

Analysis of the Spatial Axis of Italian Renaissance Garden—Taking Villa Lante and Villa d'Este as Examples

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Abstract: *Serving as a conduit for aesthetic principles of order, symmetry, and balance, landscape axis system has evolved in response to evolving societal aesthetics and lifestyles. Contemporary axis design methods are a product of historical insights, offering a versatile "toolbox" for garden designers to shape axis spaces. Concurrently, these evolutions mirror the challenge faced by modern gardeners: how to leverage spatial prototypes to explore the expanse of spatial design possibilities. Focusing on the Italian garden axis space during the Renaissance, the essay explores a journey from simplicity to complexity in spatial structure, integrating the axis with the surrounding environment. Analyzing iconic examples such as Villa Lante and Villa d'Este from 16th century Italy, the essay unveils the evolution of spatial form and function within garden axes. It investigates how these axes intricately organize distinct unit spaces and garden elements across their evolutionary trajectories. Lastly, the essay underscores the pervasive influence of axis spaces on modern landscape design.*

Keywords: *Landscape axis system, Italian renaissance garden, Villa Lante, Villa d'Este*

1. Introduction

Axis control is a prevalent technique in landscape design, enjoying a long history and important status. It conveys the aesthetic principles of order, symmetry and balance. With the development of society, changes in people's aesthetic notions and lifestyles, the axis system also tends to be free and diversified [1]. Nowadays axis design methods are evolved from historical cases. On the one hand, the exquisite method of designing the axis space is extracted from the historical process of the diverse understanding and evolution of the axis space, and it has become a "toolbox" for garden designers to create the axis space of the garden. On the other hand, the "mirror" also reflects the urgent problem for contemporary gardeners: how to explore the multiple possibilities of space design from a spatial prototype.

During the process of generation, exploration and sustainable development of the Italian garden axis space in the Renaissance, there is a process from simple to complex spatial structure, from isolation to integration with the surrounding environment. This essay takes Villa Lante and Villa d'Este in the 16th century in Italy as representatives, aiming to explore and analyze the evolution of the spatial shape and functions of the garden axis, and attempt to summarize how the axial space organizes various unit spaces and garden elements during the evolution process and the influence of axis space on modern landscape design.

2. Historical Background of Renaissance

The Renaissance took place in Europe from the 14th to the 17th centuries. It was a movement of the capitalist who promoted capitalistic thought and culture in the name of reviving Greek and Roman classical culture. It originated in Italy and was widely spread and highly developed in Western European countries.

Motivations for the birth of this remarkable cultural movement were complicated and controversial. The prerequisite for the Renaissance was the increased interaction between different cultures and societies. Enormous trade networks across Europe, Asia and Africa led to increased interaction which caused not only trades of merchandise, but also exchanges of beliefs, ideas and values [2].

The root cause of the Renaissance was the development of productive forces which resulted in the

emergence and prosperity of capitalism. The regime is controlled by bankers, businessmen, and plant owners. In order to maintain and develop their political and economic interests, the city's emerging capitalists began to oppose the church and feudal culture and promote classical culture, pursue the philosophy, literature, and art of ancient Greece and Rome [3]. People pursued the free academic atmosphere in ancient Greece and Rome and worshiped their wealthy achievement of art and literature. Therefore, the core of the Renaissance was humanism—being human-centered rather than God-centered and the purpose of life is to pursue happiness in real life.

2.1. The Origins of Italian Renaissance Gardens

Emerging as the epicenter of the Renaissance in Italy during the early 14th century, Florence ignited a cultural reawakening. An ardent desire to reconnect with the past, particularly the ways of ancient Romans, pervaded society, epitomized by the romantic ideals advocated by Cicero[4]. This longing for a bucolic existence, inspired by pastoral life and a deep appreciation for nature, catalyzed the flourishing of Italian gardens. It served as the fertile soil from which horticultural expertise and innovative gardening techniques sprouted and proliferated, casting a verdant legacy that continued to blossom throughout this remarkable period.

