



POLITECNICO DI MILANO

Scuola di Architettura Urbanistica e Ingegneria delle Costruzioni
MSc. in Architectural Design and History

Title:
THE GROWING PALACE
THE EXTENTION PROJECT OF GIARDINO DEI SEMPLICI
PALAZZO DUCALE, MANTOVA

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Abstract

The design proposal on which the thesis is developed in, is "Giardino dei Semplici" (Garden of Simples) which is formally known as "Giardino del Padiglione" (Pavilion Garden) in the Ducal Palace of Mantova. This historic Renaissance Garden is located between the Domus Nova and the lake. Around 1581, it was known as "Giardino del Padiglione", because a pavilion was built by the architect Bernardino Facciotto in respect to Domus Nova and later demolished and rebuilt again as "Giardino dei Semplici" (Botanical garden) in 1603 by the Tuscan friar Zenobio Bocchi. Since then the "Garden of Simples" has undergone many transformations visually and culturally over the period of time which resulted in an uninhabited function.

At present the temporary exhibition takes place in the "Galleria della Mostra" which was designed by Giovan Battista Bertani in 1570's in the Ducal Palace of Mantua has the separate entrance in the Giardino dei Semplici and it can be accessed by the public Piazza Lega Lombarda. Taking this as an opportunity, the main objective of our design proposal is to exhibit the "Giardino dei Semplici" as part of the temporary exhibition itself for the public and to build a close relationship between the Garden, heritage and the visitor.

Hence this design proposal aims in understanding the elements of Renaissance garden and to enhance its characteristics features by transforming the garden in to sculptural pavilion with the help of historical references through architectural medium. In general the design proposal enlarge an opportunity of tourist activity in the complex of Palazzo Ducale to educate the children and the visitors about the Renaissance garden.

Abstract

La proposta di progetto sulla quale la tesi è sviluppata si trova nel "Giardino dei Semplici", formalmente noto come "Giardino del Padiglione" nel Palazzo Ducale di Mantova. Questo giardino di epoca rinascimentale è localizzato tra la Domus Nova ed il lago. Nel 1581 era noto come il "Giardino del Padiglione", perché un padiglione fu integrato dall'architetto Bernardino Facciotto all'interno della Domus Nova, più tardi demolito e ricostruito di nuovo come "Giardino dei Semplici" (giardino botanico) nel 1603 dal frate toscano Zenobio Bocchi. Da allora in poi il "Giardino dei Semplici" ha subito fisicamente e simbolicamente molte trasformazioni nel periodo di tempo che ha portato a una condizione di obsolescenza.

Attualmente l'esposizione provvisoria ha luogo nella "Galleria della Mostra" che fu progettata da Giovan Battista Bertani nel 1570 nel Palazzo Ducale, alla quale si può accedere dal Giardino dei Semplici utilizzando la connessione da Piazza Lega Lombarda e piazza Sordello. Assumendo questa come un'opportunità, l'obiettivo principale della proposta di progetto è di attrezzare il "Giardino dei Semplici" come parte dell'esposizione provvisoria per il pubblico e costruire una relazione di contatto tra il Giardino ed il visitatore.

La proposta di progetto tende a considerare gli elementi del giardino rinascimentale e a migliorarne le sue caratteristiche trasformandolo in un padiglione di sculture con l'aiuto di riferimenti storici e per mezzo di risultati architettonici. In generale la proposta di progetto propone un'opportunità di espansione dell'attività turistica nel complesso del Palazzo Ducale per istruire i bambini ed i visitatori sul tema del giardino rinascimentale.

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1: LOCATION & BACKGROUND



1.1. Historical Outline of Mantova

Mantova is a commune in Lombardy region in Italy, and capital of the province of the same name. The palazzo Ducale complex plays an important role in the development of the city. And the city has a strong Renaissance domination and it was influenced under the Gonzaga family and it has made it one of the main artistic, cultural and especially musical hubs of Northern Italy and the country as a whole.

Mantova as a city always had a close relationship with nature: during the 12th century, the city was surrounded by three sides of man-made lakes as the city's barricade. These lakes receive water from the Mincio River, a tributary of the Po River which descends from Lake Garda. The three lakes are called Lago Superiore, Lago di Mezzo and Lago Inferiore.

