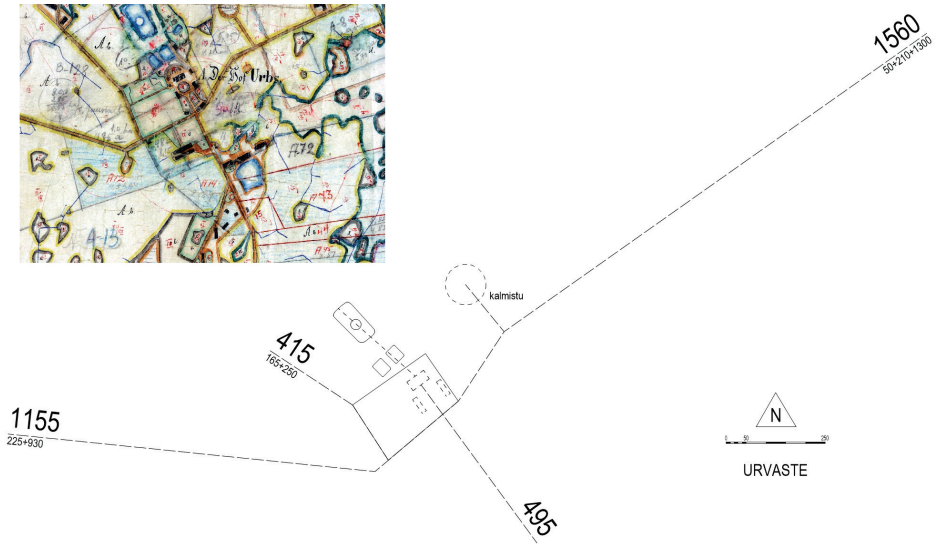

Figure 46. Main roads of Urvaste Manor showing ensemble orientation and axial reach in landscape (EAA 2072.9.731).

As previously mentioned the symmetrical side roads located on an acute angle from the main axis were rather rare in Estonia (*Figure 47*). Based on historical maps it can be said that as a rule the side roads crossing the main road were planned crossing at a perpendicular angle behind the main gate (*Figure 43*). Network of roads connected to the frontcourt and branching out in front of the main gate were considered to be important when planning new manorial cores which, is why it is one of the most typical characteristics (with different variations) of local Baroque ensembles that can be seen in the landscape (*Figure 49*). According to the means of the landlord, peculiarities of local landscape, visual connection of the main building with some of the landmarks, or some other reasons, the main road might have been positioned at an angle to the symmetrical axis central to the core of the ensemble (*Figure 48*). Side roads connected to the main road were generally planned parallel to the fence in front of the ensemble's core (which, usually was parallel with the front façade of the main building) but often their unidirectional reach remained significantly smaller compared to the main road and its direction often changed immediately on the external border of the ensemble. Rather typical was that the trajectories of old roads near the manor core were principally kept the same but were redesigned as straight lines following each other (*Figure 46*; *Figure 48*). Although visually the result was not so strongly connected compositionally with the main building but it still enabled one to focus their attention, step by step, on to the main building when moving towards it. In addition, views from different angles opened up from roads, which enabled a more versatile exposure to the main building. Conscious guidance of the main road to not align with the main building's central axis but on one of its angles became one of the considerable design principles at the end of 18th century for early classicist manorial cores, one of the most distinctive examples includes Mäetaguse (see *Figure 51*).

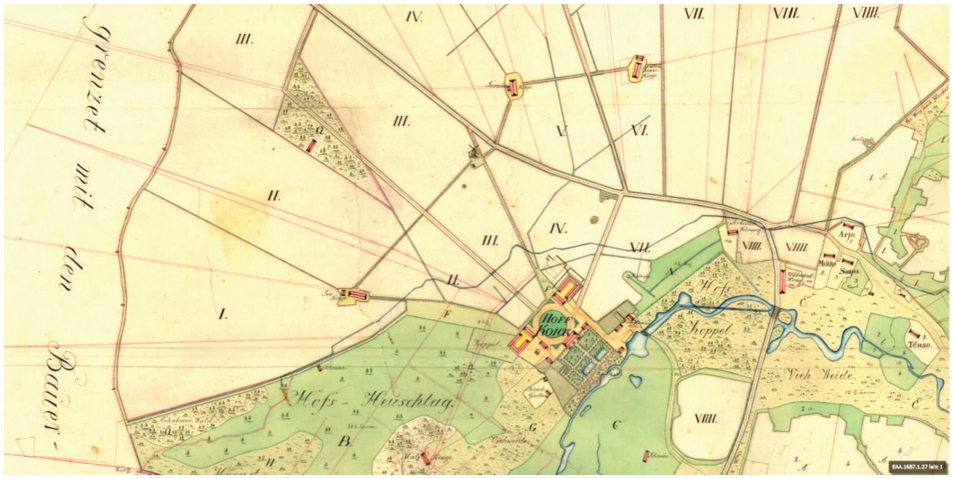

Figure 47. Koigi Manor core in 1826. The plan shows an atypical network of roads planned in the shape of rays (EAA 1687.1.27 page 1).

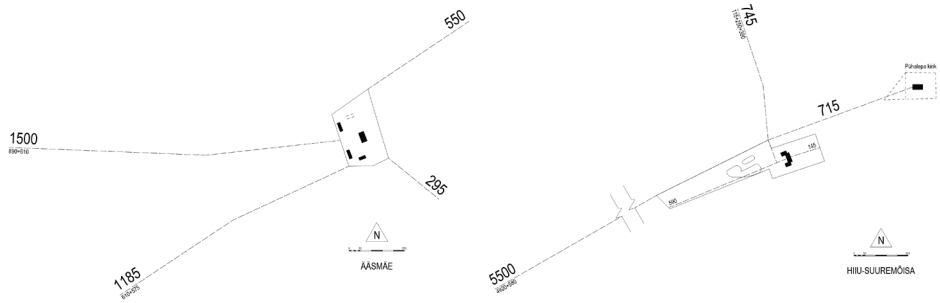

Figure 48. Ääsmäe (on the left) (EAA.2072.4.13 page 1) and Hiiu-Suuremõisa (EAA.46.2.366 page 1) main roads of manorial cores showing ensemble orientation and reach.

Diagonal roads and directional views branching out from the back façade of the main building towards the wilder parts of the park, wooded park or forests bordering the ensemble which, is inherent to the Baroque ensemble can be seen in larger Baroque ensembles, such as in Rundale (Lancmane 2009, 172), but is very uncommon for Estonian manor cores. View axes reaching diagonally into the landscape in the backcourt areas and roads proceeding their lead are characteristic in Estonian manors for only few early classicist manor ensembles (for example Roosna-Alliku, Raikküla (*Figure 50*)). Generally the views opening from the back façade towards the park were limited to some object located on the edge of the park, often a body of water (for example Kodasoo, Albu, Koigi) or expanded into the landscape only from direction of the main building's main axis (for example Õisu, Sagadi, Ohtu, Vasta, Harku, Pilguse etc). It can be presumed that crosswise views were also taken into consideration as the parks were usually divided into quarters with perpendicular to the main axis directions but from the point of view of the ensemble's general position they were marginal. Assessing the reach of historical directional views of the backcourt is complicated today for several reasons. The depth of directional views onto fields and meadows is difficult to assess in a single-value due to changes that have occurred in the landscape image and pattern because of land use. Historical maps also give indirect support to defining the reach of views as the views that

are not marked with roads leave a lot of room for interpretation. As the view from the main axis towards the back façade of the main building is conceptually of secondary importance then generally there was no need for aesthetical considerations to build views heading that way. The view was framed by the park and only in cases when the park bordered with the forest or transitioned into one; they cut directional views into the trees to emphasize the depth of the view (for example in Palmse, Ohtu).

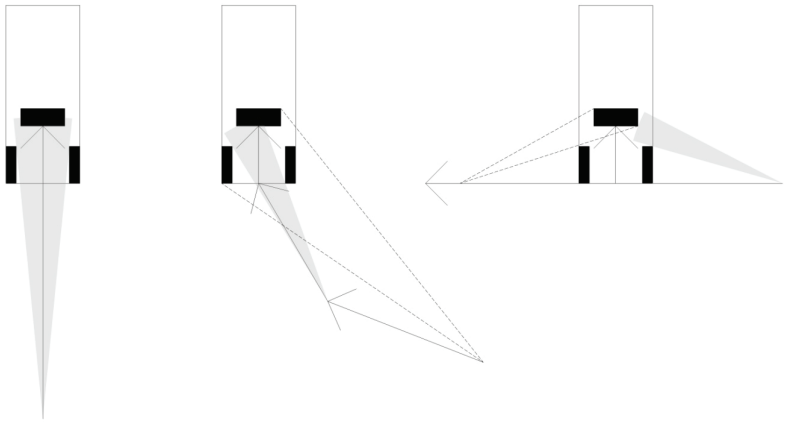

Figure 49. Common views connected with the main roads: on the left, a view along the main axis; in the center, the view opens gradually according to the changes in directions of the road; on the right, a view directed towards the sides.

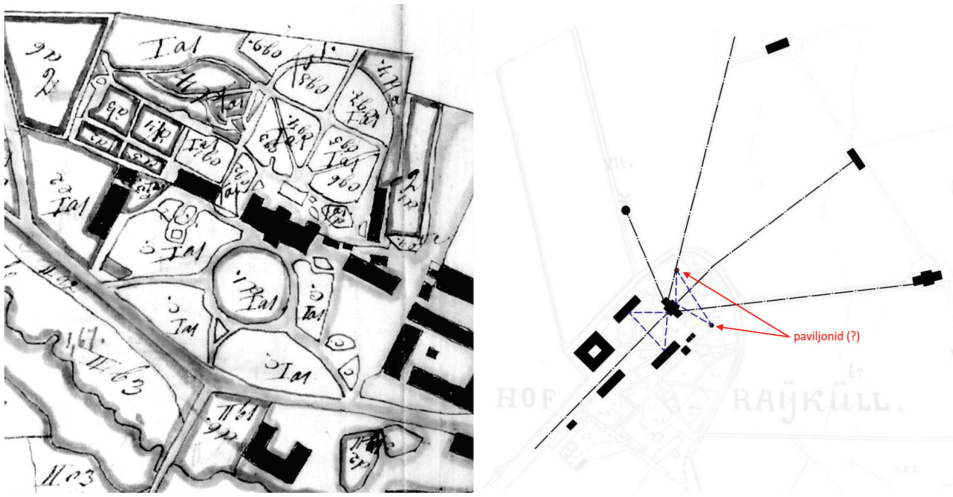

Figure 50. On the left is a star-like park composition in Roosna Alliku Manor (EAA 2486.1.3043.838). On the right is shown compositional axes of Raikküla Manor core (Nurme 2016b).

The orientation and reach of compositional axes connected with the core of the ensemble is different. Therefore, generalizations cannot be made about all the manor ensembles. Analyzing the position of manor ensembles according to cardinal directions cannot highlight successive specific directions that enable to presume that when choosing the location for the ensemble's core during planning other factors were

primary, for example the location of arable land, position on the terrain, the location of the main building in relation to bodies of water and roads. However, it can be noted that quite often the core of the ensemble was located directionally from north to south with the front façade facing the south side (for example Suure-Lähtru, Urvaste, Saare, Harku etc) or east to west with the front façade facing east side (for example Hiiu-Suuremõisa, Õisu, Purdi, Ääsmäe, Ruusmäe etc). But there are other manor ensembles orientated differently for example in Väimela where front façade faces northeast, Pidula where front façade faces west or Sagadi where it faces north. Also the axes lengths reaching the landscape are very different, generally remaining between 500 and 1600 meters. As a rule the road on central axis is the longest but quite often one or both of the side roads crossing the main road are longer, for example in Väimela, Tumala, Saare. In many cases the emphasis has also been put on straight roads that are compositionally loosely connected or not at all with the main axis, for example in Maidla (Lüganuse), Vasta or Saare where straight roads directed towards the landscape begin from one of the corners of the park or are located at a compositionally loose angle with the compositional axes. Mostly these are the connections between existing roads that were not purposeful to change or new roads that developed later during the development or expansion of manor cores. Mäetaguse Manor core's central axis is orientated towards the left wing of the building (*Figure 51*). This solution refers to design made in the end of 18th century (see also Vääna EAA 854.4.838 page 1).

Figure 51. Mäetaguse Manor core's central axis is orientated towards the left wing of the building.

When choosing the location for the manor core quite often importance was given to an outstanding object in the landscape that could be connected with the ensemble with views. This is how, for example, Orina, Hiiu-Suuremõisa, Vasta and Purdi manorial cores are visually connected with the local church but in none of the cases do the view axes match with the compositional axes. At the same time in Kaagvere and Luunja manors the main buildings were connected visually with the main axis of Kaagvere manor ensemble (*Figure 53*). In some cases the ensemble was connected with outstanding natural objects, most frequently with bodies of water. For example Õisu manor core is axially orientated towards Õisu Lake and Saare manor core is orientated visually to Saare Lake (Nurme, et al, 2009). Most of the manors connected with the shoreline were visually connected to the sea, for example Leetse, Pilguse and so on (Nurme et al., 2012). Previously mentioned Kaagvere and Luunja were visually connected with Emajõgi where, in both cases, the position of the river was compositionally important for the axis of the ensemble: Kaagvere is located perpendicular to the river and Luunja parallel to the river (*Figure 53*). According to Ludwig August Mellin's descriptions of ancient Estonian Varbola stronghold (Mellin 1788) Põlli manor core was directly visible from the ruins of stronghold's walls (*Figure 52*). In early classicist ensembles, outstanding functional buildings of the manor were beginning to be connected with the ensemble visually. This is why Raikküla Manor

core is connected through the ray-shaped view system in the backcourt to the manor's mill, barn and other buildings located in the neighborhood (Nurme 2016a) (*Figure 50*).

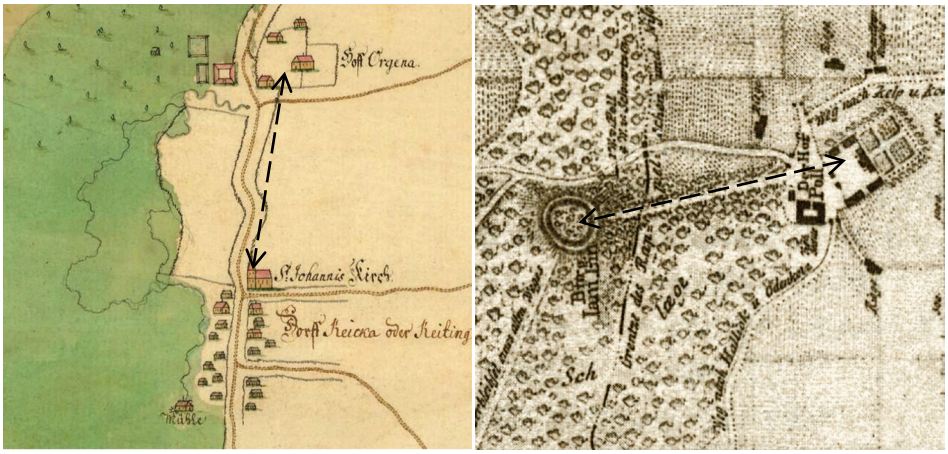

Figure 52. Visual connections between manor ensembles and landmarks. On the left: Orina Manor house in 1769. The manor house is visually connected with the present Järva-Jaani Church (EAA 46.2.234 page 1). On the right: view from Põlli Manor core to Varbola ancient stronghold (Mellin 1788, 735–743).

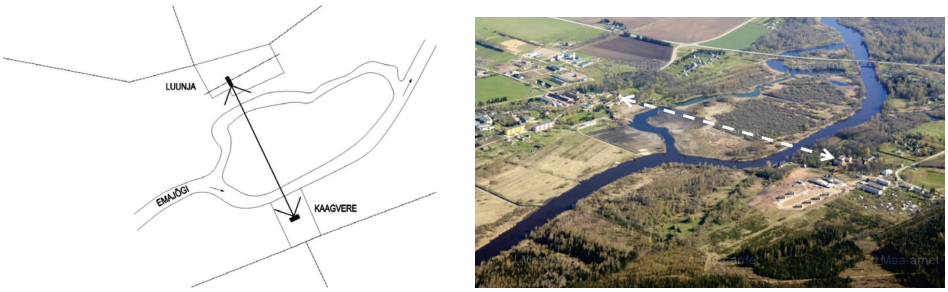

Figure 53. Kaagvere and Luunja Manor main buildings were visually connected to the main axis of Kaagvere Manor (Estonian Land Board 2018).

In many cases the manorial core is visually and through the network of roads directly connected with the manor's cemetery, but mostly the created spatial connections were not connected with the compositional axes of the ensemble. For example, the previously referred avenue in Kuremaa Manor backcourt heading towards Laiuse, which, is not directly connected to the symmetry axis of the ensemble, connects Kuremaa manorial core with the manor's cemetery. Also the manor cores of Urvaste and Purdi are visually and through network of roads connected to their cemeteries but the connection is visual and does not follow the Baroque logic to space (*Figure 54*). The specifics of the peculiarity of the spatial phenomena related to manor cemeteries can be explained by their relatively late appearance in manorial landscapes: cemeteries were generally built after 1772 when it was banned to bury people in churches (Pae 2003, 104–108). Therefore, the chosen location and design proceeds greatly from the English landscape park ideas that had started to spread in the 1780s (Nurme 2014 a). Thus, the location of manor cemeteries is not of primary importance taking into consideration the structure of the Baroque manorial landscape.

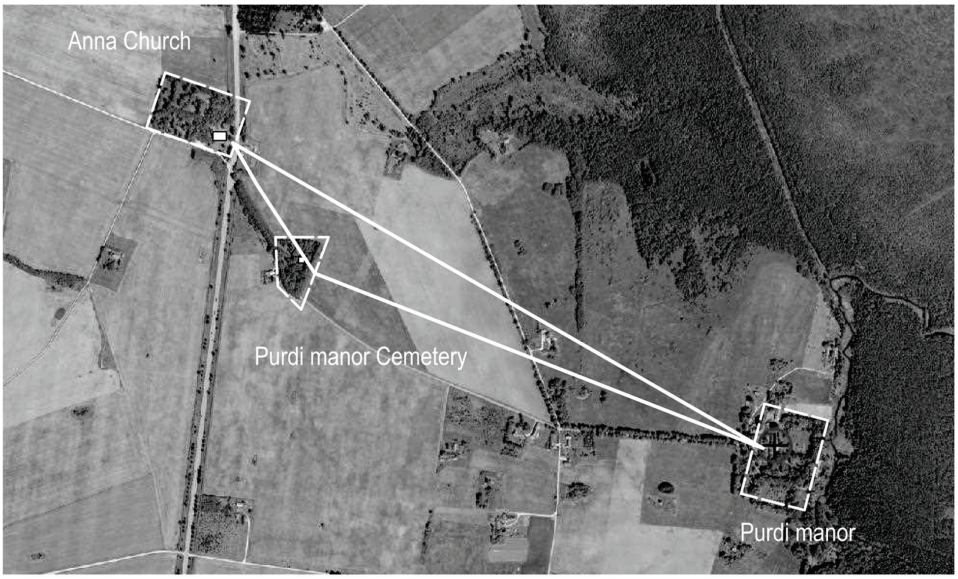

Figure 54. Visual connections between Purdi Manor core, Purdi Manor Cemetery and Anna Church (Estonian Land Board 2018).

Based on the previous, it can be said that when interpreting a Baroque ensemble in a landscape today it is primary that the main building and a central compositional axis exist as it defines the position of the ensemble and the most important views and the network of roads inherent to the Baroque ensemble. From the point of view of the spatial program of Baroque manor core it is also important that the landscape is open in the areas bordering the frontcourt. Terrain and directional views connected to the backcourt are rather important form the standpoint of spatial structure within the ensemble, which, will be more precisely discussed, in the following chapter.

4.2 Spatial structure of Estonian baroque manor ensemble

4.2.1 Spatial composition

As the location of the main building sets the relationship between the manor core and the surrounding landscape, it also defines the structure of the composition within the ensemble (Nurme et al., 2014). The spatial program of manor cores was clearly defined and had practically the same structure everywhere. Ensemble spaces differ from each other based on the predetermined objectives and function but also by the main qualities of the space, mostly by the horizontal and vertical articulation of openness and by design elements (Nurme et al., 2012). The main building defined the positions and hierarchy of spaces within the ensemble, which is why, as referenced in the previous chapter, the Baroque manor ensemble is spatially and functionally divided into three different parts (Nurme 2009, 108) (*Figure 55*):

- Main building and group of buildings (two or more buildings, usually by a stable, carriage shed and barn, but often by master's and servants' houses (Hein 2007, 242)) that define the open court of honor (*cour d'honneur*) in front of the main building;

- Backcourt with an open flat surface or articulated with multiple flat surfaces that usually form by a small square in front of the stairs and a pleasure garden or promenade connected to it;
- Enclosed part of the park or forest park that vertically gives contrast to the horizontality of the backcourt (Nurme 2014 a, 147).

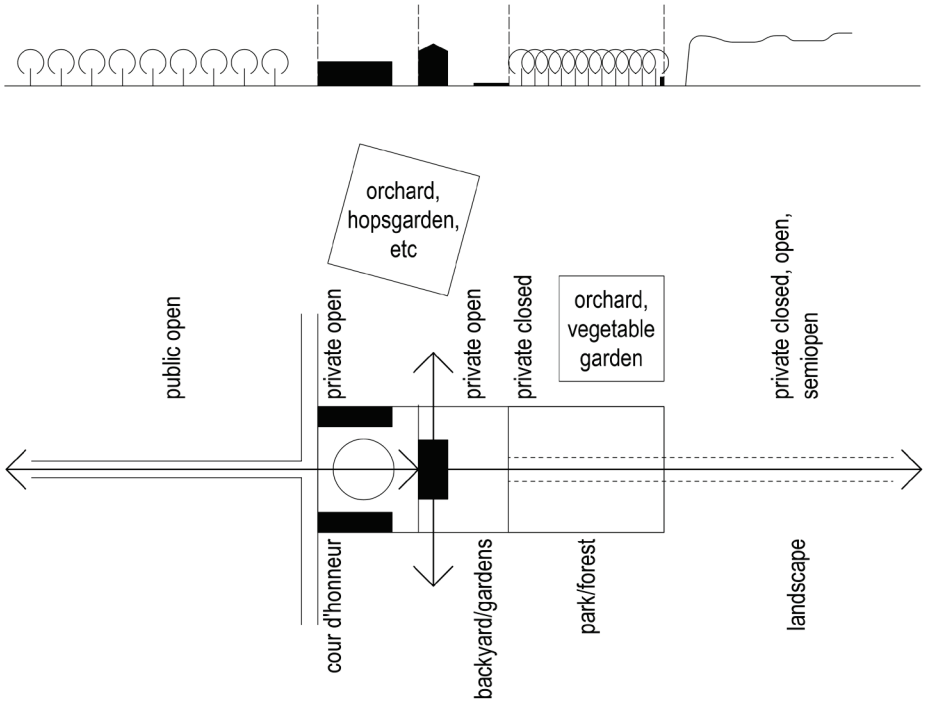

Figure 55. Functional spatial program and different parts of the Baroque manor core.

Typically the whole ensemble was separated from the surrounding landscape by a fence, often a stone fence, boundary fence or wooden fence with stone posts (Ratas 2014), buildings and vegetation. As for the views, the frontcourt was open to the landscape, backcourt while open, was closed towards the landscape and the park was closed within the ensemble and toward the landscape, except the axial view directions in the central axis of the ensemble, rarely on the crosswise axes of the park (Nurme et al., 2009). The transitions of ensemble spaces were clear and defined by one single specific visual separator. Generally, the frontcourt was separated from the backcourt by a fence with a gate accessible on foot. The backcourt and park were not physically separated from each other, but the border of the backcourt was marked by a front of park trees. From the sides the ensemble was surrounded by a regular fence and often with kitchen gardens and other functional buildings whose position was, as a rule, not strongly connected with the general composition of the ensemble. There were some manors where the garden and park were located next to or even in front of the main building (Hein 2007, 38) or park might have been rotated or shifted towards the main building. For example, in Livonia, in the Skulberg Manor next to Salatsi River, there was a regular

garden behind the main building and opposite the main building across the court of honor, as can be seen on the 1797 plan drawn by Johann Wilhelm Krause (Janelis 2010, 90). Also special parts with many different functions could be part of the ensemble, for example fruit and vegetable gardens, gardens for fading linen or other fabrics and growing *Humulus* (hopsgarden), pastures and hunting parks which, could have been compositionally connected with the ensemble but generally were not (Nurme 2009, 108).

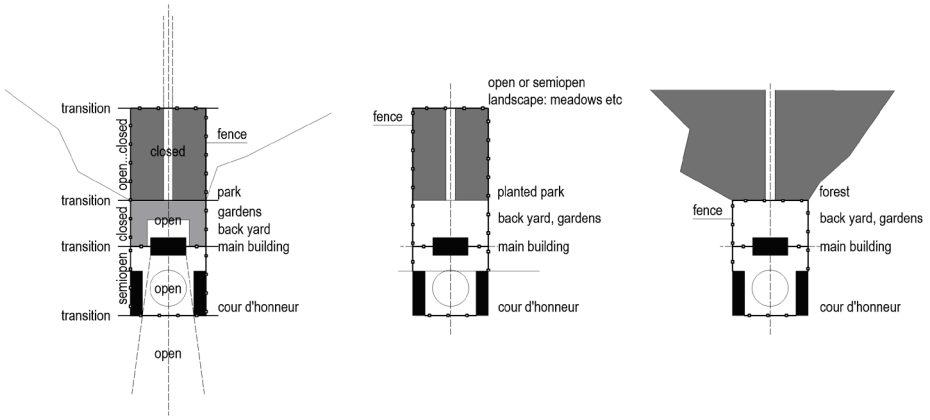

Figure 56. Spatial program of the Baroque manor ensemble. On the left, the openness of the ensemble spaces and transitions are portrayed. In the middle and on the right, the structure of the ensemble is portrayed when it is situated in the open or in partially opens landscape (on the right).

Cour d'honneur in Estonian manors was traditionally characterized by an open square, which, at the end of 17th century and first half of 18th century, was designed as an unarticulated square. Frontcourt open from the opposite side of the main building's façade was necessary on one hand to fill up the Baroque spatial program by opening up a representative view onto the main building's front façade and on the other hand the court was purely used for practical purposes as riding grounds and sometimes even as a temporary pasture, as is know of Õisu Manor (Pirang 1928, Taf. 57–116) or Helme Manor (Hein et al., 2006, 375) (*Figure 57*). Probably at the end of 18th century the use of the frontcourt became more representative, formal and spatially more complicated, the square was articulated with grass surfaces and the access from the main gate to the main stairs was designed as a circular driveway. In 19th century rows or groups of trees were planted in the peripheral parts of the frontcourt but mostly the court remained open in the centre (*Figure 58*). It should be mentioned that frontcourts are often one of the best preserved parts of the ensembles that still have preserved their structure and views towards the landscape and functional connections with the landscape (Nurme 2009; Nurme et al., 2012) (*Figure 60*).

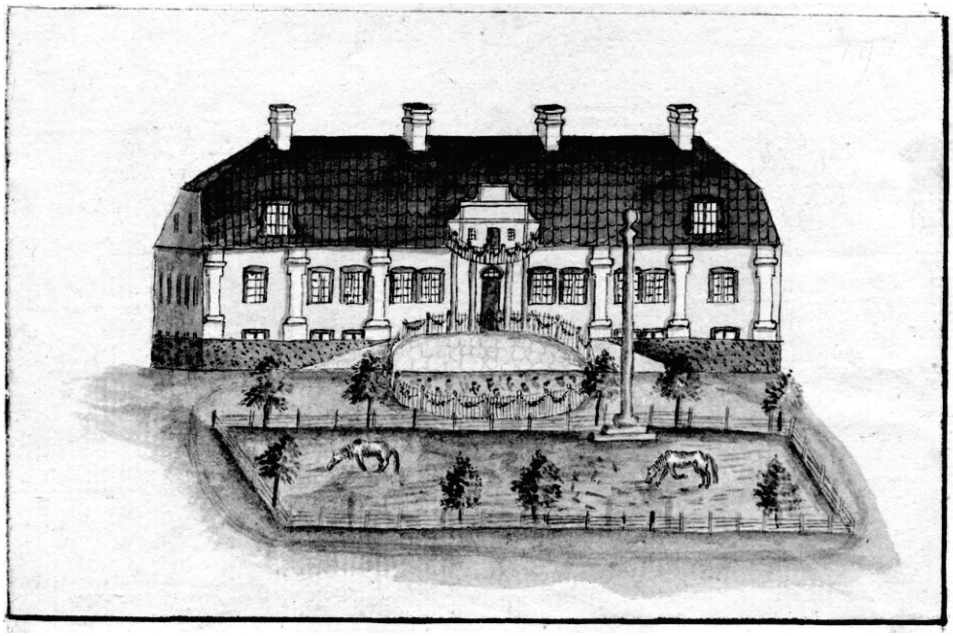

Figure 57. Frontcourt of Helme Manor in 1797. On the forefront a pasture built in the centre of court of honor can be seen (Brotze 1771–1818, vol 10, p. 141).

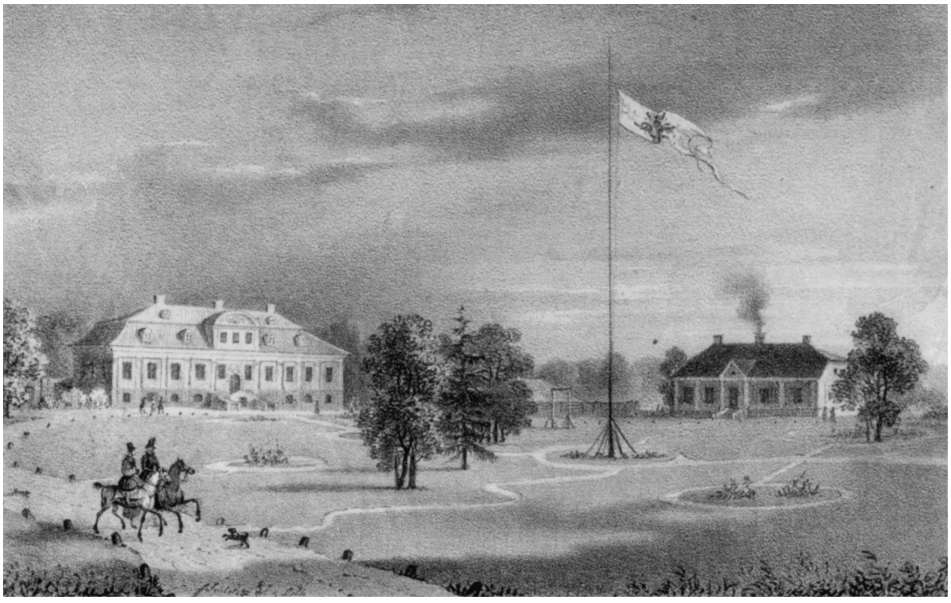

Figure 58. View to frontcourt of the Saare Manor in 1837 by Georg Friedrich Schlater. Although the picture shows the changes that occurred in the early 19th century, it still gives the impression of the expanse of the Baroque frontcourt (ERM K 3071).

Figure 59. View to frontcourt of the Heimtali Manor in 1795 (Brotze 1771–1818, vol 6, p. 74).

Figure 60. Examples of manor core spatial pattern. On the left, Ahja Manor core in the 19th century (EAA 2072.5.542). On the right, Tumala Manor core in the 19th century (EAA 3724.5.2398). A – frontcourt; B – park; C – orchard; D – grasslands, functional gardens; E – utility yard; F – gardens for vegetables.

Historically the largest part of the regular park has been the backcourt with the park connected to it. Size of the backcourt is very different in different manors, it can be a tiny square in front of the stairs in the back (for example in Saare, Purdi, Koigi etc) but it can also be as extensive as the park behind it (in Õisu, Sagadi, Roosna-Alliku etc). Backcourt volumes were quite different. For example the backcourt of Vatla Manor reaches out towards the main axis approximately 60 meters (EAA 3724.4.796 page 1) but in the 1730s the backcourt of Saare Manor is practically missing (e.g. Brafmann 1980, 18).

The size of the ensembles is rather different, but the bigger ensembles are dominant (e.g. Suure-Lähtru, Vatla, Õisu, Roosna-Alliku and others). Although there are not many detailed plans of manors preserved in Estonia with the exception of Palmse manor, it can be said based on historical materials of Livonian manors (Janelis 2010, 47–96), that backcourts designed as parterres, by example of European role models, formed approximately 1/5th to 1/4th of the whole volume of the backcourt and park (Nurme 2009; Nurme et al., 2012). At the same time, it can be noted that the size of backcourt compared to the park was proportionally bigger compared to manor cores built in first half and middle of the 18th century. Stands of trees that have an enclosed regular layout

have been partially preserved today and information about them can be read from old plans. For example, on the map of Koigi in 1819 (EAA 2072.5.47) it can be seen that bosquettes designed of rows of trees can easily be distinguished (Nurme 2009). Regular park structure can also easily be seen, for example, in Luke, Saare, Väätsa, Urvaste and Vasta parks.

During the 18th century the layout of the ensemble became more complicated. In the mid-18th century the layout of the backcourt and park generally remained rectangular but at the end of the century the spatial shapes of the backcourt and park became more complicated. On one hand, it was due to the increase in buildings in the manorial core but on the other hand the manifestation of rococo and early-classicism which, were expressed, for example, by arc-shape finish to the park or half-arc shaped composition of the park (for example Suure-Lähtru (EAA 2486.1.3216 page 13), Kõrgessaare (EAA 1388.1.1235 page 1), Raikküla (EAA 3724.4.259 page 1), Roosna-Alliku (EAA 2486.1.3043.838) etc).

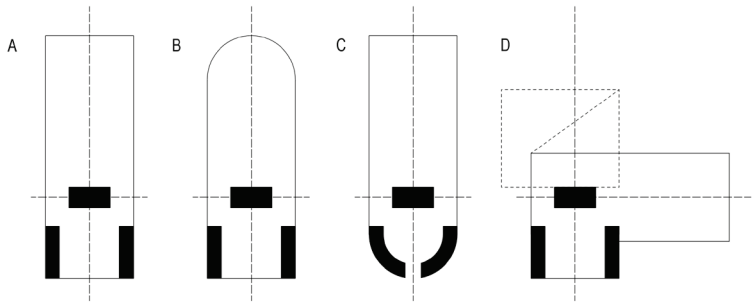

Figure 61. Most common spatial shapes of the classical Baroque manorial ensemble: A – rectangular; B – arc-shaped end to the park; C – arc-shaped frontcourt; and D – asymmetrical shape of the backcourt or park.

Addition of buildings with different functions conditioned the occurrence of different looking manorial cores. Based on the position of the court of honor and positions of outbuildings towards the main building eight different types can be highlighted according to Heinz Pirang (Pirang 1926, 41–55) and Juhan Maiste (Maiste 1996, 106–108) (*Figure 62*):

1. Court of honor is formed by outbuildings crosswise to the main building or very rarely by wings of the main building (for example Harku, Suure-Lähtru, Pilguse, Ohtu, Palmse, Koigi, Sikassaare, Sagadi, Lustivere, Saare, Elistvere, Kaarepere, Tilsi, Mäetaguse, Maidla, Mäo, Vasta, Arbavere etc);
2. Court of honor is formed by outbuildings positioned symmetrically as oval shapes towards the main building (for example Õisu, Vatla, Kiltsi, Urvaste etc);
3. Court of honor is formed between the main building and outbuildings across the main building positioned in an arc shape (for example Uue-Varbla, Sutlema, Vihterpalu, Räägu, Küti);
4. Court of honor is formed by the main building and to its sides in front of the main building alongside the axis of the main building (for example in Matsalu, Purdi, Vääna, Roosna-Alliku etc);

5. Court of honor is formed as an enclosed yard by the main building and outbuildings across or crosswise to the main building (for example Rogosi (Ruusmäe), Lehola, Kodasoo, Kodila, Puurmani, Kõrgessaare, Kiikla, Kunda, Rägavere, Ahja, Kiidjärve, Lööne, Kõo etc);
6. Court of honor in front of the main building is marked only by a fence, outbuildings are located ensemble-wise behind the main building (for example in Liigvalla, Purila, Anija, Haeska, Krüüdneri);
7. Court of honor is located in front or on the side of the main building, outbuildings are located in a freeform manner and do not form a symmetrical ensemble with the main building (for example Lihula, Padise, Norra, Väätsa, Adavere, Undla, Kasti, Rõngu, Pidula, Unipiha, Loodi etc);
8. Court of honor is located in front or on the side of the main building, outbuildings form a separate ensemble but are not ensemble-wise connected to the main building (for example Aa, Ingliste, Humala, Pagari, Sargvere, Kuremaa, Uue-Põltsamaa, Roela, Vao, Põlgaste, Luunja etc).

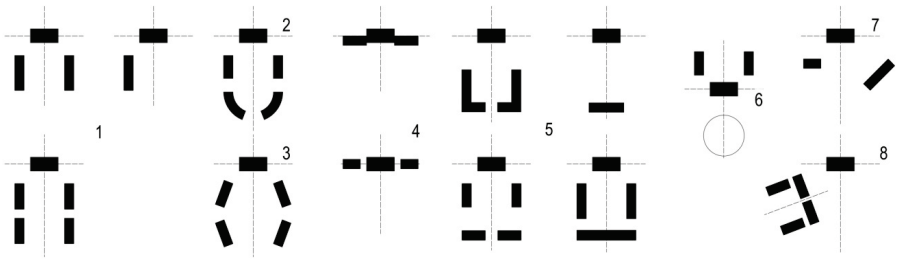

Figure 62. Spatial configurations of the manor core (Nurme 2007).

Naturally every ensemble is unique and the previous list is largely conditional. The manorial core can often have qualities of many types and in turn, each type can have many variations. Out of all the previously stated the earliest and most typical configuration of the ensemble core is the first one which, is the most common with all its variations and represents the Estonian baroque manor core in the most clear way. The most typical example is Palmse, a similar frontcourt bordered by three or five buildings can also be found in Harku, Mäetaguse, Urvaste, Tilsi, Koigi, Ohtu, Maardu and many other manors. Court of honor bordered by massive wings of the main building *(corps de logis)*, as they can be seen in France (Lemerle, Pauwels 2008, 121–130) and in richer country manors of Sweden (Dahlberg 2014), North-West Russia or Lithuania, can rarely be seen in Estonia, most well-known are Hiiu-Suuremõisa. *Figure 62*, position 5 portrays configurations of ensemble cores that can be interpreted as classical П – shape variation (Maiste 1996, 64) of building placement but different to position 1 they remain more or less closed towards the landscape on the central axis of the main building. Typical examples of closed frontcourts include Rogosi (*Figure 27*), Ahja or Kolga. Manor cores that have outbuildings with an oval or arc-shape layout, for example Sutlema, Õisu, Vatla etc, form a separate outstanding but rather rarely occurring group. Outbuildings positioned in a freeform manner that are not connected to the main building or

outbuildings located separately inside the ensemble are often characteristic to ensembles rebuilt from medieval manor cores (for example Tõlluste (EAA 2072.3.219 page 1), Ingliste (EAA 3724.4.38 page 1), Porkuni (EAA 854.4.469 page 5), etc) or to smaller manors with limited resources.

In Estonian manor cores the main building defined the spatial order with two compositional axes: symmetry axis and longitudinal axis of the main building. The main axis combined the ensemble into a spatial and ideological whole, crosswise axes parallel to the longitudinal axis divided backcourt and park into smaller spaces. Therein, an ideal central axis was not achievable due to topographical situation or other reasons, which, is why the *cour d'honneur*, the main building and backcourt with the park could be configured very differently. Four different configurations that are typical can be pointed out:

- Spaces of the ensemble are positioned on one symmetry axis.
- Frontcourt is positioned on the same symmetry axis as the main building and backcourt with the park is related to it but shifted towards the main building.
- Backcourt with the park is positioned at a right angle to the main building.
- Park is not connected to the symmetry axis of the main building.

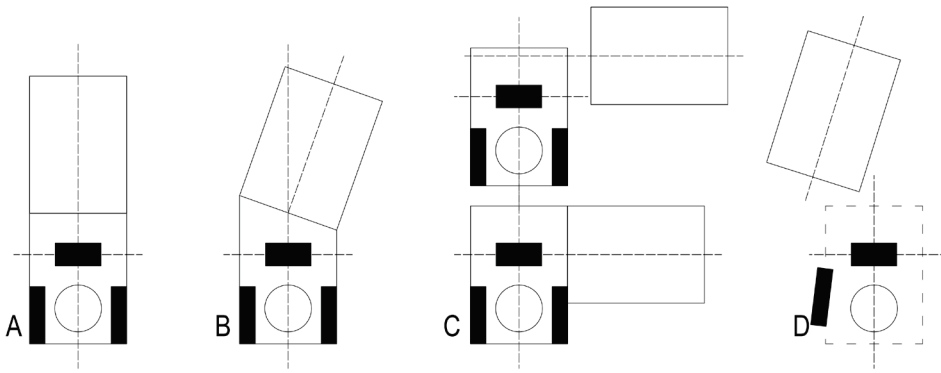

Figure 63. Spatial relationship between the core and park. A – core of the ensemble is centrally connected to the park along the central axis; B – core of the ensemble is axially connected to the park off the central axis; C – core of the ensemble and park are related to the longitudinal axis of the main building or to an axis parallel to it (C above); D – axial relation does not exist (Nurme 2007).

As a rule the reach of the ensemble was deliberately bigger on longitudinal axis as opposed to thaw crosswise axis (in Vatla, Suure-Lähtru, Õisu, Saare, Maidla (in Virumaa), Puurmani and many others). At the same time the axial reach could vary a lot due to local topography which, is why in some manorial cores the crosswise axial reach as a whole or often in park areas could exceed the longitudinal reach (for example in Tilsi, (EAA 3724.4.1934 page 1)). Also, the scale of spaces and voluminous relation varies greatly in manorial cores. In many manor cores (for example Kodasoo, EAA 3724.4.105a page 1) the frontcourt and backcourt with the park on the main axis had volume-wise a rather similar reach. In quite a lot of manor cores (for example Ahja (EAA 2072.5.542

page 1), Sagadi (EAA 1324.1.590 page 3), etc) the reach of the frontcourt is actually larger on the main axis (*Figure 63*). Therefore, taking into consideration the great variety of layout designs of manor cores, it must be said that Palmse, Sagadi, Saare, Suure-Lähtru and other manor cores similar to the so-called classic Baroque ensemble model cannot be a universal model for the interpretation of all Estonian regular manor ensembles (Nurme et al., 2012).

Studying the site plans of manor cores, it can be noted that when proportioning the spaces one starting point might have been the proportions of the golden section. This is mostly revealed when comparing the reach of ensemble spaces or their parts on the main axis. For example, when based on the intersection of main building's symmetry axes the backcourt with the park often forms 3/5 to 2/3 of the manor park's reach. For example, in Vatla, Purdi and Palmse the relation of the frontcourt's and backcourt's reach from the intersection of main building's axes to the border of the manor core (bordering fence in frontcourt and outer border of the park's regular part, edge of the manorial core of Palmse forest) is approximately 1.6. Even in division of ensemble parts endeavour for golden ratio can be noted. For example, the ratio of Õisu backcourt and park is approximately 1.55, the backcourt, in turn, is divided into two larger surfaces that have a ratio of approximately 1.6 to each other. Similar rules can be found in other manor cores (for example in Saare, Suure-Lähtru, Vasta, Vatla etc) as well. At the same time, taking into consideration that the spatial program of manor cores was mostly fitted into local topography the proportional golden section as it was systematically used by Niccolo Michetti in Kadriorg Palace (Hein, Lootus 2009) was not generally used in manor ensembles.