2.2. Italian Garden Type in Renaissance—Terrace Garden

The distinctive Italian terrace garden design was profoundly influenced by the undulating topography of the region. Italy's landscape is dominated by mountains and hills, constituting a staggering 80% of its land expanse[5]. This geological reality prompted a strategic response among the affluent and noble, who strategically erected their villas on the mountainsides overlooking the sea. By harmonizing with the terrain, these visionary individuals ingeniously adapted their architectural pursuits to the lay of the land, thereby giving rise to the enchanting allure of the Italian terrace garden.

2.3. Typical Design Styles in Mid-Renaissance

The pursuit of ancient Greek and Roman culture deeply influenced the design of the Italian Renaissance garden. People advocated the rigorous, orderly, and symmetric ideas of the ancient Greek and Roman, and continued to explore mathematics, geometry, and aesthetics in garden design based on the principle of "Nature obeys order". In the middle renaissance, gardening methods became mature gradually and the style of garden design was very characteristic. Firstly, there was a central axis runs through the whole garden while the landscape was symmetrically arranged on both sides of the central axis. Figure 1 is a master plan of Villa Lante, reproduced from Nieuwlandt, W.

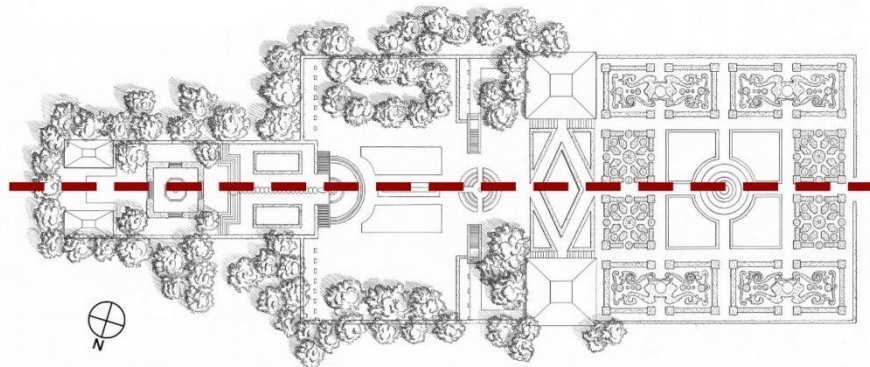


Figure 1: Master plan of Villa Lante, reproduced from Nieuwlandt, W.

Secondly, the water technology was mature, including various light and sound effects (water organ, water theater), water drop, water spray (secret fountain, horror fountain), etc. Thirdly, the shape of gardens and plantation became complicated gradually.

3. The Historical Background of Villa Lante

Tagore said, "If you want to understand the characteristics of the best gardens of the 16th century,

you must visit the Villa Lante, otherwise you will miss one of the most precious masterpieces of gardening." Villa Lante is located in the town named Bagnaia near Viterbo, north of Rome, designed by a famous architect and gardener Jacopo Barozzi da Vignola in 1547. At the end of the 15th century, Cardinal Rialio I once built a hunting room here as summer resort[6]. After the death of Gambala in 1587, the estate passed to Cardinal Alessandro Montalto and completed the final construction under his supervision. In 1655 the villa was rented to the Lante family and it is still owned by the Lante family now.

4. The Historical Background of Villa d'Este

Villa d'Este experienced a tortuous development during five centuries. Initially, it was commissioned by Cardinal Ippolito d'Este who launched the project in 1560 and devised by an Italian architect, painter, antiquarian, and garden designer Pirro Ligorio. In 1605, according to the will of Cardinal Alexander d'Este, a restoration phase was carried out with rearrangement of the gardens and improvements of the fountains[7]. During the 18th century, Villa d'Este fell into a period of decline when it became the property of the House of Habsburg. After World War I, the villa became the property of the Italian State, which undertook a new phase of restorations and opened it to the public. Then it was damaged by the bombings of World War II and restructured immediately after the war.