Figure 1: Illustration showing the Palazzo Ducale Complex in the Historic city map of Mantova

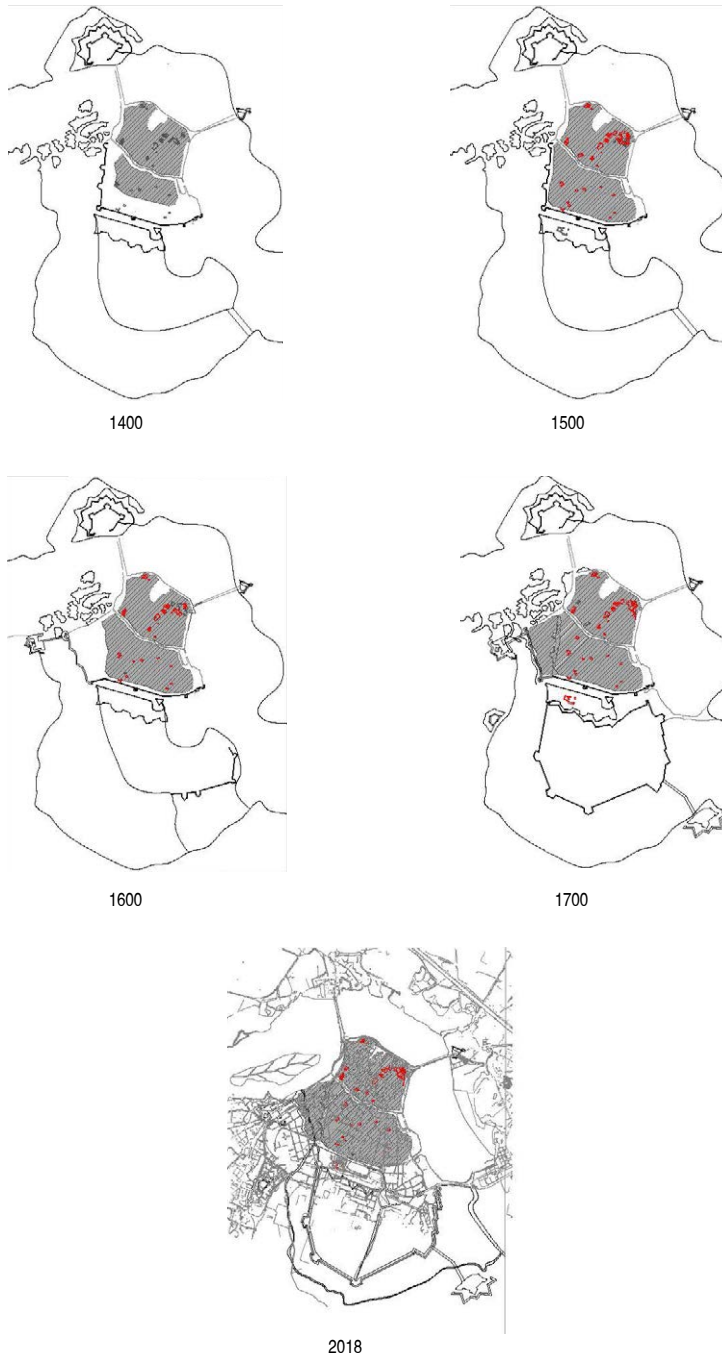


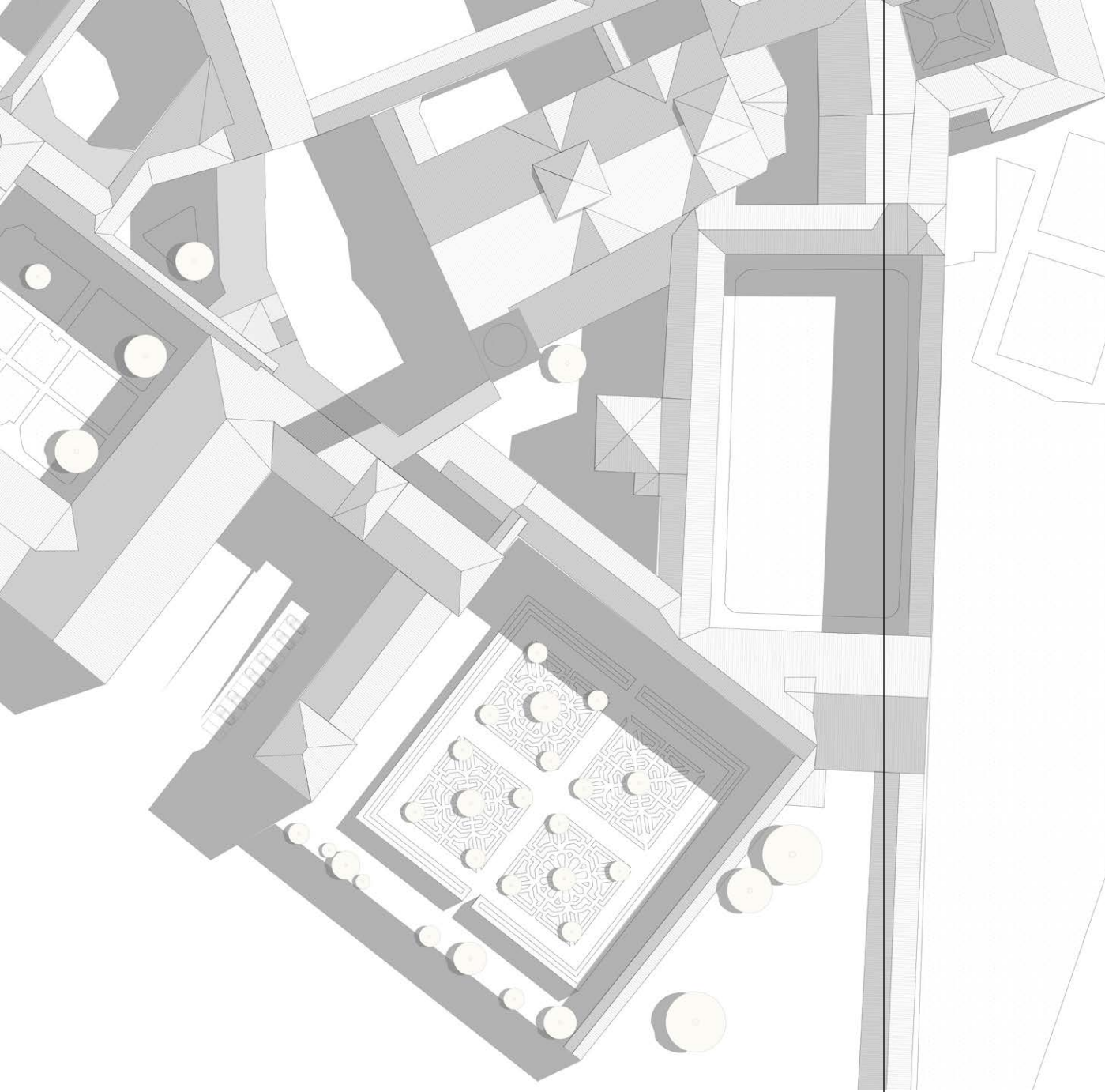
Figure 2: The maps representing the city growth of Mantova from 1400 to 2018 in context to Palazzo Ducale

Gonzaga family and Mantova

During the Italian Renaissance, the Gonzaga family softened their despotic rule and further raised the level of culture and refinement in Mantova. The city became a significant center of Renaissance art and humanism. Marquis Gianfrancesco Gonzaga had brought Vittorino da Feltre to Mantova in 1423 to open his famous humanist school, the Casa Giocosa. The Gonzagas protected the arts and culture, and were hosts to several important artists such as Leon Battista Alberti, Andrea Mantegna, Giulio Romano, Donatello, Peter Paul Rubens, Pisanello, Domenico Fetti, Luca Fancelli and Nicolò Sebregondi. Though many of the masterworks have been dispersed, the cultural value of Mantova is nonetheless outstanding, with many of Mantova's patrician and ecclesiastical buildings being uniquely important examples of Italian architecture.



2: ANALYSIS OF PALAZZO DUCALE COMPLEX



2.1. Evolution Of Palazzo Ducale Complex

The UNESCO recognized Mantova city is a greatest treasure for urban, architectural and artistic realizations of the Renaissance period and the Ducal Palace played a vital role in the cultural heritage of Mantova. This Palace consists of a vast complex of buildings situated in the north-east part of the city between the Piazza Sordello and the bank of Lago Inferiore, a lake through which the Mincio River flows.¹

The evolution of the complex dated back from 1300's, where Luigi Gonzaga captured the Palazzo del Capitano from Bonacolsi family since then the Ducale Palace complex grew from a period of time, the city axial planning of Mantova was based on the Ducale complex, and in fact it is described as a city rather than a Palace where the complex has different typologies of building spaces from residences to galleries, long corridors and galleries connected with courtyard and garden.²

The evolution of the Palazzo Ducale started from 1300 to 1600, and the buildings of Ducale complex was built around in different centuries by different architects which subsequently leads to diverse architectural styles.