4.2.2 Gardens and park

Gardens and the park are inseparable parts of a Baroque ensemble, without which, it is impossible to give meaning to the ensemble or perceive it in space (Turner 2005, 166–167). Even more so, in cases where some of the buildings of the manor core have disappeared, but the park has remained, the Baroque expression of space is still perceivable (Nurme 2009), such as in Saare, Kassinurme and Urvaste. In manorial cores where the park has been destroyed for some reason (for example, in Kodasoo and Lehola), the real volume, spatial reach and character of the ensemble are not perceivable.

There is not much known about the manor parks and gardens of 17th–18th century. There are practically no detailed plans and views, like there are about Kadriorg Castle. The design of gardens and the park is portrayed in most detail on the 1753 plan of Palmse manorial core (EAA 1690.1.34), which also has the designs of parterres on it. Johann Christoph Brotze and Johann Wilhelm Krause dating back to the end of 18th century know a little more of Livonian manors due to the drawings. There are also detailed sketches of Linde Manor preserved (Janelis 2010, 63–67). However, the spatial structure of the park is still readable on many plans of manorial cores, which enable certain generalizations and conclusion to be done about the garden art of that time (*Figure 5*; *Figure 63*; *Figure 64*).

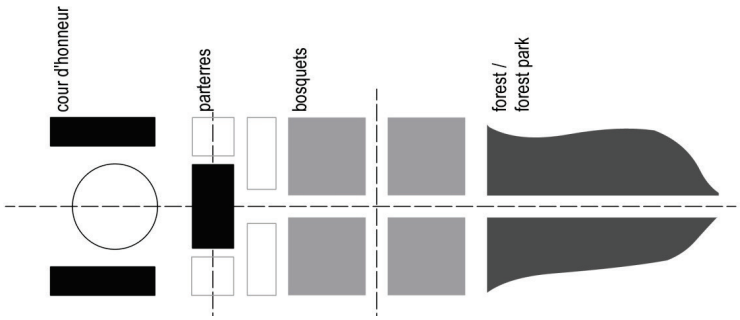

Figure 64. Spatial position of the park and gardens in the Baroque ensemble.

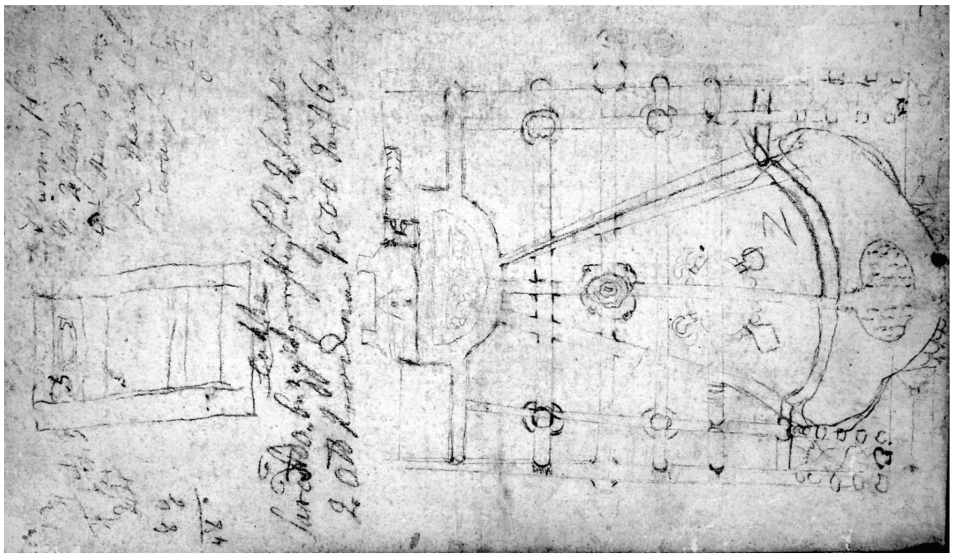

Figure 65. Sketch of Sagadi Manor Gardens and Park by Eleonore Marie von Fock in 1749 (EAA 1324.1.141 page 8).

The park was often built on the agricultural land near the manor, but if possible, it was shaped out of existing forests, wooded meadows or just meadows (Tarkiainen 2008; 92). The gardens and the park were generally designed as two contrasting parts: backcourt was designed as a uniform open area which, was accented by symmetrical parterres positioned on the main building's central axis, the park that followed was designed as an enclosed mass. The positions of parterres and bosquets were generally based on the longitudinal and crosswise axes of the main building and/or on the diagonals of axes' intersections, even though in the park the diagonal might have been of circular or arc-shape, which is characteristic to the last decades of 18th century (*Figure 67*; *Figure 68*). Typical design principles include the looser approach to peripheral parts of the park and the star-shaped layout of park's or its parts' network of roads which, for example, in Kiikla (EAA 3724.4.1586 page 1), Uue-Põltsamaa (EAA 1347.1.25 page 1) and Triigi (Väike-Maarja) (EAA 1687.1.1 page 7) manor parks have been quite common motif for park design. The pleasance garden of backcourt and the park were usually small, had a rectangular layout and were divided into quarters in shapes of squares or rectangles bordered by rows of trees with gravel paths in between (Nurme 2014, 147–148).

The intersections of roads and road ends (focal points of views inside the garden and the park) might have been highlighted by small architectural elements, for example sculptures, vases or pavilions. On the 1749 sketch of Sagadi Manor Park by Eleonore Marie von Fock (EAA 1324.1.141 page 8) a typical Baroque network of roads, rather lavish for Estonia, can be seen and intersections of roads going in different directions are marked by circular piece of land that are intended to highlight an architectural accent (*Figure 65*).

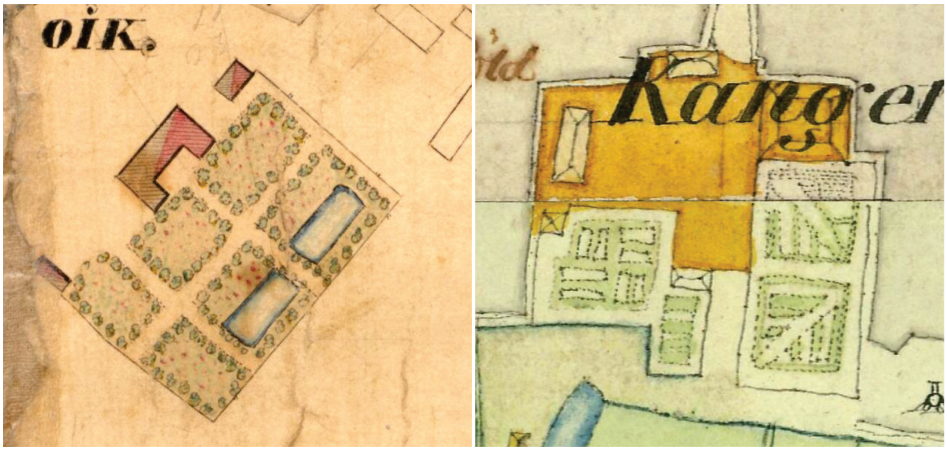

Figure 66. Examples of garden design elements. On the left is plan of Koigi Manor Park bosquettes in 1800 (EAA 2072.5.49 page 1). On the right is plan of Kangruselja Manor Park parterres in 1790 (EAA 2072.3.426e leht 30;).

As the roads leading up to the manor were designed as avenues, the bosquets of the park were also designed as avenues or rows of trees. So was the circular avenue formed on the border of the park. In addition, the rows of trees of neighboring bosquets formed avenues for the roads between them. Based on the preserved fragments of avenues in Estonian manor parks, it can be said that the layout design of bosquets, compared to those recommended in current garden art theory (D'Argenville, 2003, 140–152), remained simple and were limited to square-or rectangle-shape quarters which, might have had cut corners. A typical bosquet-like planting plan can be seen in the 1784 plan of Kõljala, where the main part of the garden is made out of 12 quarters divided by rows of trees (EAA 2072.3.218). Also, the plan of Koigi in 1819 (EAA 2072.5.47) clear square-shape spaces of rows of trees can be seen. Arc-shape plantings of trees in corners of the square-shape spaces of the park can still be seen in Ahja Manor park. In Kiidjärve Manor Park is still visible central rectangular square, which, was marked with lime trees (EAA 3724.4.1203 page 1). The parts of garden designed by rows of trees could also be elaborate: the manor plans of Birini, Burtnieki and Valtenberga (sketched by Johann Wilhelm Krause in the 1780s) portray quincunx of garden quarters, star-and cross-shaped and circular planting plans (Janelis 2010; 84–90) (*Figure 68*; *Figure 69*).

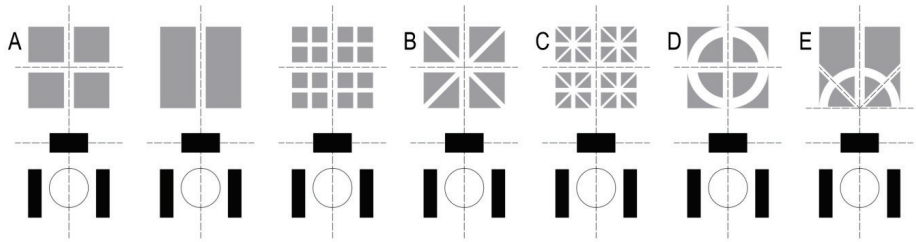

Figure 67. Spatial concepts of the park: A – quadratic; B – ray-shaped; C – quadratic and diagonal; D – park has been divided into quadratic shapes based on a circle; E – designed as a half-arc.

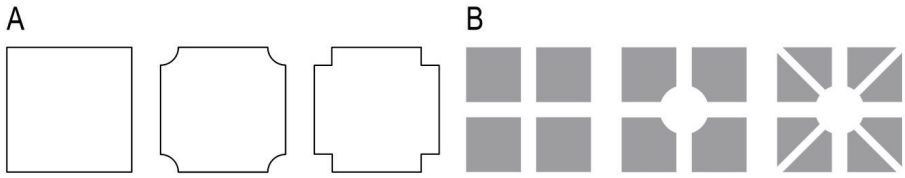

Figure 68. Shapes of parterres and bosquets. A – parterres based on the historical maps of Linde manorial core (Janelis 2010, 64–67); B – divisions of parterres and bosquets, based on historical maps of Saare (ERA T-3.24.1452 page 1), Ahja (EAA 2072.5.542 page 1) and Triigi (Väike-Maarja) (EAA 1687.1.1 page 7) manorial cores.

Based on the dendrological studies of historical parks, it can be said that the most common species found in Estonian manor parks is the small-leaved lime (Nutt 2017; 37). The fact that this tree is one of the few species in Northern climates that could be pruned into shapes without complications, made the use of this species in rows of trees very common in manorial garden design in Sweden (Bengtsson 2005; 16–17). It can be presumed that this type of planting was used in Estonia in the last decades of 17th century. Even though, from the sketches of Johann Christoph Brotze, it can be seen that topiary art was not uncommon in Livonia (*Figure 13*), but based on the avenue fragments of pruning in Estonian manor parks it can be concluded that avenues and rows of trees bordering bosquets were mostly pruned with the aim to design *palissade a l'Italienne* (D'Argenville 2003, 125; Nurme 2014). The local climate set rather strict rules for the use of plants: most commonly used hedge and bosquet plants in 18th century Europe, like the common box, hornbeam, Cornelian cherry, *Taxus baccata* and many others (Wimmer 2001, 44–45) are sensitive to cold in Estonia which, is why they were replaced by *Caragana*, common barberry, Norway spruce and even lingonberry and also a rich usage of fruit trees and bushes was common (Hein 2007, 38–39). Most likely this is why the hedge labyrinths, berceaus, bosquets bordered by palissades and complicated topiaries are not typical for Estonian baroque gardens. Specific rococo and early-classitsist design element in the parks in the end of 18th century was the clump[1]-type accented plantings, which, were made of coniferous and deciduous trees. Characteristic examples are the oak and linden circles in Mäetaguse manor's part of the park that borders the frontcourt (Nurme, Lajal 2013, 26).

[1] *Clump* - circle of planted trees bordered by bushes (Nurme, Nutt 2012, 18).

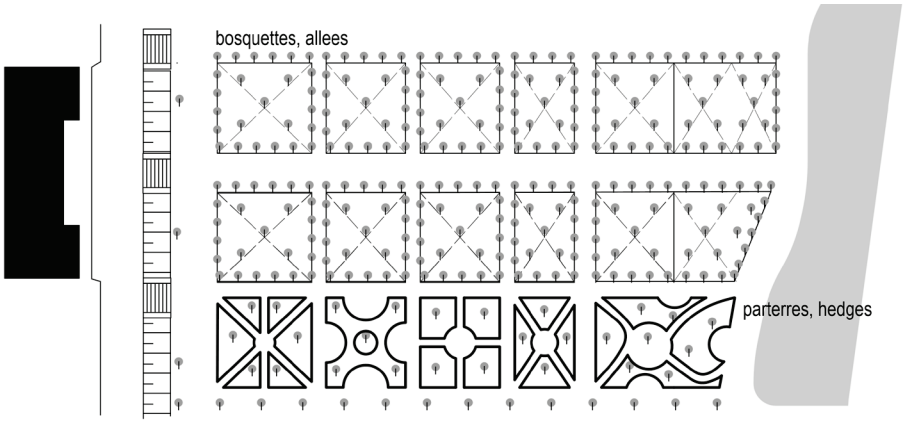

Figure 69. Garden detail from Birini Manor (Livonia) in the 1780s, reconstruction by Johann Wilhelm Krause sketch. Upper sections plantings are planned as quincunx-ornament, lower section displays of different types of ornamental planting (see also Janelis 2010, 84–90).

Since there is very little material (maps, plans) preserved about parterres and their traces have disappeared from the park by today, it is very difficult to make generalizations about their specific designs or methods used for planting. Based on the garden art theory of that time and single preserved historical views and maps it may be presumed that characteristic broderie-pattern motif was used (D'Argenville, 2003, 99–109) when creating low hedges and topiaries. On the plan of Burtnieki Manor patterns similar to Palmse *parterres de broderie* can be seen next to the main building (*Figure 70*; see also *Figure 12*). At the same time the quarters on the side are marked to be a labyrinth and *orangerie* (Janelis 2010, 88).

It is characteristic to 18th century ensembles that the main building is placed on a small hill or slope (Mihkelson 2010, 29–31), which enabled the design of descending relief as flat terraces in the backcourt that is characteristic to the French garden art. Even though the Estonian flat terrain did not enable the construction of significantly different height terraces, there are many Baroque parks preserved today that have a terrace of some sort (Vaine 2009, 85; Mihkelson 2010, 53–56). Typically, backcourts with gardens and park were divided into 2 to 3, maximum 5 terraces on different levels. For example, Saare (ERA.T-3.24.1452 page 1) and Sagadi (EAA 1324.1.590 page 3) Manor Gardens and Park had two levels; Tilsi (EAA 3724.4.1934 page 1) and Väätsa (EAA 3724.4.520 page 1) were divided into 3 levels etc. One of the backcourts and parks with the most complicated terraces can be found in Õisu Manor, where the backcourt and the park are located on five different levels (Nurme, Paalo 2013). Furthermore, the layout of terraces was simple – terrace separated different levels with a straight line in the middle of the backcourt or from one side to another or fences or buildings extending to the park bordered the terraces.

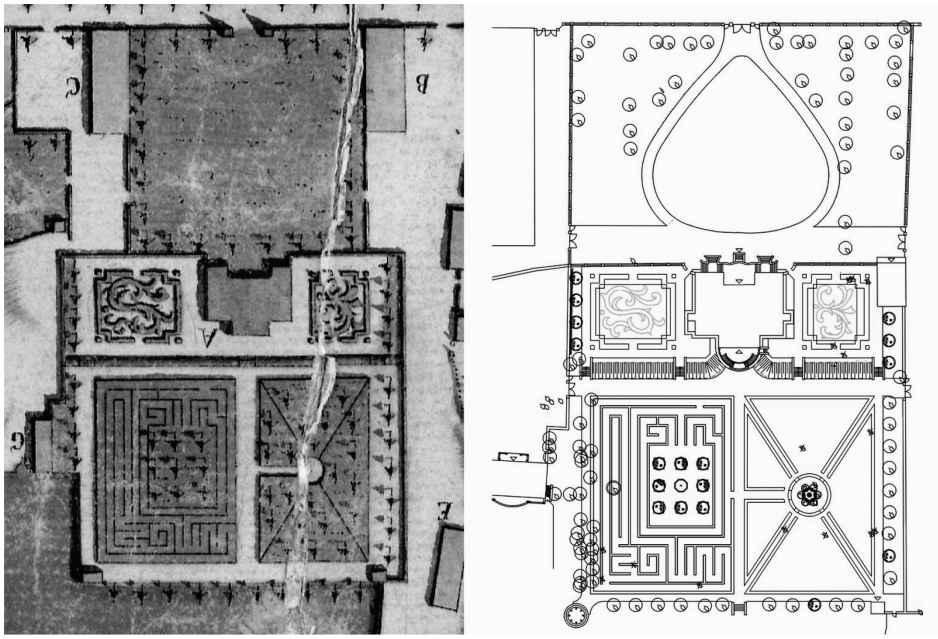

Figure 70. On the left, plan of Palmse manor ensemble in 1753 (EAA 1690.1.34). On the right, an extract from the 2007 reconstruction project of the regular garden of Palmse manorial core (Kann 2006).

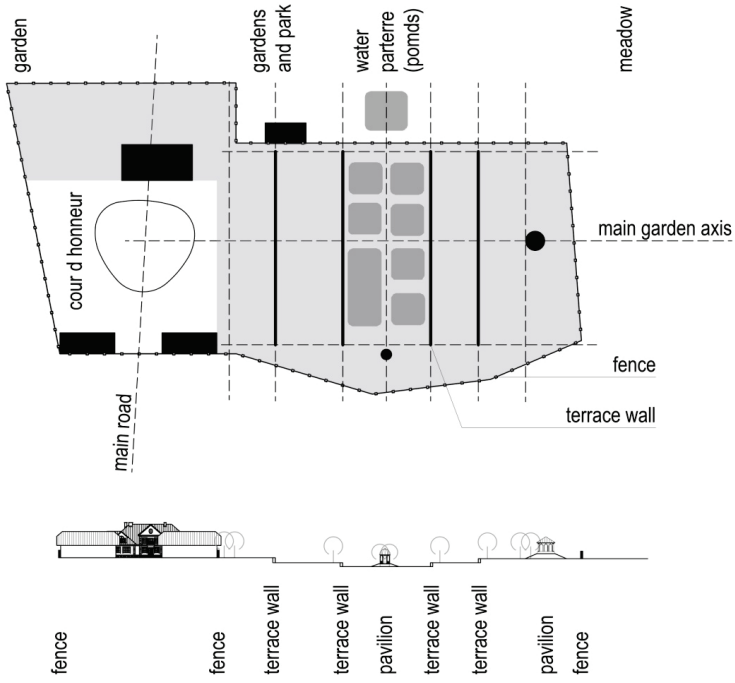

Figure 71. Reconstruction of Tumala Park spatial structure (Nurme 2002; Nurme 2010 a).

The brightest example of local baroque garden design is Palmse Manor, which gardens have been restored today according to the 1753 plan (EAA 1690.1.34). *Figure 70* shows the plan of the manor center. On the sides of the main building, which is located in the centre, broderie parterres can be seen; the terrace behind it has a labyrinth and a bosquet. Rows of trees are bordering the frontcourt and gardens. Ensemble is surrounded by a boundary wall on the sides and with a wooden fence with stone posts in the front. Also the frontcourt is separated from the backcourt by a wall. Three stairs can be seen on the slope separating the upper and lower terrace, roads from the sides on the lower terrace lead up to pavilions on the corners of the garden. Reconstruction is based on the plan of 1753, but it also takes into consideration the rebuilding of 1840, for example the circular driveway of the frontcourt and the additional plantings of trees, rotunda and backcourt's stairs positioned on the central axis (Kann 2006).

Characteristic to the era's parks in Estonia was to build terraces as embankments, i.e. as slopes. Stone terrace walls were rare most likely due to their cost and availability of building materials suitable for walls was limited because it was used to rebuild buildings destroyed in the Great Northern war during the time of limited resources. The replacement of wooden outbuildings with stone buildings gained momentum mainly not before the first half of 19th century (see also Maiste 1996, 62–65). For example, 2014 fieldwork noted that only one of the twenty studied Baroque manor parks had terraces designed as retaining walls (Ratas 2014, 40). The most significant retaining walls and stone stairs are in Väimela Manor but taking into consideration the construction history of this manor (Raid 1977, 17), masonry and finishes, it can be presumed that it is a historical addition. Since most stairs built on terraces are mostly built on top of the slope it confirms that retaining walls were mostly designed as terraces. Remnants of stairs built on terraces can be found in many parks. Backcourt stairs can very clearly be seen on the 1753 plan of Palmse manorial core but stairs that originate from the 18th century, but were rebuilt during subsequent decades, can be seen in many manor parks (for example in Vana-Antsla, Harku, Kaagvere, Anija, Maidla, Malla, Õisu, Väimela, and Luke). It is possible that the retaining walls were actually used more often but part of them were demolished or covered during the redesigning of parks in the 19th century. For example, the remnants of Tumala park's retaining walls were dug out during the reconstruction works carried out in 2011 to 2015 (*Figure 71*).

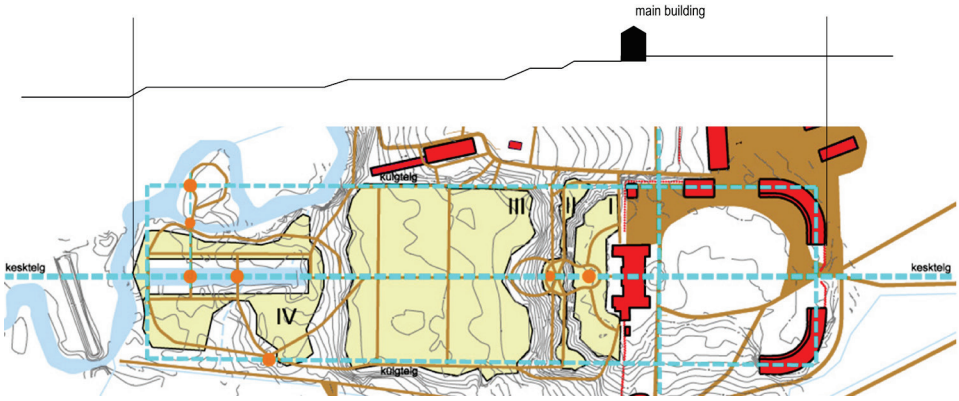

Figure 72. Õisu Manor relief is divided into 5 levels. The terraces are articulated horizontally, an atypical practice in Estonia (Kaare, et al., 2008).

Figure 73. Examples of different use of ponds in composition. On the top left is a "water-parterre" of Tumala Manor (EAA 3724.5.2398); on the top right are mirror-ponds of Luunja Manor (EAA 1442.1.281 page 1). On the bottom left is a pond with island of Väätsa Manor (EAA 3724.4.520 page 1) and on the bottom right is Norra Manor's pond system (EAA 854.4.196 page 1).

One of the most important elements in the Baroque ensemble's space is water. Based on historical maps it can be said that water was used in parks in many ways but generalizations about the water mirrors can only be made by preserved ponds and channels (Nurme 2014, 148–149). If the ponds and artificial lakes built at the end of 18th century were built besides aesthetic values due to their functional value (for example to get water for manufacturing vodka, cheese and so on), then in 17th –18th century the ponds, channels and redesigned natural bodies of water were made for beauty purposes. One of the most characteristic examples of using water mirrors during that time is Urvaste Park (EAA 1401.1.5 page 1), where the park's axis ends visually with a round island in the centre of the largest pond. One very exciting example is Väätsa Park that has a main axis ending with a round island in a round pond (EAA 3724.4.520 page 1). There was probably a pavilion located on the island, which was accessible, by a bridge (Nurme 2008 a). Direct influences from French garden art can be seen in Puurmani manor's pond that has a horseshoe shaped layout and a pavilion on the island (EAA 1396.1.475 page 1) similar to the pond in Urvaste Park (EAA 1401.1.5 page 1). Tumala Manor Park is also noteworthy. There used to be a network of seven rectangular

ponds that formed a unique water parterre (Nurme 2002). Between the ponds there were laid out channels that ensured a water supply to all ponds and they further provided an opportunity to build decorative bridges on the channels (Nurme 2010 a, 9–16). Similar to Tumala, a water mirror was created in Luunja Park on a separate terrace composed of two ponds (EAA 1442.1.281 page 1). Channels and complicated systems of channels were often used instead of ponds. For example, in Õisu (*Figure 72*) and Elistvere there were channels built in the park area, which, were orientated towards the main axis and directed towards the landscape. In Abja Manor the water mirror was designed as a regular channel on the lower terrace crosswise to the main axis (EAA 2072.5.269). In Vatla (EAA 3724.4.796 page 1), and Norra (EAA 854.4.196 page 1), the main axis ended by a round pond and a perpendicular channel in front of it. There the channels and ponds formed a complicated pattern. Circular channels can be found for example in Sutlema (EAA 3724.4.312 page 1), Viti (EAA 3724.4.360 page 1) and Vääna (EAA 854.4.838 page 1; EAA 3724.4.360 page 1). An interesting example is Ravila park where the riverbed of Pirita was redesigned so that the view from the back terrace of the main building overlooks the channel like it is seemingly heading to the landscape (Nurme 2014, 148–149; Nurme 2014 a, 24–38) (*Figure 73*).

As can be seen on views of Livonian manors (Janelis 2010, 75–80) pavilions, sculptures and plants in pots were quite often used in ensembles (also see Sipelgas et al., 2013, 32–33). Even though there are few sculptures, decorative vases, statues and barrier posts, preserved in parks, it is obvious from many sketches and photos from 19th century that most of them are actually traces of 19th century classicism or more often historicism (Sipelgas et al., 2013). For example, Luke manorial core was rebuilt according to the designs by Rudolf von Engelhardt in place of the old Baroque manor core. The female sculpture (called Eva) and lion-sculptures near the main garden stairs still exist and they probably originate from the last quarter of 19th century (Suuder 1980, 11, 15). Since the sculptural forms are usually not portrayed on historical maps and plans, it is not possible to make more precise conclusions about their usage.

More is known of larger structures, such as pavilions, stairs, fences and bridges, which, are sometimes depicted on plans and have traces of them preserved in parks. One of the earlier views onto a pavilion dates back to 1783 and is an aquarelle of Vasula Manor by Carl Otto von Gyllenschmidt (AM 4646:21 G 6930). On the forefront of the view a court of honor and the main building can be seen behind the outbuildings, on the left side of the view between the trees there is presumably a garden pavilion with a round layout (Pirang 1926, 38). If we decide based on the plan of 1809 (EAA 2072.5.483 page 1) then the pavilion was located next to the main building in Vasula and was not strongly compositionally connected to the park. But the plan shows that at the end of the park, in the centre of the pond, there was an island that might have had a pavilion or other structure on it with a rectangular layout, which, was positioned at the end of the axis. A very good example of emphasizing view focuses is in Tumala Manor park, which had a pavilion on top of a built mound that was located at the end of the main axis. From the pavilion a view opened up to decorative ponds in the centre of the park and to the wooded meadow behind the park. The middle axis, in the middle of the park that crosses the central axis was probably marked with another pavilion or shed on one side of the park and a pond on the other side of the park (Nurme 2002; Nurme 2010 a). The rotunda in Koluvere Manor Park that marks the end of central axis is very imposing and its location is also portrayed on the Karl von Löwis of Menar's copy of 1827 plan by Carl Faehlmann (EAA 854.4.469 page 30). The plan of Palmse manorial core (EAA 1690.1.34 page 1)

locations of rectangular pavilions can be seen at the ends of parallel axes of the main axis on the shores of ponds in the corners of the park. Therein, it should be mentioned that in the famous view of Palmse Manor (EKM j 34425:20 G 22827:20), the pavilion shifted from the compositional axes, which, is why it is more of a classicist addition. Octagonal stone park pavilion in Aa Manor that was built during the last decades of 18th century can be considered unique within Estonian baroque ensembles (*Figure 74*). Pavilion which, has also been considered to be a chapel (Praust 2005 a, 21) was probably designed during the rebuilding of the main building in the 1780s.

Figure 74. On the top left is a garden pavilion of Aa manor. On the top right is a gate-building of Sagadi manor. On the bottom left is a gate building of Sutlema Manor and on the bottom right is the reconstructed Palmse garden pavilion (photos by Sulev Nurme).

One of the specific elements of park architecture during that period was grottoes. Many grottoes can be found in Livonia where in the ancient valleys of Ahja, Võhandu and Õhne Rivers and around Helme in Brutnieki the soft sandstone was suitable for digging artificial caves. It is thought that the caves of Helme Manor Park which, are built in same stone, were constructed already in the 18th century (Hein 2006). Unfortunately, grottoes characteristic to Baroque have not preserved. One rare exception that can be mentioned is a grotto with a cylinder-shape vault made out of ironstone on the top terrace of Tilsi

Manor Park's backcourt that is located on the central axis of the ensemble (Nurme, Toomeoja 2016, 11–17). Elements similar to grottoes built in the ramps of main stairs in front of the main building or under the stairs in the back can be found in quite a few manors, like Matsalu and Raikküla.

Figure 75. On the top left is a niche in the stone wall of Vatla manor. On the top right are Pilguse Manor stone walls which, run along the main axis. On the bottom left is a side-gate of Maidla (Lüganuse) Manor and on the bottom right is the reconstructed Palmse orchard gate (photos by Sulev Nurme).

The most typical and well-preserved small element is the fence that borders the manorial core which, was built as a stone wall or a fence made of stone posts and metal or wood pickets (Ratas 2014, 24–27). On one hand, the fence had a functional purpose by protecting gardens from cattle and wild animals but on the other hand, it was a symbol that marked the border between two paradigmatically opposite worlds (Sipelgas 2011, 42). A bordering fence marked the *villa rustica* – the core in a Baroque garden (Merila 2003, 144–148), defining and bordering as *hortus conclusus* the manor owners' personal space and their personal center of the universe. This is why the fence was necessary, even when the topography of the land did not presume the building of a fence. A significant element of the fence was a representative gate building which, stood for the transition from the classic landscape of manor ensemble outside into the romantic

landscape (Backhaus, Murungi 2009, 23; Norberg-Shulz 1996, 19–22). Christian Norberg-Schulz wrote: *"...Baroque succeeded in producing a convincing synthesis of a Nordic movement and classic order"* (Norberg-Schulz 1996, 19) – this is why Baltic-German Baroque *villa*-conception is ideologically unique in European architecture-historic paradigm. Gate building finalized the representative view, defined the crossing point of axes (roads) reaching to the landscape. Most likely the most grandiose Baroque gate buildings can be found in Sagadi (*Figure 74*) and Sutlema, but in addition other significant ones are Leetse, Virtsu, Andja Manor gate buildings and Pilguse and Maidla (in Virumaa) Manor fence posts. Generally, the fence bordered the manorial core from each direction and also the front- and backcourt and vegetable gardens were separated from each other. The fence was usually simple; in few cases it might have been articulated. For example the backcourt of Vatla Manor has a fence wall articulated by niches, in Viti Manor by masonry, in Anija Manor the front- and backcourt are separated by arches (Nurme 2014, 149).

Nonetheless, despite the rather modest volumes and design based on the previously mentioned it can be said that the manor ensemble of that era as an architectural system of space did not principally differ from the *villa rustica* that took shape in Europe. But different to Europe the manor became a significant cultural phenomena in the 18th century as a sign of a new era (Maiste 2008, 69) which, shaped the landscape all over Estonia for the next few centuries. Thus, the happenings in manor architecture during the beginning of 18th century can be viewed as a “pre-bloom” which, became the foundation for manorial architecture later on, in its classical meaning (Maiste 1996, 65).

5 Baroque manor cores nowadays

"I too believe that the most common reason of failure is not the lack of resources or rash execution but poor understanding of what should be done."

John Ruskin (Ruskin 2013, 27)

5.1 Baroque tracks in landscape

As the fieldwork and research portray, many manor cores built in 18th century have preserved the main Baroque characteristics to date regardless of subsequent rebuilding (Nurme et al 2012, 115 – 125). The Baroque manor core, due to its compactness, clearly defined in the landscape and through its axial connections it is visually and structurally linked to the surrounding landscape. Therefore, the manorial cores are distinguished in the landscape as characteristic silhouettes and are perceivable even when some parts of the ensemble have been destroyed. Taking into account results of fieldwork in formal park studies, both scientific (Nurme et al., 2014) and practical (Nurme, Nutt, 2006; Nurme 2010 (c); Nutt, Nurme 2011; Nurme 2016a etc), it can be said that the preserved view axes, few kilometers long, and allées branching out as rays into the landscape mark the former reach of manorial landscapes even in a context where the spatial reach of manor cores, compared to 18th and 19th century, has presumably decreased in the landscape (Tarkin 2011). The buildings, network of roads and the expansive park of the manor core are today the main markers of the manorial ensemble and the landscape connected to it (Nurme 2014 a). Normally the current local roads are mostly based on the system of roads developed in the 18th century which is why the roads approaching the manor core from the landscape are mostly similar to the original ones. For example, in Mäetaguse manor, the East-West directional 1.7 km long main road is directed straight to the main door of the left wing of the main building. First the silhouette of the park between fields that marks the manorial centre is distinguished when approaching the manor, then getting closer to the manor the focus is concentrated on the wing of the house that can be seen at the end of the dark corridor made of rows of trees. When entering the park a view from the entrance road unfolds onto the peaceful and dignified main building supported on the wings by beautifully arched barn and stables that all together form an open court of honor (Nurme et al 2012). Historical spaces have been similarly preserved in Palmse, Sagadi, Ääsmäe and in many other Baroque manorial landscapes.

A typical division of space has been mostly preserved in Baroque manor ensembles (Vaine 2009, 90–91). The frontcourt can clearly be distinguished but the border between the backcourt and park might have become unclear due to changes that have happened in time (overgrowth or cutting of bushes and trees etc). Frontcourts are often one of the best preserved parts of manor ensembles having preserved their structure, views and functional connections (network of roads) with the landscape. The Baroque frontcourt is traditionally marked by an open court bordered by the main building and outbuildings (often the barn and stables or their ruins) and its most characteristic part is, usually a 19th century addition, a driveway with circular design. As a historicist layer group of trees planted into peripheral parts of the frontcourt can often be seen but generally the openness of the court, including the view from the main road onto the main building's

centre, has been preserved. Frontcourts have also mostly preserved the posts of the main gate and boundary walls or fragments of their ruins on the outer perimeter of the frontcourt and on the border between the frontcourt and backcourt (Vaine 2009; Ratas 2014).

As the studies have shown (Nurme et al. 2012; Nurme et al. 2014) the backcourt and park are generally marked by stands of trees that have been symmetrically planted. The original composition and structure of the ensemble can often be determined by the age of the trees that still exist (Nutt et al. 2014) and traces of bending or pruning on trees. The typical shapes created by rows of trees are to date easily readable in Ahja, Rasina, Kiikla, Saare, Luua, Urvaste, Väimela, Põlgaste, Albu and in many other ensembles (Nurme et al. 2012). Rows of trees preserved in a bigger whole are mostly located along the borders of the park, thus marking the outer border of formal part of the park. The structures planted within the park have often been preserved in fragments and are therefore hard to read. In Urvaste Park the most impressive part of the area with pruned lime trees is the allée on the border of the park made of stubby pruned lime trees that has been preserved almost as a whole. Rows of trees inside the park have been only partly preserved. For example, in Saare Manor Park, the original lime trees have not been preserved in volume but their locations are marked by the presence of trees grown from stump sprouts. In Uue-Põltsamaa Park the formal part of the park with a ray-shaped layout has preserved its character largely due to the 20th century replacement planting of fallen trees (Kalberg et al., 2018). Areas of a park with pruned rows of trees might reference to historicist redesigning, such as in Luke where some of the formal pruned structures might descend from the redesigning in the 19th century (Suuder 1980; 11, 15). Taking into account the parameters of pruned trees and what has been depicted on preserved historical plans, it can be presumed that for example Vääna Manor's formal part of the park also originates from the first half of 19th century (Nurme 2008 a).

Another well preserved element of the backcourt and park is a terrace which, can be seen in many parks. Terraces, created from the soil and descending as embankments are well preserved in Aa, Malla, Purdi, Uue-Suislepa, Albu, Tilsi, Palmse, Sagadi, and Urvaste Manor cores. Terraces are typically shallow, usually between 1 to 1.5 meters. Sometimes, when the natural relief allowed, the terraces were higher, for example, in the manors of Aa, Malla and Õisu. There are practically no terraces strengthened with retaining walls preserved today. Retaining walls have been well preserved in Väimela but taking into account its material (granite) it might be an addition of 19th century rebuilding.

Preserved boundary walls or fragments of them on the outer border are characteristic to parks. It is often just a simple rustic stone wall but there are also more representative stone posts and boundary walls preserved which, can be as high as 3 meters (Ratas 2014, 83). The most remarkable ones that can be highlighted are in Maardu, Koigi, Kõrgessaare, Hiiu-Suuremõisa, Sipa, Rägavere, Kolga, Väätsa, Viti, Malla or Maidla and Palmse Manor cores. One very imposing boundary wall that shows its age through signs of corrosion can be found in the backcourt of Vatla manor.

The artificial ponds and channels connected to the backcourt and park have also usually been preserved but their shape might have changed over the last centuries due to rebuilding, erosion or overgrowth. Based on map analysis and fieldwork it can be noted that three rectangular ponds in Urvaste Manor have been preserved in their original volume and they culminate with the circular island located on the central axis of the largest pond. The original system of ponds composed of seven square-shaped ponds in Tumala Park have also been preserved well and so have the ponds and channels of

Viti, Vatla, Rogosi, Vana-Antsla, Elistvere, Puurmani, Oti, Luunja, Kodila and other ensembles.

Although the use of smaller details in Estonian manor parks was plentiful (Sipelgas et al. 2013, 31–38), not much has been preserved. In the relatively poor circumstances of 18th century, their presumable volume and amount cannot be compared to Kadriorg or other similar ensembles in Europe. Generally most of the built park details of that time have been destroyed or are unrecognizable due to rebuilding. Often only the roads, locations of boundary walls, terrace embankments, rows of trees and alleés can be seen in detail. (Nurme et al., 2009; Nurme et al., 2012). Therein, it must be noted that interpreting the formal-style compositional elements in the form of plants (Nurme 2004, 44–45) gives a perception of space but assessing the tree ages is rather relative (Nurme et al. 2009). Also the interpretation of preserved built details is not always understandable. For example, the current shape of the fancy rococo-style terraces of Õisu Manor Park may originate from the second half of the 18th century or similar to Polli Park which, got its redesigned terrain from the ditch diggers of Saaremaa during the 1890s based on the guidelines of Georg Kuphaldt at the end of 19th century (Maiste, Paju 2008, 11; Lamp 2008). Therefore, the current situation and the fact that the historical plans and other graphic materials of 18th century are limited should be taken into account (Nurme et al. 2014) and the researcher can focus on studying the phenomena that characterizes the architectonic nature of the preserved ensemble in Estonian baroque manor cores.

5.2 Condition and threats

The historical developments of 20th century were devastating to manor architecture which, resulted in the desolation of manor cores for many different reasons (Sinijärv 2012, 36–37). For example, the inventory of manorial cores in Tartu County carried out in 2002–2004 showed that 42% of buildings in manor cores in that inventory were destroyed. Meanwhile the inventory portrayed that 36% of buildings from those manorial cores were recognizable in the landscape as ruins or single fragments of the park (Nutt 2004, 81–82, 88). The study also showed that compared to the late-1970s inventory the condition of manors had significantly worsened by the early 21st century. Generally, this result characterizes the situation of Estonian manor cores as a whole.

Irreversible changes that caused the manor cores to lose their spatial character happened during the 20th century, the period of Estonia's first independence, as a result of splitting the manor cores and building and rebuilding of Soviet times. The result of redistribution of manorial lands in 1919 was the abandonment or change in function of the manorial cores which, in turn, resulted in the dilapidation of manor buildings, overgrowth in manor cores or random rebuilding (Nurme et al 2012). This is how one of the most imposing and wholesome Baroque ensembles in South-Estonia – Saare Manor's main building was demolished in 1932 (Hein 2002, 73). The most important buildings surrounding the court of honor have been preserved today but are in a critical condition. The former ensemble is marked by the formal park that has been preserved to date. In the 1930s, certain values in manor cores were acknowledged (Vilberg 1935, 185–186) but the World War II and Soviet occupation that soon followed only amplified the destruction. A typical example of the attitude of Soviet times towards manor ensembles is Elistvere: the unique Baroque manor ensemble was largely destroyed in 1960s–1980s during kolkhoz-time developments. In connection to the animal park a reconstruction concept based on the historical space was compiled for Elistvere at the end of 2000s

(Nutt, Kaare, 2007) but it has only partially been realized today. Another typical example is Leedi Manor that had historically a very interesting formal-style structure (EAA 2469.1.666 page 1) but had basically been destroyed by the end of 1960s. There are many more examples that can be highlighted. The change of manor cores was accelerated by the ignorant redesigning of buildings and parks. The designing of new buildings in manor core did not take the historical context into account, the choices were based on set norms, including following the planting norms of the state (Sinijärv 2009, 62). Manor cores located in larger villages often included apartments, communal and agricultural buildings. Significant examples include Sutlema, Ilmatsalu, Helme, Järlepa, Kaagvere, Luunja, Raikküla, Luua, Koigi, Raikküla, Albu, Ravila and many other manorial cores where new apartment buildings have been built in the main allée's space, frontcourt or park. In Väätsa, Adavere and Ravila there are new buildings built together with manors' main buildings that have a remarkably different volume and do not fit in with the milieu. The Soviet construction layer broke the logic of historical approach to space and the composition of the ensemble which, is why, in these manor cores, the values preserved are in danger as new planning and construction activities occur.

The fading of manorial cores has unfortunately continued to a certain extent even nowadays, after the regaining of independence. The dilapidation of buildings and parks where nature is taking over is inevitable in manors with no owners or private owners who have insufficient funds or no interest to manage these buildings or the park. A typical example is the Audla manorial core that was used as a school until the 1980s and which, was in a relatively satisfactory condition in the beginning of 2000s but after becoming private property it was left without maintenance and reached a critical condition (Nurme 2016a, 10–15). In 2018 another Baroque ensemble with an interesting layout in Saaremaa (EAA 2072.3.426a page 19) – Sikassaare in a catastrophic state was salvaged as it was abandoned for years as private property after the regaining of independence (Salong 2018). Well-known explorer and sailor Adam Johann von Krusenstern's, birthplace – Hagudi Manor is also in bad and dilapidating condition. The main building which, had turned into ruins by 1970s (Ranniku 1978, 25–28) started restoration work in 1990s but unfortunately today it has become private property and has been abandoned in a dilapidated condition. Other examples of fading manorial core could be given herein (for example Kann 2003; Rajamäe 2007; Klaas 2016 etc). The problem is insufficient maintenance, which causes the overgrowth in the ensemble that leads to the fading of historical structure of space and dilapidation of buildings. This, in turn, results in the disappearance of significance, which is why the manor ensemble and the landscape connected to it are understood only by specialists not visitors (Nurme et al 2014, 177). The more the ensemble loses its intelligibility the less its values are understood by the community and the bigger the probability that during planning and building the manor ensemble as a historical-aesthetic phenomenon is not taken into account. A good example of the change in significance resulting in problematic construction activity in a historical manor ensemble is Kassinurme which, stands out in the 1888 plan (EAA 2469.1.644 page 1) with a compact and clear formal-style design. 120 years later it is remembered only by bewildered rows of trees in the border of the park that used to be – the main building was destroyed in the fire in 2002 and demolished. After that the manor core was left without use and the park without maintenance. Since the manor ensemble lost its attractiveness and grew wild after that, in 2006 a pump station was built on its backcourt which, essentially destroyed a large part of this historical park's value.