5. Compare and Contrast Landscape Elements of Villa Lante and Villa d'Este

In the broader context, Villa Lante and Villa d'Este exhibit contrasting axis systems: Villa Lante adopts a unidirectional axis, while Villa d'Este employs a bidirectional one. These distinct axial frameworks significantly shape the layout of their respective landscapes, fostering unique arrangements of elements. The unidirectional axis of Villa Lante imparts a focused progression, channeling attention along a single path of engagement. In contrast, the bidirectional axis of Villa d'Este fosters a more dynamic interplay, inviting exploration along divergent routes. These differing axis systems encapsulate the divergent intentions of these iconic gardens, each expressing its narrative through the deliberate orchestration of spatial relationships. Figure 2 and Figure 3 are shown below.

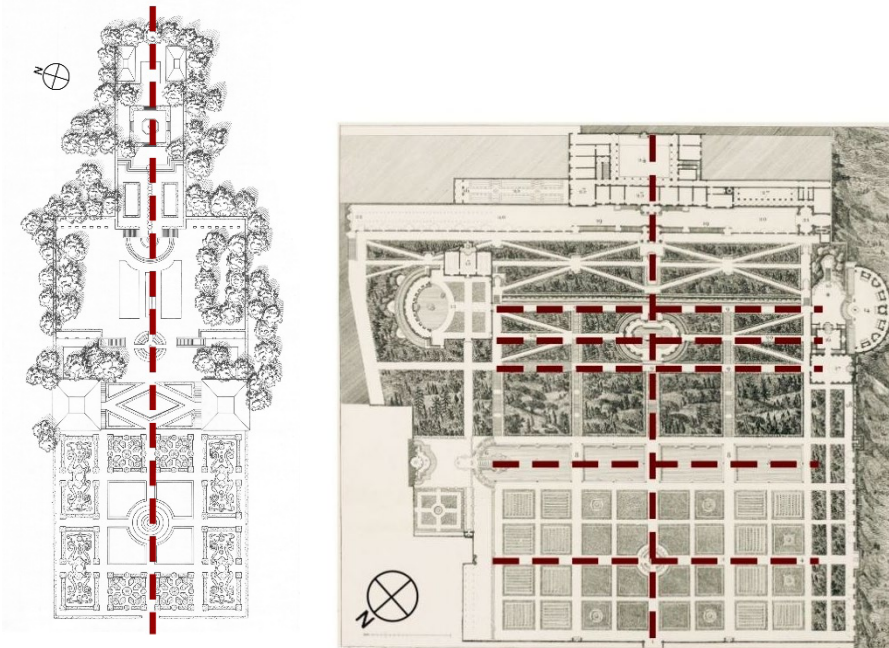


Figure 2: Master plan of Villa Lante, reproduced from Nieuwlandt, W.

Figure 3: Master plan of Villa d'Este, reproduced from The New York Botanical Garden.

5.1. Terrain

Figure 4 and 5 show how the axis arranged space in Villa Lante. The main axis connected four terraces, exploring the change of space level, thus emphasizing the visual experience of different spatial sequences.

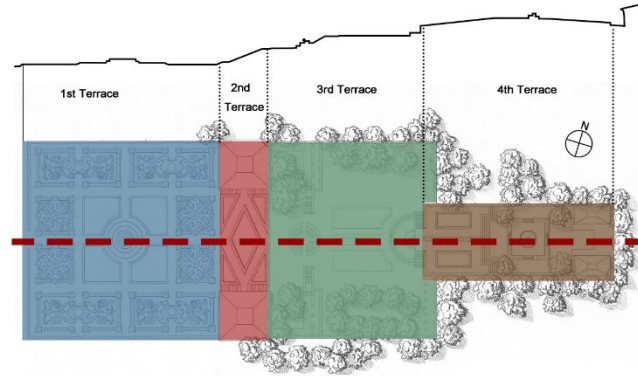


Figure 4: The four terraces of Villa Lante, reproduced from Nieuwlandt, W.