Figure 3: Master plan of Palazzo Ducale complex

1 (Berzaghi, 1992)

2 (L'Occaso, 2009)

Evolution Of Palazzo Ducale Complex

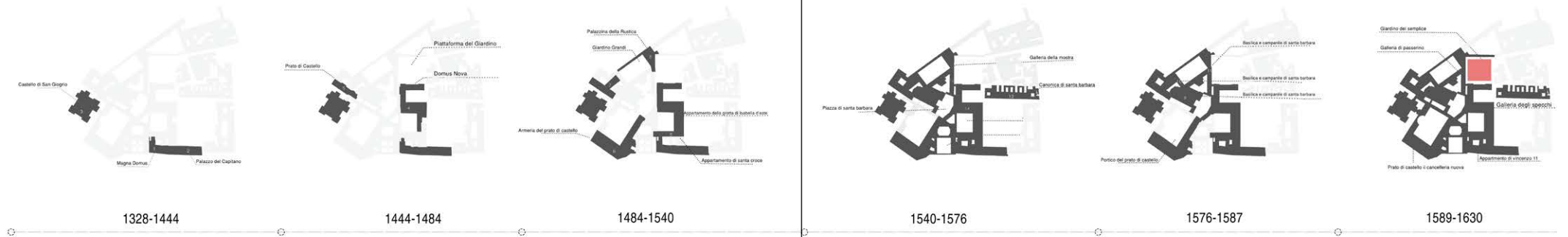


Figure 4: Illustration showing the Evolution of Palazzo Ducale Complex in the Historic city map of Mantova.

From the development of the Palazzo Ducale we can see that even the original idea of the palace is not about the courtyard, all the buildings were located apart. However, when complex grows the different parts are connected in a way of courtyard and the completed condition of connection is in the form of a well enclosed courtyard. That is the reason why these courtyards are in different directions.

2.2. Palazzo Ducale And Its Relation With Courtyard/Garden

The courtyard plays an important role in the Renaissance architecture, the relationship between the courtyard and the built space in Palazzo Ducale, makes the palace compared to City within a City, where the city is usually filled with solid and voids. Since the Ducale complex was built in different timelines, we can see the architects from each era, tried to complete the courtyards following the axis.

One of the important architectural element during the Renaissance period in context to courtyard/garden is the loggia, an architectural feature which is a covered exterior gallery or corridor usually on an upper level, or sometimes ground level. In the Ducale complex, each courtyard is built with a loggia to enjoy the beauty of the garden.

To have a visual relationship to the courtyard, the buildings in the Ducale complex has the window openings facing to the courtyard, where the other side is completely blocked. In the Giardino dei Semplici, the garden view can be enjoyed from the Appartamento del Paradiso in Domus Nova, and from the Galleria del Passerino. The gardens in the Palazzo Ducale complex are purely Renaissance gardens, Each garden has different

geometrical layout. For example Giovan Battista Bertani had regularized (1556-1561) the two long, elevated corridors that connect the Galleria to the Rustica, thereby surrounding the grassy courtyard between them with four façades articulated with bold and Giuliesque rustication.

Pompeo Pedemonte, who contributed respectively into the Giardino Pensile (1579-1580), located to the left of the Magna Domus and facing the right bank of the cathedral besides the Sala dei Fiumi, with other three sides delimited by loggias, which are supported by coupled doric columns. The Giardino Pensile has a fountain in the middle which is an classic example of Renaissance garden.

Piazza Lega Lombarda is today a large space arranged in a public garden, which opens behind the Palazzo del Capitano, inside which opens a passage that connects it to Piazza Sordello. The new name was assigned only in 1876, but in the past it was also called Piazza del Giardino. hence we can see garden is very much part of the society from Renaissance period to the modern context.