The problem of lack of maintenance or incompetent maintenance is very typical in manor cores that have been partially or completely abandoned in 20th century. But as the practice shows[1] this problem can arise also in manor cores that have not been abandoned. A good example about importance of maintenance is Õisu manor, whose gardens and park were reconstructed during 2011–2012. The restoration and conservation project aimed to mark the Baroque gardens and park and partially restore those (Kaare et al., 2008). The network of park paths and some of the architectural small forms were restored in full volume. Also the main mirror-pond was restored in its historical volume. But as the field works, done for the maintenance plan for Õisu manorial park in 2014 showed, the condition of restored garden and park paths was very poor – more than half of the road surfaces had grown wild. Also the condition of historical stairs, retaining walls, underground water collectors and fences (brick walls) had worsened. The inefficient maintenance of landscape had caused the backcourt to turn wild (Nutt, Nurme 2014, 41–45). When the park is not provided enough maintenance and possibilities for historical structures conservation is absent, there is a serious threat that the park has faded to an extent that its perception as a wholesome ensemble with the manor buildings becomes problematic. This, in turn, can lead to spatial decisions in the ensemble and its contact zone that might not consider the ensemble as a whole.

As the article "Baroque manorial cores and the landscape" (Nurme et al 2014) highlights, the biggest problem of today's historical formal parks is often not their dilapidation but the developments happening in the manorial core and its contact zone that does not take the historically developed situation into account or deal with the preserved landscape values in a formal manner even when dealing with nationally protected objects (see Raadi Manor case-study Nurme et al 2014). As a result, a new spatial pattern is created that does not support the historically developed manor ensemble as an aesthetic system of space. Of course, valuable landscape spaces and views of historic objects are certainly debatable and depend on circumstances for each case. In Estonia, valuable landscape methodology (Hellström 2001) is commonly accepted and interpreted differently depending on the planner or the planner's knowledge of the object or attitude towards it. Valuable landscapes or culturally significant objects in the landscape are protected "blindly" by law and often without landscape analysis (Nurme et al 2014, 168). For that reason, protected areas are like islands inside the surrounding area where strict rules apply but changes happening in the contact zone that is ideologically and logically connected to it inevitably change the look of the protected object (Nurme et al 2014, 168).

The change in the spatial situation, both in the manorial landscape and inside the manor ensemble, modifies the ensemble and its surrounding area. A larger influence thereby is caused by:

- Closing of view directions and landscape parts connected to the frontcourt with vegetation, buildings and/or structures;
- Closing of views from main building connected to the backcourt and park with vegetation, buildings and/or structures;
- Changing of the manor ensemble's building structure within the ensemble and in its contact zone;

[1] Referred problems have been noticed during the research, compilation of maintenance plans and restoration projects in more than 80 manor ensembles, issued in Artes Terrae LLC between 2002-2018

- Changing of the site plan that defines the volume (height) of manor buildings and inner division of the ensemble;
- Closing of a backcourt or changing of the park's structure with unsuitable buildings, structures and/or vegetation;
- Use of buildings, structures and vegetation that do not suit the milieu in its volume or design.

Real estate developments connected to manorial cores are not as problematic as the large scale construction and reconstruction works carried out by state institutions and enterprises that often do not take into account the manor ensembles as wholesome valuable parts of the landscape. The decrease in the quality of space due to decisions by national developers pose a serious problem at the local scale is also referenced in the 2018 report by spatial creation expert group that worked in the State Chancellery (Ruumiloome ekspertrühm 2018). A symptomatic example of this is the new housing area near Kukruse Manor Mill and rebuilding of the highway that goes through Kukruse Manor's allée. *Figure 76* shows, that new housing area closes more than 80% view area from road and from manor centre. New highway physically and visually disrupts the connection between the manorial core and its allée, which, are both protected by the Heritage Conservation Act and Nature Conservation Act. Kukruse Manor's allée connects the manor cemetery with the manor core. In the context of Estonia it is a unique allée that is protected by both Nature and Heritage Conservation Acts. It has four rows of trees, inner rows consist of oak trees and outer of larches (Paju et al., 2008, 5, 13–14). The widening of the highway carried out in Soviet times destroyed some of the allée trees but preserved the movement logic and spatial situation inherent to the 1850s, including views between the tree allée and manor core. During the rebuilding of the highway in 2010 the access from the allée was closed, some of the trees on the highway side were cut and a pedestrian bridge was built which, with the overpass directed towards Rakvere, changed the ensemble's space and context of the landscape (including views on the allée from the side and view from the allée towards the manorial core) irreversibly (*Figure 76*).

Serious problems were also created by the new real estate limits set after the Soviet period which, were similar to the 1919 situation: on one hand the situation after land reform is restored but due to the real estate transactions done during the restoration of independence many manor cores are often located on properties with different owners. Therefore, a need for new access or service roads, additional buildings, fences, parking lots and much more arises which, in turn breaks the historical milieu and the wholeness of the ensemble. For example in the Raikküla manorial core the differences between different owners has led to the closing of the manorial core's main gate and a new access road which, from the point of view of the ensemble, is illogical (Nurme, Toomeoja 2018). Similarly, in Tumala Manor, due to separate ownership, the historically open frontcourt was divided into two with a fence (Nurme 2010) and in Neeruti Manor, the frontcourt is divided into three parts (Nurme 2015 a). Due to same reasons the restoration of Ravila Manor's historical central axis view onto the Pirita River valley is destroyed (Nurme 2014a). Such examples can, unfortunately, be found all across the country.

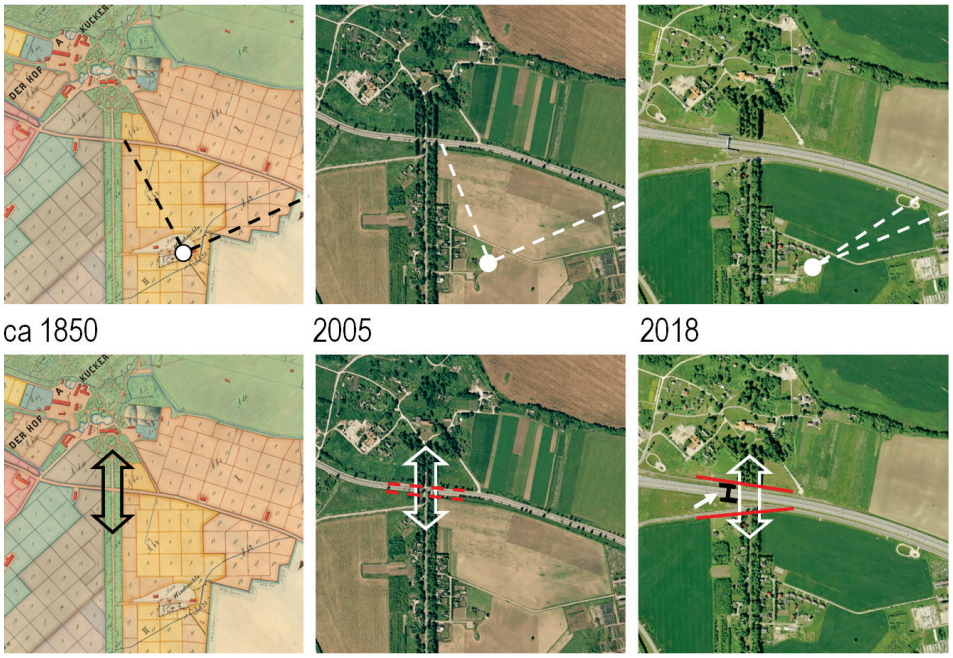

Figure 76. Top: view corridor and landscape openness connected with Kukruse mill (Nurme et al. 2014). Bottom: the change in spatial situation of the main allée due to the expansion of Tallinna highway and the building of a pedestrian bridge (EAA 2062.1.171; Estonian Land board (2011)).

Changes also happen within the ensemble during the restoration and reconstruction works of ensembles when a need to add a new function due to contemporary needs to the ensemble occurs. Typically the questions arise when building parking lots, roads, technical infrastructure (pump stations, electrical substations, telecommunications facilities etc) or specific leisure or service infrastructure (toilets, playgrounds, festival stages, bathing bridges etc).

Above mentioned activities relate to all: planning, building, restoration, and production activities and also to landscape maintenance in the manor ensemble and manor landscape. Spatial decisions in the manorial landscape and ensemble are inevitable and even necessary in order to restore and maintain them (Fiho, 2006, 11–17, 25–33). Therefore, it is important that planning, restoration and building decisions approach the landscape, related to the manorial core, as a whole according to its historical architectural nature.

6 Conclusions

"...The past should not be preserved simply for its own sake, but because of its value in making people feel better about themselves, where they live, and because of its worth in creating sustainable communities in which, people enjoy living and working."

Zbigniew Kobylisky (Kobylisky 2006, 208)

6.1 Changing Estonian baroque landscapes: universal and unique

Estonian manor ensembles have stylistically many layers and have been interwoven with many architectural styles of different eras. Their original spatial composition and the significance attributed to them, has often been significantly transformed in time which, is why the interpretation of ensemble's space in today's context is complicated (Nurme et al., 2012; Nurme 2014 a). The main practical output of studying historical ensembles is information which, during the management and restoration of the ensemble or its parts helps to make decisions that help carry on their significance to future generations (Calnan 2001, 7). Therein, the significance of the landscape is not only connected to its cultural history but with the entire characteristic previously agreed on values which, are defined from various aspects, the most important ones are aesthetic, social, educational, recreational, cultural, architectural, horticultural, biological and environmental aspects (Sales 2000, 73).

Manor ensembles, as specific architectural space, are significant primarily as social agreements that have values attributed to it through a socially defined space. These values are derived from the cognitive, physical and emotional characteristics of space associated with the manor as a cultural phenomenon. It does not matter if the manor ensemble or part of it is protected by the state, their significance, in reality, depends specifically on the human experience, hence, the cognition of values in Baroque manor landscape and ensemble is subjective and relative (Kobylinsky 2006, 211; Pearce 2000, 59). In order to define the significance of an architectural ensemble their characteristic elements and structures must be determined (Watkins, Wright 2007, 25–44; Jokilehto 2007, 7–8; Goulthy 1993, 42–66). They become valuable through the meanings attributed to them. According to well recognized approaches to architectural legacy: Venice Charter article 1 (ICOMOS 1964) and Florence Charter article 1 (ICOMOS 1982) the values that are primary are the ones that in today's landscape carry on the nature of 18th century construction art and park design. Therein, the contemporary approach to historical objects places equal significance on the object, structure and landscape that gives both physical and cultural context (McCallum 2007, 35–45). Values that have been added over time should be dealt with as secondary values as they are not essentially connected to the ensemble as a historical architectural space (Laurie 1983, 89–91). These include scientific, recreational, artistic, tourism etc. and they need to be considered when making spatial decisions in order to deal with the ensemble space as a whole (McCallum 2007, 37–39).

Like with any other historic architectural ensemble, in order to perceive the significance of the Baroque manor ensemble as a whole, a part of the ensemble or its context that define its volume needs to be preserved. This needs to be to an extent that enables one to understand them in a situation that has changed over time, to interpret

it in accordance with the mindset of the creation era and thereby understand it as a wholesome historical architectural space. Based on previous chapters it can be said that in order to perceive the Baroque villa ensemble as a conceptual Baroque spatial structure (also see Turner 2005, 166–167) it is necessary that the following phenomena and objects exist (*Figure 77*):

- Ensemble core that visually functions as the compositional centre and has a central symmetry axis that defines the rest of the spatial structure of the ensemble;
- Symmetric position of the most important buildings of the ensemble's core which, creates an open area which, is closed from the sides – court of honor in front of the main building;
- Open square that is formed behind the main building – backcourt and the following park are located in a axis-symmetrical position on the extension of the main building's symmetry axis
- Compact backcourt and park are spatially divided with compositional axes that are parallel to central axis, intersecting at a right angle or are diagonal in relation to central or intersecting compositional axes;
- Core of the ensemble can be seen from the main access road located on the main axis or from the intersecting or diagonal access roads;
- Looking from the ensemble's core the views from the main gate towards the main axis and/or perpendicularly directed views into landscape, also the view from backcourt towards the landscape on the main axis;
- Connections with neighborhood landmarks through views;
- Structure of the ensemble is marked by fences, allées, bodies of water and small architectural elements.

Figure 77 displays Phenomena and objects which are essential for perceiveing the ensemble as a conceptual spatial Baroque system (most common width of the view (28–30°) taking into account the related distances of sight (Nurme 2004, 39)). Spatial phenomena, objects and qualities stated above characterise the universal 18th century villa ensemble in Estonia, but each specific manor might have a different configuration. Based on historical sources and ensemble parts preserved today, it can be presumed that it is a Baroque composition, if the above mentioned compositional elements and characteristics occur in the manor park.

Generally the ensemble core's historic buildings, structures and park significance are acknowledged during national protection and building and planning activities in the manorial core. As research on the protection status of manor parks under protection has portrayed (Nurme, Nutt, 2006; Nurme 2010 (c); Nutt, Nurme 2011; Nurme 2016a etc) the borders of state protected manor ensembles do not often follow the manor ensemble and landscape's logic of historical architectural composition (Figure 77). Thus, ensembles and even parts of the ensemble can be separated from its historical-spatial context in legal planning and building activities (Nurme et al., 2014).

This, as is illustrated by the examples highlighted in the previous chapter, can lead to the historical and conceptual fragmentation of wholesome spatial compositions which,

results in the decrease in the significance and values of the ensemble and manorial landscape (Nurme et al., 2014). In the case of Baroque ensembles this is the primary cause for the change in spatial relations between the ensemble and landscape and change in views of the ensemble from a distance; the latter being one of the most important characteristics of Baroque villa composition.

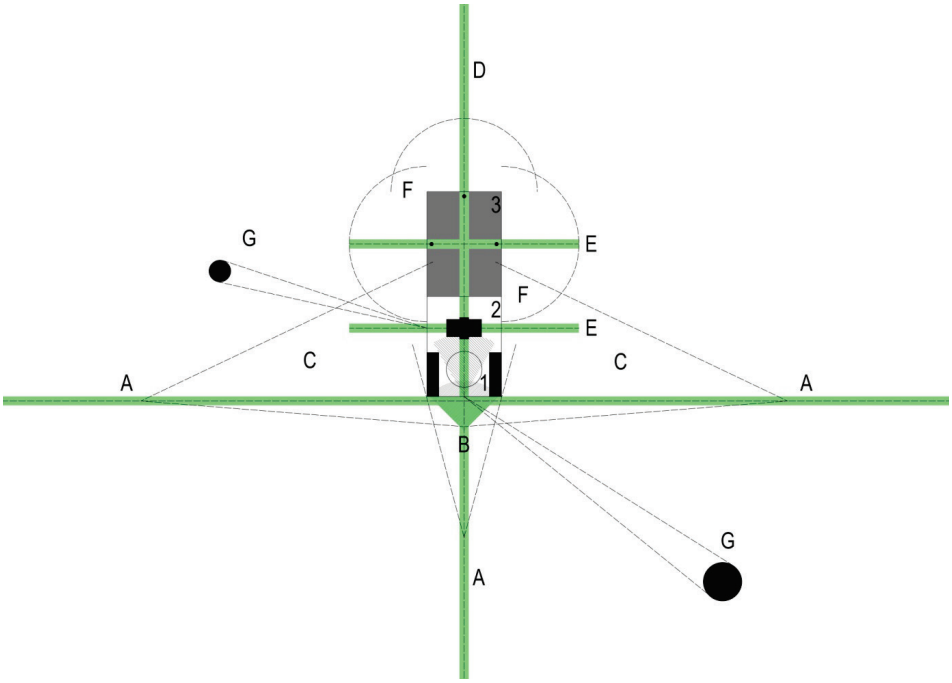

Figure 77. Phenomena and objects which, are essential for perceiveing the ensemble as a conceptual spatial Baroque system. A – access roads and views directed towards the court of honour; B – view from the access road positioned on the central axis of the main building; C – views of the ensemble from the access roads intersecting the main road ; D – view from the main axis from the backcourt to the landscape; E – views into the landscape from the backcourt and park crosswise to the main axis; F – character of the open landscape bordering the backcourt and park; G – views to the landmarks related to the ensemble. 1–3. Spatial divison of the ensemble: 1 – frontcourt; 2 – backcourt; 3 – park.

Taking into consideration the previously mentioned objects and phenomena, the preservation level of the Baroque manor core (Nurme 2014 a) needed for perceiving the Baroque manorial landscape and changes due to spatial influence (Tarkin 2011) the manor ensemble can be approached on three levels based on the degree of detail (Figure 78):

- Manorial landscape and ensemble;
- Ensemble, core and parts of the ensemble;
- Sections of the ensemble.

The key question from the point of view of the ensemble as a valuable architectural composition lies in the properties of the architectonics which, are authentically represented only if the ensemble is viewable (on the levels of landscape, ensemble and ensemble's parts) more or less in the shape and expanse that the ensemble had during creation. Stylistically one of the indicators is surely the design of the buildings

surrounding the court of honor. But taking into account the cultural history context of *Baltic villa rustica* (Karro 2008, 160–164), in different situations where the manorial ensemble has been, in addition to rebuilding, partially destroyed, abandoned or consistently unmaintained, the ensemble can be conceptually perceived as a Baroque ensemble. This happens only if the hierarchic division of space of the main parts of the ensemble, axis-symmetric relation to the ensemble's core, characteristic spatial communication between the ensemble's core and connected landscape have been preserved and the symmetric division of ensemble parts are perceivable (Figure 77).

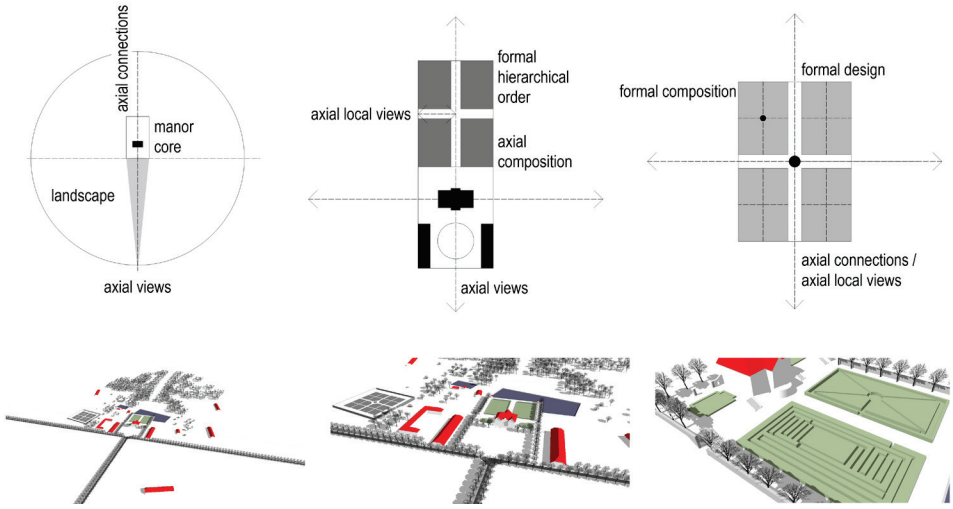

Figure 78. Different levels of the Baroque manor ensemble: 1 – landscape level; 2 – ensemble level; 3 – ensemble section level.

Scenographic structure of Estonian baroque villa ensemble also presumes that the manorial core is dominant in the surrounding landscape which is why in order to experience the ensemble as a wholesome conceptual space it is crucial that the compositional axes and views extending into landscape are perceivable. Based on research results, both in scientific (Nurme et al 2014; Nurme et al 2012) and practical works it can be said that the described characteristics are readable in the landscape even when some part of the ensemble as a whole, ensemble's core or ensemble's part has irreversibly changed in time or been destroyed. This is possible because the manor core which, for nearly three hundred years, has been shaping the local landscape and has merged with the local landscape image both physically and cognitively, thus, defining the region's milieu and landscape identity. A good example is Vasta Manor core where the historical landscape image has been preserved due to the traditional use of land in the neighborhood despite the fact that the road positioned on the main axis was destroyed. This is why the Baroque design is clearly perceivable in the manorial core and surrounding landscape. Saare manorial ensemble in Jõgeva County has also a wholesome Baroque complex with a strong unique milieu due to the conceptual spatial relations between the manor core and the surrounding landscape, despite the fact that the view onto Saare Lake is overgrown and the main building destroyed. Similar example is Urvaste Manor core which, has maintained its dominance in the landscape despite the destroyed ensemble's core and overgrown park. Therefore, it is crucial to maintain the

ensemble's historical architectural space as a significant centre of the manorial core when making spatial decisions about Baroque manor ensembles or studying them. So, the ensemble's significance today is defined by preserved authentic landscape elements in the manorial landscape and manorial ensemble. From the standpoint of Baroque spatial impressions within the ensemble, it is important that the borders and transitions between parts of the space have been marked. In order to continue as valuable architectural phenomena, in time and space, as authentic as possible, the spatial compositional relations between the ensemble and landscape need to be preserved.

A Baroque ensemble, as a historically valuable composition, inevitably raises questions about the objects and phenomena that characterize its age and authenticity (Robertson 2007, 27–34). Above all it is connected to the duality, inherent to manorial ensemble's parts which, are expressed during the natural aging process of the ensemble when the principal difference is the change in living and non-living ensemble elements. An authentic historical building complex can have very few changes happen to them in a certain spatial situation when competent maintenance and conservation or restoration is applied. Protective values attributed to manor parks within the context of parks under nature conservation (Nutt, Paju 2011, 14–15) are mostly based on the current situation. Therefore, in the context of contemporary manor ensembles, the definition of a "Baroque park" can stand for very different park structures. In the case of historical landscape and park a principal conflict arises between the ensemble as an architectural phenomenon and ensemble as a historical cultural phenomenon when trying to understand and give meaning to the Baroque manor core. This is a serious problem when making decisions both in restoration and planning. Ian Laurie writes: "*So gardens which, are originally built to exploit a site, or to impose on it an owner's will and taste may evolve, mature, suffer from neglect and return to wilderness or even be re-planned and replanted, in part or whole, over periods as short as a lifetime, or as long as several centuries. The process of continuous change may destroy the past, but also, where skill and sensitivity are present, change may strengthen the character and the beauty of a garden*" (Laurie 2007, 89–90). The transformed park's vegetation and other landscape elements redesigned in time due to natural processes are one of the attributes of historical ensemble's age and authenticity. Therefore, even if their visual expression in detail does not suit the Baroque period's architectural paradigm, they still are as authentic parts of the ensemble's significance carriers (Prosper 2007). When considering that the manorial ensemble as an architectural conceptual composition is valuable due to its cultural historical significance, whose existence presumes the preservation of patina in its broadest sense, and then the spatial decisions connected to manor ensembles must ensure the preservation of significant elements that portray authenticity and historical dimension (Jokilehto 2007, 7).

As research and observations have shown, the change in values attributed to the manor ensemble or to its conceptually connected landscape relate with the following (*Figure 79*):

- Demolition, construction and development works done on buildings and infrastructure (including reconstruction and restoration works) which, changes the spatial structure of the ensemble, structure of buildings, use of infrastructure, openness of the landscape on compositional axes towards landmarks or other important views in a manner that results in a change in the ensemble's spatial structure, milieu or views;

- Demolition, construction and development works of large scale corridor structures (for example highways, electric lines etc) and technological structures that change the milieu, spatial structure of the ensemble and views;
- Construction, land improvement, agricultural or forestry works that result in the change in environmental conditions which, in turn, might result in the changes in ensemble's views, vegetation, use of buildings and structures creating physical changes in the ensemble's space or in the surrounding landscape (paludification, breaking due to wind, damage or destruction of buildings or structures etc);
- Abandonment, cluttering, insufficient maintenance of buildings that results in dilapidation and overgrowth.

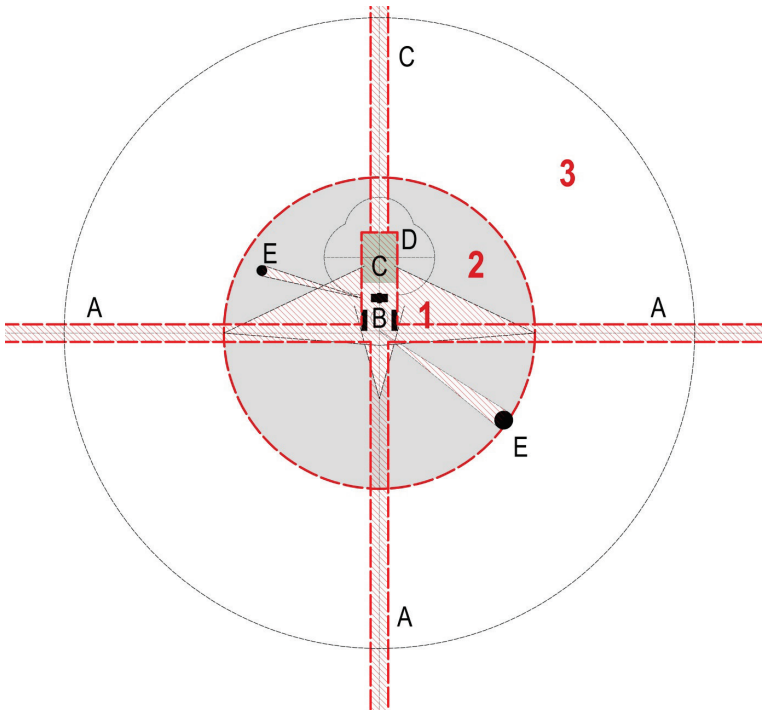

Figure 79. Areas of sensitivity. 1 – 3: Degrees of sensitivity of Baroque manor ensemble and manorial landscape to spatial changes. A – E: regions connected to compositional axes of the manor ensemble and views.

Activities highlighted in points 1 to 4 influences the ensemble's space even when spatial decisions made within them do not directly physically or legally deal with the regions or objects connected to the manorial core but delineate the spatial activities in the conceptual space defined by the manorial ensemble. Generally the activities mentioned in points 1 to 4 are not reversible which, means that the spatial changes caused by them create the loss of authenticity. Figure 79 shows sensitivity of Baroque manor ensemble and manorial landscape to spatial changes. Changes in ensemble, manor core and main view corridors (considering the typical view width connected to view distance (Nurme 2004, 39)) causes a strong influence on the ensemble's space. In areas close to the ensemble (contact zone) the changes occurring on certain conditions

might or might not influence the ensemble's space. Changes in manorial landscape (region influenced by the manorial ensemble and connected to it by spatial ideology) occurring there generally do not influence or have little influence on the ensemble's space. The greatest impact on the manor ensemble is caused by spatial changes in the heart of the manor and in the key views.

The changes in manorial landscapes due to the change in general approach to space and paradigm of land use are natural and inevitable. The change in the landscape image and pattern follows over time. In the case of traditional land use the spatial changes are generally not ground breaking. People adjust to the altered spatial situation during the change and according to this the milieu and identity of the place transform which, is why in the manorial ensembles where traditional land use has been preserved, a spatial structure true to the era is also preserved (Nurme et al 2014). More so, it can be said that even when some of the characteristic landscape objects or elements connected to them have disappeared, the complicated Baroque approach to space can preserved authentic structures and compensate for the changes in space due to modified or destroyed structures. This is how, for example, the naturally grown vegetation compensates for the allées disappeared from the access roads, the use of historic road corridors marks the manorial landscape's historic layout, new buildings respecting the old building structures mark the historic ensemble's space etc.

The changes become a problem when they result in the alteration of the ensemble or the landscape, spatial structure, views, milieu or use which cause a disappearance of the ensemble's values (McCallum 2007, 37). Therefore, it can be said that the spatial decisions made in manor ensembles and landscapes can be divided as follows:

- Neutral – decisions that do not affect the significance of the ensemble (Figure 80);
- Positive/supportive – decisions that support the historical-architectural composition and as a result the significance of the ensemble are better highlighted (Figure 81);
- Negative/destructive – decisions that is destructive to the historical-architectural composition and as a result the significance of the ensemble are decreased (Figure 82).

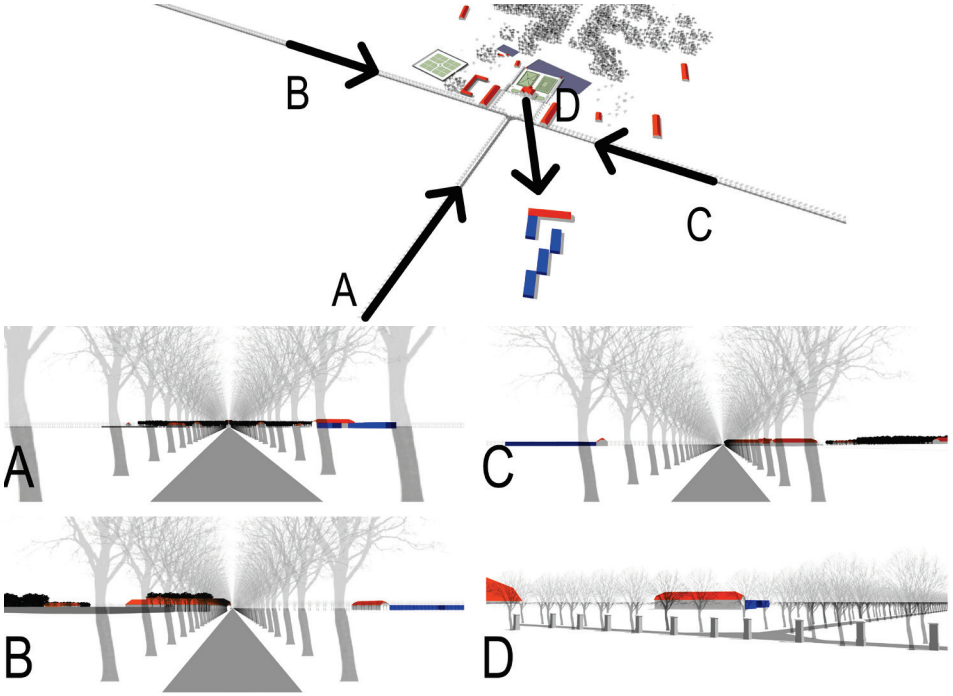

Figure 80. An example of a neutral object in volume influencing the most important views of the Baroque manor ensemble in manorial milieu.

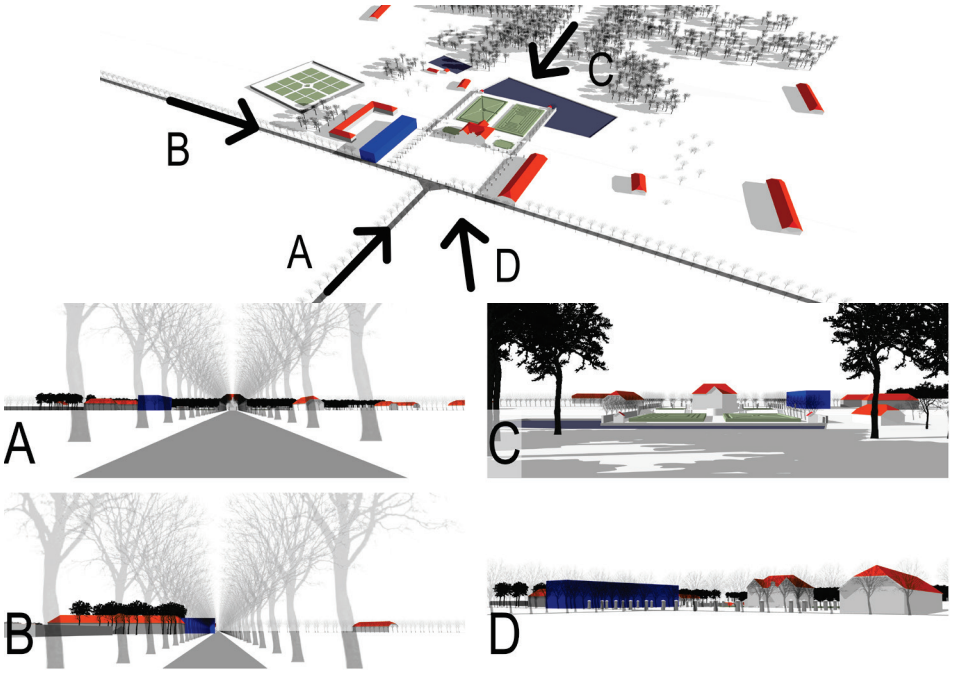

Figure 81. An example of an object that supports the manorial landscape's milieu in volume and how it influences the most important views of the manor ensemble.

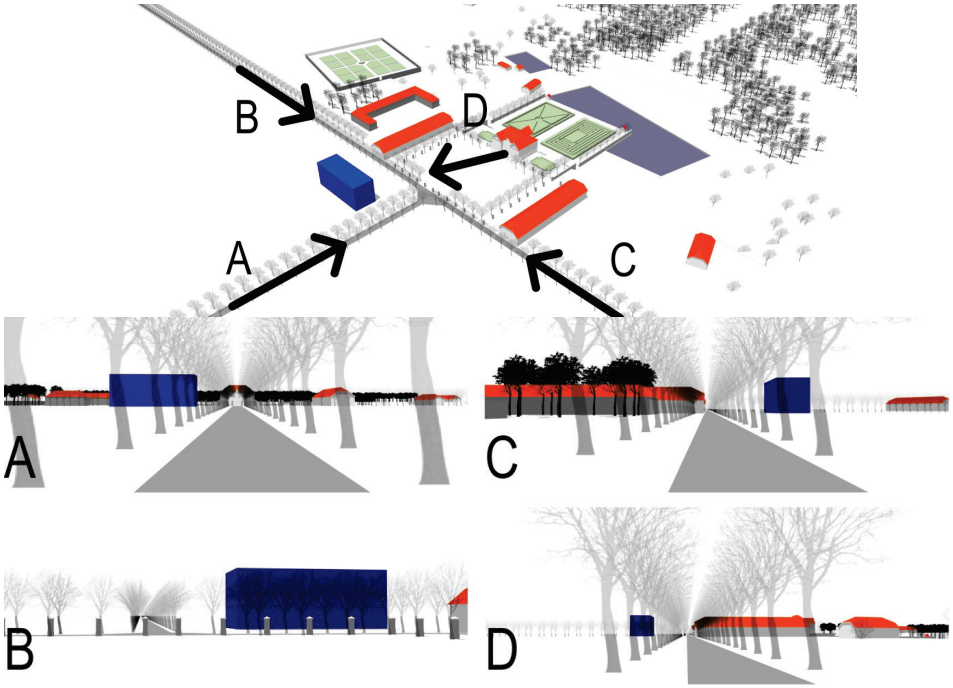

Figure 82. An example of an unsuitable object in volume and quality in the manorial landscape that has negative influence on the most important views of the Baroque manor ensemble.

In principle, the largest disturbances in the perception of manor ensembles are caused by the spatial decisions that affect views as they result in the addition of dominant objects to ensemble's space or its contact zone and their location blocks the views in key directions of the ensemble. In Figure 79, regions of the manor ensemble or manorial landscape are portrayed where changes have varying degrees of impact on the views of the ensemble or its spatial structure. Definition of regions has taken into account the areas of the ensemble and its main axes. Construction of view corridors has used the common view width of 28–30° and relative lengths of view corridors resulting from view distances (Nurme 2004, 39)). As expected the ensemble is most influenced by the changes happening in the frontcourt and backcourt of the ensemble and in the park and also the changes in manorial landscape's regions connected to compositional axes and main views. Historically, the manorial landscape was open around the ensemble's core, which ensured the visual and ideological dominance of the main building in the landscape and from afar. At the same time it is not important that the ensemble's core is viewable from all sides of the landscape but according to the Baroque spatial program from the main access roads and from the landmarks connected to the ensemble in the landscape (or vice versa). Views connected to the main axes are restricted with the allées bordering them and directed towards the manor core when approaching the ensemble. Due to perspective phenomenon the views from the allée towards the surrounding landscape when approaching the manor core are limited, then the allée trees on both sides of the allée do not significantly influence the views onto the ensemble. When approaching the manorial core, approximately 150 to 300m from the main gate, the visual impact of the manorial core (main building) along the access roads on the central axis and on the intersecting and diagonal axes starts to increase. Thus, preparing the visitor for a surprise

when they arrive on the frontcourt, hence, it is important that the historical openness of space is preserved in regions related to the view. Since the view from the frontcourt to the landscape is restricted by access road allées crosswise to the main axis, it is important that there are no disturbing objects in the similar reach (ca 300m) in the view from the access road when looking through trees towards the landscape. In order for the main road allées to come forward as wholesome architectural elements it is important that the tree rows are undisturbed and the buildings and structures do not reach the allée space. The minimal reach of the allée space on the outer border of the avenue is defined by the width of existing tree crowns.

The most important view of the backcourt and park is the view along the main axis directed towards the landscape. This is why it is important to keep the view corridor open in its historical reach. According to the historical context, the park and landscape area bordering the backcourt might have been open, semi-open or closed and its spatial configuration was defined by the associated buildings not connected to the court of honor, kitchen gardens, terrain, bodies of water and agricultural land slots. Generally the backcourt and park were separated from the landscape in other directions which, is why changes in the contact zone of the park and backcourt borders, if they take into consideration the milieu, position and volumes derived from the contact zone's historical-spatial context, there might not be a significant influence on the ensemble's space. As the views from the backcourt and park that were directed towards them and crosswise to the main axis were often internal, then they were mostly influenced by changes in the spatial structure within the ensemble.

In addition to the location and volume, influence of the objects and phenomena connected to the changes is related to their nature and use. Problematic are the structures and buildings that are dominant in their volume (height, spatial reach etc) or visual quality (color, façade design etc) being built on spatially sensitive areas. Problematic are also the neutral structures that volume-wise principally interfere less but due to their specific use an unnecessary influence is added to the milieu and ensemble's space (for example parking lots, roadblocks and other structures connected to transportation, infrastructure, communication and energy production or transmission structures, sports facilities etc). Views and milieu development activities of regional settlement structures might turn out to be not suitable, even in cases where it is not directly located on sensitive regions or is located directly on their border and this might cause changes influencing the significance of the ensemble (Nurme, et al., 2014). Generally forestry and agricultural activities happening on the manor landscape influence the openness of the landscape. A rather common problem is the discontinued use of agrarian lands which, leads to overgrowth and closure of the landscape and views of key importance around many manorial cores (Tarkin 2011; Nurme 2016a). Problematic are also the forest management works happening in the contact zone of the backcourt and park region that borders the forest. Primarily, the cutting down of trees which, results in the change in the ensemble's spatial context in main views. Forest is renewable, reaching its first effect of closing a space with the composition in 20 to 40 years, but the change in the common landscape image and milieu directly affects the ensemble's values. A problem that follows when the landscape is opened up too quickly on the borders of old park trees is the danger of wind breaking down the rest of the trees.

In general, the values of a historical landscape, including attributes that characterise authenticity and age, are not affected by traditional land use, classical landscape management works, conservation, restoration or marking of historical objects and

spaces. However, the reconstruction, adjustment or large scale restoration of a historical ensemble's space or its landscape can have varied effects on the ensemble's values: generally the restoration of the ensemble's architectural space betters its visual perception and significance, connected to it, increases the architectural and artistic value of the ensemble. This inevitably means that one historical layer was preferred and the authenticity is lost and historical significance is questionable or even decreased which, has been the topic of discussion in the field in many historical restorations of compositions (Robertson 2007, 26–34). As previously mentioned the problem of authenticity in the sustainable management of manorial ensemble and landscape is an inevitable part when making spatial decisions (Malecki 2001, 41–53) because in order to sustain a wholesome ensemble the Baroque vegetation composition due to its temporal nature and specific maintenance (topiary) needs to be periodically exchanged. Therein, it is not possible to define one universal approach. The choice is made difficult due to the fact that the value of ensemble's authentic details changes relatively quickly in time which, is why the preservation of a specific spatial situation is limited in time (Nurme 2008, 225–245). Therefore, it is primary in spatial decisions about Baroque ensembles and Baroque manorial landscapes that the buildings defining the ensemble's character (ensemble's core) and historical built environment preserve its authentic spatial structure (Nurme 2014 a).

New objects and compositions of objects that are created as a result of spatial decisions about manorial ensembles can support the Baroque ensemble's spatial impression. First and foremost, it is possible in situations where some part of the ensemble or ensemble as a whole needs to adapt physically, functionally and/or conceptually to a different context of space (significantly different from the ensemble's space), but generally in the following situations (Figure 79):

- Situation where new structures spatially mark a destroyed part of the ensemble: building, infrastructure or park;
- Situation where new structures isolate the unsuitable (to ensemble's milieu and concept) objects or phenomena in the contact zone or parts of the ensemble that are axially and visually connected to the ensemble;
- Situations where new structures support the Baroque space logic, for example positioning new road trajectories, construction lines, height or architectural design of new buildings in contact zone according to the composition of the ensemble's space.

Due to the processes that took place within the ensemble and landscape through time, all current historical architectural object and experiences do not have equal value or significance, hence, the spatial decisions, especially in the context of limited financial means, need to follow the main architectural idea during management, conservation, restoration or modification activities. This is one of main concerns, when approaching archaeological monuments, ruins and also historical gardens and parks (Liptay 1997; Bourke 1983; Jokilehto 2007; Ashurst 2007; Laurie 1983 etc). In the management of a valuable historical landscape, a common practice is to focus on a specific era or a pre selected idea, however, the influence of these decisions must remain as neutral as possible towards other layers which, is why it is important to remember that objects related to one historical layer should not be preferred over others, thereby protecting the ensemble's historical values (Fairglough 2006, 55–74). In addition to 18th century

Estonian baroque manor cores, there are often traces classicist and historicist layers, which are one part of today's manorial core's image and milieu. *"Effective conservation relies upon a full and effective assessment of /.../ elements of significance, followed by an accurate analysis of their relative importance,"* (Sales 2000, 73). This is why defining values and fundamental elements remain complicated.

Furthermore, the effect of changing values is much broader. Intense spatial decisions inevitably bring along the change in significance for the whole community. If it is possible to manage the manor ensemble in a sustainable manner and carry on its agreed upon values on certain conditions as in the museum, then the manorial landscape can only be protected as a cultural phenomenon that is integrated in the living space of the local community and is being valued in the same manner by the local community. In the conservation instructions for monuments compiled by the English Heritage organization that is connected to the management of over 400 historical landscapes in England notes, *"The historic environment is not constantly changing, but each significant part of it represents a finite resource. If it is not sustained, only are its heritage values eroded or lost, but so is its potential to give distinctiveness, meaning and quality to the places in which, people live, and provide people with a sense of continuity and a source of identity. The historic environment is a social and economic asset and a cultural resource for learning and enjoyment"* (Drury, McPherson 2008, 67). This thought can be extended to the Estonian context – when the specific characteristics of manorial landscape are significant to the local community, then it is one of the safest guarantees that the manorial landscape values will be preserved.