Villa d’Este was divided into six terraces, with a height difference of nearly 50 meters. It is worth noting that the height difference varied a lot on the main axis, while on the secondary axis the height difference was limited. Although the axis system was more advanced, the design of the terrain remained in a single direction.

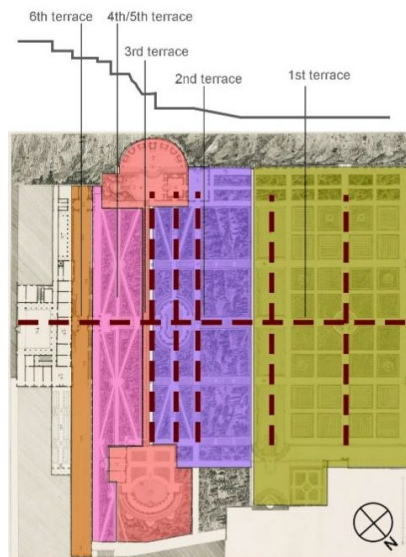


Figure 5: Terraces of Villa d’Este, reproduced from The New York Botanical Garden.

5.2. Water

The waterscape was the most prominent design in Villa Lante. Figure 6 is the waterscape in Villa Lante. It is worth mentioning that the axis was different from Villa d’Este. It was a water axis which applied the theory of dynamic and static combination superbly, symbolizing the process of springs flowing into the river and then going to the sea using artistic approach.

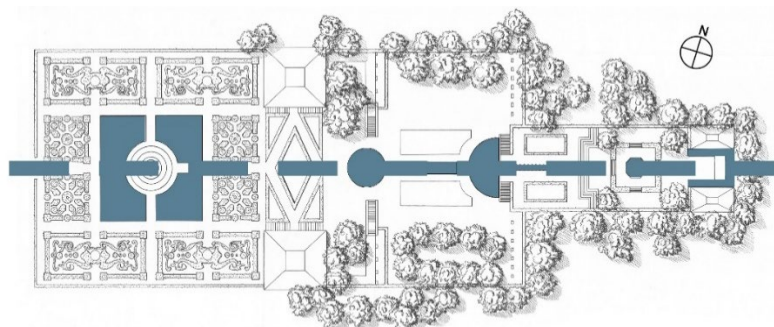


Figure 6: The waterscape in Villa Lante, reproduced from Nieuwlandt, W.

The figure 7 shows how the bidirectional axis system organized the waterscape of the garden. There are five forms of waterscape in Villa d'Este (fountain, pool, waterfall, water theater, water organ). Each of the five main transversal axes terminates in one of the gardens' fountains. A strong visual feeling was brought by the spatial layout and the change of water flow. This spatial sequence design approach has influenced European gardens and modern landscape design deeply.