6.2 Research questions summarized

This study aimed to answer three main questions.

1. What was the architectural composition and spatial structure of the 18th century Estonian baroque manor ensemble and what objects and phenomena were important during its creation in 17th–18th century?

As discussed in Chapters two and three, the spatial program of Baroque Baltic *villa rustica* is conceptually comparable with the general concept of Baroque spatial ideology (discussed in Chapter two), although for historical reasons, as discussed in Chapter 3, it was embraced there quite late. Local Baroque was an interpretation of a European architectural approach but some of the differences in practices were due to the geographical location of Estonia. Local architecture was influenced by German, Swedish and, through St. Petersburg, also by French and Italian architectural schools. Compared to the European manor ensembles, Baroque ensembles in Estonia remained small and compact; its design was well balanced and rather modest.

2. What types of spatial characteristics, objects and phenomena are fundamental nowadays, so that the manor core is spatially perceived as a historical Baroque ensemble?

This question is addressed comprehensively in Chapter 4. The following main characteristics are essential to the spatial composition of the Baroque Estonian manor ensembles and landscapes.

- The frontcourt, main building, backcourt and park are classically positioned on a central axis. However, the backcourt and park were often shifted or positioned

on an angle towards the main axis. Mainly this was due to the location of medieval fortifications, agricultural lands or peculiarities of the local topography.

- Characteristic to local ensemble, the *cour de'honneur* was not bordered by the wings of the main building but with two or more outbuildings positioned crosswise on two sides from the main building.
- The emphasis of the main axis and the crosswise axises were designed as view directions reaching the landscape, even when the directions of axises were not functionally optimal for building the main access roads. Therefore in Baroque planning practice common motif of *patte d'oie* was very rarely used.
- View direction from the park towards the landscape may have been amplified but rather often it was not emphasized; parallels can be drawn with the ensembles of North-Germany. Generally the crosswise axes were marked within the park.
- The landscape connected to ensemble's frontcourt was typically open, landscape bordered by backcourt and park might have been open, partially open or closed.

3. What are the possibilities for dealing with the Baroque manor core and its landscape contact zone without modifying or destroying its significance?

   a) What kind of spatial changes in the ensemble or its contact zone decrease or destroy the significance of the historical Baroque manor ensemble?

   b) What kind of spatial changes in the ensemble or its contact zone do not have a negative impact to the Baroque ensemble?

   c) What kind of spatial changes in the ensemble or in its contact zone may increase or add to the significance of the Baroque ensemble?

As the discussion in chapter 5 and 6, manorial ensembles to date have preserved their spatial dominance in the landscape. Above all this relates to the specific shape of the manorial core that manifests itself in the landscape along with its views and roads directed towards the main building as rays. Today, manorial cores appear as ensembles whose surrounding contact zones are characterized by historical land uses and roads radiating from the manorial core. In general, there is a fragmented preservation of manor ensembles. Since the role of the manor, as a functional, cultural and ideological phenomenon has changed, the manor today becomes significant mostly as a historical cultural phenomenon whose field of significance is primarily experienced through preserved manor architecture. An authentic manor ensemble, as an architectural object, holds a relatively similar recognizable (the least changed in time) field of significance in the context of 18th century and today. Therefore, the field of significance from 18th century defines the nature of the manor ensemble and the field of significance from today defines the ensemble's significance.

The following table summarizes the impact of space decisions on the manor ensemble and the manor landscape based on decisions impact to significance.

Table 2. Impact of spatial decisions in manorial ensembles and landscape.

SPATIAL DECISIONS		
NEUTRAL	NEGATIVE / DESTRUCTIVE	POSITIVE / SUPPORTIVE
Conservation and maintenance. Responsible reconstruction and restoration which, do not change omitted values of the ensemble. All planning and building activities whose spatial influence does not change the architectural and/or historical significance and authenticity.	Activities that change the significance and meanings of any valuable physical or nonphysical (milieu, *genius loci*) phenomena. Activities that change conceptual architectural arrangement of the ensemble and spatially connected landscape: • destruction or splitting of the ensemble into parts; • closing crucial views and axes in the ensemble and nearby; • changing spatial openness in the ensemble or nearby; • replacing ensemble parts with objects that have spatially unsuitable qualities and volumes; • adding objects that do not support the architectural concept, meaning, milieu or identity of the Baroque manorial landscape.	Tasteful and careful restoration or reconstruction of living parts in the ensemble or in the surrounding landscape. Activities which, re-establish similar to original composition. Activities that mark physically lost ensemble elements in volume. Activities that block unpleasant views. Activities that help understand values of the Baroque landscape. Sustainable planning that respects preserved structures even when most of the perceivable Baroque essence has gone.

When making spatial decisions in Baroque manor ensembles and landscapes, it is a priority to study the landscape that the manor ensemble affects and define the conceptual values that ensure the perception of the ensemble as Baroque for every specific case. When the manor ensemble and its landscape is interpreted to be authentic in the context of 18th century manor architecture, then the affects of spatial decisions are minimized in significance or the spatial decisions that respect the authentic spatial structure can help strengthen local identity of space and restoration of the milieu. It is of utmost importance in the case of milieus:

- To preserve the traditional land use in areas of manorial landscapes connected to the ensemble with views, including the state of its landscape (open or closed state);
- To minimize the amount and volume of new or intervening structures in the manorial landscape;
- To use existing buildings instead of building new buildings in the manor cores or reconstruct new buildings in the same places and in the same volume as the destroyed buildings;
- Building new structures in accordance to the ensemble's spatial program in order not to destroy the historical composition and ruin its views;

- To plan roads using as much as possible of the historical network of roads and also take into consideration the historical widths of roads and movement logic;
- To minimize the impact of unsuitable buildings and structures within the ensemble by creating barriers with a neutral design to close views onto unsuitable structures and areas.

6.3 Significance of this Work

This work is a comprehensive analysis of the spatial structure of 17th and 18th century manor ensembles and their specific nuances. It is an in-depth exploration of a cultural phenomenon in Estonian history, one that still manifests itself in the country's landscape. The study explores principles of planning, building, conservation and maintenance of this architectural legacy connected to the landscape, and concludes that a historic, architecturally valuable, object cannot be dealt with separately from the landscape it affects. In the context of contemporary landscape architecture and spatial planning in Estonia, this topic has not been previously studied from this point of view.

The thesis represents a mixed method multi-case study approach to the research. Given the complexities of historical study, this approach is appropriate for gaining the knowledge required. Knowledge sources include source documentation of manor development and design influences, written and trace evidences of settlement patterns, historical texts addressing political and warfare influences, historic and contemporary terrain maps, researcher longitudinal on-site observations, dendrologous (woody) plant inventories, review of current planning policies and inclusion of 62 manor study sites. The depth of study, as represented by the methods employed, is strength of this research and thesis.

The study does not suggest preservation for the sake of preservation alone, but takes a realistic and context sensitive look at why and when these architecturally significant manor ensembles and cultural landscapes should be preserved. It addresses contemporary planning and development pressures within the contact zones of manor ensembles and how new development impacts these vulnerable landscapes. The study further details specific elements of significance that must be protected and how they might best be restored and maintained. As such, the study lends itself to practical applications as well as furthering our understanding of this cultural phenomenon. The practical applications of this work can be extended far beyond the restoration of manor ensembles and provide a real and needed direction for protecting and restoring any architecturally valuable historic structure and the surroundings that give it meaning and significance.

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Abstract
Understanding the Role of 18th Century Estonian Manor Ensembles in Contemporary Planning and Conservation

Prosperity of manorial culture in 18th century created prerequisites for the powerful development of manor centres. Cartesian approach to space, architecture and garden art made their way to Estonia which, over more than a century, despite the Great Northern War, plaque and famine, created a basis for a unique and universal cultural phenomenon in the context of European villa culture called *Balti villa rustica*. Manorial cores based on the Baroque approach to space became ideological and visual landmarks as the spiritual and economical centres that defined the local landscape pattern and image for centuries. Changes that occurred were ground breaking, which resulted in the development of the manorial ensemble and landscape shaped by it. Manor ensembles define the local milieu in many places and are, to date, one of the fundamental elements of the space identity. According to the paradigm of the Baroque spatial approach, the manor core needs space in order to be assertive; the expressiveness of the Baroque spatial programme cannot be understood in an intelligible manner or perceived when it is separate from the surrounding landscape. Thus, the Baroque manor core depends on the landscape and vice versa – the Baroque manorial landscape also needs a strong centre in order to define itself. Therefore, whatever spatial changes happen in the manorial core or in the landscape connected to it, they inevitably influence them both.

This doctoral thesis deals with Estonian baroque manor ensembles and the landscape connected to them as a conceptual architectural spatial whole. The wider purpose of this work was to introduce the spatial development of *Baltic villa rustica* in the period of 1670-1800 as an exciting phenomenon in Estonian building and garden art history. Three principal research questions are raised in this work which, aim to unravel the spatial structure of the Estonian baroque villa ensemble, its characteristics in the 18th century and today and how are they affected by the building and development activities today. This work is a comprehensive analysis of the spatial structure of 17th and 18th century manor ensembles and their specific nuances. It is an in-depth exploration of a cultural phenomenon in Estonian history, one that still manifests itself in the country's landscape. The study explores principles of restoration, conservation and maintenance of this architectural legacy connected to the landscape, and concludes that a historic, architecturally valuable, object cannot be dealt with separately from the landscape it affects. No other single piece of work provides the breath and detail on the history, cultural values and contemporary significance, and restoration principles for Estonian baroque manor ensembles.

This work is a combination of published articles and this volume which, is divided into six larger chapters. The first chapter introduces the research questions and methodology. The second chapter gives an overview of the general thoughts and specifics of building and garden art in Europe inherent to the Baroque villa architecture. The third chapter describes the background system of the Estonian baroque manor cores and the periods of local Baroque construction art within the context of manor architecture. The principal spatial module of Estonian baroque manor ensemble and the landscape connected to it is formulated in the fourth chapter. The fifth chapter analyses the affects of spatial decisions on manor core's values that are being made in the manor ensemble or its landscape. The final chapter presents the summary and conclusions.

Methodologically the manorial ensemble and manorial landscape related to it is being dealt with as a wholesome, conceptually significant, architectural creation, which has meaning that is defined by the ensemble's spatial programme. The significance, therein, is defined through values that help to perceive the ensemble and its landscape as Baroque. Values that the manor landscape entails can be defined, based on many aspects, differently but in this work they are concentrated on the significance that can be attributed to the manorial ensemble as a historical architectural piece while focusing on the spatial structure of the ensemble. When dealing with the manorial cores based on the paradigm of the spatial approach of 18th century, it can be said that the manor ensemble, as a spatial composition and as a field of significance, is one of the less transformed phenomena in the manor culture compared to other values attributed to manor ensembles today or in 18th century. During this work the compositional changes in 62 different manor cores were compared during two abstract moments of time: 18th century and today. As a result a spatial model of the Estonian baroque manor core was constructed. Based on this, possible affects of different spatial decisions on Baroque spatial structures were analysed. The analysis proceeded from three levels: landscape-ensemble level, ensemble level and ensemble sections level. In the first case, affects of changes were viewed on the relations between the ensemble and landscape and on its perception, in the second case on the structure of the ensemble and perception of the composition, in the third case on the specific sections of the ensemble, such as frontcourt, backcourt and park. Based on the analysis, areas were formulated that are sensitive to change in manor ensembles and in their landscapes (which, means that the activities not in coherence with the ensemble's space happening in these areas change the significance of the ensemble), neutral to change (spatial changes do not affect the significance of the ensemble) or positive to change as they can amplify the Baroque spatial expression on certain conditions (changes that can increase the value of Baroque space and through it increase its significance). In general, the Baroque manor ensemble is spatially vulnerable on the main building's central axis and on the view directions, both towards the main axis and towards the sides, defined by intersecting axes in front of the frontcourt. In the backcourt and park the more sensitive regions are the area directly bordering the ensemble and the view direction on the central axis extending into the landscape. Any spatial intervention within the ensemble and its parts that does not take into account the volumes and design of the ensemble might decrease its values as a whole.

The study does not suggest preservation for the sake of preservation alone, but takes a realistic and context sensitive look at why and when these architecturally significant manor ensembles should be preserved. It addresses contemporary planning and development pressures within the contact zones of manor ensembles and how new development impacts these vulnerable landscapes. The study further details specific elements of significance that must be protected and how they might best be restored and maintained. As such, the study lends itself to practical applications as well as furthering our understanding of this cultural phenomenon. The practical applications of this work can be extended far beyond the restoration of manor ensembles and provide a real and needed direction for protecting and restoring any architecturally valuable historic structure and the surroundings that give it meaning and significance.

Lühikokkuvõte
Eesti 18. sajandi mõisaansamblid 21 sajandi maastikuplaneerimises: avastamine, mõistmine, tõlgendamine

Põhjasõjajärgne mõisakultuuri õitseng Eestis lõi eeldused mõisakeskuste jõuliseks arenguks. Kartesiaanlik ruumikäsitlus, arhitektuur ja aiakunst leidsid tee ka Eestisse, mistõttu pisut rohkem kui sajandi jooksul Põhjasõja, katku ning näljahädade kiuste pandi siin alus Euroopa villakultuuri kontekstis ühelt poolt unikaalsele ning teisalt universaalsele kultuurinähtusele, mida on nimetaud ka kui Balti villa rustica. Baroksele ruumikäsitlusele ülesehitatud mõisasüdamed tõusid vaimu- ja majanduskeskustena ideoloogilisteks ja visuaalseteks maamärkideks, määrates aastasadadeks lokaalse maastikumustri ning maastikupildi. Toimunud muutused olid murrangulised ja põhimõttelised, mille tulemusel kujunenud mõisaansambel ja selle poolt vormitud mõisamaastik määravad väga paljudes kohtades lokaalse miljöö ja on üheks koha identiteedi alustalaks tänini. Barokse ruumikäsitluse paradigmast tulenevalt vajab mõisasüda enese kehtestamiseks ruumi; barokse ruumiprogrammi kogu väljendusrikkust ei ole võimalik arusaadavalt mõista ega tajuda lahus seda ümbritsevast maastikust. Nii sõltub barokne mõisasüda maastikust ning vastupidi – ka barokne mõisamaastik vajab enese määramiseks tugevat keskust. Seetõttu mistahes ruumilised muutused mõisasüdames või sellega seotud maastikus mõjutavad paratamatult mõlemat.

Käesolev doktoritöö käsitleb Eesti barokseid mõisaansambleid ja nendega seotud maastikke ruumilise kontseptuaalse arhitektuurse tervikuna. Käesoleva töö laiem eesmärk oli tutvustada Balti *villa rustica* ruumilist kujunemist aastatel 1670–1800, kui üht põnevat fenomeni Eesti ehitus- ja aiakunstiloos. Töös püstitatakse ka kolm põhimõttelist uurimisküsimust, mille üldiseks eesmärgiks on lahti mõtestada Eesti barokse villaansambli ruumiline struktuur, selle karakteristikud XVIII sajandil ja tänapäeval ning kuidas neid mõjutab ehitus- ja arendustegevus tänapäeval.

Töö jaguneb kuueks suuremaks peatükiks, millest esimene käsitleb uurimisküsimusi ja metoodikat. Teine peatükk annab ülevaate baroksest baroksele villarhitektuurile omasest üldisest mõtteraamistikust ning ehitus- ja aiakunsti spetsiifikast Euroopas. Kolmas peatükk käsitleb Eesti baroksete mõisasüdamete taustsüsteemi ning kohalikku ajastusisest barokse ehituskunsti periodiseeringut mõisaarhitektuuri kontekstis. Neljandas peatükis formuleeritakse Eesti barokse mõisaansambli ja sellega seotud maastiku põhimõtteline ruumimudel ning viiendas peatükis analüüsitakse mõisaansamblis või sellega seotud maastikes tehtavate ruumiotsuste mõju mõisasüdame väärtustele. Viimases peatükis esitatakse kokkuvõte ning järeldused.

Metoodiliselt lähtutakse mõisaansamblist ja sellega seotud mõisamaastikust kui terviklikust kontseptuaalsest tähenduslikust arhitektuuriteosest, mille tähenduse defineerib ansambli ruumiprogramm. Tähenduslikkust määratletakse seejuures läbi väärtuste, mis aitavad ansamblit ning sellega seotud maastikku kogeda baroksena. Mõisamaastikku kätketud väärtusi võib defineerida paljudest lähtekohtadest tulenevalt mitmeti, kuid käesolevas töös vaadeldakse kitsamalt väärtusi mida saab omistada mõisaansamblile kui ajaloolisele arhitektuuriteosele, keskendudes ansambli ruumilisele ülesehitusele. Käsitledes mõisasüdameid XVIII sajandi ruumikäsitluse paradigmast lähtuvalt võib öelda, et mõisaansambli kui ruumilise kompositsiooni kui väärtustekompleksi tähendusväli, võrrelduna muude mõisaansamblile XVIII sajandil

omistatud või täna omistatavate väärtustega, on ajas ilmselt üks vähem transformeerunud fenomene mõisakultuuris.

Töö käigus võrreldi mõisasüdame kompositsiooni muutusi 62-s erinevas mõisasüdames kahel abstraktsel ajahetkel: XVIII sajandil ja kaasajal. Selle tulemusel konstrueeriti Eesti barokse mõisasüdame ruumiline mudel, mille baasil analüüsiti erinevate ruumiotsuste tulemuste võimalikke mõjusid baroksetele ruumistruktuuridele. Analüüsil lähtuti kolmest tasandist: maastiku- ansambli tasand, ansambli tasand ja ansambliosa tasand. Esimesel juhul vaadeldi muudatuste mõju ansambli- ja maastiku suhetele ning tajutavusele, teisel juhul ansambli ülesehitusele ja kompositsiooni tajutavusele ning kolmandal juhul konkreetsetele ansambli osadele, so esiväljakule, tagaväljakule ja pargile. Analüüsi põhjal formuleeriti ka piirkonnad mõisaansamblites ning nendega seotud maastikes, mis on muudatustele tundlikud (st mille piires toimuv ansambliruumiga mitte kooskõlas olev tegevus muudab ansambli tähenduslikkust), muudatuste suhtes neutraalsed (st, ruumimuudatused, mille mõjul tähenduslikkus ei muutu), või mille piires teatud tingimustel tehtavad muudatused võivad barokset ruumimuljet võimendada (st, muudatused, mis võivad barokse ruumi väärtusi ja seeläbi ka selle tähenduslikkust suurendada). Üldjuhul on barokne mõisaansambel ruumiliselt haavatavam peahoone kesktelje ja sellega esiväljaku ees ristuvate telgedega määratud vaatesuundades nii peatelje sihil kui külgsuundadest. Tagaväljaku ja pargiosas on tundlikumad vahetult ansambliga piirnev ala ning kesktelje maastikku ulatuv vaatesiht. Ansambli- ja ansambliosade siseselt võib mistahes ruumiline sekkumine, mis ei arvesta ansambli mahtude ja disainiga vähendada selle väärtusi tervikuna.

Kui mitut ansamblit tänases Eestis võiks sajaprotsendiliselt barokseks pidada, on, tulenevalt XIX–XX sajandi muutustest väga raske, kui ehk võimatu öelda. Seetõttu saab täna barokkansambli väärtustamisel ja kogemisel rääkida säilinud ansambli ning sellega seotud üldisest ruumilisest struktuurist ning tingimustest mis juhul ruum on tajutav barokse villaansamblina. Seejuures tuleb juhinduda barokkansambli olemuslikest nähtustest ning neile omistatavatest väärtustest, st kas ja kuidas need on tunnetatavad *in situ.*

Appendices

Appendix 1

List of studyed manors

1. Ahja
2. Arbavere
3. Audru
4. Elistvere
5. Haeska
6. Harku
7. Humala
8. Hummuli
9. Kaagvere
10. Kassinurme
11. Kasti
12. Kiikla
13. Kodila
14. Koigi
15. Kolga
16. Kuremaa
17. Kõljala
18. Kõrgessaare
19. Loodi
20. Luke
21. Luua
22. Luunja
23. Lööne
24. Maardu
25. Maidla (Lüganuse)
26. Malla
27. Matsalu
28. Mäetaguse
29. Ohtu
30. Padise
31. Palmse
32. Pidula
33. Pilguse
34. Purdi
35. Puurmani
36. Põlgaste
37. Raikküla
38. Rasina
39. Riidaja
40. Rogosi
41. Roosna-Alliku
42. Rägavere
43. Saare (Maarja)
44. Sagadi
45. Salla
46. Sikassaare
47. Sipa
48. Sutlema
49. Suure-Lähtru
50. Suuremõisa
51. Tilsi
52. Tumala
53. Urvaste
54. Uue-Suislepa
55. Uue-Varbla
56. Vana-Võidu
57. Vasta
58. Vatla
59. Väimela
60. Vääna
61. Väätsa
62. Õisu

Appendix 2

Publication I

Estonian baroque Manor Park and Today: Discovery, Understanding, and Restoration

Nurme, S. 2014. Eesti barokne mõisapark ja tänapäev: avastamine, mõistmine, taastamine. (Estonian baroque Manor Park and Today: Discovery, Understanding, and Restoration) Rahvusvaheline konverents KADRIORG 295 – Barokne park tänapäeval (Kadriorg 295 – Baroque Park Nowadays). Marika Valk (Toim.). Artiklite kogumik (142−158). Asutus Kadrioru Park 2014.

EESTI BAROKNE MÕISAPARK JA TÄNAPÄEV: AVASTAMINE, MÕISTMINE, TAASTAMINE

Sulev Nurme

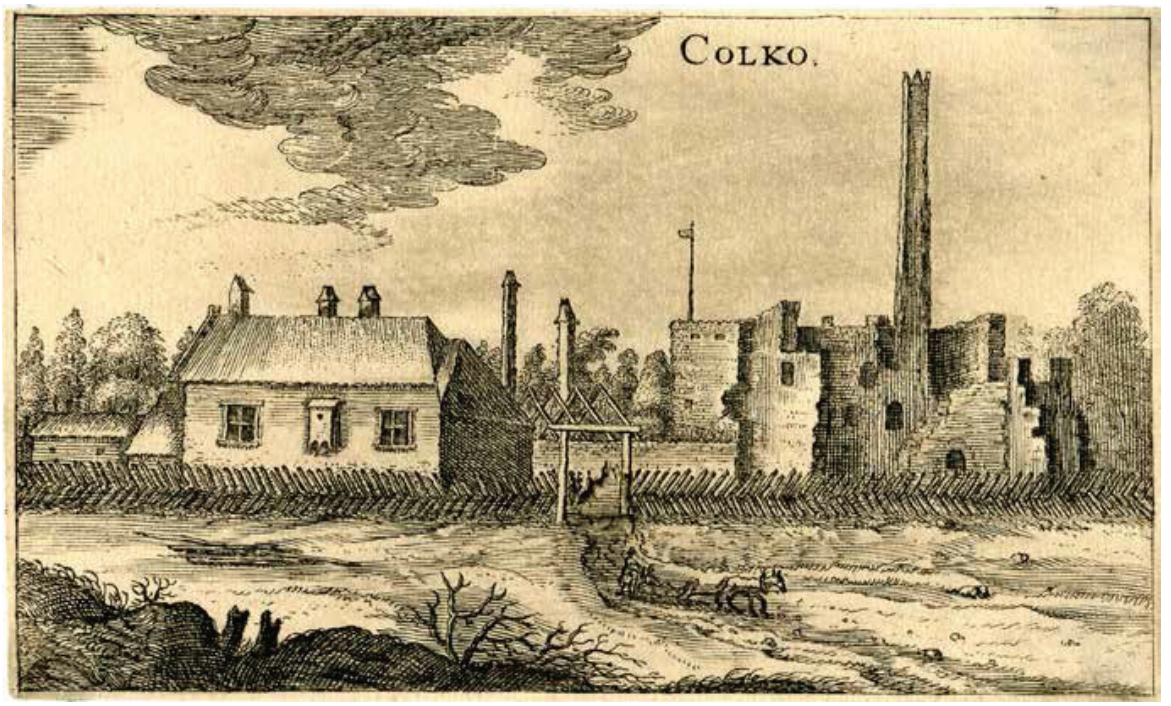
Avastamine

Eesti baroksed mõisapargid, mille jälgi leiab maastikus tänini, ilmuvad 18. sajandi keskpaiku, mil maa hakkas toibuma Põhjasõjast. Vaid mõnikümmend aastat hiljem hakatakse esimesi parke looma ja ümber kujundama inglise stiilis. Pargikunsti ajaloo seisukohalt on teatav määramatus Eestimaa baroksete mõisaparkide ümber põnevaks uurimisobjektiks, mis jätab palju võimalusi oletusteks ja spekulatsioonideks. Probleemiks osutub see aga igapäevases praktilises restaureerimistöös, kus reaalsete otsuste langetamisel ei saa jääda ebakonkreetseks.

Barokkpargist rääkides kangastub enamuse silme ees mõne Euroopa 17.–18. sajandi võimsa ja vägeva materialiseerunud unistusest aiast kui paradiisist. Barokkpark kui tollase lossiarhitektuuri lahutamatu osa peegeldab oma ajastu olemuslikke tunnusjooni, mille eemärgiks on üllatada ja veenda[1]. Tollase pargikunsti karakterit võiks kokku võtta samade märksõnadega, millega iseloomustab Christian Norbert-Schultz kogu barokkajastu ehituskunsti – süsteemsus, tsentraliseerumine, ekspansiivsus ning dünaamilisus[2]. Barokkpark – see on peensusteni läbi mõeldud ja kindlatele vormiprintsiipidele allutatud, näiliselt kiirtena lõpmatusse ulatuv, mänglev ja meeleline maastik, mille visuaalseid ja märgilisi keskusi markeerivad broderiipitsiliste peenardega ümbritsetud paleed, peegeltiigid, paviljonid ning geomeetriliselt perfektne ruumisüsteem. Barokse pargikultuuri ajastu Euroopas jääb üldistatult aastatesse 1600–1750[3], seejuures arvestades, et suur osa tavapäraseid kujundusdetaile ning ka pargi ruumilise kujundamise põhimõtteid pärinevad 16. sajandi Itaaliast[4]. Kitsamalt räägitakse üle Euroopa ja asumaadessegi levinud barokkpargist siiski kui pargikunstist, millele pandi alus Vaux-le-Vicomte'is ja Versailles's. Seega perioodist, mille algust võiks tähistada André Mollet' ja Jacques Boyceau traktaadid[5]. Barokse aiakunsti lõppu on tegelikult keerulisem määratleda, sest juba 18. sajandi esimesel poolel kujundati aedu ja parke paralleelselt nii prantsuse kui ka inglise pargistiile jälgides. Kui näiteks rokokoohõngulise Sanssouci ehitusega alustati 1745. aastal[6], siis vaid kümmekond aastat hiljem tehti algust maastikulise Wörlitziga[7].

Eelnev arutlus barokse aiakunsti periodiseeringust on mõnevõrra oluline Eesti sama ajastu pargikunsti lahtimõtestamisel. Nii aedade ja parkide kujundust käsitlevad teosed kui ka praktilised kogemused jõudsid Eesti- ja Liivimaale teatud ajalise nihkega, kuid tuues paralleele ehituskunstiga, siis arvatavasti juba 17. sajandi viimastel kümnenditel[8]. Eesti tollastest ajaloosündmustest tulenevalt[9] leidub mõisaparkide kohta arvestatavaid allikmaterjale ning jälgi natuuris pärast Põhjasõda alates 1730. aastatest. Esimesed katsetused inglise stiilis pargikunstiga Eesti mõisaparkides pärinevad juba 1770.[10]–1780. aastatest[11], ent kuna 18. sajandil välja kujunenud mõisasüdamete

1. Ch. Norberg-Schulz, Baroque Architecture. New York: Electa/Rizzoli, 1986, lk 10.
2. Samas, lk 10–11.
3. T. Turner, European Gardens: History, Philosophy and Design. London, New York: Routledge, 2011, lk 221–227.
4. E. Kluckert, European Garden Design. From Classical Antiquity to the Present Day. Tandem Verlag GmbH, 2007, lk 144.
5. E. Barlow-Rogers, Landscape Design. A Cultural and Architectural History. New York: Harry N. Abrams Publishers, 2001, lk 194–196.
6. W. Kurth, Sanssouci. Seine Schlösser und Gärten. Berlin: Henschelverlag Kunst und Gesellschaft, 1971, lk 9.
7. B. G. Ulbrich, H. Erfurth, Wörlitz. Dessau: Anhaltische Verlagsgesellschaft mbH, 2000, lk 18–19.
8. A. Hein, Eesti mõisaarhitektuur. Historitsismist juugendini. Tallinn: Hattorpe, 2003, lk 15.
9. J. Maiste, Eestimaa mõisad. Tallinn: Kunst, 2005, lk 62.
10. A. Hein, Eesti mõisaarhitektuur ..., lk 22.
11. J. Maiste, Õisu mõis ja park 1845–2008. Ajalooline õiend. Tartu: Artes Terrae OÜ, 2008, lk 7.



planeeringulised põhimõtted olid sageli kasutusel veel 19. sajandi esikümnenditelgi[12], siis võiks Eesti barokse pargikunsti ajastu mahutada aastate 1680–1800 vahelisse perioodi. Loomulikult on määratlus hinnanguline ning diskuteeritav, eriti perioodi alguse osas. 17. sajandist ei ole märkimisväärset graafilist materjali säilinud. Tuntud Adam Oleariuse 1645. aasta gravüür Kunda mõisasüdamest[13] näitab ristkülikukujulise põhiplaaniga suletud õuega hoonekompleksi, mille planeeringus pole tuntavaid barokseid jooni. Kui aga vaadelda tollast Cēsise linnuse kõrval asunud aia plaani 1690. aastast[14] on selge, et tegemist on olnud selgelt barokse pargiruumiga.

Lähtudes eelnevalt määratletud perioodist, võib Eesti- ja Liivimaa baroksed pargid sõltuvalt ruumilisest ülesehitusest, suurusest ning maastikulistest seostest omakorda perioodidesse jaotada.

(1680)–1700. Pargiosa ja hooned olid omavahel ansambliliselt peahoonega sidumata või nõrgalt seotud, planeering lähtus pigem kohalikust topograafiast. Pargi-aiaosa oli väikese pindalaga[15], domineeris ilmselt tarbeaed, arvatavasti kasutati alleesid. Reljeefi liigendatus sõltus oletatavasti kohalikust topograafiast. Üksikute 17. sajandi lõpust säilinud hoonestusega mõisasüdamete, nagu Vana-Pääla või Välgita, aiad-pargid olid väikesemõõdulised ning paiknesid peahoone taga või küljel. Ruumiliselt ülesehituselt võis tegu olla pigem aedadega, mida iseloomustavad renessansiajastule omased

12. J. Maiste, Eestimaa mõisad, lk 109.

13. Samas, lk 53.

14. I. M. Janelis, Manor Gardens and Parks of Latvia. Riga: Neptuns, 2010, lk 38.

15. J. Maiste, Eestimaa mõisad, lk 44.

jooned. Kui aga otsustada säilinud (küll oluliselt hilisemate) plaanide põhjal, olid tüüpilised ilmselt ka linnuste ja kloostrite aiad (nt Porkuni, Lihula, Põltsamaa, Padise), mis ei olnud hoonestusega ruumiliselt seotud, kuid üldjuhul regulaarse, sümmeetriat taotleva ülesehitusega.

1720–1750. Pargiosa ja peahoone ning peahoone ja kõrvalhooned olid sageli keskteljeliselt seotud ja paigutatud selges hierarhilises asetuses, üldjuhul moodustab esiväljak ühes seda markeeriva hoonestusega selgelt eristuva auhoovi, peahoone taha jääb park (nt Maardu, Saare). Samas sõltus telgsümmeetriline asetus suuresti kohalikust topograafiast, mistõttu park võis peahoone telje suhtes paikneda nurga all pööratult või telje suhtes nihutatult (nt Keskvere) või asetses park peahoone suhtes küljel (nt Tumala[16]). Park oli enamasti väike, ristkülikukujuline ning liigendatud lihtsateks nelinurkseteks osadeks, mille teljelist struktuuri saab jälgida pargiruumis, kuid mis sageli on maastikuga nõrgalt seotud või sidumata.

1750–1800. Sellesse perioodi kuuluvad selgelt ja kavakindlalt barokse ruumistruktuuriga ansamblid, mille maastikku paigutamisega on kohalikku pinnamoodi vajadusel muudetud, saades niiviisi rangelt telgsümmeetrilised struktuurid, mis on maastikuga seotud pikkade maastikus eristuvate telgedega (vaated, alleed, teed). Esiväljaku moodustab kolmest või enamast hoonest koosnev grupp, mis loob avara *cour 'd honneur*'i. Pargiosa jaguneb selgelt peahoonetaguseks avatud alaks ning sellele järgnevaks suletud alaks. Ansamblite suurus on küllaltki erinev, kuid siiski domineerivad suuremad ansamblid (nt Suure-Lähtru, Palmse, Elistvere, Saare, Ahja jt). Perioodi viimastel kümnenditel kujundatud parke iseloomustavad sageli juba tuntavad inglise stiili mõjutused, mille tõttu parkide perifeersed osad on kujundatud juba suhteliselt vabamalt, samas kui pargi üldine ruumiline ülesehitus jääb üldjoontes barokseks (nt Sagadi, Õisu, Vääna jt).

Kuigi kohalike eripäradega ning ajaliselt mõnevõrra hilisem peegeldab toodud jaotus üsna tüüpiliselt barokse pargiruumi arenguetappe Euroopas[17]. Eesti mõisaparkides 18. sajandi teisel poolel toimunule mõeldes meenub paratamatult John Dixon Hunti arutlus inglise ja prantsuse pargistiilide paralleelsest eksistentsist ning küsitavusest nende vastandamise üle[18]. Ilmselt kujundati tollased Eesti mõisapargid (nagu see toimus paljuski ka mujal Euroopas[19]) suuresti vastavalt omanike ettekujutusele ja teadmistele nende eneste poolt. Parkide loomisel tugineti seejuures ühelt poolt kohalikele kogemustele ja traditsioonidele, mis Eestimaal kui omalaadses saksa aadlike "kultuurirefuugiumis"[20] olid ilmselt sageli määrava tähtsusega, ning teisalt erinevatele teoreetilistele allikatele, reisimuljetele ja rohketele kontaktidele Euroopas, Peterburis, Skandinaavias jm,

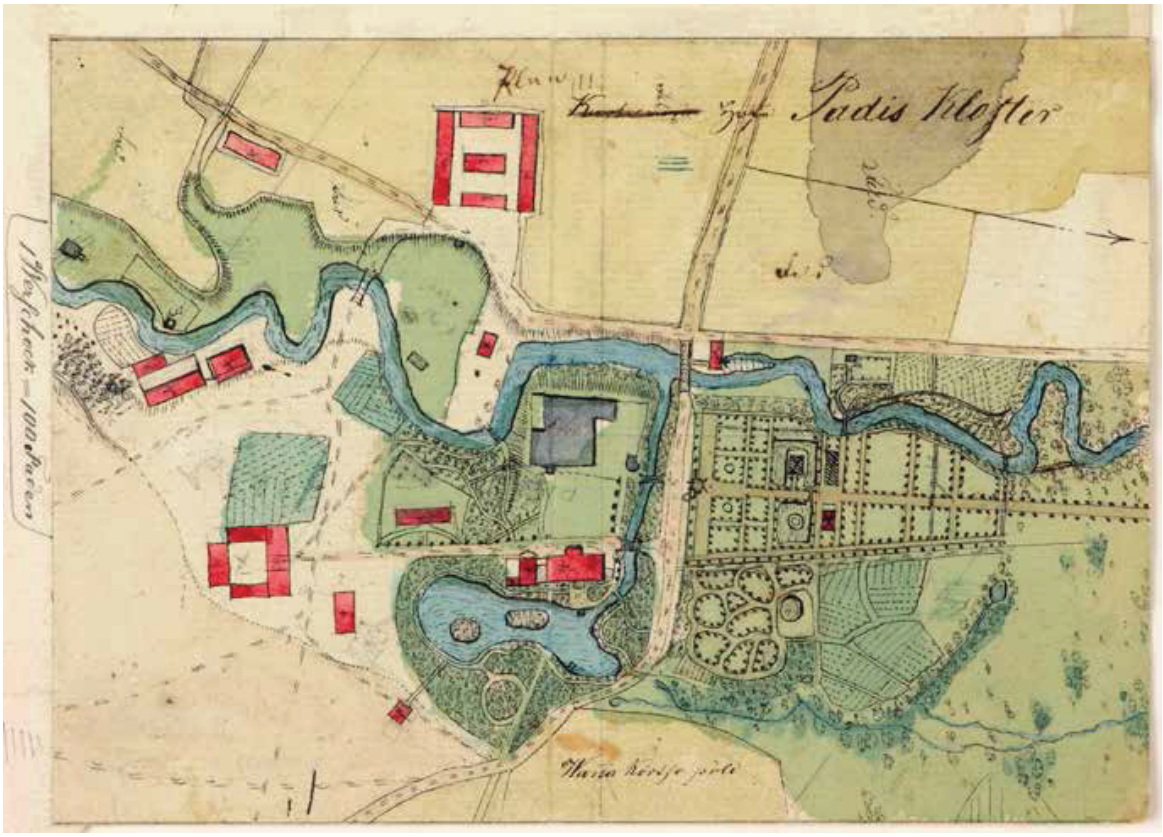
16. *Specieller Geometrische Plan des in der Rigischen Statthaltershaft, dem Arensburgschen Creijs und dessen Peudeschen Kirchspiel belegenen, zur Zeit der Regulirung von dem Brigadier und Revalschen Oeconomie Directeur Freiyherrn Carl von Stackelberg besessenen privaten Guths Thomel nebst dessen Dörfern Harrist, Gross Rahul, Saickülll und Streu Gesindern Kottke, Kaeba und Mixi mit allen Hofs und Bauer appartinentien.* Eesti Ajalooarhiiv (EAA) 2072.3.426d.

17. T. Turner, European Gardens ..., lk 225.

18. J. D. Hunt, Approaches (New and Old) to Garden History. Perspectives on Garden Histories. Dumbarton Oaks Colloquium on the History of Landscape Architecture XXI. Washington, D.C.: Dumbarton Oaks Trustees for Harvard University, 1999, lk 77–90.

19. E. De Jong, Nature and Art. Dutch Garden and Landscape Architecture 1650–1740. Philadelphia: University of Pennsylvania Press, 2001, lk 34–37.

20. A. Hein, Eesti mõisaarhitektuur ..., lk 16.



mistõttu on eri stiilide ning stiilivarjundite kasutamine (mõnes pargis isegi samaaegselt) siinsele kontekstile iseloomulik.

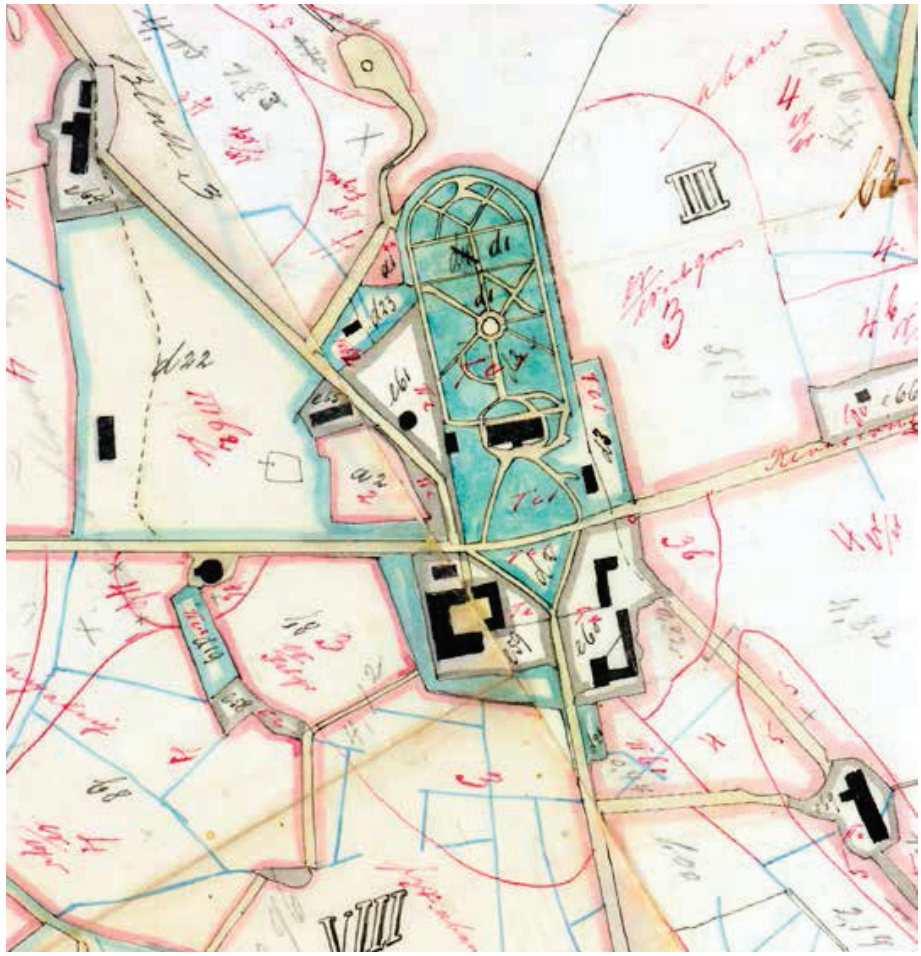
Regulaarsete joontega mõisaparkide arvu Eestis ei ole võimalik täpselt öelda. Aastatel 2008–2013 toimunud uuringute raames tehtud kaitsealuste mõisaparkide kaardianalüüsid on näidanud[21], et pisut rohkem kui pooled juba 19. sajandi keskel ja teisel poolel eksisteerinud pargid või nende osad olid regulaarse ülesehitusega. See ei peegelda loomulikult reaalset baroksete parkide arvu, sest säilinud ajaloolised kaardid, mille abil saab pilgu parkide ajalukku heita, pärinevad valdavalt 19. sajandi teisest poolest. Sageli ei ole kaardimaterjalide jm allikate põhjal võimalik määrata pargi ehitamise ja/või ümberehitamise aega. Suur segadus tekib just 19. sajandi lõpul ümberkujundatud parkide uurimisel, kus põimuvad barokne üldstruktuur, inglise stiilile omane maastikuline taimekäsitlus ja detailide historitsistlik vormikõne[22].

Mõistmine

Üldjuhul jaotub barokne pargiruum kolmeks omavahel ruumiliselt ja teljeliselt seotud

21. S. Nurme, Baroksed mõisasüdamed ja maastik. – Eesti parkide almanahh, 3. Tallinn: Keskkonnaministeerium/ Muinsuskaitseamet; 2012, lk 19–20.

22. S. Nurme, Vana park. Avastusretk baroki ääremaile. – Park on paradiis looduses ja kunstis. Toim. J. Maiste, M. Külvik. Tartu: Eesti Maaülikool, 2009, lk 108.



23. Samas, lk 109.

24. S. Nurme, Eestimaa baroksete mõisaparkide välitööde metoodika. Käsikiri, 2007.

põhiosaks: avatud esiväljak peahoone ees, avatud tagaväljak peahoone taga ning sellele järgnev suletud pargiosa[23]. Seejuures ei olnud topograafilisest situatsioonist vm põhjustel sageli ideaalne tsentraaltelg saavutatav, mistõttu pargi esiväljak, peahoone ja tagaväljak koos pargiga võisid paikneda mitmes erinevas konfiguratsioonis[24].

Barokset esiväljakut iseloomustab traditsiooniliselt avar kruusane (harva sillutatud) kolme või enama sümmeetrilises asetuses hoonega piiratud nelinurkne plats – *cour de honneur* –, millele kujundati sageli hiljem väravast peatrepini viiv ringtee. Avatud esiväljakult avanes esinduslik vaade väljaku tähtsaima ehitise – peahoone – esifassaadile ning tavapäraselt hoonest või selle eest piki kesktelge maastikule. Esiväljakud on sageli ühed paremini säilinud mõisaansamblite osad.

Regulaarpargi ulatuslikuma osa moodustavad vahetult peahoone taha jääv avatud tagaväljak koos sellele järgneva regulaarselt teede

abil osadeks jaotatud pargiga. Arvatavasti oli pargi ja peahoone vahel paiknenud avatud tagaväljak kujundatud Euroopa eeskujude järgi parteritena. Ainsaks säilinud ajalooliseks allikaks, millelt saab broderiipitsiliste parterite detailset kujundust, on Palmse pargi 1753. aasta plaan[25]. Suletud regulaarse jaotusega pargipuistu kohta saab vanadelt plaanidelt välja lugeda pisut enam. Näiteks Koigi 1819. aasta plaanil on hästi jälgitavad puuderidadest koosnevad ruudukujulised pargiruumid[26]. Pöetud alleedest moodustatud geomeetrilised struktuurid (bosketid?) on ka üks väheseid detailsemaid säilinud elemente tänapäeva barokkparkides. Väga hästi on vaadeldavad pöetud alleed näiteks Luke, Saare ja Vääna parkides.

Koigi, Saare

Prantsuse pargi üheks olulisemaks elemendiks on vesi. Võib oletada, et vett kasutati parkides mitmel viisil, kuid kindlalt saab säilinud tiikide ja kanalite baasil mingeid üldistusi teha vaid veepeeglite osas. Üks iseloomulikumaid on näiteks Urvaste park[27], kus pargitelg lõpeb vaateliselt

25. G. F. Pahlen, Plan der Hoflage von dem Guthe Palms, 1753. Eesti Ajalooarhiiv (EAA) 1690. 1. 34.

26. Feld Charte des privaten Guthe Koick, 1819. Eesti Ajalooarhiiv (EAA) 2072. 5. 47.

27. Generalkarte von dem im Werroschen Kreise und Anzenschen Kirchspiele belegenen Gute Urbs, 1908. aasta koopia 1873. aasta kaardist. Eesti Ajalooarhiiv (EAA) 2072. 9. 731.

suurima tiigi keskse ümmarguse saarega. Sagedasti kasutati kanaleid. Näiteks Elistveres[28] ja Õisus[29] olid ehitatud peateljelise orienteeritusega maastikku suunduvad kanalid. Tumala mõisa pargis asus pargisisene seitsmest nelinurksest tiigist koosnev tiikidesüsteem[30], mis moodustas omalaadse veeparteri.

Barokseid parke Euroopas iseloomustab suhteliselt suur ehituslike kujunduselementide (tugimüürid, grotid, balustraadid, skulptuurid jms) osakaal. Eesti parkides on selliseid rajatisi säilinud vähe – see ei üllata, kui arvestada ehituslikke ressursse, mis eriti 18. sajandil olid piiratud, ning ajaloolisi tegureid[31], mille tõttu on neid palju hävinud. Rohkem on säilinud iseloomulik reljeef[32]: kivimüürid ja kiviaiad, kohati ka väravapostid ja -ehitised. Müürid piiritlesid ja kaitsesid parki kariloomade eest, samuti liigendati müüridega pargi erinevad osad. Hästi on säilinud piirdemüürid Väimelas, Vatlas, Hiiu-Suuremõisas, üks imposantsemaid väravaehitisi kaunistab näiteks Sagadi mõisa esiväljakut. Teiseks iseloomulikuks nähtuseks on maapinna terasseerimine. Suhteliselt vähe on säilinud niisugusi tugimüüridega kindlustatud terrasse nagu Väimela pargis. Enamasti paigutati aed reljeefile selliselt, et terrasside muldkeha oli võimalik kujundada nõlvadena (nt Suislepa Õhne jõe orgu laskuvad terrassid). Üks Eestimaa keerulisemaid terrassidesüsteeme – neljaastanguline ja vaheldusrikka nõlvajoonega – on ehitatud Õisu pargi tagaväljakule[33].

Vatla, Õisu

Mõisate parkide juurde kuulunud viljapuu- ja tarbeaiad võisid olla, sageli aga polnud ülejäänud pargiosadega kujunduslikult seotud. Barokse planeeringuga viljapuuaiast saab näiteks Palmsest, kus aed moodustab pargiga piirneva, kuid sellest eraldatud ja ka kompositsiooniliselt eraldi osa. Sarnaseid, pargist eraldiseisvaid tarbeaedu oli näiteks Saare, Kõljala, Purdi, Sagadi jt mõisates.

Loomulikult on iga park unikaalne ja mitmeti interpreteeritav. Seejuures muudab pargi uurimise enamasti keerukaks sobivate allikmaterjalide nappus. Pargi ajaloo ja kompositsiooni uurimise üks peamisi tööriistu on kaardianalüüs[34]. Tavaliselt on mõisaparkide kohta säilinud mõni 19. sajandi teise poole maakasutust vm peegeldav temaatiline mõisasüdame ülevaatekaart, millelt aga ei selgu pargi detailne kujundus[35]. Seepärast saab Eesti vanu parke uurida vaid üldiselt, piirdudes maastikulise ulatuse, teljelise ülesehituse, asendiga reljeefil, üldise teedestruktuuri, veekogude ning hoonestusega[36]. Välitööd annavad mõnikord detailsema pildi ruumijaotuse, reljeefi liigendatuse, jalgteedevõrgu ja erandjuhtudel ka vaatefookuste ning alleede asupaikade kohta. Vaid väga üksikute parkide puhul (Palmse, Kuremaa vmt) saab säilinud plaanide järgi täpsema ülevaate pargi kujundusest ning koostada aegrea eri ajastutel toimunud stilistilistest muutustest.

28. Charte von denen zu dem Guthe Ellistfer und dessen Hoflage Johannishoff gehörigen Heuschlaege, 1825. Eesti Ajalooarhiiv (EAA) 1691. 1. 195.

29. Generalcoupon des Gutes Euseküll belegen im Kreise Fellin und Kirchspiele Paistel, 1908. aasta koopia 1860. aasta kaardist. Eesti Ajalooarhiiv (EAA) 3724. 5. 2768.

30. План мызных земель частнаго имения Томел, 1895. Eesti Ajalooarhiiv (EAA) 3724. 5. 2398.

31. J. Maiste, Eestimaa mõisad ..., lk 62.

32. S. Nurme, P. Paalo, Aerolaserskanneerimise andmetel põhineva reljeefikaardi kasutamisest ajalooliste parkide uurimisel. – Acta architecturae naturalis / Maastikuarhitektuurseid uurimusi 3. Toim. N. Nutt. Tartu: Tallinna Tehnikaülikooli Tartu Kolledž, 2014, lk 72.

33. Samas, lk 77.

34. B. Leupen, C. Grafe, N. Köring, M. Lampe, P. de Zeeuw, Design and Analysis. Rotterdam: OIO Publishers, 1997, lk 18–23.

35. N. Nutt, J. Maiste, S. Nurme, U. Sinijärv, K. Karro, Parkide restaureerimine. Tartu: Tallinna Tehnikaülikooli Tartu Kolledž, 2008, lk 195.

36. S. Nurme, Eestimaa baroksete mõisaparkide ...

Taastamine

Põhimõtteliselt ei erine pargi restaureerimine hoone või mingi ehitusliku rajatise restaureerimisest. Oluline on lihtsalt teadvustada, et pargiruumi peamine maastikuelement – taimestik – muutub ja vananeb paljudest ehituslikest struktuuridest oluliselt kiiremini. Eestis ei kasva ohtralt pargikujunduseks sobivaid puuliike, mis pargis (arvestades hooldus- ja kasutusintensiivsust) suudaksid kasvada märkimisväärselt üle 300–500 aasta. Veel enam, kõnelustes erinevate regulaarparkide hooldusega seotud spetsialistidega on jäänud kõlama arvamus, et regulaarpargis, kus puude hooldus on eriti intensiivne, tuleb puud välja vahetada 40–80 aastase intervalliga. Ajalisus seab taastamisele piirid ja lähenemisfilosoofia – surnud puu saab vaid asendada uuega. Kui inglise pargiideega on taimestiku vananemine kooskõlas ning üksikud kuivavad ja isegi kuivanud puud annavad sellele teatava nostalgilise lisavarjundi, siis prantsuse park on nooruslik. See eeldab nii pargi kujundusfilosoofiat kui ka hooldusspetsiifikat silmas pidades elujõulisi noori puid-põõsaid.

Eelneva arutluse valguses on üks olulisemaid just puittaimestikku puudutav küsimus, mis kerkib esile regulaarpargi restaureerimisel. Kui vaadelda parki kui arhitektuurset ruumi, siis nimelt ealised muutused puittaimede morfoloogias annavad mingil ajahetkel x pargile tema ilme ja atmosfääri. Eesti ülekasvanud regulaarpargid on nüüdseks saanud ilme, mille atmosfäär vastab pigem 19. sajandi alguse ideestikule. Jalutades Saare pargis varjuliste gooti võlvidena kaarduvate puuderidade vahel, ei kujutaks isegi ette, kuidas see võiks välja näha pöetult. Ka kaitseväärtused, millest räägitakse eriti looduskaitsealuste parkide kontekstis[37], lähtuvad pigem sellest, milline on park käesoleval ajahetkel. Kõne all on küll kaitsealune barokkpark, mis pärineb 18. sajandi teisest poolest, kuid suhestutakse ikkagi selle pargiga, mida nähakse praegu. Suuresti on see väärtuste endi ja nendega otseselt seotud tähenduslikkuse[38] küsimus, mis Eesti parkide puhul keskendub enamikul juhtudel ennem pargi vanusest tulenevate nähtuste väärtustamisele, kui spetsiifilistele stilistilistele nüanssidele. See on paratamatu ja isegi loomulik, sest nii ümberehitamistest kui ka hooldusprobleemidest tingituna on paljud pargid kaotanud suurema osa oma iseloomulikest joontest. Seetõttu võib määratlus "barokkpark" tähistada visuaalselt väga eriilmelisi pargistruktuure. Maardu, Urvaste, Väimela, Purdi ja veel paljud teised restaureeritud või restaureerimata mõisapargid sobivad iseloomustama Eesti barokset mõisaparki AD 2014. Selle vastandiks on ilmselt (taas) värskelttaastatud Palmse pargi regulaaraiad[39].

Kui vaadata üldpilti, siis Palmse on tegelikult särav erand. Ilmselt leidub Eestis ka väga vähe teisi parke, mida on pea viimased 40 aastat

37. N. Nutt, Parkide hooldus-kava koostamise juhend. Tallinn: Keskkonnaamet, 2011, lk 14–15.

38. J. M. Gard'ner, Preparing the Conservation Plan. – Understanding Historic Building Conservation. Toim. M. Forsyth. Oxford: Blackwell Publishing, 2007, lk 159.

39. Palmse mõisa regulaar-pargi ala põhiprojekt. OÜ Restauraatorprojekt. Töö nr. 0502/4, Tallinn, 2007 Muinsuskaitseameti arhiiv P-14254.

barokkansamblina järjepanu ja kavakindlalt restaureeritud. Samuti on Palmse kohta olemas suhteliselt detailne pargiplaan, mida saab võtta (ja on võetud) restaureerimise aluseks, kuid Palmseski loobuti algselt vanade puude asendamisest ning see teema on uuesti päevakorrale tõusnud seoses esiväljaku ja alleepuude seisundi järkjärgulise halvenemisega[40]. Palmse restaureerimist 1753. aasta plaanimaterjalide kohasesse seisu toetab nii restaureerimisotsuseid toetavate dokumentide olemasolu, kui ansambli väga terviklik säilivus. Isegi kui enamik barokse pargiruumi struktuuri toetavaid vanu puid peaks mingil põhjusel välja vahetatama, ei kaotaks ansambel (vaid ilmselt pigem võidaks) oma eripära poolest, sest kõik muud oluliselt pikemaealised maastikuelemendid toetavad kompositsiooni. Hoopis teistsugust rolli mängivad vanad puud nendes parkides, mille kohta napib allikmaterjali ja aeg on kaasa toonud olulised ruumilised muutused. Vanad puud osutuvad neis parkides sageli ainsateks säilinud kompositsioonielementideks, mille kaudu saab endisaegsest pargistruktuurist mingilgi määral ettekujutuse ning mille põhjal on võimalik tuletada ka teiste elementide, nagu teedevõrk ja arhitektuursed väikevormid, asukohad. Teiseks, võib-olla hoopis olulisemaks aspektiks, võib aga pidada asjaolu, et sellistes parkides on vanad puud sageli ka peamisi olemuslikke atribuute, mis määrab kindlaks pargi vanuse ning seega ühe tema põhilise väärtuse. Hoolimata stiilist,

40. S. Nurme, Palmse alleed – ajaloolised maastikuruumid. – Eesti Loodus, 5, 2011.

on ajaloolise pargi põhiliseks tähenduslikkuse allikaks tema vanus ning vanuse tajumist võimaldavate pargielementide olemasolu. Ja see on ka üks peamisi põhjusi, kas teadlikult või teadvustamata, miks vanad, ülekasvanud puud kujutavad endast omaette ja aktsepteeritavat väärtust ajaloolises regulaarses pargis, kuigi nende vanusest ja regulaarpargile mitteomasest hooldusest tulenev välimus ei toeta kuidagi barokkpargi tegelikku visuaalset pilti.

Omaette problemaatika, mis tegelikult tuleb ilmselt läbi käia mistahes objekti restaureerimisel, on taastatava ajahetke või perioodi küsimus. Pargid nagu ehitisedki võivad olla väärtuslikud mitte ainult vanuse ja kunstiväärtuse tõttu, vaid ka neisse kätketud loo tõttu. Võib üsna julgelt öelda, et tänini säilinud barokse algupäraga mõisapargid on 19. sajandi jooksul, paljud sageli ka 20. sajandi algul, rääkimata hilisematest perioodidest, vähemalt korra suuremal või vähemal määral ümber kujundatud. Eelnevalt algallikate nappust käsitlenud arutlusele viidates on tavapärane, et ei saa täpselt virtuaalselt rekonstrueerida mingit ajahetke – ei võimalikku pargi kujundusjärgset "ideaalseisundit" ega hilisemaid ümberehituste järgseid seisundeid. Kui arvestada seda, et tähenduslikkuse säilitamiseks ja ajas edasikandmiseks peab restaureerimine põhinema säilinud autentsetel osistel ja dokumentidel[41], siis tegelikult polegi tihtipeale võimalik taastada pargi teatud lühemat ajajärku, vaid pigem esile tuua ja/või rõhutada mingit perioodi või protsessi, jättes alles ka kõigi muud materialiseerunud ajahetked, mida sel momendil saab väärtuslikuks pidada ning mis suudavad rääkida pargi loo, olles selle ajaloolise atmosfääri aluseks. Millistele neist enam tähelepanu pöörata, sõltub kindlasti väärtuskandjate säilivusest ja seisundist ning kindlasti ka tähenduslikkusest.

Eelnevat kokkuvõttes võib öelda, et kindlasti on Eesti pargiarhitektuuri ajaloos olnud oma barokiperiood, millele omast kujundust ja suhet maastikku saab lühemate ajajärkude kaupa paljudel juhtudel natuuris tajuda tänini. Paraku kaovad ilma sekkumiseta füüsilised jäljed selle põneva nähtuse kohta maastikus aasta-aastalt üha enam. Samas on baroksete parkide restaureerimine mitmel põhjusel problemaatiline, millest paari, pigem kitsalt ja otseselt restaureerimist puudutavat nüanssi, ka eelnev arutlus puudutas. Loomulikult lisanduvad iga konkreetse pargi puhul omad aspektid, mis restaureerimisotsuste tegemisel annavad vabaduse või vastupidi piiravad võimalike lähenemisteede hulka. Olenevalt konkreetsest pargist on teoorias mõeldavad kõikvõimalikud restaureerimisstrateegiad. Kahtlemata saab restaureerida kõiki säilinud pargielemente, mis on praegu olemas ning kooskõlas pargi stiili ning miljööga, sealhulgas asendada kuivanud üksikpuid, puuderidu jne. Muidugi on võimalus alati minna ka rekonstrueerimise teed, võttes aluseks mingi ruumiliselt enameristuva ajahetke,

41. J. Jokilehto, Conservation Concepts. – Conservation of Ruins. Toim. J. Ashurst. Oxford: Butterworth-Heinemann, 2007, lk 7.

kasutades analüüsi käigus tuletatud teadmisi, analooge või ajastuomast teooriat. Õnnestumise korral saab rekonstrueerimisega pargielementide tähenduslikkust (taas)luua või reaalselt eksisteeriv, vaid spetsialistile loetav pargiruum tavakülastajale "tõlkida". Kuna Eesti barokse pargikunsti teooria kohta pole ka üldises plaanis kuigi palju teada ja on väheusutav, et Dezallier d'Argenville'i "La théorie et la pratique du jardinage" siin üks ühele rakendust leidis, siis on need võimalused siiski pigem teoreetilised ja vajavad objekti pieteeditundega käsitlemist. Samuti tuleb alati arvestada, et algsele lähedasel kujul taastatud barokse pargikujunduse hooldus on äärmiselt kulukas ja intensiivne ning kord juba alustatuna ei saa pargitaimestiku hooldust hiljem lihtsalt ja tagajärgedeta ära jätta või teistsugusele hooldusfilosoofiale üle minna. Õigupoolest võib allikmaterjalide nappuse tõttu ja tänu laiale tõlgendamisvõimalusele öelda, et pargi kui tegelikult eksisteeriva visuaalse mälestise iseloomule mõeldes saab rääkida pigem konserveerivast lähenemisest, et tagada olemasoleva väärtuse säilimine. Pargis tähendab see eeskätt korralikku, eesmärgipärast ja järjepidevat hooldust.

The Estonian Baroque Park and Today : Discovering, Understanding, Restoring.

Sulev Nurme
Artes Terrae OÜ, landscape architect MSc

During the last decades the authors writing about baroque parks have held a lively discussion on the essence, meaning and even the concept of form of baroque parks. Do the European royal parks that have been seen as the essential representations of what a baroque park should be, actually provide a universal key to understanding the baroque park space, especially when small country manor parks are concerned? Or should increasingly more attention be paid to the individual character of each park? The very question arises for different reasons also in treatments of Estonian estate parks. In Estonia, estate parks first occurred in the 18th century, when the country was recovering from the Great Northern War. Only a few decades later, the first English-style parks were founded and some already existing parks were redesigned in that style. The developments in Estonian estate parks remind one of John Dixon Hunt's deliberation on the parallel existence of the English and French park styles and the disputability of opposing the two styles. The Estonian estate parks were at the time most probably designed by the owners themselves and according to their own conceptions and knowledge, hence the use of different styles (in some parks even simultaneously) typical of that period. The latter was often supported by the vast conceptual difference between the various park spaces created at the time. On the other hand, the baroque art of landscape gardening reaches Estonia rather late, which is why it is questionable whether among the older Estonian estate parks there are actually any such parks that can stylistically be treated as "pure" baroque parks at all, excluding only Palmse and a couple of other more evident cases. The situation is further complicated by the shortage of written sources concerning the layout and the later redesigning of the parks, which is why it is often practically impossible to recreate a detailed model of the original layout or the later changes in the design. From the park historical point of view the certain indefinability of the Estonian baroque parks is an exciting topic for research, leaving enough room for guessing and speculation. It proves to be a problem, however, in practical everyday restoration work, where actual decisions cannot be based on random choices.

Taking into account the versatility (and late development) of the Estonian baroque park space it may be stated that there exists a local baroque park art here in its universal yet unique way, which is characterized by traits typical of the baroque philosophy of design. On the other hand, the scarce source documentation enables us to make conclusions and

decisions concerning only the overall principles of composition and not the details. That, in turn, makes the choice of conservation strategies more difficult and, in most cases, renders the probability of restoring and reconstructing an existing regular park space questionable. The article deliberates on the essence of the Estonian baroque park, its characteristic traits and the specific approaches to its research. The principles of preserving and restoring Estonian baroque parks are also discussed, taking into account the specific nature of the existing source documents and the current state of the preserved parks.

Барочный парк Эстонии и современность: обнаружение, осознание и понимание, восстановление

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В последние десятилетия среди авторов, занимающихся парками в стиле барокко, достаточно оживленно обсуждается суть, значение и даже язык форм парков этого периода. Дают ли все-таки считающиеся характерным символом барочного парка королевские парки Европы универсальный ключ к пониманию паркового пространства в стиле барокко, особенно если рассматриваются созданные в то время маленькие парки при мызах или следует больше прежнего уделять внимание индивидуальности каждого парка? Этот вопрос возникает по ряду причин и при рассмотрении парков мыз Эстонии. Барочные парки мыз появляются в середине 18 столетия, когда мир стал оправляться от Северной войны. Только спустя несколько десятилетий начинают создаваться и переоформляться первые парки в английском стиле. Размышления о том, что происходило в парках мыз Эстонии во второй половине 18 столетия, невольно напоминают о рассуждениях Джона Диксона Ханта о параллельном существовании

французского и английского стилей оформления парков и о спорности их противопоставления.

Очевидно, в те времена парки Эстонии оформляли в основном их владельцы в соответствии со своими представлениями и знаниями, в результате этого для того периода характерно использование разных стилей (в некоторых парках даже и одновременное). Это утверждение подтверждается зачастую большими концептуальными различиями между созданными в те времена разными парковыми пространствами. С другой стороны, барочное садово-парковое искусство приходит в Эстонию относительно поздно, вследствие чего, учитывая вышесказанное, при рассмотрении более старых парков мыз Эстонии вообще можно сомневаться в существовании барочных парков "в чистом виде", за исключением "Палмзе" и еще пары отчетливых примеров. Обстановка усложняется недостатком источников, в которых рассматривается формирование парков и их последующее переоформление, вследствие чего часто невозможно более точно смоделировать первоначальный дизайн или изменение паркового пространства во времени. С точки зрения истории садово-паркового искусства некоторая неопределенность в отношении барочного парка в Эстонии является увлекательным объектом исследования, который оставляет много возможностей для предположений, догадок и спекуляций. В то же время эта неопределенность является проблемой в повседневной практической реставрационной работе, в которой неточности при принятии реальных решений недопустимы.

Учитывая многообразие (а также запоздалость) эстонского барочного садово-паркового пространства, можно сказать, что местное барочное садово-парковое искусство в своей универсальной и уникальной форме здесь все-таки существует и имеет характерные черты, присущие философии дизайна в стиле барокко. В то же время, в связи с недостаточностью исходных данных, делать выводы и принимать решения можно все же только в области основных принципов композиции, а не в области деталей. Это, в свою очередь, усложняет выбор пути подхода к определению стратегии сохранения парка и в большинстве случаев ставит под сомнение реставрацию сохранившегося регулярного паркового пространства как возможности реконструкции.

В статье обсуждаются сущность барочного усадебного парка в Эстонии, его характерные черты и специфика его изучения. Рассматриваются также принципиальные подходы к сохранению и восстановлению барочных парков Эстонии с учетом специфики имеющихся источников и состояния сохранившихся парков.

Publication II

Talking ruins: The legacy of Baroque garden design in Manor Parks of Estonia

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1.7 Talking Ruins: the Legacy of baroque garden design in Manor Parks of Estonia

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ABSTRACT

The late 19th-century and early 20th-century 'grand era' of manor parks in Estonia coincides with a period when English gardening ideas dominated Europe. What is less recognised, however, is that manors in Estonia possess formal French-inspired gardens dating from the mid-18th century (the introduction of Baroque design in Estonia was delayed). Today, about 600 complete manor ensembles remain, retaining distinctive structural characteristics which date from the 18th-19th centuries. It is quite typical that in old parks of Estonia Baroque and English garden styles have merged, giving them a unique and original character. This research reports on archival study, field investigation and map analyses of 45 protected manor parks in Estonia. The analysis suggests that, despite the relatively short period (ca. 1730-1770), formal Baroque gardening was the dominant style practised in Estonia. The movement had a significant influence on local garden design, and on landscape planning more broadly. The Baroque elements in manor lands include formal geometric spaces, axial connections between landscape and buildings, orchestrated vistas and tree-lined roadways. Within the Baroque garden, formal plantings, pathways and water features were arranged in classical configurations. Finding physical traces of Baroque artefacts today is difficult because many manor parks were destructed during the Soviet era in the latter half of the 20th century. Nevertheless, archival materials and present-day visits to garden ruins in manor parks suggest that formal Baroque gardens dating from mid-18th century manor lands were vivid and sophisticated ensembles of formal terrain, tree allées, sculptural elements and finely orchestrated water elements.

KEYWORDS

landscape design, park planning, manor parks, Baroque garden design, Estonia

INTRODUCTION

The Baroque garden design movement has given to mankind some of the most splendid and grandiose examples of spatial arrangement in the built and natural environment. For example, the legendary park at Versailles near Paris ranks amongst the world's greatest achievements in garden design. However, after the rise of ideals of equality one of the key ideologies of the French monarchy – formal Baroque design – fell out of ffell out of fell out of avour during the 18th century. As the popularity of Baroque design waned in Western Europe, however, formal garden design continued to be practised in Estonian manor parks during 19th century by local German-influenced gentry.

At the beginning of the 20th century, there were 2,017 manors in Estonia (Rosenberg 1994). Today, about half this number survives, and approximately 400 manor parks are protected as natural or heritage areas. These protected manors are preserved (Sinijärv 2008) and they have been visited by experts who have conducted dendrological inventories (Sinijärv et al. 2007). For the most part, the manors and manor parks display 19th-century design characteristics of English landscape parks. Ideas governing manor park design, and the cultural features evident in manor lands, originate from two places. First, manor park design was imported to Estonia from northern and central Germany (Maiste 2005). Therefore, parallels with Germany's contemporary developments – the most famous English-style park being the one in Wörlitz – are useful for understanding the movement that inspired Estonian garden design (Rolf 2007). Second, local Estonian heritage is reflected in manor park design, celebrating local history and local culture. Features of Estonian origin in manor parks are especially evident from the late 19th century and early 20th century, the most splendid period of local manor culture, when existing manors were reconstructed and new manors were established. Shortly after, in 1919, manors were abolished in Estonia.

The late 19th-century and early 20th-century 'grand era' of manor parks in Estonia coincides with a period when English gardening ideas dominated Europe. Surprisingly, however, more than one-third of Estonian manor parks display traits of formal design. There were manor parks established in the 17th century, but unfortunately they are poorly documented and they have practically disappeared today. The major influence of the Baroque style arrived relatively late to Estonia, delayed by the Great Northern War and economic hardship in its aftermath. In one of the earliest examples of Baroque garden design in Estonia, Czar Peter I established Kadrioru park in formal Baroque style near Tallinn in 1718. In the 1740s and 1750s, various manor parks were founded in Estonia and many established formal garden elements (Hein 2007), while at the same time in Western Europe the era of formal Baroque park design came to an end (Turner 2005).

Although there are about 400 relatively well-preserved manor parks in Estonia, most appear today as park ruins. Twentieth-century events in Estonia – including World War I, World War II and the Soviet occupation – caused great losses within the parks as well as poor maintenance of manor land.

Now, to properly preserve the natural environments of manors, radical restoration efforts are needed. However, such restoration works face a number of challenges. For instance, it is often difficult to know whether formal garden elements, which appear to possess Baroque characteristics, are actually authentic

Baroque artefacts or are instead late 19th-century additions to the landscape. To distinguish between the two, it is helpful to identify which features characterise original Estonian Baroque-style gardens and to assess whether or not these features are still in evidence, even in a state of ruin, today. Determining the authenticity of garden elements that appear to date from the Baroque period is challenging for two key reasons. First, the original manor park plans and detailed design documents for manor projects are seldom available for study. In their absence, researchers usually rely on contemporary land-use plans. Secondly, the Baroque elements within manor landscapes are generally fragmented and in poor condition. These two challenges are interrelated, because without original plans it is difficult to identify the original elements of composition.

In this article, we provide a detailed study of Baroque elements of manor parks in Estonia, focusing on various elements of the built and natural environments, including spatial structure, design, characteristics and distinctive features. The research employs archival study, field investigation, and map analyses of 45 protected manor parks in Estonia (Heringas 2009). The objective of the research is to identify the formal, Baroque garden elements and develop trends about spatial construction and the relationship between manor landscapes and their surroundings. In most cases, due to a lack of primary research material, it is impossible to draw conclusions about single artefacts such as sculptures, vases, staircases, or pergolas. Instead, we focus on larger trends and broad design themes. In addition, the research provides an opportunity to better understand the evolution of landscape design in Estonia and the influence of manor landscape planning.

More broadly, this research situates the Baroque gardening movement in manor landscapes as a unique phenomenon in Estonian cultural history. Despite the relatively short period (ca. 1730-1770) that formal Baroque gardening was the dominant style practised in Estonia, it has had a significant impact on local garden design and landscape planning.

AN OVERVIEW OF ELEMENTS AND STRUCTURE OF HISTORIC ESTONIAN MANORS

The territory of Estonia was conquered by German knights during the 13th century. Gradually, a system of manors was developed, whereby large agricultural estates accounted for the majority of agricultural production. From the 17th century onward (and possibly earlier but no evidence remains), the manor centres, with economic and administrative functions, started to flourish as important sites of garden design. Manor owners established elaborate parks near the main manor buildings for their private enjoyment. Until the 19th century, manor parks remained almost the only form of garden design in Estonia.

In the design of manor parks, the most important model was formal Baroque gardening as developed to maturity in France during the 17th and 18th centuries. Thereafter, English-style landscape gardening was favoured in Europe. In Estonia, both styles were influential.

In a typical Estonian manor, a Baroque park space is formed by the connection of the front yard with the main building ensemble, or *cour d'honneur*, on the central axis (see fig. 1). An entrance road provides access to the front yard. The largest part of the manor centre, or backyard, lay behind the main building. The structures are characterised by geometric order and well-defined forms of plants and plantations. Although there is a focus on physical order, the spatial structure of the park in some manors is not symmetrical nor does the central axis focus on the main building (Maiste 2005).

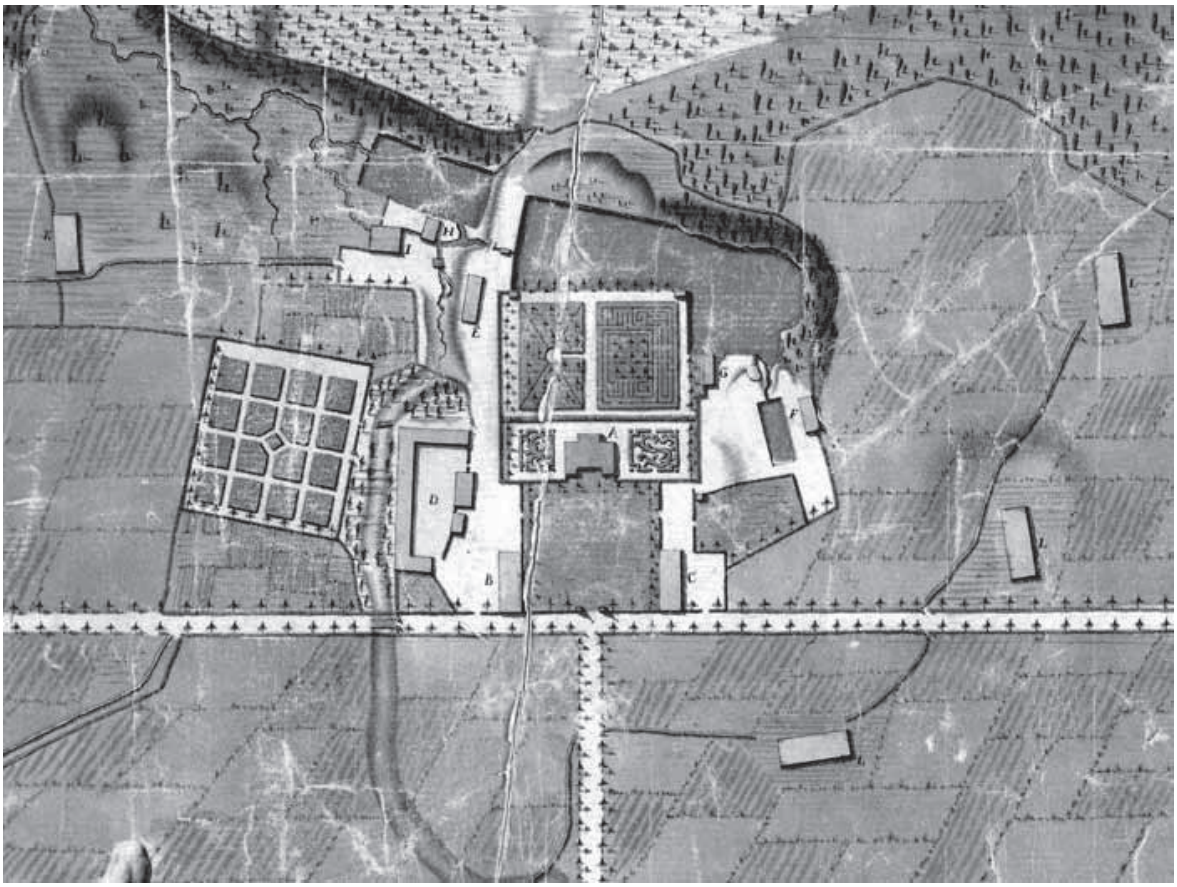


Figure 1 Schematic map of Vasta manor centre (1881). Source: Map of Vasta Manor, 1881.

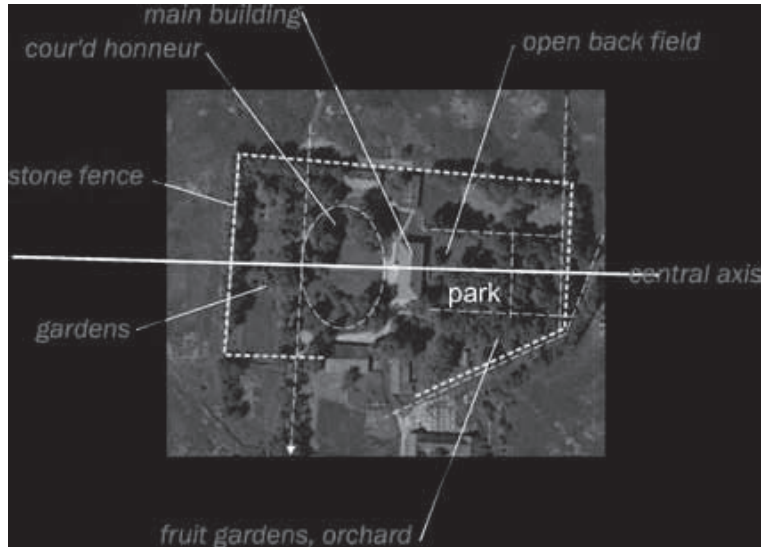
The Baroque front yard of an Estonian manor complex is characteristically a spacious area, featuring a circular entrance road from the main gate to the main building entry. An open front yard provided opportunities for imposing views of the front façade; similarly, the view outward from the manor house windows, stairs and balconies focuses on the formality of the landscape design and its central axis. The front yards are usually among the best-preserved parts of the manor ensembles, having maintained their structure and visual and functional connections to the landscape. The largest part of a manor park is typically the backyard, with a formal garden and an adjacent landscape park. The design of these spaces was carefully planned. The backyard was typically divided symmetrically into smaller geometrical parts. It can be assumed that the backyards of Estonian manors, in the immediate vicinity of the main buildings, were more exclusively designed; typical surviving elements of backyards are allées of tree, terraces, water features and park boundary systems, such as stone walls.

INTERNATIONAL INFLUENCES ON GARDEN DESIGN IN ESTONIA

The oldest preserved manor landscapes in Estonia date from the second half of the 18th century – when Estonia was recovering from war and plague – during an important time for building and reconstructing manors (Maiste 2005). During this period, local garden design tended to follow one of two design philosophies. In the first, garden ensembles were created according to the above-mentioned Baroque principles of classical French formal design. This is evidenced by original landscape-planning documents produced in Estonia during the 18th century. The most famous is the 1753 plan of Palmse manor (see figs. 2, 3). In addition, there is evidence that classical French gardening literature was used by local garden designers in Estonia. These works – including André Mollet's *Le Jardin de plaisir* (printed in Stockholm in 1651) and Claude Mollet's *Théâtre des plans et jardinages* (printed in Paris in 1652) – were included in the library of the owner of Anija manor, Jacob Stael von Holstein (Hein 2007). The existence of newly-established Ba-

Figure 2. Palmse manor centre (1753). Source: Plan of Manor Palmse 1753.

Figure 3. Mid-19th-century view of Palmse manor centre, depicted in a Stavehagen engraving (1866). Source: Maiste 2005.



roque gardens in Estonia was confirmed by contemporaneous travellers. For example, the well-known architect Johann Wilhelm Krause produced a number of sketches in the 1790s that clearly depict formal design principles and even single Baroque garden elements in manors in northern Latvia, which at the time formed, together with southern Estonia, the province of Livonia (Janelis 2009).

The second gardening method – an English-style landscaped park – spread throughout Europe during 18th century. In 1785, *Theorie der Gartenkunst* by Christian Cajus Lorenz Hirschfeld was published, which significantly influenced the design of Baltic German gardening (Nutt 2008). Various manor landscapes founded or reconstructed in Estonia during the last quarter of the 18th century and the early years of the 19th centuries, such as Vatla, Aaspere and Õisu, are Baroque in structure, however landscape elements, including winding paths, irregular ponds and varied terrain, are formed in typical English 'picturesque' landscape design.

In fact, the English gardening style was dominant in virtually all new manor landscapes established in Estonia after 1770 (Hein 2007); the pre-eminence of this style gave rise to several beautiful landscaped parks in the 19th century. Nevertheless, the formal style was still dominant in older manor centres, probably because manor centres were already set in 18th-century landscape design and favoured the symmetric relations of the buildings and the park typical of Baroque layout (Maiste 2005). Moreover, the landscape parks surrounding the manor centres had matured to their best by the mid-19th century, and the desire and will to radically rearrange them was understandably weak.

A study of existing plans, drawings and postcards suggests that the designers of manor gardens in Estonia were often more conservative – drawing inspiration from formal, classical structure – than landscape designers elsewhere in Europe. This claim is supported by the built form of several parks created in the mid-19th century; for example, the general design principles evident in manor gardens in Raikküla, Hummuli, or Purila, where the spatial configuration of park elements, especially those closest to manor buildings, has been inspired by the ideas of formal Baroque design. A unique trait from the second half of the 19th century is a mixture of both styles, which is evident in Estonia in late 19th century and early 20th century manor gardens (e.g. Taagepera) or reconstructed manor landscapes, e.g. in Kärstna or Olustvere.

There are several explanations for the popularity of formal Baroque gardening in Estonia. The use of regular *cour d'honneur* as late as in the 19th century cannot be explained by the late arrival of original ideas to Estonia. On the contrary, the idea of 'freely flowing nature' used in Germany in one of the first great English style parks in Wörlitz (Gerhard & Erfurth 2000) was almost simultaneously applied in Estonia in Vana-Vigala manor in 1766, when '*Der Englische Garten*' was constructed (Hein 2007).

In addition, the use of formal Baroque garden elements in Estonian manors may be attributed to the introduction of techniques by international experts. For example, many Baltic Germans had family ties with building masters from Germany and, to a lesser extent, from Russia, Sweden and the Netherlands. For instance, the complex of Hiiu-Suuremõisa was planned by Swedish-French engineer Joseph Gabriel Destain (Särg 2006), Sagadi has been attributed to French-Italian-Russian architect Bartolomeo Francesco Rastrelli (Maiste 1983) and the largest Baroque-style park in Estonia, Kadriorg, was designed by the Italian architect Niccolò Michetti (Kuuskemaa 1985). The relationship between these designers and manors in Estonia demonstrate the great international mobility of landscape architects in the 18th century.

Although there are many examples of trained landscape-design professionals who planned manor gardens, the majority were laid out by the manor owners themselves, and the results reflect their knowledge, taste and views. For example, for a manor envisioned as a villa to be used as refuge from city life,

an owner's garden design may have promoted peace and tranquillity (see Ackerman 1993 for a thorough analysis of villas and gardens). These ideas connect the local park design to Western European ideals (Kuuskemaa 1985).

A detailed review of spaces within manor parks protected by the National Heritage Board of Estonia (Heringas 2009; Vaine 2009; Mihkelson 2010) reveals evidence of formal Baroque spatial construction in 150 of 293 manor gardens from the final decades of the 19th century (National Heritage Board of Estonia 2009). Certainly, not all sites date from the 18th century as they are partly a result of the later designs which illustrate the vitality of formal design. At the same time, we often see mixed-era design, especially in parks reconstructed at the end of the 19th century, where formal Baroque structures, English-style planting systems and historical details intertwine (Nurme 2009).

MANOR STRUCTURE AND ELEMENTS

The formal Baroque garden is a distinct element of the manor landscape due to its compact nature and integration – both visual and structural – with the built and natural composition, formed from carefully-chosen axial relationships. Due to the axial structures, manor parks are visible and often dominant in the cultural landscape. The ensemble core, formal garden and landscape elements that are compositionally connected within a typical manor can produce a dramatic visual impact. For example, in Suure-Lähtru, the length of the main road and viewshed along the central north-south axis of the park is 1,200 metres. From the main road, perpendicular intersecting side roads emanate east and west, which in turn provide views of 1,400 metres (Nurme 2009).

Usually, contemporary circulation systems in manor landscapes are focused on roadways established during the grand era of Estonian manors. Therefore, the roads approaching the manor centre from the outskirts are in most cases similar to the original planned circulation system, which makes it possible to observe the park in the landscape from the perspectives that the designers originally planned.

Tree allées line roadways that lead to focal points in the landscape; in addition, tree allées form the boundaries of components of the landscape, delineating the border, for example, of the formal garden from the landscaped park (see fig. 4). Usually, design motifs within this landscape have been preserved only in a fragmented fashion and therefore they are less readable today. However, there is evidence of topiary cuttings, which are a key feature of a formal garden. The study of parks in situ gives valuable information about 'invisible' elements (Järvela 2009); for example, a geo-radar technique has been used to detect buried pathways (Artes Terrae 2010).

In Estonian manor landscapes, low dry-stone walls or higher mortar stone walls often serve as boundaries. Usually, the landscaped park was separated from other sections by walls and gates. In many places, such walls have been preserved, along with occasional gateposts and gate structures.