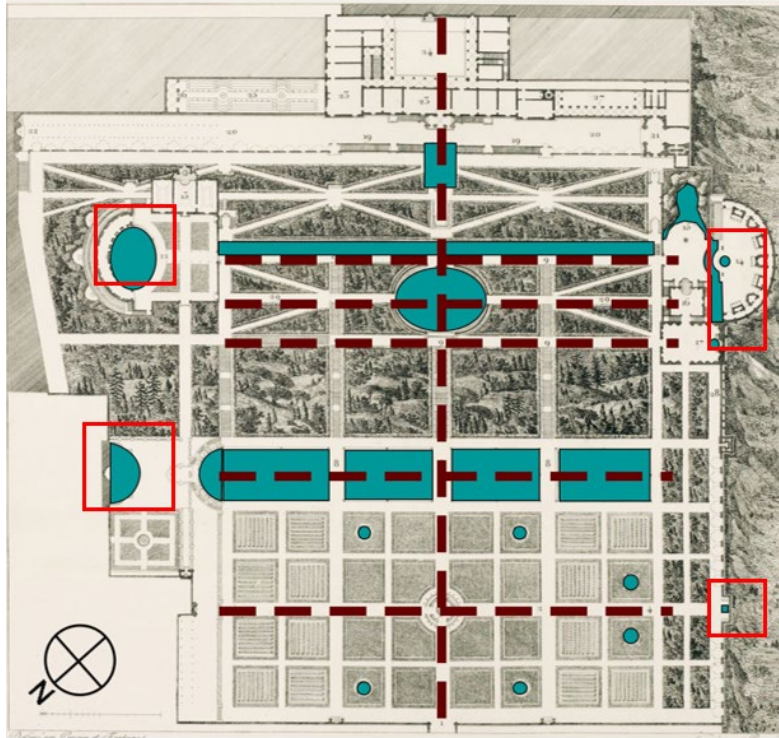


Figure 7: Waterscape in Villa d'Este, reproduced from *The New York Botanical Garden*.

5.3. Architecture

In normal Italian renaissance gardens, the main buildings were always in the dominant position on the axis. But in Villa Lante, the main building was divided into two parts by the axis which was rare comparing with others. Figure 8 shows the buildings in Villa Lante.

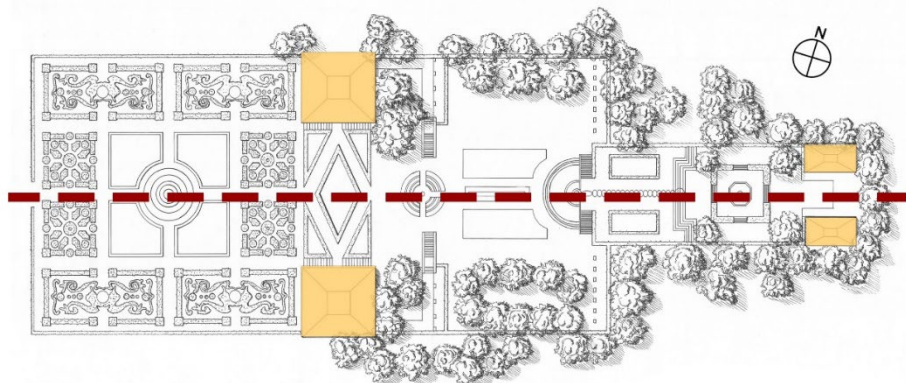


Figure 8: The buildings in Villa Lante, reproduced from *Nieuwlandt, W.*

As common Italian renaissance gardens, the main building in Villa d'Este stood on the leading location at the end of the main axis, controlling the whole garden. This relationship between axis and buildings was different from that in Villa Lante. The dominant position of the main building in Villa d'Este is shown in Figure 9.

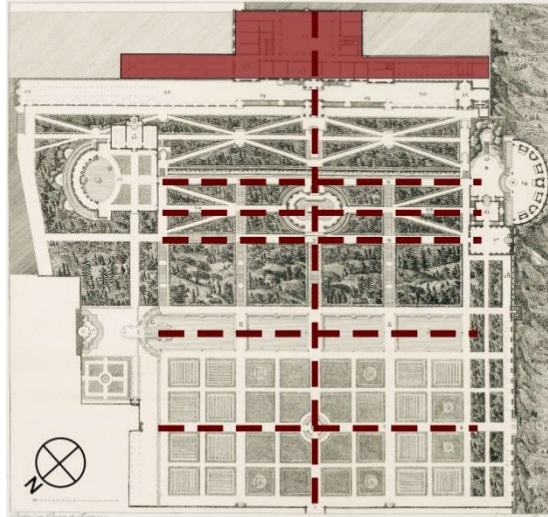


Figure 9: The dominant position of the main building in Villa d'Este, reproduced from *The New York Botanical Garden*.

5.4. Plantation

The plantation was also distinctive in Villa Lante. At the start of the axis there were trimmed shrubs and flower beds and as the level changed along the axis, plants gradually had a natural form. This was designed for the natural transition from the villa to the surrounding environment. The planting strengthened the axis of the entire waterscape system of Villa Lante. Moreover, the plants on the second and third floors are inclined to project the axes on both sides. The plantation in Villa Lante is shown in Figure 10.