Water features, including ponds and fountains, were carefully designed, using natural characteristics of the landscape, to be integral features of the garden. For example, a formal garden could include rectangular ponds, circular islands, or a pond system connected with canals (see fig. 5), e.g. in Elistvere (Map of Elistvere manor 1825) and Õisu (Maiste 2008; Map of Õisu manor 1908).

Figure 4 .Luke manor park and tree allées (2008). Photo by S. Nurme, Autumn 2008.

Figure 5. Õisu manor park and canal (2008). Source: Photo by S. Nurme, Autumn 2008.

Terracing the land was an important technique of Baroque garden design, however terraces divided with structural support walls – such as those in Luunja park (Map of Luunja manor 1827) – are quite rare. Most of the original terraces were formed from sloping sections of garden. On one hand this is an indication of Scandinavian influence, and on the other hand it shows relatively mature formal garden design. Stone walls make the garden boundaries more rigid and unnatural, while grass-covered slopes suggest less control and greater organicism.

Engravings, photographs and postcards depicting the former milieu of Estonian manors suggests that, at least during the second half of the 19th century, garden design techniques produced rich, vivid environments. The landscapes in the images depict picturesque views of wooden bridges, pavilions, sculptures and flowerbeds (Nurme 2009), suggesting that much of what people admired in European formal Baroque parks was evident in Estonian manor parks.

Unfortunately, finding physical traces of Baroque artefacts today is difficult because there was much destruction of the cultural heritage of manor parks during the Soviet era in the latter half of the 20th century. As a result of short-sighted practices and a lack of cultural awareness, many manor centres were subdivided into smaller plots, used as construction sites, or abandoned and laid waste. Therefore, today, there is unfortunately little hope of uncovering additional examples of Baroque artefacts in what appear today to be clumps of old trees surrounded by undergrowth that mark the old manor gardens and landscaped parks.

Based upon the compositional features of preserved manor parks and historical documentation of destroyed manor parks, we suggest that manor parks dating from the second half of the 18th century possess classical Baroque garden features, and such features are evident even today, more than a century after they were first established. The rise of manor culture after the Great Northern War enabled the creation of elaborate manor estates, which give distinctiveness to local landscapes. Road networks on manor lands, which unified the manor ensemble together with the orchestrated views of the landscape, gave shape to the manor land, thereby giving shape to the local Estonian landscape which is still visible today.

CONCLUSION

Formal Baroque gardens in Estonia (created between ca. 1730 and 1780), in their purest form, were based on classical Baroque garden design. Due to its late rise compared to Western Europe, the Baroque structures remained an essential part in the design of Estonian manor parks throughout the 19th and 20th centuries. Therefore, regularity in garden design was never fully forgotten, which is evident in the landscape plans of 19th-century manor centres and may be observed in the parks today. It is difficult to determine how many Baroque gardens in Estonia are authentic, dating from the mid-18th century, and which were rebuilt at a later time using French garden design inspiration. As a result, our research allows us to describe the general spatial-design characteristics of a Baroque garden but we cannot fully articulate the detailed formal design when original garden design documents are not available.

Unfortunately, a lack of reliable archival material and a lack of opportunities to view preserved elements in gardens today prevent us from better describing the Baroque gardening period in Estonia. However, many manor lands today exhibit the essential values of Baroque gardens, and this provides opportunities to experience the elements of formal garden design that is still evident in the Estonian countryside more than 250 years after the gardens were estbalished.

A formal Baroque garden was intended to sparkle like the contemporaneous music of Händel. Such gardens, characterised by grandeur and dramatic spaces linking manor centres with other manor features, such as a landscaped park, formed memorable views into the distance. Formal terrain, tree allées forming enclosing 'pillars' and finely orchestrated water elements contributed to the sophisticated ensembles. If a visitor still senses surprise, amazement, playfulness and joy when visiting an unreconstructed park – despite destructive physical transformations of historic landscapes during past centuries – then it is surely an authentic Baroque garden and its uplifting atmosphere prevails.

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Publicaton III

Baroque manorial cores and the landscape

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Baroque manorial cores and the landscape

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Abstract

Purpose – The concepts of "historically valuable landscape," "historical landscape space," "landscape space attached to an object of cultural importance," etc. seem to be understood by most landscape professionals, yet these terms are highly abstract with many possible interpretations. The protected zone of cultural monuments prescribed by law helps to ensure the preservation of these historic artifacts and signifiers of local heritage. The paper aims to discuss these issues.

Design/methodology/approach – This paper seeks to provide guidelines that can be articulated to protect cultural landscapes. These guidelines are based on a manorial core study was carried out in 2010 to analyze the changes in road networks and spatial systems of manors over the past 150 years. This study is part of a larger research effort on different aspects of Estonian baroque manor gardens.

Findings – Many landscapes may contain historically relevant objects and phenomena not protected by law, which, nevertheless form the basis of a unique local landscape. The altering of such a landscape not only changes its natural form, but may directly impact the cultural identity and milieu of the area, thereby affecting how its inhabitants relate to their environment.

Originality/value – Preservation of historic buildings and landscapes plays an important role particularly in relation to manor landscapes. This network has remained well preserved, and the rural landscape based on this Baltic-German manor culture is still strongly reflected in the current landscape through the existing historic landscape elements like housing, viewsheds, roads, etc. Without landscape analysis, it can be challenging for an outsider to understand the spatial context, especially when it has changed and evolved through the years.

Keywords Cultural heritage, Cultural landscapes, Cultural sustainability

Paper type Case study

Introduction

Estonian cultural "space" is quite unique in a European context due to Estonia's location. The country's historic architecture, visual arts and landscape design are influenced mainly by German, Polish, Swedish and Russian culture, along with influences of manor architecture from other Western European countries. This combination and adaption of cultures is quite unique and characteristic only of Estonia (Maiste, 2005) and Northern Latvia (Janelis, 2011). Furthermore, during the nineteenth century when manorial estate culture in Europe was dramatically declining, it remained strong in Estonia (Maiste, 2007) due to historic and geopolitical reasons, such as the archaic feudal manor system (Hein, 2003) still in place and the production of grains and potatoes for vodka exports to Russia. This explains why in Livland and Estland specific rural landscapes appeared only in the eighteenth and nineteenth centuries, with strong

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physical and spiritual centers defined by manor cores. Their presence in the local landscape was characteristic of sixteenth and seventeenth century Europe, and they mirrored the philosophy of this age. Christian Norberg-Scultz describes this phenomenon with words such as "system," "centralization," "extension" and "movement" (Norberg-Schultz, 1979). But in Estonia, in fact, this landscape has generally survived to the present day.

Today preservation of historic buildings and landscapes plays an important role particularly in relation to manor landscapes. This network has remained well preserved, and the rural landscape based on this Baltic-German manor culture is still strongly reflected in the current landscape through the existing historic landscape elements like housing, viewsheds, roads, etc. Without landscape analysis, it can be challenging for an outsider to understand the spatial context, especially when it has changed and evolved through the years. Today Estonia (as well as Latvia) has numerous structures and sites protected by law. For example, 270[1] historic parks are protected as cultural heritage and nature preserve areas (Nutt *et al.*, 2013). During the planning and restoration efforts, the philosophical framework of international charters such as the Venice Charter and the Florence Charter are respected and supported by law (Heritage Conservation Act. Riigi Teataja I, 2002). For example, in October 1996, Estonia ratified the Convention for the Protection of the Architectural Heritage of Europe (Ratifying Act of the Convention for the Protection of the Architectural Heritage of Europe. Riigi Teataja II, 1996). Estonian Heritage Conservation Act regulates all actions related with protected object, included planning of conservation, conservation works and maintenance. Furthermore, over 360[2] parks are protected by Nature Conservation Act (Nature Conservation Act. Riigi Teataja I, 2004), which regulates actions.

This status usually comes with numerous restrictions within the protected area, such as the typical guideline of maintaining an additional 50-meter buffer around protected objects in the zone. The zone borders, however, are the current borders of the existing park. But is this enough? Can this protection buffer guarantee the defense and preservation of existing values? While today's developers may value the historic structure and abide by the protection buffer requirements, they may still inevitably cause damage to the "manor core" or the greater landscape's spatial system and view sheds. While these developments may not intend to disrupt the cultural heritage of the area, irreversible damage is done once they are implemented.

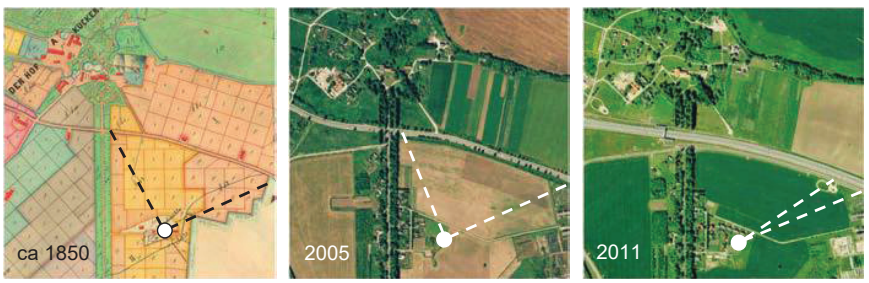
Estonia is a sparsely populated country, with little demand for new development. This lack of development pressure, however, can act as a double-edged sword. On one hand, Estonians have the luxury to protect and preserve their cultural heritage in a meaningful way. Yet slow incremental changes can be hard to detect, making it easy to stray away from the holistic view, leaving the gradual destruction of the cultural landscape unnoticed or unchecked. The authors contend that with deeper understanding and stronger definition, many of the manor cores or landscapes can be viewed holistically and protected in much more meaningful ways that go far beyond current law or standard 50-meter protection buffers.

The new residential area around Kukruse Manor near Jõhvi, built near an old mill, serves as a good example. This housing development technically adheres to the requirement of a 50-meter protected zone around the mill, but does not take into account the visibility of the mill or manor in the landscape (which has remained intact for at least one and a half centuries[3]), nor the specific milieu next to the four lane avenue, relatively unique in Estonia. Indeed some households had been built previously in the avenue space located near the mill since the 1919 land reform, but they are smoothly integrated into the existing landscape. When viewing the

Kukruse avenue within the entire landscape, its compact one-story house complexes do, in fact, blend in with the old oaks and larches, making them quite unnoticeable from a distance. Despite the relatively small scope of buildings in the new housing area around the mill, they still manage to disrupt not only the views of the mill and manor, but also the authentic surrounding landscape that has contributed to the uniqueness of the historic manor landmark for decades.

When interpreting the designed manor ensembles and their contact zones, planners are often confronted with various problems. Throughout the twists and turns of twentieth century history (Sinijärv, 2009) many unsuitable houses or structures were built in manorial cores while many historic buildings were demolished. Furthermore, there are many instances where historically valuable objects or spaces have disappeared from the landscape due to negligent or unsuitable development activities. For example, the apartment building erected directly opposite the manorial core of Raadi Manor near Tartu in no way takes into account one of the most symbolic buildings on the site, the gate building. The new housing obstructs the views of open landscape from both the main gate and the road, damaging the desired spatial element so vital to the ensemble of structures, thus destroying a 150-year-old (План о ближной окружности трактира и питейнаго дома принадлежащего к мызы Ратсгофу, с начертанием всех ведущих туда дарог и с обазначением отдаленности его от Города Дерпта, 1838) cultural heritage site. While one can debate the nature of landscape space and its historic value and significance, be it a result of pure coincidence or planned development over the centuries, it can be easy to lose the greater sense of space when focussed on protecting only one element of the entire ensemble (Figure 1 and Plate 1).

It is certainly debatable in which cases or on what conditions one can discuss valuable landscape spaces and perceptions of historic objects. The definitions invariably depend on those who define them and their pertinent knowledge and beliefs. Planners and designers enjoy vast interpretative freedom within this valuable landscape interpretation methodology (Hellström, 2001). Sometimes we simply protect our valuable landscapes or objects in landscape based on regulations and often without too much critical analysis. As such, protected areas are isolated from the greater landscape, and we fail to notice changes in the surrounding landscape that affect



Notes: The figure shows that new housing area alters more than 80 percent of the view area from the road and manor center. In the 2005 and 2011 figures one can note the reconstructed highway. The highway changes local views in the main axis of main alley, but it stays generally in historic location and thus does not change landscape openness

Sources: Estonian Historical Archives (EAA) EAA 2062-1-171; orthophoto by Estonian Land board

Figure 1.
View of corridor and landscape openness connected with Kukruse mill: on the left side and center – situation from mid-nineteenth century to 2005, right after housing area development

Source: Photo by: Sulev Nurme

Plate 1.
New development obstructing landscape view from Raadi manor main gate

protected areas as well. The "historical" landscape does not end after crossing borders of cultural heritage protection areas.

Frankly, the historical landscape and its key elements are not only issues of cultural heritage protection but hold community identity and form, local and regional landscape patterns while also characterizing local historic settlement. Landscaping can yield positive impacts on property values (Jansson, 2010); similarly authentic historical landscaping around historic buildings increases their economic value and makes them more attractive for tourists (Hellström, 2001). This is, in fact, a key rationale for developing peripheral rural areas and making them more attractive for potential investors looking for quality places to invest.

Manor centers with their old parks are often also like ecological oasis's, with incredible biodiversity and often, in intensive rural agricultural landscape, the last refuge for many species – plants, insects, birds, etc. Centuries of evolved specific and unique habitat, where the biodiversity is typically richer than what is found in "real nature." Irresponsible change to these landscapes can destroy ecological balance and lower ecological, cultural heritage and real estate values (Uustal *et al.*, 2010).

This paper seeks to provide guidelines that can be articulated to protect cultural landscapes. These guidelines are based on a manorial core study was carried out in 2010 to analyze the changes in road networks and spatial systems of manors over the past 150 years. This study is part of a larger research effort on different aspects of Estonian baroque manor gardens.

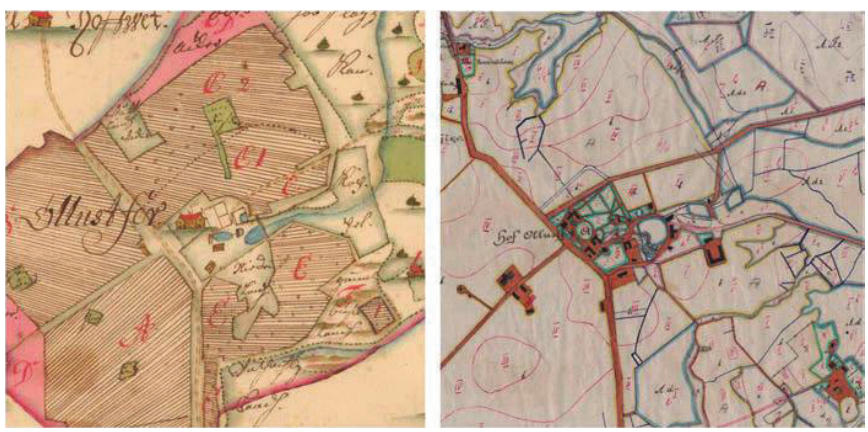
Methodology

The study included 34 manor complexes throughout Estonia. Manors were selected based on previous research involving baroque parks that was carried out by Tartu College of Tallinn University of Technology, as well as the regular composition of manor complexes (Vaine, 2009; Mihkelson, 2010; Heringas, 2009). The preference for

parks with standard composition resulted for various reasons, the most important of which being the clear distinction of regular composition from the landscape as well as clearer, more unambiguous and easily determined links between core ensemble and landscape, both on paper and *in situ* (Nurme *et al.*, 2012). Age was a key factor in the choice of the ensembles, with most of the selected manorial cores featuring the late baroque style. Thus, the specific preserved landscape components are influenced by the oldest ones in the post Great Northern War manorial culture. The selection took into account the existing records from 1750 to 1917 reflecting the mutual influences of manorial core and landscape. The rationale for picking this timeframe was quite pragmatic, as any helpful maps displaying details about manor center design and structure before the Northern war did not exist. Only after 1750 were greater efforts taken to maintain detailed maps and preserve in local archives (Figure 2).

The study was largely based on map analysis. Its theoretical basis derived from the methodology developed during the studies of Alatskivi (Nutt, 2003) manorial core along with the analysis methods used during the inventory of manors in Tartu County (Nutt, 2004). The study focussed on the changes in spatial openness of manor landscapes and spatial expanse of manorial cores. The study also sought to evaluate and compare the state of historical roads related to the manorial core. Road networks clearly illustrate changes and landscape developments, and can provide a rather objective form of spatial structure analyses (Tarkin, 2011). Road networks may not be visible at first, yet their footprint still exists. These road corridors define the basic spatial pattern and make it easier to interpret the view sheds, unique composition and landscape elements so critical to the manor complex. As such, roadbeds may be critical in evaluating the extent of preservation required to truly protect cultural heritage.

In both cases, the changes could be assessed by comparing the presumed initial and current situation, using modern orthophotos and historical plans of the manors. Map analysis enables one to assess changes in landscape structures by comparing the



Notes: The older map provides much less information on landscape space compared to more recent map. For example, in older maps main roads, important buildings, field boundaries, ponds and land use can be noted. Newer map shows all roads, buildings, relief, ponds, ditches as well as land use etc.

Sources: Estonian Historical Archives EAA 3724.5.2784.1; EAA 308.6.167

Figure 2.
On the left: Olustvere manor center in 1741 (map copy from 1688) (Charte von denen Ollustferschen Hoffes Ländereien, im Pernauschen Kreise und St. Johannes Kirchspiele belägen, 1741) and on the right: Olustvere manor center in 1906 (map copy from 1864 to 1866) (General-Coupon des Gutes Ollustfer, 1906)

areas or dimensions of the given structures (Steenbergen and Reh, 2003), whereas the processes in landscape, that these changes reflect, can be evaluated qualitatively.

The main consideration when selecting historical maps involved keeping the interpretation of data they contained as simple as possible. Therefore, the map needed to clearly identify a typical baroque architectural spatial system, groundcover (land use), buildings, park, roads, etc. In cases of having several existing plans to choose from, the earliest version or most detailed was preferred. In order to pass the selection criteria, the maps also had to provide an integral and general overview of the area, with all territories surrounding the manorial core clearly marked as well. Orthophotos from Estonian Land Board were used as modern reference plans (Figure 3).

In cases of landscape open space, the changes in landscape views from the manorial core resulting from changes in land cover class (Koppa, 2006) were studied and utilized as a reference to construct historical and modern extent of visibility. This enables one to draw conclusions about the whole spatial structure surrounding the manorial core. The key points of the ensemble composition (the main observation points with reference to the composition of a specific park) near the main building and on the border of the manorial core determined the selection of observation points. The study on the spatial extent concentrated on the territorial changes of the manor core, comparing the historical borders on the map with an orthophoto. The extent of changes was expressed in terms of area. In order to determine the state of road corridors, the roads attached to the manorial core were compared to the roads in orthophotos, with the length of overlapping (i.e. existing road corridors) roads then calculated. The results of map analysis were checked during fieldwork in May 2010. The fieldwork mainly focussed on the changes concerning viewsheds and other territorial changes in the manorial core. The key points in the park landscape, previously determined with map analysis, were found in nature and captured with the panoramic photography. In cases where the results of map analysis and on site documentation did not overlap, the likely scenario was determined on site.

The results of map analysis were assessed as a percentage change, in view of their estimated territorial changes. For interpretation of changes, 0 was used to indicate marginal changes in the landscape with 100 representing cases where the present-day landscape had changed beyond recognition. In order to facilitate the assessment,

Notes: On the left side, the center in 1856 (Taschenatlas über die Feld-, Wiesen- und Forst-Wirtschaft des Gutes Saggad, 1856), with the present view at right. This comparison shows how the historical road network and main spatial axis connected with manor ensemble architectural composition are clearly recognizable on orthophoto

Sources: EAA 1324.1.590.3.; orthophoto by Estonian Land board

Figure 3.
Sagadi manor center

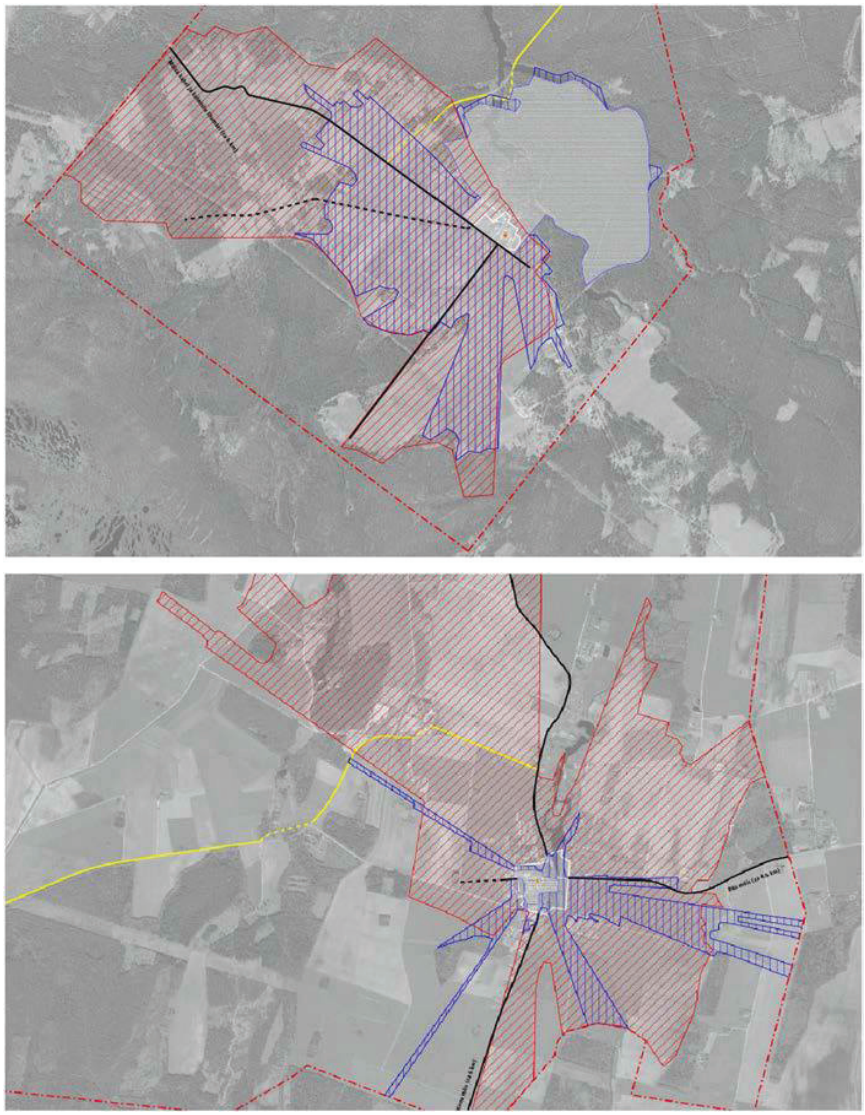
the results were divided into five classes by capacity of altered landscape. The state of roads was expressed as a percentage of road still intact and calculated as a ratio between the total lengths of survived and destroyed roads. The same method to divide territorial changes into four classes by capacity of changed road length. Both classifications are given by percents in scale from 0 to 100.

When comparing the results of the map analysis, the researcher can determine the relationship of each park with its overall connection to the surrounding landscape. Thereby, changes in landscape trends surrounding the old manor parks may be noted. These trends can be used as framework to predict different scenarios of different developments. For every unique case the analysis can generate a list of most threatened objects and spatial structure elements within the surrounding landscape and its relationship to park composition, as well as, perception of the park from a distance. This inturn could help to prioritize the value of objects and/or elements within the viewsheds and the necessary actions to preserve those valuable elements and perceptions in the surrounding landscape. The results also point out the elements that have significance and are essential for proper understanding of park composition (Figures 4 and 5).

Research on characteristics of manor core landscapes

The results of the study reveal that the landscape surrounding manorial cores has changed significantly. The landscape openness of studied premises has changed significantly (75 percent on average). In all cases (map analysis regarding spatial openness was conducted on 24 manors out of 34) viewsheds and open spaces have decreased significantly. Spatial openness has decreased by half in the case of four manorial cores, while in other cases the change has been significantly higher. Audru manorial core deviates from the general rule with its spatial openness changing the least (ca. 38 percent) but this is understandable considering the manor's view of the sea. At the other end of the spectrum, Arbavere manorial core saw almost all spatial openness practically vanish (ca. 98 percent) due to scrub and forest growth. The decrease in spatial openness around manorial cores results from scrub or forest growth of former grass and farmlands, along with the construction of new buildings and in the proximity. Keeping in mind the significant increase in forested areas (compared with 1919; Tarkin, 2011) and the decreased role of agriculture, this should not be surprising; however, the scope of changes is rather alarming. Fieldwork revealed that landscape openness remains on the decline. Scrub growth and young forests taking shape on former grass and farmlands increasingly destroy the visibility from manorial cores and attest to this alarming trend. Disappearance of open spaces around manorial cores diminishes their visibility as landmarks; consequently, the visual relationship between the manorial core and its surrounding landscape fails to maintain an engagement, leaving historically important or valuable elements (alleys, separately standing trees, stone fences, remains of bridges and outbuildings, etc.) further away from manorial core to be covered in scrub growth. In the latter case, the objects are not as much at risk physically but rather face being forgotten by local people, due to an "out of sight, out of mind" mentality (Figure 6).

In comparison to the openness of the contact zone, the spatial extent of the manorial core within its landscape has been much more preserved. The results of the analysis concluded that although the spatial extent of most manorial cores has decreased (evident in 21 cases), the decrease has been by more than 20 percent only in six cases. In 13 cases, as opposed to the trend, the extent of the manorial core has actually increased. In nine cases out of 34 manorial cores, the change remains within 5 percent. The largest decrease in the extent was evident in Väätsa (56.4 percent from the

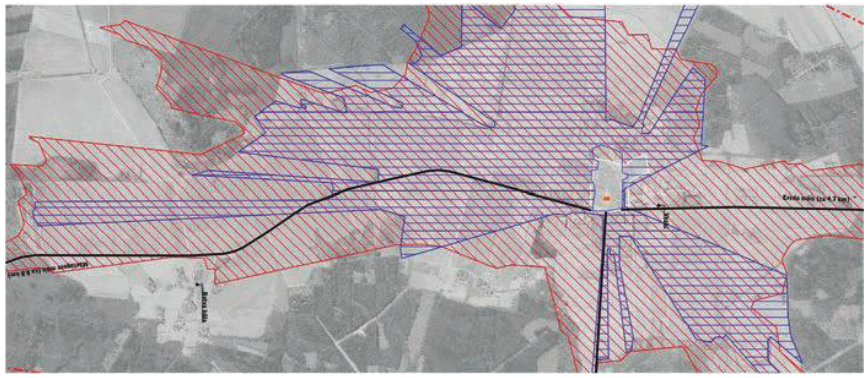


Notes: Above: Palmse manor – spatial structure and territorial reach of baroque ensemble is practically unchanged. Below: Väätsa manor – manor core territory has decreased by more than 50 percent

Source: Tarkin (2011)

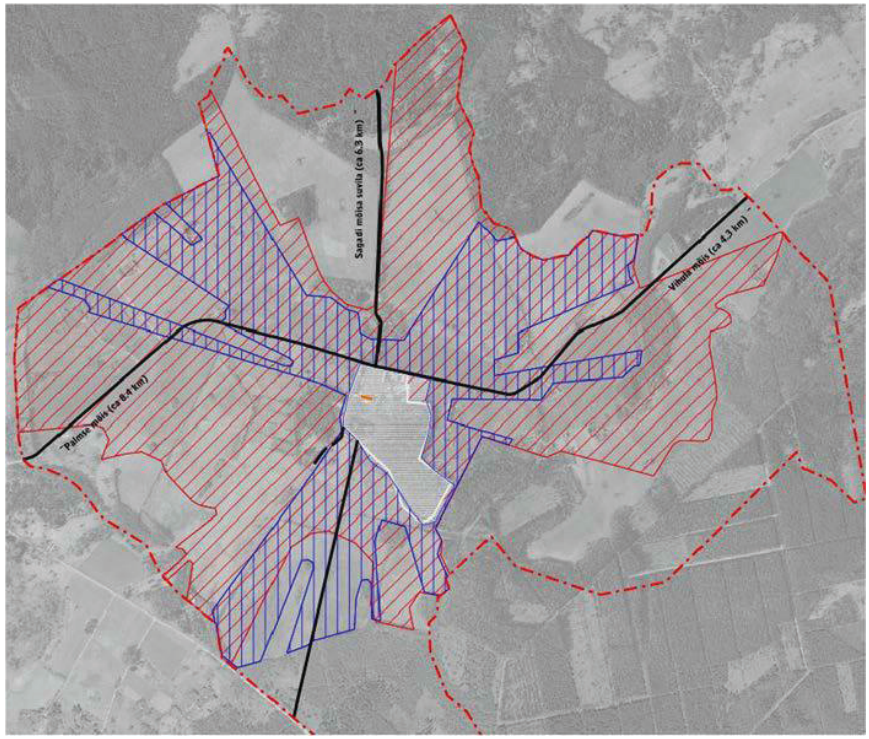
Figure 4.
Changes on manor centers

original), with the largest increase in Palmse. This indicates that historical space as a whole is still rather well preserved. The land reform in 1919 further explains why the extent of manorial cores has decreased, as parks were divided into smaller lots and collective farms were built during the Soviet regime, when several buildings were



Note: Good example of well preserved axial roads in Kiikla manor
Source: Tarkin (2011)

Figure 5.
Changes in road network



Source: Tarkin (2011)

Figure 6.
Landscape view openness on case of Sagadi manor: blue – today (2012), red – in middle of nineteenth century (based on 1856 map; Taschenatlas über die Feld-, Wiesen- und Forst-Wirtschaft des Gutes Saggad, 1856)

erected within and in close proximity to the manorial cores. In the majority of cases, a portion of the historical manor territory has become an open area (grass- or farmland) or a yard lot, and in some rare cases the parks in the manorial core are covered with scrub or forest growth. A large-scale territorial increase in the manorial core has mainly stemmed from the establishment of new parks in the nineteenth century (Palmse, Hiiu-Suuremõisa, Kaagvere, Kõljala, Pidula, Koigi, Pilguse). When discussing this increase, one must consider the impact from map analysis methodology – during the analysis the earliest possible maps of baroque parks were compared against the present-day situation resulting in a remarkable increase in the nineteenth century, whereas if parks are analyzed as a whole it is likely that in most cases the extent of manorial cores will have decreased. The manorial cores, which have increased by <5 percent, are explained by the establishment of new park areas in former open spaces within the immediate vicinity of contact zone in the twentieth century, therefore increases in present-day manorial core are related to increases in park areas (Hellenurme, Luke) (Figure 7).

An analysis of roads emanating from manorial cores revealed that only the roads of one studied manor (Pilguse) were not preserved (36.6 percent). In other cases the roads have survived well or very well. Interestingly, the roads emanating from Ahja, Kiikla, Tilsi and Urvaste manorial cores have survived in their complete state. Given that the general traffic patterns have not changed due to the topography of the manorial core contact zone and general housing structure of the area, the roads have been well preserved. Usually roads become obsolete when new direct routes are created, with the existing roads straightened and new buildings erected within the manorial core or its contact zone.

This analysis of roads leading through manorial cores included 31 manors, since in three cases the current roads were not depicted on the historical map. Map analysis indicated that for 21 manors surveyed, the roads have survived in their old site, and in ten cases the location was precisely the same. The survival of given roads and roads emanating from manorial cores is due to the same reasons. The state of road networks in Loodna, Pilguse and Arbavere manorial cores, for example, is much worse. However, this does not mean that the road corridors have completely vanished; they are now simply used instead as local byroads. As a result of new road development and straightening, old road segments have lost their significance, thus leading to the disappearance of historical roads (Figure 8).

During fieldwork when map analysis was re-validated, it became evident that the data acquired from the analysis broadly corresponded to the situation on site. As was expected, the primary differences concerned landscape openness. In most cases (e.g. Ahja, Väätsa), open space on site appeared to be somewhat smaller, resulting from line structures (e.g. tall hedges, ditch banks covered in scrub growth and calm traffic areas which visually close the space, yet divide the landscape) which are hard to identify from orthophoto during map analysis. Since calm traffic areas have been integrated into manorial cores, it is sometimes difficult to determine the actual spatial extent of the manorial core on site, whereas in map analysis this had been less complicated. Landscape openness is also determined by relief – spatial openness in manorial cores with active relief depends on the particularities of the relief. For example, the results of landscape openness obtained on site in Luunja, Kaagvere and Purdi are greater than the results of map analysis. However, observations during fieldwork affirm that although the openness has usually altered, in most cases the key views tied to the manor ensemble main axis still exist and are easily discerned in the landscape.

The parks analyzed in this research are located in very different locations all over Estonia. Basically they can be separated into three categories of manor parks. First,

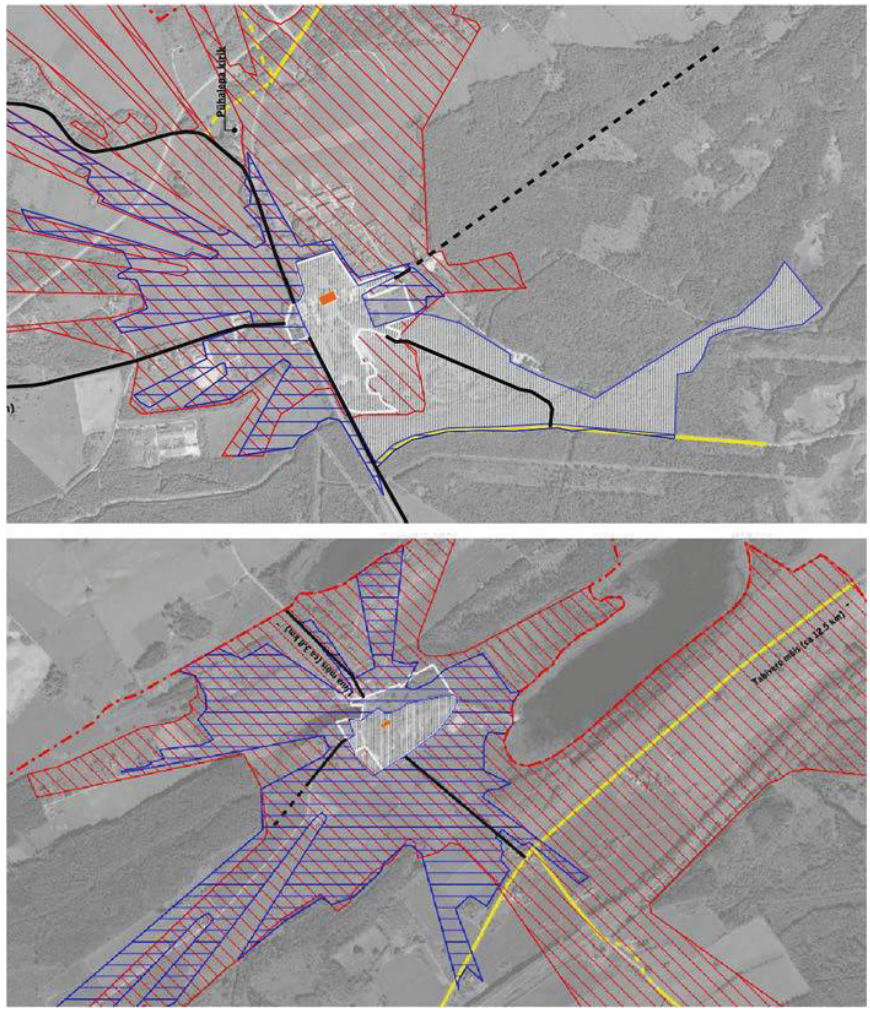
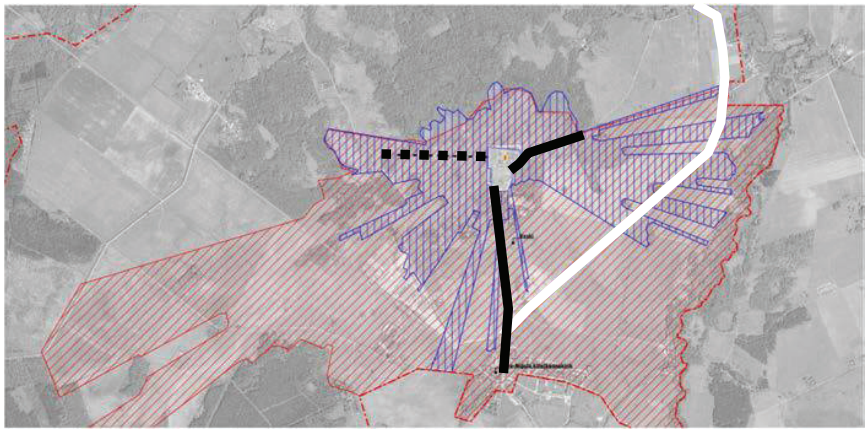


Figure 7.
Examples of territorial changes of researched manor centers

Notes: Above: Hiiu-Suuremõisa manor center as example of enlarged case. Below: Kaarepere manor center, whose territory decreased approximately 50 percent. White hatch shows manor core territory today, white line territory in the middle of the nineteenth century

Source: Tarkin (2011)

parks located near towns or bigger villages that are used as tourist attractions, as well as by local residents for recreational purposes (e.g. Ahja, Koigi, Luunja, Roosna-Alliku, Vana-Võidu, Väätsa, etc.). The second category are parks that are well known tourist attraction in small places and have importance mostly as well known tourist attractions (e.g. Palmse, Sagadi, Luke, Õisu, Hiiu-Suuremõisa, Vatla, etc.). The third group are individually located manor houses or manors in small villages that are rarely used by local residents nor are they well known as tourist attractions (e.g. Urvaste, Saare, Kassinurme, Kiikla, etc.).



Notes: White line indicates the preserved historical main road, with the black line marking preserved historical roads connected with the manor ensemble spatial axis, and dotted black lines showing unpreserved main roads connected with ensemble spatial structure

Source: Tarkin (2011)

Figure 8.
Main road network of Vasta manor center

This research concludes that important tourist sights are in fact well maintained and regulated in terms of maintenance and the surrounding land uses are respectful of the historical context (e.g. Palmse, Sagadi, Hiiu-Suuremõisa, etc.).

The most threatened perhaps are the first category where landscape changes in surrounding areas, due to the construction of new buildings and streets and renovating existing structures, can causes significant changes of visibility and perception. Old parks, as attractive landscapes, evoke greater interest from real estate developers. Also these parks are under pressure, from local government or local citizens that want to revitalize and reuse historic parks as recreation areas, children playgrounds, parking lots and adding other different modern structures and park elements. If this process goes against the Florence charter, then the historical layers (valuable elements and phenomenas) and significance will be destroyed (e.g. Vana-Võidu, Kaagvere, Luunja, etc.). On other hand, if this developing process is done properly and all important relationships between park and landscape are accepted, then they are preserving their significance for local community and for visitors. Those cases, where a local community accepts park as valuable historical spatial system, that requires special treatment not only within the borders of the park, but also in the surroundings, do not need additional protection (e.g. Roosna-Alliku, Väätsa). In any case, processes of change are not easily reversible.

The second most threatened category are the individual manors or parks located in small villages. The biggest problem is insufficient maintenance, which causes increase in brush areas and enclosures. The second issue is the disappearance of significance, which is related to the lack of maintenance. Often park and their related surroundings are understood by specialists not visitors (Urvaste, Kassinurme, Rasina, etc.). Problems are often caused by changes in surrounding landscape, such as changes in land use where local agricultural fields are abandoned. The second reason is, that buildings in manor core are destroyed or abandoned. On the other hand, these areas do not have real estate pressures and most changes in surrounding landscape (and often in park) are related to vegetation and can be reversed by proper maintenance (Plates 2-4, Figure 9, Plates 5-8).

Notes: View from road, which is built on main spatial axis of manor ensemble to the main building of manor center. This road is built only for compositional purpose, as historic maps (Pahlen, 1753) illustrate many featuring dead ends

Source: Photo by Sulev Nurm

Plate 2.
Palmse manor

Note: View from the manor main building, back stairway to overlook park and well preserved historical road which is connected with main axis of ensemble

Source: Photo by Sulev Nurme

Plate 3.
Sagadi manor

Notes: This road leads to the main gate of the manor center and is part of the typical perpendicular road crossing (road in photo marked with dotted line in historical map (Figure 9)). In the center of photo lies a typical silhouette in Estonian landscape – the shape of manor park, which indicates local landscape pattern center

Source: Photo by Sulev Nurme

Plate 4.
View from historical, preserved main road to Urvaste manor center

Conclusion

Manor ensembles featuring standard composition have a relationship with the surrounding landscape through their roads and vistas – baroque park structure with its mathematical composition had to perform a "show" long before reaching the main building. The most broad and general application of this study lies undoubtedly in the confirmation that structures attached to the baroque park landscape still exist and may be observed in the present-day environment. This would suggest that the historical spaces of manor ensembles from later periods are more well-preserved, and can be determined through simple map analysis. Empirical observations during fieldwork suggest that data from map analysis is reliable and similar to the results of observation. Style specifics must of course be considered regarding English-style and historical parks but in case of problem areas where planned construction works could threaten the visibility of historical objects or the space essential for appreciating (thus also existing) them, the analysis could help us determine sensitive and less sensitive areas. This, in return, would help to preserve the identity and essence of one of the most important cultural landmarks in Estonian landscape – manorial cores. The research illustrates that we can locate and analyze surviving manor core landscape characteristics and these data as they are very easily transferred to modern maps, so we can use them as necessary helping tool in planning process. This is not a new concept – map analysis is a very common tool in landscape architecture practice, but since historical landscape map analysis is not strictly required for protected objects and their surrounding landscapes, there are missed opportunities that would help prevent damaging valuable landscapes as a result of accidental planning.

Another outcome of the process revealed that spatial volume of manorial cores has remained largely unchanged. Accordingly, it could be said that space-wise the

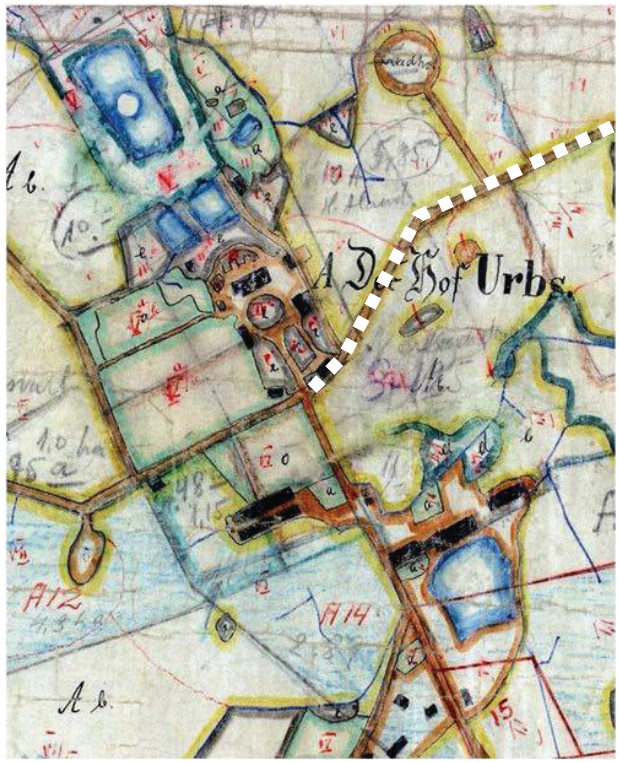


Figure 9.
Plan of the Urvaste Manor center from 1873

Sources: EAA 1401.1.5 leht 1 (General-Charte des im Livländischen Gouvernement, Dörptschen Kreise und Anzenschen Kirchspiel belegenen privaten Gutes Urbs, 1873)

Plate 5.
Panorama-view to the south from Väätsa manor center main gate

Note: On the left appears kolkhoz-time built buildings which obstructs originally open views to the fields
Source: Photo by Eigo Tarkin

ensembles have survived as an integrated system where poorly planned construction could spoil both the milieu and integrity of the ensemble. It is only natural that over time there have been additions to the parks, and in some cases these changes are irreversible. For example, construction of a new schoolhouse in the Väätsa complex completely altered the frontal square of the ensemble, whereas in Vasta, despite some

minor changes in the road network and outbuilding facades, the front square of the manor can still be appreciated in its entirety.