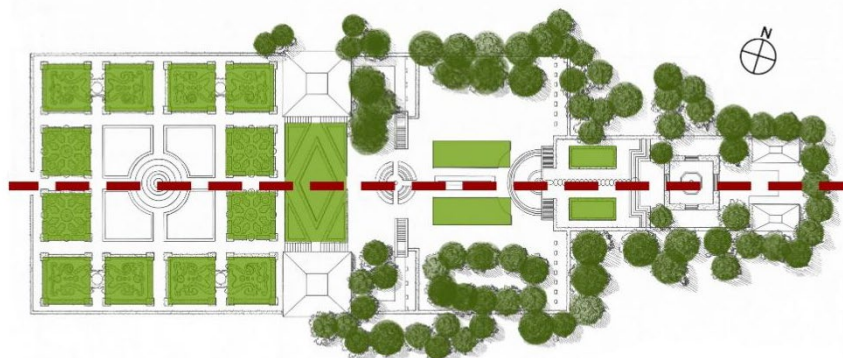


Figure 10: The plantation in Villa Lante, reproduced from *Nieuwlandt, W.*

In Villa d'Este, the intersection of the axes formed multiple square planting spaces. Neatly trimmed and regularly planted hedges along each axis made up the spacial shape.

6. Contemporary Case Study—Miller Garden

The Italian Renaissance gardens represented the maturity of the European formal gardens and remarkably affected the French classicist gardens and the British natural landscape gardens. Many elements in French classical gardens, such as planting construction, flowerpot fountains, ancient Roman sculpture were influenced by Italian gardens.

Dan Kiley was an American landscape architect in the modernist style and a successor of classical design theory. His design theory was deeply influenced by French classical gardens which originated from Italian Renaissance gardens. In other words, Italian classicism indirectly affected Dan Kiley's design.

Miller Garden, designed by Dan Kiely, is one of the most influential works of modern landscape design. In this garden, Dan applied the traditional garden axis into the modern landscape architecture of

space structure properly. Miller garden shows a good translation of classic elements into modern spatial sensibility. Figure 11-12 indicate that the plantings inherit the elements of repetition in classicism. And figure 13-14 show that Dan also applied axis system into the road structure of Miller Garden.



Figure 11: Checkerboard of plantings mixes in Miller Garden (Left)



Figure 12: Hedges design in Miller Garden (Right)



Figure 13: Pavemnt in Miller Garden



Figure 14: Planting in Miller Garden

7. Conclusion

With the development and progress of the society, not only has the design method of the landscape axis has not declined and disappeared but become more active and innovative in the historical development of garden design, showing a variety of influences. First, the impact on mixed gardens. European public park movement in the 19th century established the architect's decisive position in landscape design, retaining and imitating the previous form in terms of structure, presenting a mixture of axis and landscape. Second, the development of modern gardens. In modernist gardens, the unit space and gardening elements in the traditional garden axis space are decomposed and evolved to obtain new forms and spatial structures: the cubist space concept is applied to the axis space design to reduce the depth of field depth; structuralism landscape master Dan Kiely's design works incorporate symmetry, grids, and repetitions in the axis of traditional gardens into modern space, enclosure, flow, and transparency in modern architecture; deconstructionism is abandoning the axis space of traditional gardens and stippling them. The surface structure prototype and gardening elements are decomposed and reconstructed. Among them, La Villette Park is represented by French landscape architect Bernard Cumi continued to use the gardening elements with local characteristics to try to structurally break the unity of the traditional garden axis space, seeking for an inner new spatial structure and order. Third, the development in cities. In the continuous urban development and renewal, the space of the urban landscape axis has gradually evolved into urban space. In the early 18th and 20th centuries, the governments of various countries represented by France planned and constructed a wide axial boulevard, leading to important monuments, buildings, and central public places, and expressing the authority and image of the government with relatively urban landscapes.

The axis space of traditional Italian gardens profoundly affects the development of future gardens and cities in Europe and the entire Western world. It no longer appears as a single garden axis space but is divided and combined into unit spaces with various spatial structures, landscape elements and other

forms that are constantly repeated in planning and design.

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