Without doubt another key outcome involved the realization that the road networks emanating from the manorial cores have largely survived in their original locations. Roads, as a "functional backbone" of the landscape, provide a stable measure for spatial definition of the manorial core and its related landscape in both its current and original state. This should serve as a key prerequisite when managing road networks, if the intention is to preserve historical space. Knowing the location of roads makes it is easier to determine former open (or closed) spaces currently covered with forest or scrub growth, thereby providing crucial information when planning, for example, landscape maintenance work.

Of course, there is no need to protect all historic landscapes. When dealing with historic areas it is necessary to realize that valuable areas are those where spatial structure (view sheds, open-closed areas, etc.) is more authentic and well preserved. The key question is whether the planning area and its surroundings are valuable as

Notes: Kaagvere manor center is visible across the river. Spontaneous vegetation is growing that without proper maintenance will soon obstruct the historical view

Source: Photo by Eigo Tarkin

Plate 6.
Panorama-view from border of Luunja manor center over river Emajõgi

Note: The landscape openness is well preserved, although the spontaneous vegetation on the left could soon consume half of panorama

Source: Photo by Eigo Tarkin

Plate 7.
Panorama view from Purdi manor main gate to the east

Notes: The landscape openness on the right side is obstructed by buildings built during soviet era, but on the left side the historical view is well preserved, because few years ago made detail planning respects historical open view

Source: Photo by Eigo Tarkin

Plate 8.
Panorama view from Tilsi manor main gate to the west

key element for reading or understanding local landscape. Nowadays, when planning real estate developments, the larger landscape is forgotten. Dealing better with historical landscapes through planning processes would address several issues. The first issue is to teach planners to really respect historical landscapes – manor cores are just one example of them. This means planners should be able to read the historical layers of landscape and interpret them within context. The second issue is that our current planning system does not require presenting documented landscape analysis along with site-specific planning documents. If this documentation were required, perhaps the quality of planning and landscape projects would better respect historical values and understand that by respecting the genius loci of site, cultural and economic value can be gained. The third issue is how to handle historical landscapes located in or near towns that are pressured by real estate development and often "over used" by visitors. Both problems can be solved by proper planning and conservation processes. In Estonia, rural populations are shrinking due to migration to urban areas resulting in greater, everyday, recreational user pressure on historical parks in urban areas. For that reason the handling of historical parks in plannings and conservation processes must not focus so much on the conservation of past but on social-functional integrity (Jokilehto, 2007) to save objects with values for future generations.

Considering the extent of changes that the landscape has witnessed over the last hundred years, it is rather surprising to see that landscape attached to Estonian manorial cores after the Great Northern War have been preserved quite well. This is remarkable not only in regards to Estonia cultural heritage, but also in the general European context. If we want to preserve those values that reside in our landscapes for future generations, we must not look for lost details, but survived great picture – because there are hidden our roots.

Notes

1. National Registry of Cultural Monuments, 2012
2. By the data of Information page of Estonian Nature Information System (EELIS); http://loodus.keskkonnainfo.ee
3. Map of Kukruse manor 1874-1875 (Ysenflamm, 1874/1875)

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Publication IV

Restoring manor parks: exploring and specifying original design and character through the study of dendrologous plants in Estonian historical manor park

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Restoring Manor Parks: Exploring and Specifying Original Design and Character through the Study of Dendrologous Plants in Estonian Historical Manor Parks

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Nutt, N., Nurme, S., Hiob, M., Salmistu, S. and Kotval, Z. 2013. Restoring Manor Parks: Exploring and Specifying Original Design and Character through the Study of Dendrologous Plants in Estonian Historical Manor Parks. *Baltic Forestry* 19(2): 280–288.

Abstract

Manor parks are an integral part of the Estonian landscape, given that we have about 1000 manors with smaller and larger parks of which about 400 are under nature protection or declared as national heritage objects. Manor park restoration is an important national goal for the country. However, restoration techniques and expertise is not readily available. While there is great interest in cataloguing and inventorying the plant species in the Estonian Landscape, particularly in Manor Parks, knowing the types of different species is far from adequate to understand the original composition and design of the parks for true restoration. While historical documents, maps, writings, poetry and paintings give us useful background information regarding the overall scheme, such as spatial orientation and road patterns, little is understood about detailed plantings, tree species etc. Under specific circumstances the old trees in the park may yield valuable information for restoration decisions. The most important question in restoration is which woody plants and on what conditions are the part for the original design concept. That is the key question posed by the researchers of this paper. Due to the fact that the development of manors and manor parks in the Baltic countries is similar the topic is equally interesting for all Baltic States. Moreover, the addressed problems of restoration of parks are similar in every place with the lack of primary data.

The researchers contend that in addition to the inventories performed by many foresters and naturalists, it is equally relevant to know the actual count of each type of tree to begin composing the original landscape. Furthermore, one needs to understand that these parks have evolved over many years and the current structure might be very different than the original plan. To make it even more complicated, it is difficult to really say what era was „original" or what were the glory days of the Mansions. One of the ways to deal with this issue is to identify the really old trees from the new or subsequent growth, and focus attention on those. The authors have begun the tedious task of identifying, inventorying (types and number of species) and understanding this footprint in each of the 16 parks in 2003 - 2009.

This paper addresses the significance of focusing on the identification and composition of old trees and their influence/ significance in understanding the original intent of the park design and the amount of original matter in today's historical parks, thereby aiding in better restoration efforts.

Key words: historical manor parks, examples of dendrologous species.

Introduction

Many Manor Parks in Estonia are preserved as sites of national heritage. It is deemed important to protect and preserve these parks, which involves restoration and replanting. However, due to the Estonia's complicated history (Sinijärv 2009), little is actually known about their original design or character. What is extensively documented is the types of different species that currently exist in the park. This is evidenced by a large number of inventories conducted by foresters through the ages. However, when restoring a park, one needs more than an inventory of existing woody plant species. In addition, characteristic of the park and its changing role thought out history needs to be examined. One key aspect in renewing the park is the overall composition and regularity. Given that the only parts that have remained of the original design in historic parks are the old trees (Nurme 2009), the woody plants have an important role in the restoration decision making. If there are little primary sources the decisions about the original details of the design of the park can be made by studying the composition of the old trees.

The article presents data from detailed research on dendrologous plants in 16 Estonian historical manor

parks. As opposed to existing inventories that catalogue the different types of tree specimens, this research takes into account the age of the trees to differentiate between original plantings and subsequent growth as well as the number of examples in each of the different species. Both these elements are important for describing manor parks in general and for making decisions about restoration concepts and practice. Because of the similar issues that Estonia has (Grazulis 2007) not only with Estonian manor parks but with parks throughout the Baltic countries and the former Soviet Union and elsewhere the documented historic data for restoration purposes has not survived or does not exist.

Historic Character of Parks

The majority of the nationally protected parks (nature conservation or national heritage) in Estonia are manor parks. Estonia with a total area of 45,227 sq. km has had about1100 manors (Rosenberg 1994). Many manors had grandiose parks of which about 800 have been preserved. The oldest manor gardens and modest parks were probably created already in the 17th century, which is supported by the engravings of Adam Olearius and Antonis Goeteeris (Maiste 2006) and few manor plans from Livonia (nowadays Latvian territory) dating back to the end of 17th century (Janelis 2010). Generally there are no documents preserved and gardens and parks that were created back then have disappeared in the rebuilding processes. Most of the manor parks that have remained were founded in the 18th-19th centuries and are thus the oldest parks in Estonia.

According to the data of the Ministry of the Environment [EELIS] (www.eelis.ee) there are ca. 450 manor parks out of the total number of 548 parks and arboretums under nature protection. Approximately 2/3 of the manor parks under nature protection (ca. 270) are also on the list of monuments of national heritage[1]. In other words, the majority of Estonian parks under nature protection are historical and more than 150 years old. As previously mentioned the preserved historical manor parks in Estonia date back to the 18th century and as such, the question about their future becomes increasingly relevant. If we let the parks stay as they are, then they are likely to deteriorate and leave a vanishing footprint within this century. If the trees die, then the manor building complexes will be left to ruin as the lifetime of the buildings is a lot longer than the lifetime of the trees. Furthermore, given the Estonian climate conditions, most of the old plantings have reached or exceeded their life expectancy (for example *Tilia cordata*, which is a common park tree in Estonia has a life expectancy of 300 to 400 years in normal conditions) (Laas 1987). Thus, more and more of these trees will continue to vanish as age, illness and climate change catch up with them. The building complexes need, as they have done for centuries, suitable surroundings and beautiful parks. One of the critical issues connected with the age of the parks is that there is a need for historic preservation and renewal in order to preserve the character of the manor houses and parks for the future. This poses a serious concern as the parks have evolved over time and the notion of what is considered "original" is hard to define. Two of the major causes for changing appearance of the old parks are that many of the parks were left without continuous maintenance (Nurme 2008) and second, after the end of the manor era, there have been new and perhaps unsuitable plantings in the parks (Sander and Merikar 2004). This tendency is common for shrubs, fruit trees and certain coniferous trees (*Pinus mugo*, *Picea pungens* etc.) which were often planted in parks during Soviet times. The result is that the species growing in the parks nowadays can be quite different from the ones originally planted. If our aim is to restore these parks, according to the values and principles recognized and appreciated in Europe and preserve our cultural heritage, then studies and research about authentic or original species in different historical parks is certainly needed. Research method that results in allowing us to make scientifically based decisions on types and numbers needed replacement plantings when restoring the parks becomes an important step toward reaching this goal.

A Focus on Dendrologous Plants

Manor parks are of interest for different reasons – from an environmental aspect, there is a unique semi-natural habitat where the old trees play a central role. Dendrologous plants, mainly woody trees, make up the structural elements of many of these manor parks. The interest towards dendrologous plants has been constant in Estonia which is proved by frequent dendrological inventories which give a good overview of dendrologous species and their condition (Sinijärv 2009). The acclimatisation of foreign species, the dendrological diversity and ancient trees with extraordinary size have been of great interest (Nutt 2008). Generally, the inventories did not pay much attention to the connection between woody plants and park composition, and authentic species from the period of original park construction and the proportion of different species. The most extensive of inventories were carried out by Paivel from 1954 -61, Aaspõllu in 1970-80s of parks under nature protection (Aaspõllu 1977, 1978, 1980, 1981, 1982, 1984, 1986), Elliku and Sander

[1] National Registry of Cultural Monuments, 2012.

in 1984-95 in the counties of Virumaa and Pärnu (Elliku and Sander 1996, Sander 1996), Tallinn Botanical Garden in different periods of Kadrioru park, and the Ü/K 'Metsaprojekt' Eesti Metsakorralduskeskus (Estonian Forest Management Centre) in 1970-80s of different parks (Palm 2009). A number of research projects dealing with plantings in Estonian manor parks have also been undertaken (Uustal 2003, Palm 2009). However, in all the existing surveys, which present an accurate list of species primarily used in manor parks, they do not address the major elements of park design and construction. While much interest in the types of plants in the parks were expressed by forest researchers and ecologists during the Soviet occupation, many of their surveys lists the different species growing in the parks but present no data about the number of existing specimens or a comparison to the original park composition (Nutt 2008). Therefore these surveys cannot be used as a basis for decision-making in the restoration works. The previous inventories do not give the correct idea of the age structure of the park trees because the age of the trees was usually determined only for the largest examples. There are also problematic issues with shrub inventories because shrubs have short life expectancy and therefore no original shrubs are preserved. Usually in old parks few shrub species, mostly *Sorbaria sorbifolia*, *Spiraea chamaderyfolia*, *Syringa josikaea* and *Symhoricarpus albus,* due to vegetative renewing, have become large shrub massives that have shifted from their original planting area as a result of the lack of maintenance. Therefore, their initial location in the original design is nearly impossible to determine. Abovementioned reasons imply that prevous inventories cannot be used in restoration and studying the historic parks because the interpretation does not give us the correct concept of initially used species and therefore does not give us the correct original park design.

As a consequence, the original composition and authentic species of historical parks are not clarified and the composition of parks may be misunderstood. In this article the researchers focus on the possible original species that were planted taking into account the inventory data and the age structure of the trees. They are concentrating on tree species, leaving out shrubs due to previously mentioned reasons. The aim of the current research was to clarify the proportion of examples of distinct tree species in manor parks today and to determine the main tree species originally used in manor parks. Also one important research element was the determination of the approximate tree age to understand whether the tree was part of the original composition of the park.

Defining Elements in Park Restoration

The joint International Committee for Historic Gardens set up by International Council on Monuments and Sites [ICOMOS] and the International Federation of Landscape Architects [IFLA], inacted the Florence Charter from 1982 at their meeting in Florence on 21 May 1981. The 'Florence Charter' was drafted by the Committee and registered by ICOMOS on 15 December 1982 as an addendum to the Venice Charter covering the specific field concerned. Article no. 15 of the Florence Charter (Florence Charter 1982) states that no restoration work and, above all, no reconstruction work on a historic garden shall be undertaken without thorough prior research to ensure that such work is scientifically executed and which will involve everything from excavation to the assembling of records relating to the garden in question and to similar gardens. Before any practical work starts, a project must be prepared on the basis of said research and must be submitted to a group of experts for joint examination and approval.

Due to the lack of original detailed project designs and plantation schemes, one of the tasks for this group of researchers was to try to understand the original planting design structure through large-scale maps (1:4,200) from 19th century. The number of 'old' trees (planted prior to 1919), as measured by the size of the trunk and getting information on the composition of different trees within the parks became necessary to clarify the composition of park space, identify the details of original design and give suggestions for restoration according to the original ideas.

Methods

The aim of the current research was accomplished in three distinct steps. First, using the same methodological approach (Nurme 2008) an inventory of all existing species and their counts was created for each park. This included both Estonian and Latin names, diameter of tree at breast height and type (coniferous or deciduous). The input data was received from the detailed inventories in 2003-2009 of 16 manor parks under nature protection done by specialists of Artes Terrae Ltd (Table 1). The number of selected parks is about 3,5% of all protected manor parks in Estonia. The selected parks are located in different areas of Estonia and they were built or rebuilt around second half of 18th century to first half of 19th century. Therefore, the selection is balanced and representative and the obtained results can be extended to other manor parks of Estonia and North-Latvia (historic Livonia).

The criteria for the selection of inventories included in the research were as follows:

Table 1. Overview of the inventories used in the research. Inventories are available in the archives of Artes Terrae Ltd.

Name of the park	Year of the inventory	The name of the work
Hummuli manor park	2008	Hummuli mõisapargi heakorrastusprojekt (Reconstruction project of Hummuli manor park)
Härgla manor park	2007	Härgla mõisapargi dendroloogiline inventeerimine (Dendrological inventory of Härgla manor park)
Kiidjärve manor park	2009	Kiidjärve pargi rekonstrueerimisprojekt (Reconstruction project of Kiidjärve manor park)
Kuremaa manor park	2006	Kuremaa mõisapargi heakorrastuse põhiprojekt (Reconstruction project of Kuremaa manor park)
Lõhavere manor park	2009	Lõhavere hooldushaigla pargi puude dendroloogiline inventuur (Dendrological inventory of Lõhavere Hospital park[1])
Mäetaguse manor park	2004	Mäetaguse mõisapargi heakorrastuse põhiprojekt (Reconstruction project of Mäetaguse manor park)
Pagari manor park	2007	Pagari mõisa pargi heakorrastuse põhiprojekt (Reconstruction project of Pagari manor park)
Puurmani manor park	2005	Puurmani pargi rekonstrueerimise project (Reconstruction project of Puurmani manor park)
Püssi manor park	2009	Püssi mõisa pargi heakorrastuse põhiprojekt (Reconstruction project of Püssi manor park)
Riidaja manor park	2006	Riidaja mõisapargi rekonstrueerimise I etapp (Reconstruction project of Riidaja manor park, I phase)
Rõngu manor park	2008	Rõngu lossimäe pargi puistu hindamine ja hooldussoovitused (Dendrological assessment of Rõngu castle hill park and recommendation for management)
Saka manor park	2008	Saka mõisapargi heakorrastuse põhiprojekt (Reconstruction project of Saka manor park)
Saku manor park	2007	Saku mõisapargi heakorrastuse põhiprojekt (Reconstruction project of Saku manor park)
Sürgavere manor park	2008	Sürgavere mõisapargi heakorrastuse põhiprojekt (Reconstruction project of Sürgavere manor park)
Õisu manor park	2008	Õisu mõisapargi heakorrastuse põhiprojekt (Reconstruction project of Õisu manor park)
Rogosi manor park	2003	Rogosi pargi puistu dendroloogiline inventeerimine ja hindamine (Dendrological inventory and assessment of Rogosi manor park)

[1] Initially Lõhavere manor park

• the inventory was carried out less than ten years ago,

• the inventory dealt with individual trees, not groups of trees,

• the inventory specified the species and the diameter at breast height or the perimeter at breast height of trees,

• the inventory was carried out using similar methodology (Nutt 2008),

• the park was in the countryside,

• the park was historical manor park,

• the park was founded in English style or redesigned to English style in the 19th century.

The second element of the research concentrated on the investigation of the proportion of different species in every park. The proportion of species gives the park its distinctive character.

For example, the dark trunks of oaks with masculine branch patterns, exhibit a strong and powerful character while the white trunks of birch and long hanging branches provide an airy impression. Similarly, old tree plantings that show design details such as regular composition (alleys, tree lines, solitaires etc.), as well as free composition (tree clumps, round plantings, groups etc.). As previously mentioned one of the aims of the research was to determine the ten relatively most widespread deciduous tree species. This was necessary for deciding whether it is possible to draw general conclusions which may be useful when preparing restoration design projects.

The third research element was to determination of approximate age of tree to understand whether the tree was a part of the original composition of the park. Determining the age without knowing the date of planting proposes a number of difficulties. The most accurate way would be to use Pressler's increment borer and count the growth rings but due to the decay of tree core, the results are often incomplete when applied to old trees. Second possibility is to apply the

yield tables used in forestry (Krigul 1974). Here we have to be aware of the different growing conditions for trees in forests and in parks. Generally the park trees grow less in length and become thicker since they are not surrounded tightly by other trees. Parks also have usually good growing conditions in general. Furthermore, Estonian growth tables exist only for widespread forest species and just a few foreign species, e.g. European larch (*Larix decidua*) and Siberian larch (*Larix sibirica*). Given these restrictions, it was decided not to try to determine the age of the trees but rather find out whether the tree was at least one hundred years old using the diameter of the trunk. In other words, whether the researched tree belonged to the period of the construction of park. The limits of the yield tables for 1 and 1a quality class growing conditions for maximum age (100…140 years) are as follows (Kiviste 1997):

1. Scots Pine (*Pinus sylvestris*) D > 47 cm,
2. Norway Spruce (*Picea abies*) D > 42 cm,
3. Silver Birch (*Betula pendula*) D > 41 cm,
4. Common Aspen (*Populus tremula*) D > 34 cm,
5. Common Alder (*Alnus glutinosa*) D > 35 cm,
6. European Larch (*Larix decidua*) D > 38 cm,
7. Siberian Larch (*Larix sibirica*) D > 41 cm,
8. Common Ash (*Fraxinus excelsior*) D > 40 cm,
9. English Oak (*Quercus robur*) D > 51 cm (140 y) / 60 cm (180 y).

To include all possible indigenous species in the selection, the smallest diameters were chosen for each group of trees. In order to take into account the better growing conditions in parks, the limit for hardwood species (e.g. ash, oak, elm etc.) was set on 51 cm, for soft deciduous species (e.g. birch, aspen etc.) on 35 cm and for coniferous species on 42 cm (e.g. spruce, larch etc.). While these approximations do not provide accurate results, they offer a good start for the current research.

In different works some of the evaluation results had minor differences which is why the data was adjusted in order to analyse work in hand (for example the perimeters were calculated into diameters, woody plants that were counted as groups in some works were left out of the list etc.) Additional observations were carried out when necessary. Basic statistical methods (summarising, giving proportions and comparing different parks) were used to analyse data.

Results and Discussion

Our results showed approximately 37 different species in 16 inventoried parks. The number of species in each park ranged from 17 in Riidaja manor park to 74 in Saku manor park. There were on average 26 tree species and 11 shrub species. Detailed breakdown and count can be seen in Table 2.

Table 2. Overview of the research results.

Item	Sum	Percentage
Average number of species	**37**	**100.0**
Average number of tree species	**26**	**70.4**
Number of deciduous species	18	69.3
Number of coniferous species	8	30.7
Average number of shrub species	**11**	**29.6**
Total number of examples	**12,019**	**100.0**
Total number of examples of trees	**11,613**	**96.6**
Number of deciduous trees	10,076	86.8
Number of coniferous trees	1,537	13.2
Total number of examples of shrubs	**406**	**3.4**

The large difference in type and count of species is evident when we compare trees and shrubs. Altogether, there were on average variety of 70.4% tree species and 29.6% shrub species actual counts showed a predominance of trees (96.6%) rather than shrubs (3.4%). The similar conclusion may be drawn from the comparison of deciduous and coniferous trees. While the variety of deciduous trees makes up 69.3% and coniferous tree species 30.7%, deciduous trees far outnumbered (86.8%) their coniferous counterparts 13.2%. This fundamental difference between variety of species and counts in each category illustrates the problems of looking at just one aspect of an inventory. The proportion of species compared to the proportion of exemplars for shrubs and trees are illustrated in Figures 1 and 2.

These proportions are in coherence with the tendencies of 19th century which had interest of introduction of new species (Hein 2004) and were characteristic to 19th century park architecture practice. Original park design consisted primarily of leafy trees, accented by groups of shrubs and coniferous trees which were mainly imported as exotic species (Sander, Meikar 2004). This explains the remarkable minority of coniferous trees. The smaller proportion of shrubs can be explained by their short life expectancy (Laas 1987) compared to trees, which is why most of the shrubs that were planted as late as the end of 19th century have disappeared or as for few species what is remained is the vegetative renewal that has run wild.

The results of the research show that a limited number of species represents the majority of examples. Norway Maple (*Acer platanoides*) had the highest proportion of examples in the parks (on average 22.9% of trees and shrubs). This fact is explainable by the high level of natural renewal of maple. The next most widespread species were Small-leaved Lime (*Tilia cordata*, 14.7%), Common Ash (*Fraxinus excelsior*, 13.7%),

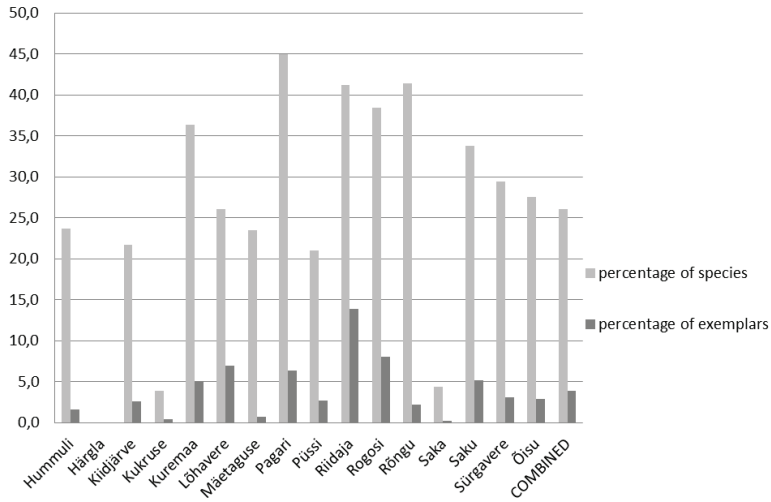

Figure 1. Proportion of species compared to the proportion of exemplars: shrubs. The large difference in number of species and proportion of species is uncovered. This reveals that the shrubs are not as widespread in the parks as the number of registered species would suggest because the number of exemplars of each species is small

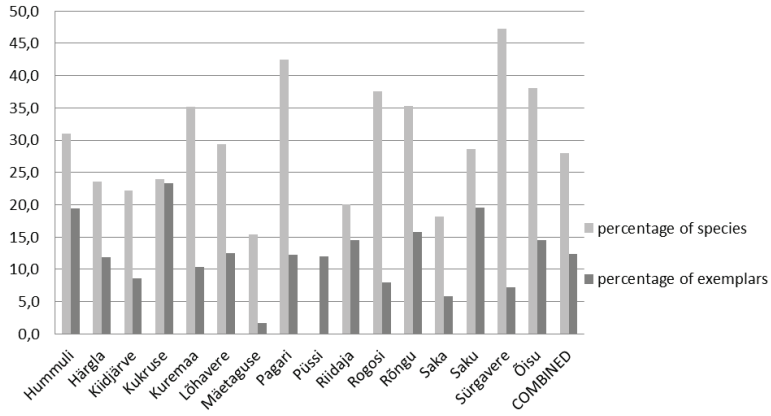

Figure 2. Proportion of species compared to the proportion of exemplars: coniferous trees. The large difference in the number of species and the number of exemplars reveals that parks have remarkably less coniferous trees than the number of species would suggest. The parks are generally dominated by deciduous trees even though the number of species is might be close to coniferous trees

English Oak (*Quercus robur*, 13.6%) and Scots Elm (*Ulmus glabra,* 11.4%). The rest of the species were represented with much fewer examples such as Norway Spruce (*Picea abies*, 3.3%), different larch species (*Larix* sp., 2.8%), Silver Birch (*Betula pendula,* 2.1%), Bird Cherry (*Prunus padus,* 1.7%), different firs (*Abies* sp., 1.6%) and Horse-chestnut (*Aesculus hippocastanum*, 0.9%). Similarly, the results show that the largest proportion of trees and shrubs is composed of indigenous trees – English Oak (*Quercus robur*), Small-leaved Lime (*Tilia cordata*), Norway Maple (*Acer platanoides*), Common Ash (*Fraxinus excelsior*), Scots Elm (*Ulmus glabra*), Silver Birch (*Betula pendula*), Common Aspen (*Populus tremula*), Bird Cherry (*Prunus padus*), Norway Spruce (*Picea abies*) and Scots Pine (*Pinus sylvestris*) (Kull 2009).

The larger proportion of indigenous species is expected because they are more adapted to the local natural conditions and more capable of natural renewal (including vegetative renewal by offshoot of the stump or the root). This tendency is vividly illustrated by Kukrus manor park created by Robert von Toll in 1866-75 which had the most diverse range of species in Estonia during that time (Sander and Läänelaid 2007) and today has only 11 woody plant species making it one of the poorest parks of species in North-Estonia (Abner, Konsa, Lootus and Sinijärv 2007). The main reason for that besides the decrease of park area in 20th century is the perishing of alien species.

When we compare different parks, the specific characteristics of each parks is revealed. For instance, in Kiidjärve and Rõngu manor parks trees have the

greatest proposer Small-leaved Lime (47.9% and 33.9% respectively), but in Härgla, Sürgavere and Rogosi manor parks Norway Maple (32.8%, 33.9% and 36.5% respectively) dominates. In Mäetaguse manor park Scots Elm is the most widespread species (30.6%) and in Riidaja manor park Common Ash (34.2%). The conclusion is that the main tree species vary greatly from park to park. As an example the incidence of Small-leaved Lime and English Oak are shown in Figure 3. We may conclude that the number of examples of different species vary in different parks which is why we cannot say that in 19th century Estonian parks were dominated by certain specific species.

Finally, the proportion of old, authentic trees was analysed. The results show that the proportion varied greatly from park to park as well. Roughly half of the trees growing in manor parks today are from the period of the original plantation. It must be noted that younger specimens that have grown in the initial planting area from offshoot of the stump or the root have not been taken into account here. Also shrubs for previously mentioned reasons have not been taken into account. As an example, the situation in Hummuli manor park is presented in Figure 4. The examples of English Oaks and Scots Elms were mostly old trees and Norway Maples, limes and firs were mostly young

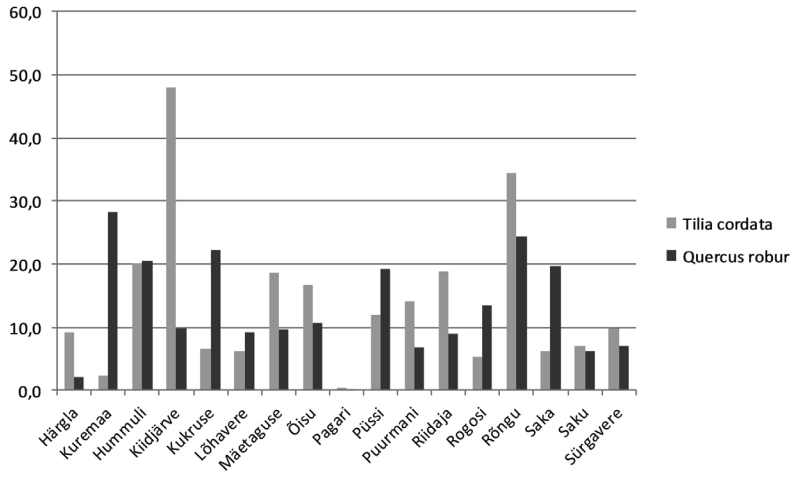

Figure 3. The proportion of exemplars of Small-leaved Lime (*Tilia cordata*) and English Oak (*Quercus robur*) in analysed parks

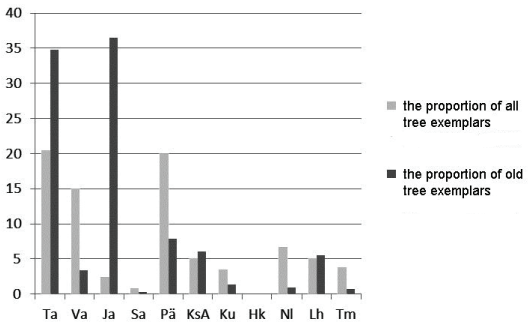

Figure 4. The proportion ten species of all tree exemplars (light) and old tree exemplars (dark) in Hummuli manor park. The abbreviations stand for Ta: English Oak *(Quercus robur),* Va: Norway Maple (*Acer platanoides*), Ja: Scots Elm (*Ulmus glabra*), Sa: Common Ash (*Fraxinus excelsior*), Pä: lime species (*Tilia* sp.), KsA: Silver Birch (*Betula pendula*), Ku: Norway Spruce (*Picea abies*), Hk: Horse-chestnut (*Aesculus hippocastanum*), Nl: fir species (*abies sp.*), Lh: larch species (*Larix* sp.), Tm: Bird Cherry (*Prunus padus*)

trees. These results suggest that due to lack of consistent maintenance the vast majority of the younger trees consist of self-initiated, relatively fast-growing regeneration typical to the species just mentioned. As these species are naturally widespread in Estonia we cannot unequivocally say that older trees growing in the park are the only source for young trees.

However, the current composition of the stand of each park has its own mechanism of formation. Broadly speaking, the great fluctuation of the proportion of authentic trees may be due to several factors such as the natural aging and diseases of trees, habitat changes resulting loss, replacement plantings specificity, proliferation of natural regeneration etc.

Conclusions

The manor parks in Estonia are of unique character –the historical circumstances that enabled the creation of large number of well-developed parks in the countryside were in the centuries before WWI present

only in Estonia and Latvia. As far as the authors know no similar research on the proportion of species used in the original plantings has been carried out. Therefore, unfortunately it is not possible to make any direct comparison with similar work.

The results show that how helpful identification of old trees is to the analysis of the spatial structure of the park. However, it also highlights the difficulties related with documenting species of trees and shrubs in manor parks today. Existing plantings do not give us an accurate impression of the original composition of parks because on average only half of the current trees are original and due to the lack of original plantation plans and pictures it is difficult to determine the original number of species and examples. Despite these difficulties, it is critical to investigate the composition of the park's old trees (to the extent possible) as well as to use all written historical material to detect the original plan of design for restoration purposes.

It is necessary to continue researching in this direction, specifying the primary data, comparing the original historic planting schemes in detail, taking into account the possible vegetative renewal of species in their initial planting location, determining the exact age of the trees using the alternative methods previously mentioned in this article etc. Comparison to other countries, first and foremost the Baltic States with similar historic background is also useful.

Today, we do not have appropriate information about the original species and the number of examples planted. This lack of knowledge complicates the optimal restoration practice as appropriate species for planting are not specified. Analysis of the old tree species and their locations in the park in connection with historical maps and documents is a time sensitive task that is necessary.

In conclusion, we reiterate that there has been much research about dendrology in Estonian parks, but parks have seldom been considered as works of art. Most of the studies are conducted by scientists who have studied manor park issues about the introduction of alien tree species, biological diversity, exotic species, old (ancient) trees and exceptionally large exemplars. But when restoring a park one needs to consider it as a system and therefore all trees must be considered in the analysing process. In addition, characteristic of the park and its changing role thought out history needs to be examined. When renewing the park the key element is to study overall regularity and composition of plantings. While this is probably not enough to create authentic restoration plans, it is a step closer to understanding the original intent of the design. Results from this pilot project shows the importance of documenting both age and composition of the plantings can make a big difference. Needless to say, this primary research on existing plants, needs to be coupled with historic research through paintings, writings and other references would help us to restore the parks in an authentic manner.

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ВОССТАНОВЛЕНИЕ УСАДЕБНЫХ ПАРКОВ: ИЗУЧЕНИЕ И УТОЧНЕНИЕ ОРИГИНАЛЬНОГО ДИЗАЙНА И ХАРАКТЕРА НА ОСНОВАНИИ ИССЛЕДОВАНИЯ ДРЕВЕСНЫХ РАСТЕНИЙ В ИСТОРИЧЕСКИХ УСАДЕБНЫХ ПАРКАХ ЭСТОНИИ

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Резюме

Усадебные парки являются неотъемлемой частью эстонской ландшафта, учитывая, что у нас есть около 1000 поместий с меньшими и большими парками, из которых около 400 находятся под защитой природы или признаны объектами национального наследия. Восстановление усадебных парков является важной национальной задачей для страны. Однако методы восстановления и экпертные знания не являются легко доступными. Хотя существует живой интерес к каталогизации и инвентаризации видов растений в пейзаже Эстонии, особенно в усадебных парках, знание типов различных видов является далеко не достаточным, чтобы понять оригинальные композиции и дизайн парков для их истинной реставрации. Хотя исторические документы, карты, письменные источники, стихи и картины дают нам полезную справочную информацию относительно общей схемы парков, таких как пространственная ориентация и дорожные модели, мало известно о подробных насаждениях, видах деревьев и т.д. При определенных обстоятельствах старые деревья в парке могут дать ценную информацию для принятия решений по восстановлению. Наиболее важным вопросом в реставрации является какие древесные растения и на каких условиях являются частью первоначальной концепции дизайна. Это ключевой вопрос, поставленный исследователями в этой работе. В связи с тем, что развитие поместьев и усадебных парков в странах Балтии схоже, эта тема одинаково интересна для всех балтийских стран. Более того, рассматриваемые проблемы восстановления парков похожи повсеместно за отсутствием первичных данных.

Исследователи утверждают, что в дополнение к инвентурам, выполненым многими лесоводами и натуралистами, имеет столь же важное значение определить фактическое количество каждого типа дерева, чтобы начать составление первоначального ландшафта. Кроме того необходимо понять, что эти парки развивались на протяжении многих лет, и нынешняя структура может весьма отличаться от первоначального плана. Задание усложняется тем, что трудно сказать, какая эра была «оригиналом» и какими были дни славы особняков. Один из способов решения этой проблемы является выявление действительно старых деревьев в отличие от новых и последующего роста и сосредоточение внимания на них. Авторы начали кропотливую работу по выявлению, инвентаризации (типы и количество видов) и понимания этого узора в каждом из 16 парков в 2003-2009.

В настоящем документе рассматривается значимость сосредоточения на идентификации и составе старых деревьев и их влияние / значение в понимании первоначальной цели дизайна парка и доли исходного вещества в исторических парках сегодня, тем самым помогая улучшить усилия по восстановлению.

Ключевые слова: исторические усадебные парки, экземпляры древесных видов.

Publication V

The Use of Terrain Maps based on Airborne Laser Scanning Data for Researching Historical Parks

Nurme, S.; Paalo, P. 2013. The Use of Terrain Maps based on Airborne Laser Scanning Data for Researching Historical Parks. *Acta Architecturae Naturalis*, Vol 3 (2013), Tartu, 70–91.

Aerolaserskaneerimise andmetel põhineva reljeefikaardi kasutamisest ajalooliste parkide uurimisel

Sulev Nurme, Priit Paalo

Reljeef pargis – materialiseerunud aeg

Pargiruumi restaureerimise meetmete kavandamiseks on vaja parki mõista. Ajalooliselt väärtuslike maastikuobjektide säilitamise üks eesmärk on hoida mälu ja tagada seeläbi ka ajalooliste väärtuste mitmekesisus.[1] Pargiruumi lugemine, selle arhitektoonikat määravate kihtide[2] ja ajalookihistuste mõistmine pargi loomishetkest tänapäevani on primaarne ning hädavajalik pargi (kui mälestise) väärtuste defineerimisel.[3] Seejuures on pargi kui arhitektoonilise süsteemi lugemisel oluline mõista ühelt poolt kompositsiooni kui ruumilist vormisüsteemi selle loonud ajastu kontekstis ning teisalt mõista tähendusi, mida see ruumisüsteem endas kannab: loodus, tehnoloogia ja kunst, *otium* ja *negotium* – osalt lagunenud kiviaiana määratletav ning osalt linnulauluna määratlematu –, mis annab kompositsioonile tema karakteri.[4] Pargi kui ruumi ülesehitus ning selle määratlejad – taimed, urnid, lehtlad, skulptuurid, tiigid, purskkaevud – olid mõeldud vaatajale midagi ütlema, oma kohalolu ja tähendustega andsid nad neid ümbritsevale ruumile mõtte,[5] kuid samas määras kohaliku maastiku eripära raamid, millesse pargiruum sobitati. Seepärast tuleb toonitada, et ajalooline mõisapark on alati osa terviklikust arhitektuuriansamblist, põllumajandusüksusest, kohalikust

1 Suuder, O. (2009). Varemete poeesia. – Park on paradiis looduses ja kunstis. Toim. Maiste, J., Külvik, M. Eesti Maaülikool, lk 314.

2 Steenbergen, C., Reh, W. (2003). Architecture and landscape : the design experiment of the great European gardens and landscapes. Thoth Publishers, lk 385.

3 Gard'ner, J. M. (2007). Preparing the conservation plan. – *Understanding Historic Building Conservation*. Oxford: Blackwell Publishing Ltd., lk 158–159.

4 Steenbergen, C., Reh, W. (2003), lk 385.

5 De Jong, E. (2000). Nature and Art. Dutch Garden and Landscape Architecture, 1650–1740. University of Pennsylvania Press, lk 31.

maastikust, omaniku maailmavaatest. Park mõtestab maastiku, kuid saab samal ajal ka ise tähenduslikkuse sellestsamast maastikust.

Eesti mõisaparkide keerulise ajaloo tõttu[6] on kahjuks väga suur osa sellest, mis võiks olla tänasele pargiuurijale abiks parkide kompositsiooni lugemisel, osaliselt või täielikult hävinenud. Üks neid kujunduselemente, mis sageli talletab eneses üllatuslikult palju infot, kuid mille iseloomulikud jooned jäävad taimestiku või rajatiste tõttu märkamata või saavad teenimatult vähe tähelepanu, on reljeef. Maapinna terrasseerimine, veekogude, kuivendussüsteemide, hoonete ja teede rajamine, samamoodi ka nende lammutamine või lagunemine jätab reljeefile jälje ning peegeldub maastikus spetsiifiliste moodustistena. Reljeef annab sageli võtme veekogude, hoonete ja rajatiste, piirdeaedade ning tihtipeale ka peateede asukoha määramiseks või täpsustamiseks, seda mõnikord isegi siis, kui pargi muud osised on hävinenud.

Samas on erinevate ajastute jäljed reljeefis põimunud. Ajaloolisi maastikke uurides eeldatakse, et sündmusi ja nende põhjustatud maastikumuutusi saab kronoloogiliselt järjestada ja eri ajal toimunud muutusi selgelt eristada.[7] Muutuste kronoloogiline järjestamine ja nende tulemusena tekkinud nähtuste või/ja objektide ajastute järgi väljatoomine on võimalik ajaloolises õiendis ning analüüsiskeemidel, kuid mitte *in situ*. Reljeefi lugemise teebki keeruliseks esiteks just see, et kuigi ta talletab eneses jälgi kogu pargi ajaloost, on väga raske erinevatel ajastutel aset leidnud muutusi eristada. Kas näiteks Õisu mõisa rokokoolikud terrassid said oma praeguse kuju 1760ndate kujunduslahendusega või 19. sajandi lõpul aset leidnud ümberkujundamiste käigus, on praegu ilma arheoloogiliste uuringuteta võimatu öelda.[8] Teiseks on parkides leiduvaid reljeefimoodustisi ilma lisainformatsiooni omamata sageli väga raske identifitseerida. Kui regulaarsete reljeefivormide – vallide, kraavide, astangute jm – puhul võib oletada nende seotust hoonetega (keldrid, pinnasesse mattunud vundamendid jne), rajatistega (kraavid, lagunenud piirdemüürid jm) või regulaarse pargikujundusega (teed, terrassid jm), siis ebaregulaarsete (või ebaregulaarselt paiknevate) reljeefivormide interpreteerimine on raske. Kolmandaks, pidev inimtegevus tekitab järjest uusi, sh ajutisi reljeefivorme, mille tagajärjel vanad hävivad või transformeeruvad. Seetõttu osa reljeefivorme on ühest ajastust teise kulgevate protsesside produktidena määratlematud või jätavad laia tõlgendamisruumi. Nagu maastikku tervikuna, nii mõjutavad ka reljeefi looduslikud ja

6 Maiste, J. (2005). Eestimaa mõisad. Tallinn: Kunst, lk 62.

7 Mlekuž, D. (2013). Messy landscapes: lidar and the practice of landscaping. – *Interpreting Archaeological Topography: 3D, Visualization and Obseration*. Oxford: Oxbow, lk 88–99.

8 Nurme, S. (2009). Vana park. Avastusretk baroki ääremaile. – *Park on paradiis looduses ja kunstis*. Eesti Maaülikool, lk 108.

erinevatel ajastutel inimese poolt käima lükatud protsessid, mis ajas kestavad ning mille tulemusena toimuvad muutused toodavad sageli visuaalset müra, mis omakorda raskendab pargis nähtava kronoloogilist lahterdamist. Seega võib öelda, et tänane park, või ka üldisemalt – maastik – on täidetud aja poolt, aeg on maastikul materialiseerunud.[9]

Seejuures saab reljeefi analüüsida kahest aspektist, võttes pargi topograafilist situatsiooni kas n-ö vertikaalse infopangana, kust saab andmeid mulla, veestiku, inimasustuse, hävinud hoonestuse, taimestiku jm kohta, või nn horisontaalse infopangana, kust saab välja lugeda infot ajalooliste protsesside ulatuse ja iseloomu kohta.[10] Käsitledes reljeefi kui pargiruumi infopanka, tuleb tõdeda, et nii nagu ajaloolises pargis (aga ka üldse maastikul) esinevate mis tahes muude nähtuste analüüsimisel, ei saa üht ajaloolist kihistust või seda markeerivat arhitektoonilist kihti või mõnd pargi kujundust märkivat maastikuelementide või -komponentide kihti[11] kontekstist välja rebida, vaid analüüsitavat informatsiooni tuleb tõlgendada aja poolt täidetud tervikliku pargiruumi kontekstis. Seepärast ei saa reljeefi analüüsil lähtuda vaid sellest, millised pinnavormid pargis esinevad või mida nad võivad eraldi võttes tähendada, vaid läbi tuleb käia tavaline tee, selgitades välja pargi kujunemisloo nii ansambli, taimestiku, hoonete ja rajatiste, kontaktvööndi kui ka omanike osas, tehes välitöid ajaloolise pildi piiritlemiseks *in situ* nüüd ja praegu ning analüüsides niiviisi saadud infot kompleksselt.

Reljeefi analüüsi lähteallikad ning analüüsivõimalused

Vanim meetod pargi reljeefi uurimiseks on kahtlemata topograafiline mõõdistamine, mis sõltuvalt täpsusastmest annab üldise ettekujutuse maapinna kõrgustest. Kartograafia on olnud õhtumaise kultuuriloo üks lahutamatu osa, ulatudes tagasi Ptolemaioste aega, topograafilisest mõõdistamisest selle põhimõtteliselt tänases tähenduses saab rääkida u 17. sajandist.[12] Eesti mõisamaid detailsemalt käsitlevad varasemad plaanid, kust saab täpsemat infot ka mõisasüdamete kohta, pärinevad 18. sajandi keskelt, enamik ajaloolisi plaane on koostatud siiski 19. ja 20. sajandil. Pargiuuringuteks saab kasutada peamiselt mõisa majanduslikust olukorrast ülevaate saamiseks koostatud maamõõdu-

9 Mlekuž, D. (2013), lk 98.

10 Vroom, M. J. (2006). Lexicon of Garden and Landscape Architecture. Basel: Birkhäuser, lk 40.

11 Steenbergen, C., Reh, W. (2003), lk 383–387.

12 Vroom, M. J. (2006), lk 195.

plaane, millel on muu hulgas kujutatud ka mõisasüdameid.[13] Enamasti on neil plaanidel reljeefi kujutatud üldiselt ning kõrgusandmeteta (ill. 1). Isegi üksikud säilinud pargikujundusplaanid, mis pärinevad 19. sajandi viimastest aastatest või 20. sajandi algusest, ei käsitle üldjuhul reljeefi täpsemalt (ill. 2).

Ülevaate maastiku üldisest reljeefist annavad kindlasti Vene 1-verstane (1:42 000) topograafiline kaart, koostatud peamiselt aastatel 1894–1915, ning erinevate võimude ajal koostatud, Eestit hõlmavad topograafilised kaardid. Mõningal määral on abi Eesti topograafilise andmekogu baasil igal aastal uuendatavast Eesti põhikaardil[14] ning sellele eelnenud kaartidel kajastuvast kõrgusinfost, ent põhikaardi täpsusaste (1:10 000) võimaldab reljeefi kohta teha vaid üldisi järeldusi.

Täpsemad andmed reljeefi kohta ilmuvad mõisaparke käsitlevale plaanimaterjalile siiski 20. sajandi maamõõduplaanidega. Valdavalt on kasutada olevad parkide detailsed geodeetilised plaanid, millel sisaldub ka kõrgusinfo, koostatud Nõukogude perioodil ja peale Eesti taasiseseisvumist. Kui need plaanid on olemas, on nad reljeefi analüüsimisel väga heaks lähtematerjaliks (ill. 3), kuid silmas tuleb pidada seda, et koostatuna pargi loomisajast tunduvalt hiljem, kajastavad nad mõõdistamise ajaks välja kujunenud reljeefi, mis võib algsest sageli oluliselt erineda.

Reljeefi kohta saab infot lisaks olemasolevale plaanimaterjalile ka vanadelt fotodelt (ill. 4) ning joonistustelt. Joonistusi parkide kohta on ka säilinud. Tuntuimad näited on kindlasti Stavenhageni albumid 1860ndate teise poole Eesti- ja Liivimaast[15], samuti üksikud vaated J. C. Brotzelt[16] jt. Alati tuleb arvestada sellega, et joonistus sõltub eeskätt joonistajast, tema oskustest, eelistustest ja paljudest muudest teguritest, mis teevad joonistuse subjektiivseks. Seetõttu saab joonistusi kasutada küll abimaterjalina, kuid need ei ole ilma välisvaatluste ja toetava plaanimaterjalita informatiivsed. Fotod, dokumenteerides pildistamishetke, on üldjuhul joonistustega võrreldes vähem subjektiivsed ning nad on kahtlemata väga heaks abimaterjaliks nii üldisel pargiruumi uurimisel kui ka reljeefi analüüsimisel. Fotode puhul tuleb arvestada siiski pildi sisu küllaltki laialdasi tõlgendamisvõimalusi,[17] mis tulenevad foto tegemise

13 Nutt, N. (2008). Parkide restaureerimine. Tallinna Tehnikaülikooli Tartu Kolledž, lk 195.

14 Maa-ameti Geoportaal - Põhikaardistuse ajalugu. [WWW] http://geoportaal.maaamet.ee/est/Andmed-ja-kaardid/Topograafilised-andmed/Eesti-Pohikaart-110-000/Pohikaardistuse-ajalugu-p113.html (07.07.2013).

15 Stavenhagen, W. S. (1866). Album Livländischer Ansichten gezeichnet und herausgegeben von Wilhelm Siegfried Stavenhagen in Mitau. Mitau; Stavenhagen, W. S. (1867). Album Ehstlandischer Ansichten gezeichnet und herausgegeben von Wilhelm Siegfried Stavenhagen in Mitau. Mitau.

16 Brotze, J. Chr. (2006). Estonica. Koostanud A. Hein, I. Leimus, R. Pullat, A. Viires. Tallinn: Estopol.

17 Edwards, B. (2008). Understanding Architecture trough Drawing. Taylor & Francis, lk 82–85.

ajenditest, pildistatava sisust ning fotograafi oskustest ja tema eesmärkidest fotot tehes. Lisaks tuleb siiski rõhutada, et enamik säilinud fotosid mõisaparkidest on tehtud 19. sajandi viimastel kümnenditel ning 20. sajandil, mistõttu neilt saadav info kajastab vaid hiliseimaid perioode mõisaparkide loos.

Pargiuurimise põhiliseks viisiks eespool viidatud materjale silmas pidades on graafiline analüüs, mis seisneb plaanide ja vaadete võrdlemisel, kasutades info filtreerimiseks plaani- või pildimaterjali lihtsustamist, demontaaži, võrdlust, kombineerimist jt graafilise analüüsi põhimeetodeid.[18] Reljeefi puhul on uurija huviks enamasti aegrea määramine, mis aitab selgitada reljeefi muutuste tekkimist ja põhjuseid, samuti reljeefi kui kujunduselemendi iseloomu selgitamine ning reljeefiga seotud või sellest sõltuvate hoonete ja rajatiste omaduste, tunnuste ja funktsioonide määramine. Üldine analüüsiprotsess jaguneb põhimõtteliselt kolme ossa: objekti olemuse ja kujunemise kindlaksmääramine ajaloolise materjali abil, objekti olemuse määramine *in situ* hetkeseisus ning saadud andmete omavahelisel võrdlemisel saadud andmestiku analüüs ja süntees.[19] Ajaloolise situatsiooni määramisel on abiks erinev plaanimaterjal, mille võrdlemisel, lihtsustades või täiendades olemasolevaid materjale[20], on võimalik saada ülevaade maastiku horisontaalsest liigendatusest, ulatusest ja ajalisest kujunemisest (muutumisest maastikul), enamikul juhtudel alates 19. sajandi esimesest poolest ja lõpetades tänapäevaga. Lisades geodeetilistelt plaanidelt ja ajaloolistelt fotodelt saadava info, saab plaanide kombineerimise ja täiendamisega[21] tuletada ka maastiku vertikaalse liigendatuse aegrea ja põhilised iseloomulikud jooned. Paraku on eespool osutatud põhjustel sageli raske saada ülevaatlikku kõrgusinfot, mille abil saaks teha üksikasjalikumaid järeldusi reljeefi vertikaalse liigendatuse kohta, eriti puhkudel, kui puuduvad ajaloolised fotod, geodeetilised mõõdistused või ajaloolist situatsiooni täpsemalt käsitlev plaanimaterjal. Palju aitavad selgitada välitööd, mille raames saab hinnata ka reljeefi, koostades reljeefi omadusi iseloomustavaid plaane, maapinna ristlõikeid jms, kuid ilma geodeetilisi mõõteriistu kasutamata võib tulemus sageli olla väheinformatiivne, isegi desorienteeriv.

2000ndate lõpul pildistati Eesti territoorium aerolaserskaneerimise (ALS) meetodil,[22] mille tulemusena on valminud kogu riigi ala hõlmav reljeefikaart.

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18 Leupen, B., Grafe, C., Köring, N., Lampe, M., de Zeeuw, P. (1997). Design and analysis. Rotterdam: OIO Publishers, lk 18–23.

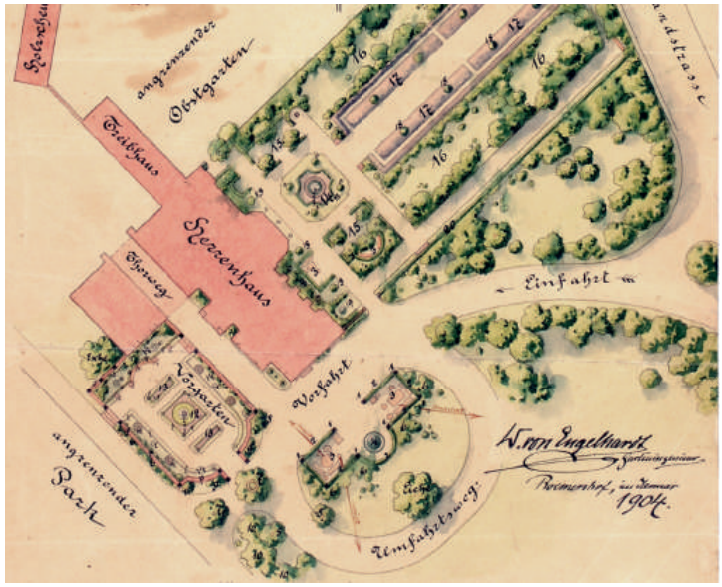
19 Fretwell, K. (2001). Digging for History. Rooted in History. Studies in Garden Conservation. London: The National Trust, lk 65.

20 Leupen, B., Grafe, C., Köring, N., Lampe, M., de Zeeuw, P. (1997), lk 18–19.

21 Samas, lk 18–20.

22 Maa-ameti Geoportaal - Kõrgusandmed. [WWW] http://geoportaal.maaamet.ee/est/Andmed-ja-kaardid/Topograafilised-andmed/Korgusandmed-p114.html (20.07.2013).

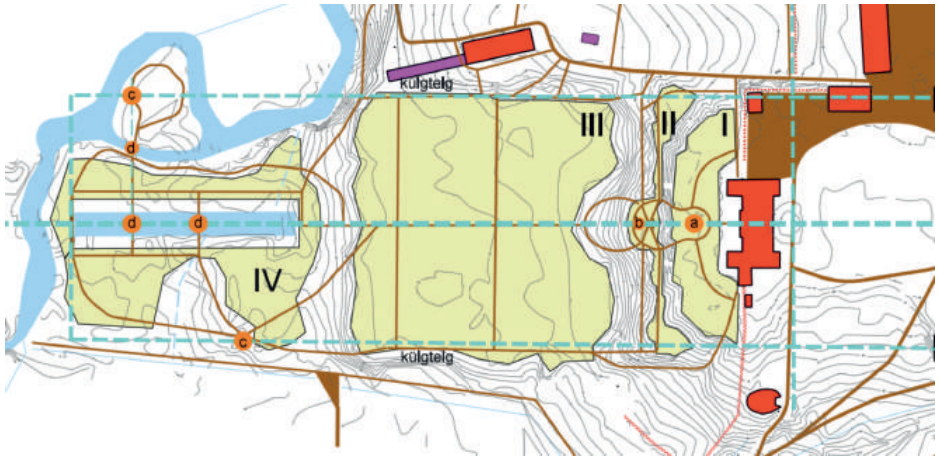
Ill. 1. Padise mõisasüda 1828. a. Viirutusega on tähistatud järsakute piirid. / Heart of the Padise Manor in 1828. The precipices are indicated with striations.[23]



Ill. 2. Väljavõte Walther von Engelhardti poolt 1904. aastal koostatud Kärstna mõisasüdame kujundusplaanist. / Portion of the design plan for the heart of Kärstna Manor drawn up by Walther von Engelhardt in 1904.[24]

23 Padis Kloster im Harrisechne Kreis und St. Mathias Kirchspiel. EAA 854-4-469, l 19.

24 Beilage zum Entwurf einer Parkanlage auf Kerstenhof. Die Anlage in der Umgebung des Herrenshauses. EAA 1404-1-25.



Ill. 3. Fragment Õisu mõisasüdame kompositsiooni analüüsiskeemist 2008. a. Rooma numbritega on tähistatud astangutega eraldatud tasapinnad. / Fragment from the analytical diagram showing the composition of the heart of Õisu Manor in 2008. Roman numerals indicate the levels separated by berms. [25]

Ill. 4. Õisu mõisapargi tagaväljaku terrassid ca 1910. a. / Terraces on the rear square of the Õisu Manor Park, about 1910.[26]

25 Nurme, S., Kaare, E., Paju, K.-M. (2008). Õisu mõisapargi heakorrastuse põhiprojekt. Artes Terrae OÜ. 33KP08. Tartu. Joonis 4.

26 Euseküll. Postkaart. Kirjastaja Г. Гемпелъ. Eesti Rahvusraamatukogu. Pk Viljandimaa 15/1.

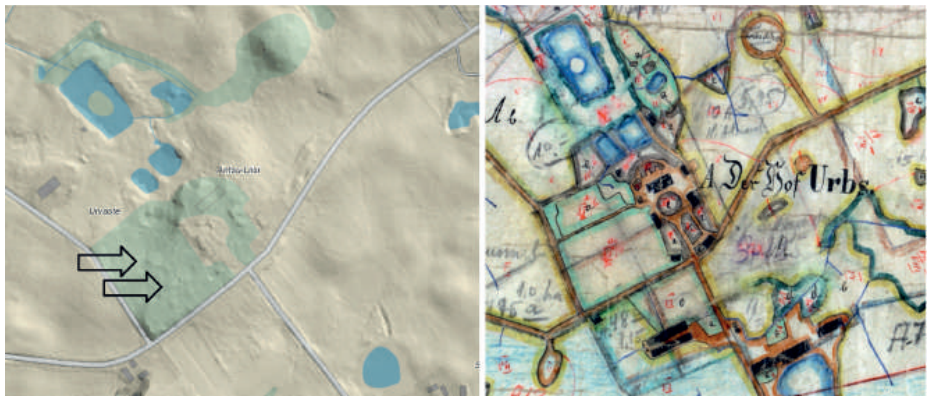
Ill. 5. Purdi mõisasüdame reljeef: reljeefikaardil selgelt eristuvad terrassid ühtivad 1877. aasta plaanil pargi regulaarse struktuuriga täpselt (skeem: Maa-ameti kaardiserver, Eesti Ajalooarhiiv) / The terrain of the heart of the Purdi Manor: on the relief map, the clearly visible terraces coincide exactly with the regular structure of the park on the 1877 map (diagram: Estonian Land Board Geoportal, Estonian Historical Archives)[27]

Ill. 6. Saare mõisasüda. Reljeefiplaanil on hästi tuvastatavad pargi läänepiiril ja idapiiril asunud peateed, mis tänaseks on maastikust kadunud (skeem: Maa-ameti kaardiserver, Eesti Ajalooarhiiv). / Heart of Saare Manor. The main roads on the western and eastern border of the park, which have now disappeared, are clearly visible on the relief map (diagram: Estonian Land Board Geoportal, Estonian Historical Archives).[28]

27 Purdi mõis. Noistfer Fol II. 1877. EAA 3724-4-462, l 1.

28 Saare mõisasüda 1928. a mõisa üldplaanil (koopia 1925. aasta plaanist). ERA T-3-24-1452.

Ill. 7. Suure-Lähtru mõisasüda. Reljeefikaardil eristuvad selgelt tagaväljaku kiirtekujuline teedevõrk, pargi keskel paiknev võimalik paviljoni asukoht, piirdemüür ning hävinud hoonete asukohad (skeem: Maa-ameti kaardiserver, Eesti Ajalooarhiiv). / *Heart of Suure-Lähtru Manor. The following are clearly visible on the relief map: the network of roads, shaped like rays, on the rear square; the location of the possible pavilion in the centre of the park; the surrounding wall and locations of the destroyed buildings. (Diagram: Estonian Land Board Geoportal, Estonian Historical Archives).*[29]



Ill. 8. Urvaste mõisasüda. Nooltega on näidatud arvatavasti alustaimestikust vm põhjusel tekkinud identifitseerimatud reljeefimoodustised (skeem: Maa-ameti kaardiserver, Eesti Ajalooarhiiv). / *Heart of Urvaste Manor. The arrows indicate the unidentified relief formations that have developed due to the underlying flora or for some other reason (diagram: Estonian Land Board Geoportal, Estonian Historical Archives).*[30]

29 Suure-Lähtru mõisasüda 1878. a mõisa- ja talumaade hindamistoimikus (koopia). EAA 2486-1-3216, l 131.

30 Generalkarte von dem im Werroschen Kreise und Anzenschen Kirchspiele belegenen Gute Urbs. 1908. EAA 2072-9-731.

Samal meetodil koostatud kaarte ja plaane kasutatakse aktiivselt arheoloogias maastikuobjektide uurimisel, kuna ALS-pilt võimaldab saada hästi arusaadava ülevaate maastiku pinnavormidest. Paljud tänapäeval publitseeritud uurimused, mis käsitlevad arheoloogilisi uuringuid maastikul või ka lihtsalt maastikuuuringuid, põhinevad ALS-piltidel.[31] Reljeefi- ehk nn lidarikaarte on arheoloogilistes uuringutes tulemuslikult kasutatud 2000ndate algusest paljudes Lääne-Euroopa riikides (Hollandis[32], Saksamaal, Inglismaal, Itaalias, Kreekas jt[33]) ning samuti paljudes endistes idabloki maades, näiteks Ungaris[34] ja Balkani maades[35]. Reljeefiuuringutes kasutatakse sageli ALS-andmete alusel koostatud ASCII koodis kõrgusandmeid või digitaalseid kõrgusmudeleid (*digital elevation model* – DEM), mille tulemusena valmivaid kujutisi saab vastavalt püstitatud eesmärkidele spetsiaaltarkvara abil töödelda ning informatiivsemaks muuta.[36] Samas saab esmase visuaalse info ka näiteks DEMi põhjal loodud halltoonides reljeefivarjutuselt ilma seda spetsiaalselt töötlemata.

Tekib küsimus, kuidas rakendada Eesti Maa-ameti geoportaalis avalikult kasutada olevat ALSipõhist reljeefikaarti mõisasüdamete reljeefi uurimisel ning kas seda reljeefikaarti saab tulemuslikult rakendada lihtsas võrdlevas kaardianalüüsis ilma spetsiaaltarkvara appi võtmata.

Eesti ALS-reljeefikaart

Õhusõidukilt laserskaneerimisel mõõdetakse aega, mille jooksul laserimpulss läbib tee laserist maapinnani ja tagasi. Lennuki asukoha ja asendi, laserimpulsi lähetusnurga ja kestuse ning atmosfääriandmete järgi saab välja arvutada koha, kust laserpunkt maapinnalt peegeldub.[37] Skaneerimise tulemusena saadakse 3D punktipilv, mis võimaldab tuvastada maapinnal asuvaid objekte kuni

31 Masini, N., Coluzzi, R., Lasaponara, R. (2011). On the airborne Lidar contribution in archaeology: from site identification to landscape investigation. – *Laser Scanning, Theory and Applications*. Intech, lk 264.

32 van Zijverden, W. K., Laan, W. N. H. (2003). Landscape reconstructions and predictive modeling in archaeological research, using a LIDAR based DEM and digital boring databases. – *Archeologie und computer*, workshop. 2003, vol. 7.

33 Masini, N., Coluzzi, R., Lasaponara, R. (2011), lk 270–277.

34 Firnigl, A. (2009), lk 116–118.

35 Mlekuž, D. (2013), lk 93–95.

36 van Zijverden, W. K., Laan, W. N. H. (2003).

37 Metsur, M. (2012). LIDAR Leica ASL50-II. Maa-amet. [WWW] http://geoportaal.maaamet.ee/index.php?page_id=336&lang_id=1 (07.07.2013)

0,1 m täpsusega.[38] Punktipilve töötlemisel on võimalik saada maapinna DEM, mille üks väljund on reljeefi kujutav 3D pilt.

Eestis tehti aerolaserskaneerimisel põhinev aeropildistamine teoks aastatel 2008–2011. Selle tulemusena on meil olemas kogu Eesti territooriumi ühtlaselt hõlmav andmestik**.** Digitaalsed kõrgusandmed, nende põhjal koostatud DEM, erinevad reljeefikujutised jm kõrgusandmete väljunditena võimalikud infoüksused[39] on saadaval Maa-ametis. Eestis kasutatud seadmete eeldatav täpsus lennukõrgusel 300–4000 m oli horisontaalsihis (risti ja piki lennujoont) 0,5–0,33 m, kõrguse täpsus 0,07–0,14 m.[40] Vertikaalne täpsushinnang kontrollmõõtmistel jäi vahemikku +/– 0,34 m.[41]

Mõisasüdamete reljeefianalüüsi metoodilised aspektid

Maa-ameti avalikus kasutuses oleva reljeefikaardi rakendusvõimalusi uuriti kõrvaleesmärgina 2013. aasta kevadel Priit Paalo Eesti barokseid mõisaparke käsitlevas magistritöös[42]. Priit Paalo uurimuse põhieesmärk oli selgitada välja Eesti mõisaparkide reljeefi isikupärased jooned ajavahemikus 1750–1850. Uurimismeetodiks oli valitud mõisasüdamete kaardianalüüs, milles kasutati tänapäevast olukorda kajastavaid Maa-ameti reljeefikaarte ning valdavalt Eesti Ajalooarhiivist leitud ajaloolisi plaane. Vaadeldavad pargid valiti eelnevalt rohkem kui 400 mõisapargi kompositsiooni analüüsil välja selekteeritud 152 regulaarse põhiplaaniga pargi hulgast[43], kokku 37 parki[44]. Valiku tegemisel kasutati lisaks varasemaid barokkparke käsitlevaid uurimusi[45], samuti on rakendatud kaardianalüüsi üldmetoodika sisuliselt võrreldav Eigo Tarkini mõisasüdamete ruumilist ulatust ja säilivust käsitleva tööga[46] ning Nele Nuti

38 Masini, N,; Coluzzi, R., Lasaponara, R. (2011), lk 265–266.

39 Gruno, A. (2012). Aerolaserskaneerimise andmed ja kasutamise perspektiivid. Ettekanne Maaameti infopäeval mais 2012. [WWW] http://geoportaal.maaamet.ee/docs/pohikaart/2012_LIDAR_esitlus_teabepaev.pdf?t=20121108143443 (20.07.2013), lk 11.

40 Metsur, M. (2012), lk 9.

41 Gruno, A. (2012), lk 37.

42 Paalo, P. (2013). Reljeef Eesti regulaarsete mõisaparkide kujunduses 1750–1850: magistritöö. TTÜ Tartu Kolledž, Tartu, lk 9–11.

43 Nurme, S. (2007). Eestimaa baroksete mõisaparkide välitööde metoodika. Käsikiri.

44 Paalo, P. (2013), lk 8.

45 Nurme, S. (2012). Baroksed mõisasüdamed ja maastik. – *Eesti parkide almanahh*, 3. Keskkonnaministeerium/Muinsuskaitseamet, lk 19–20.

46 Tarkin, E. (2011). Eesti regulaarne mõisaansambel maastikus. Uuring maastiku avatuse, mõisasüdame ulatuse ning teekoridoride muutustest: magistritöö. TTÜ Tartu Kolledž, Tartu.

Tartumaa mõisate uuringuga[47], milles võrreldakse kaardianalüüsi põhjal erinevate ajastute plaane.

Reljeefianalüüsi võib jagada sisuliselt viide etappi. Esimeses etapis koguti ja valmistati Maa-ameti kaardiserveri[48] ja Eesti Ajalooarhiivi digiteeritud ajalooliste plaanide (SAAGA)[49] põhjal ette analüüsiks vajalik algmaterjal – kaardipaarid. Kui ajalooarhiivi digiteeritud kaartide hulgas vajalikud kaardid puudusid, fotografeeriti need arhiivis digitaalfotokaameraga. Teises etapis viidi väljavalitud plaanid ühtsesse mõõtkavasse ja orientatsiooni, kasutades selleks kättesaadavat pilditöötlustarkvara (näiteks Adobe Photoshop, Adobe Fireworks) ja vajaduse korral vektorgraafikapaketti (näiteks Bentley Microstation). Tarviduse korral muudeti plaanidel info paremaks esiletoomiseks heledust ja kontrastsust. Nii saadi analüüsiks ette valmistatud analüüsiskeemid. Kolmanda etapina võrreldi analüüsiskeemide kaardipaaridel eristuvaid ja kattuvaid objekte, määrati mõisasüdame asukoht üldisel reljeefil ning tehti kindlaks käsitletava perioodi kujundusvõtetega seotud reljeefielemendid, sh veekogud.[50] Analüüsitehnilise nüansina võib märkida, et Tarkin kasutas mõisasüdamete teedevõrgu ja territoriaalsete muutuste väljaselgitamiseks ajaloolise ja nüüdisaegse situatsiooni (ortofoto) võrdlemisel materjali kombineerimist, asetades plaanid kihtidena üksteise peale, mille tulemusena valmisid eraldi lihtsustatud ortofotol põhinevad analüüsiskeemid.[51] Paalo rakendas plaanide kõrvutamist, tuues uuritava info välja lihtsustatult analüüsitavate skeemide kõrval seda eraldi ühelegi alusplaanile kandmata, nii nagu seda praktilistel töödel sageli tehakse. Uuringu neljanda etapina eritleti tüüpilisi seaduspärasusi peegeldavaid näiteid või kaardianalüüsil väga hästi või, vastupidi, väga halvasti tõlgendatavaid näiteid, millele tehti täiendav graafiline analüüs.[52] Viienda etapina külastati peamiselt neljandas etapis valitud parke, kontrollimaks kaardianalüüsi paikapidavust.

Selline lähenemisviis võimaldas eeldatavalt leida ning välja tuua üldised seaduspärasused Eesti regulaarsete mõisaparkide kujunduses aastatel 1750–1850, keskendudes reljeefile, ning hinnata Maa-ameti reljeefikaardi tugevusi ja nõrkusi ajaloolise pargiruumi analüüsimisel. Peamised eeldatavad probleemid selle meetodi puhul olid kujunduslikult oluliste reljeefidetailide loetavus, arvestades lida-

47 Nutt, N. (2004). Mõisaansamblite inventeerimismetoodika Tartumaa näitel. Tartu: EPMÜ Keskkonnakaitse Instituut, lk 54–60.

48 Maa-ameti Geoportaal. [WWW] http://xgis.maaamet.ee/xGIS/XGis (20.07.2013)

49 SAAGA – Rahvusarhiivi kaartide infosüsteem [WWW] http://www.ra.ee/kaardid/ (20.07.2013)

50 Paalo, P. (2013), lk 10.

51 Tarkin, E. (2011), lk 20–21.

52 Paalo, P. (2013), lk 10.

rikaardi võimalikku täpsust ja infomüra[53], reljeefidetailide loetavus puuvõrastiku all ning lagunenud ja maapinnal halvasti eristuvate rajatiste loetavus. Varasemate uuringute põhjal – millele, tõsi, Paalo ei viita – võis ootuspäraselt eeldada, et reljeef võrastiku all ning ehituslikud struktuurid on hästi eristatavad.[54]

Selliselt tehtud kaardianalüüs on oma olemuselt kvalitatiivne, sõltudes analüüsitavast objektist, kasutada olevast allikmaterjalist ning ajaloolise plaani kvaliteedist ja täpsusest ja reljeefikaardi täpsusest. Samas, juba uuringut alustades tuli arvestada ajalooliste plaanide üldisest mõõtkavast johtuvate ebatäpsustega[55], samuti sellega, et reljeefikaardi näol on tegemist kaugseirel saadud ning spetsiaaltarkvaraga tehtud pildiga[56], millel kajastuvad kõik pinnavormid, sõltumata tekke- või loomisajast.[57] Seetõttu on kaardianalüüsil saadav info analüüsija tõlgendus ja paljuski subjektiivne ning selle alusel saab teha pigem järeldusi pargi üldise ruumilise struktuuri ja reljeefimuudatuste põhimõttelise olemasolu kohta, mitte detailide kohta.[58]

Mõisasüdamete reljeefianalüüsi tulemused

Priit Paalo töö selgitas Eesti regulaarparkide reljeefi olulisi aspekte, tuues välja mitmed seaduspärasused ja iseloomulikud elemendid.[59] Süvenemata siinkohal regulaarpargi reljeefi kui maastiku kujunduselementi, tuleb etteruttavalt öelda, et valitud metoodika õigustas kasutamist ning reljeefikaardil põhinev pinnavormide analüüs on tulemuslik – ligikaudu 80% vaadeldud mõisaparkides andis reljeefikaardi kasutamine tähtsat lisainfot.[60] Reljeefianalüüs võimaldas saada tõest infot reljeefi üldisest iseloomust, sh peahoone paiknemisest üldisel reljeefil ning veekogude suhtes, samuti pargi reljeefi detailsemast liigendusest. Hea näitena võib tuua Purdi pargi (ill. 5), kus terrassid on reljeefikaardil selgelt loetavad. Viimane on väga hea näide ka tüüpilisest situatsioonist, kus ajalooliselt plaanilt ei ole võimalik välja lugeda infot maapinna sihipärase liigendamise kohta, kuid reljeefikaart võimaldab seda suurepäraselt.[61]

53 Mlekuž, D. (2013), lk 92.
54 Masini, N., Coluzzi, R., Lasaponara, R. (2011), lk 269–285; Firnigl, A. (2009), lk 116–118.
55 Nutt, N. (2008), lk 194–195.
56 Gruno, A. (2012), lk 32.
57 Mlekuž, D. (2013), lk 92.
58 Paalo, P. (2013), lk 10–11.
59 Samas, lk 24–34.
60 Samas, lk 49, 74–75.
61 Samas, lk 35.

Ainult reljeefikaardi põhjal oli ligi 40% juhtudel võimalik tuvastada tänaseks hävinud hoonete ja rajatiste (sh maastikust kadunud teede) asukohta (ill. 6). Veerandis vaadeldud parkidest joonistusid välja regulaarse pargiosa kujunduse põhijooned, eriti teedestruktuur. Väga heade näidetena võib mainida Rägavere ja Suure-Lähtru parki, kus peale teede sai välja lugeda ka kompositsioonitsentrite asukohti.[62]

Lisaks üldisele pargistruktuurile ja reljeefile oli ligikaudu pooltel juhtudel ajaloolise plaani toel võimalik reljeefiplaanilt kindlaks teha ka tänaseks pargis hävinenud rajatiste – tõstetud peenrad, lehtlad, piirdemüürid jm – asukohti. Nii näiteks sai Maidla pargis eristada endise silla asukoha ning veel mitmes pargis paviljonide või lehtlate asukohti.[63] Tõsi, enamikul juhtudel on tegemist plaanil eristuvate pinnavormidega, mille funktsioon on ajalooliste andmete puudumise tõttu oletuslik. Nii näiteks on Suure-Lähtru pargi keskel eristuv ringne küngas kõrgendik, kus arvatavasti paiknes paviljon vm sellesarnane pargirajatis, kuid täpsemalt ei ole selle kohta teada. Samas on väga hästi eristatav mööda pargi piiri kulgev kivimüür ning küllaltki hästi eristatav kiirtekujuliselt paiknenud teedevõrk (ill. 7). 37 analüüsitud pargist mitte üheski ei joonistunud reljeefikaardil märgitud teedevõrk tegelikul reljeefil välja sajaprotsendiliselt.[64]

Teedevõrgu puhul on huvitav märkida sedagi, et tegelikul reljeefil teede asukohtadel olev kõrguste vahe on üsna väike, mis näitab, et lidarikaardi kontrollmõõtmistega saadud keskmisest täpsushinnangust võib kaart olla mõnikord täpsem (nt Uue-Põltsamaa). Samas oli ka vastupidiseid näiteid, kus reljeefikaardil olevad mitmesugused arvatavasti tehislikku päritolu pinnavormid ei ühtinud ajaloolisel kaardil oleva struktuuriga ega olnud kaardianalüüsil loogiliselt määratav ka nende praegune funktsioon.[65] Urvastes, Väimelas ja Kiidjärvel oli võimalik tuvastada reljeefikaardil terrassid, kuid kujutis ei võimaldanud saada ettekujutust reljeefi tegelikust liigendusest. Paalo uuring ei käsitlenud ei täpsemini väljajoonistuva reljeefiga parkides ega ebatäpselt väljajoonistuva reljeefiga parkides puude võrade liituvust jt tegureid, mis võiksid kirjeldatud nähtusi selgitada. Tuginedes varasematele uuringutele, võib arvata, et suur osa ebatäpsustest tuleneb siiski reljeefikaardi omadustest, mis ei kajasta reljeefi päris täpselt, mille põhjuseks võivad olla skaneerimise ebatäpsus, taimestiku eripärast tingitud häired[66] või ka ALSi toorandmete automaatsest klassifitseerimisest tulenevad vead.[67] Ka Paalo uuringus johtus vähemalt ühel juhul (Loodi park) reljeefikaardi hälve madalast põõsastikust.

62 Samas, lk 46.
63 Samas, lk 34.
64 Samas, lk 43.
65 Samas, lk 34.
66 Masini, N., Coluzzi, R., Lasaponara, R. (2011), lk 264.
67 Gruno, A. (2012), lk 16.

Veel mitmes teiseski uuritud pargis paneb autor kaardiinfo keerulise tõlgendatavuse võsastumise arvele.[68] Reljeefikaardil kajastuvat võimalikku müra illustreerib Urvaste pargi näide (ill.8), kus pargi keskosas asuvad reljeefikaardi kohaselt justkui regulaarsed tehisobjektid, mida ajaloolisel plaanil ei ole ega olnud need tuvastatavad ka välitöödel. Võimalik, et osa tehislikke pinnavorme võib pärineda ka varasematest aegadest, nagu võib oletada näiteks tänaseks hävinenud Lihula regulaarpargi puhul.

Mõisasüdamete reljeefi kirjeldamisel koostas Paalo lisaks analüüsiskeemidele ka reljeefi iseloomustavad lõiked maapinnast. Kõrguste määramisel lähtus ta ainult reljeefikaardist ning Maa-ameti geoportaali kaardirakenduse võimalusest, mis lubab 0,5 m sammuga tuvastada reljeefikaardi punktide kõrgusi merepinnast. Nagu Paalogi tõdeb[69], on tegemist siiski üsna ebatäpse meetodiga. Selliselt saadud kõrgusinfo on kasutatav sarnaselt näiteks põhikaardiga küll üldise reljeefi määramisel, kuid mitte täpsemate järelduste tegemisel (näiteks terrasside või tõstetud-langetatud peenarde kohta). Põhilisteks probleemideks on reljeefi kujutava pildi ebatäpsusest johtuv andmete tõlgendamise limiteeritus[70] ning kaardipildil eristuvate kontuuride kohatine halb visuaalne loetavus. Seetõttu on täpse kõrgusinfo saamiseks mõistlik kasutada teisi allikaid.

Tuleb öelda, et Paalo uuring kinnitas reljeefikaardi kasutamise tõhusust reljeefi uurimisel ning andis pidepunkte reljeefikaardi rakendamiseks ka pargiuuringutes laiemalt. Kaardianalüüsis käsitletud veekogude puhul vastas saadud info praktiliselt kõikidel juhtudel tegelikkusele. Vaid 10% juhtudest esines reljeefikaardilt interpreteeritava info ja välitöödel tuvastatud tegeliku situatsiooni vahel osalist mittekattumist. Olukorda, kus reljeefikaardi andmed ei ühtinud üldse tegeliku olukorraga, ei esinenud üldse.[71] 85% juhtudest vastas mõisasüdame tegelik paiknemine reljeefil kaardianalüüsil saadud tulemustele. Vaid Urvaste ja Saare pargi asend üldisel reljeefil jäi kaardianalüüsil kaheldavaks. Välitöödel selgus, et need pargid paiknevad looduses väga sujuvalt muutuval reljeefil, mille määramine reljeefikaardil võib olla komplitseeritud.[72]

68 Paalo, P. (2013), lk 58.
69 Samas, lk 36–37.
70 Metsur, M. (2012), lk 14.
71 Paalo, P. (2013), lk 49.
72 Samas, lk 56.

Kokkuvõte

Maastikuarhitektuuri valdkonnas on Eestis kasutatud lidarikaarte maastike uurimisel alles üsna vähe, sest Eesti territooriumi hõlmav ALS reljeefikaart on kättesaadavaks muutunud üsna hiljuti. Priit Paalo uuring, mille tulemusi käesolevas artiklis on analüüsitud, on alles üks esimesi katsetusi selles vallas, kuid see näitab ootuspäraselt, et sarnaselt Lääne-Euroopa praktikale[73] on lidarikaart edukalt kasutatav ka Eesti ajalooliste parkide uurimisel.

Reljeefikaardi ning mõisasüdamete ajalooliste plaanide võrdlev graafiline analüüs näitas, et reljeefikaart saab olla oluline lisainfoallikas juhtudel, kui puuduvad täpsemad geodeetilised mõõdistused vm andmed reljeefi karakteri täpsemaks määramiseks. Ka täpse geoaluse olemasolul võimaldab reljeefikaart head ülevaadet kontaktvööndi või pargiga visuaalselt või funktsionaalselt seotud naaberaladest, mida geoalus sageli ei kajasta. Lidarikaardi abil on võimalik kindlaks määrata reljeefi iseärasusi, mis aitavad paremini lahti mõtestada pargikompositsiooni ja pinnavorme kui selle füüsilisi markereid.

Samas tuleb lidarikaardi kasutamisel arvestada ka mitut asjaolu. Põhiprobleemiks on lidarikaardil esinev infomüra ja liigne teave, mis on tingitud aerolaserskaneerimise tehnilistest aspektidest, kuid ka maastikus toimuvaist looduslikest ja inimese toimimisega seotud protsessidest.[74] Seetõttu tuleb nii ajalooliste parkide kui ka üldse mis tahes maastikuga seotud objektide reljeefikaartide abil uurimisel kasutada kindlasti võrdlevat materjali, mis seab reljeefikaardil kajastuva aegruumilisse konteksti. Samuti ei asenda kaardianalüüs kohavaatlusi.

Priit Paalo uuring küll kinnitas reljeefikaardi kasutatavust maastikuarhitektuurilises kaardianalüüsis, kuid arvestada tuleb, et tehtud uuring keskendus eelnevalt välja valitud regulaarparkidele, mille kohta on infot nii kaardil kui ka maastikul tunduvalt lihtsam leida kui näiteks Inglise stiilis kujundatud parkide kohta. Samuti lähtus kaardianalüüs kitsalt piiritletud ajaloolise pargiruumi spetsiifikast, mille kohandamine teistsuguse iseloomuga objektidele vajab eeltööd.

Kaardianalüüsil jäi õhku mitmeid tehnilisi küsimusi, millest ühena kerkib esile reljeefikaardi loetavus pargitaimestiku puhul. Käsitletud meetodi rakendamisel oleks otstarbekas täpsemalt uurida ka reljeefikaardi visuaalsest mürast ja ebapiisavast täpsusest tulenevaid probleeme, millele on viidanud ka teised autorid. Üks võimalus on kasutada avalikus kasutuses oleva reljeefikaardi

73 Masini, N., Coluzzi, R., Lasaponara, R. (2011), lk 269–285.

74 Mlekuž, D. (2013), 95–96

asemel, millel tegelikult kajastub peale reljeefi ka sinna digitaalselt lisatud info hoonete, veekogude jm kohta, mis võib analüüsitulemusi seetõttu moonutada, n-ö puhast halltoonides reljeefivarjutust või DEMi ning võrrelda saadavaid tulemusi Paalo tulemustega. Samuti võiks olla huvitav ka võrrelda koostatud analüüsiplaane ortofoto, põhikaardi või olemasolevate konkreetsete geoalustega, mis võimaldaks täpsustada just reljeefikaardiga seotud graafilise analüüsi võimalusi ja parandada saadavat tulemust.

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The Use of Terrain Maps based on Airborne Laser Scanning Data for Researching Historical Parks

Sulev Nurme, Priit Paalo

One of the greatest problems related to the restoration of Estonian manor parks is the scarcity of historical materials. The existing archival materials provide a relatively good overview of the development of the manors as economic units, but information on the buildings, and especially the parks, is limited. Virtually no materials have survived on the design of the parks, and therefore, conclusions can be drawn about the historical park space based primarily on the plans of the manor lands that have survived from the 19th century. Based on these maps, it is possible to generally analyse the land utilisation, road networks, and buildings as well as bodies of water, to a greater or lesser degree. In a few instances, it is also possible to analyse more specific aspects like park structures and landscaping. Usually, it is not possible to analyse the terrain based on the plans of the historical centres of the manors. The analysis of park topography is a major component of site analysis, which enables decisions to be made regarding bodies of water, views, axes of composition, etc. This is why Clemens Steenbergen and Wouter Reh use topographic models for demonstrating the composition analyses of Europe's famous historical parks.

This article focuses on the opportunities for utilising the relief maps of Estonia, which are based on the data collected by airborne laser scanning conducted by the Land Board between 2008 and 2011, for researching the terrain of historical parks. LiDAR-based (Light Detection and Ranging) map analysis is a relatively new research method used in environmental archaeology, among other things. The LiDAR map of Estonia, which is available on the Land Board's Geoportal, can be used as a topographic model in park research for conducting site analysis. The relief map can provide significant additional information in cases where a geodesic map has not been compiled for the park or the areas related thereto. The article deals with the possibilities for researching park terrains, and focuses on the methodological aspects of using relief maps for the analysis of park space, based on previously selected examples. As could be

expected, research conducted in the spring and winter of 2013 showed that utilising the Land Board's relief maps, which are available to the public, along with historical maps for the analysis of park spaces usually produces results and is quite easy to carry out. The available data enables significant additional input to be acquired for the research of regular parks, which can help one gain an understanding of and interpret park space. Considering the universality and importance of map analysis in landscape architecture, one can assume that the method described in this article can also be useful more broadly, in theoretical and practical work related to landscape architecture.

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Võtmesõnad: ajalooline park, regulaarpark, pargi restaureerimine, pargi uurimine.
Keywords: historical park, regular park, park restoration, park research.

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