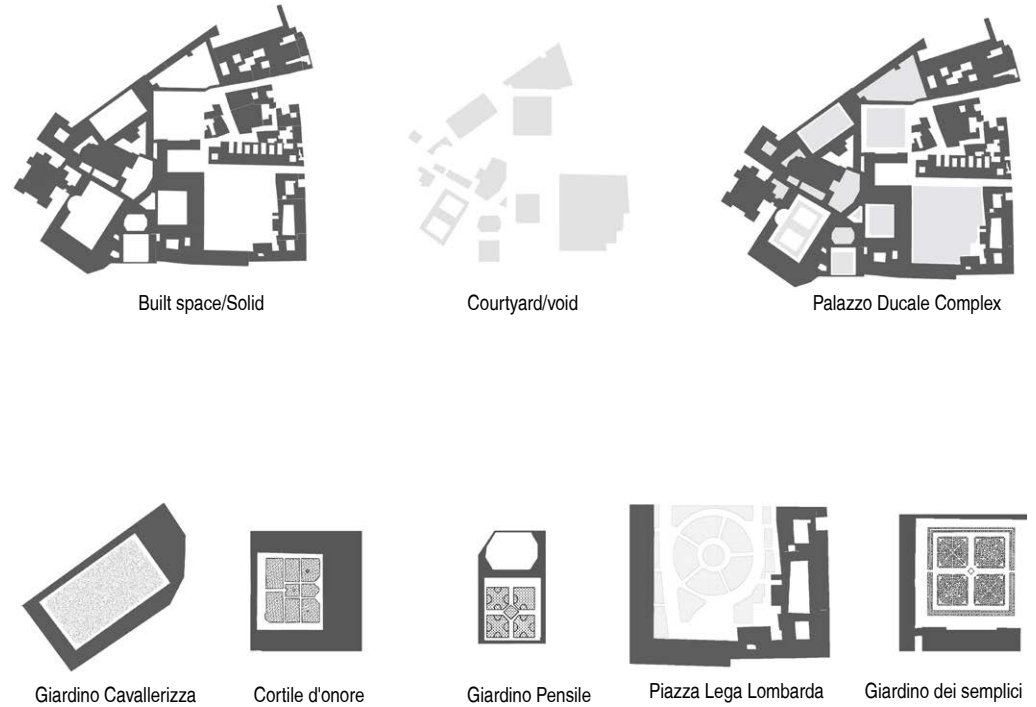
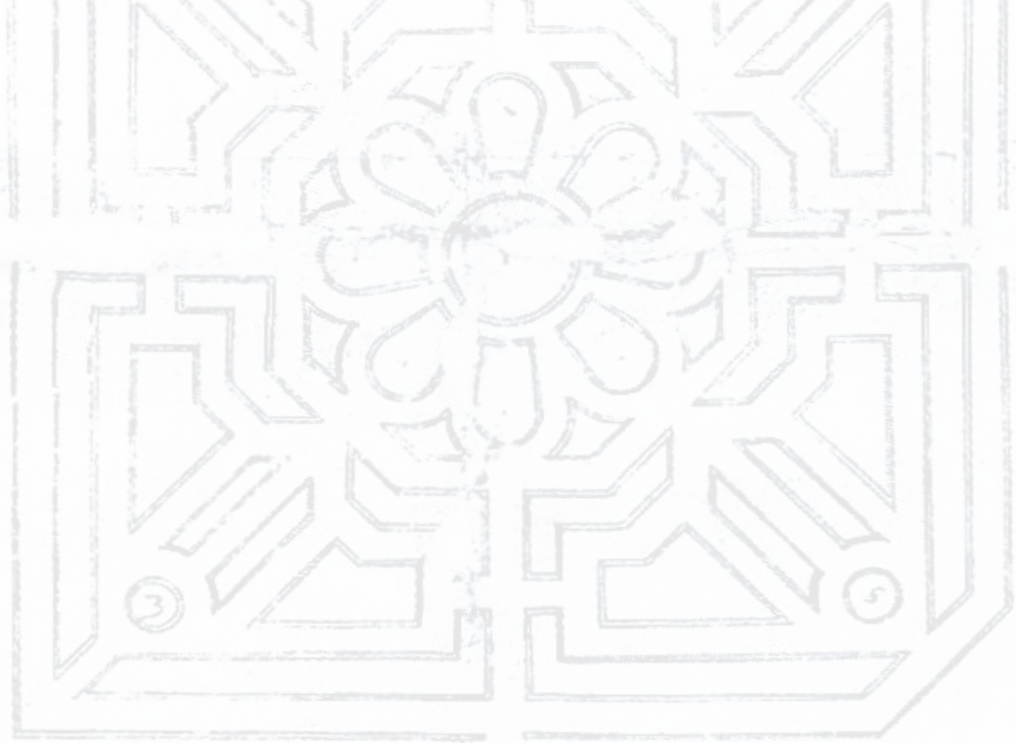
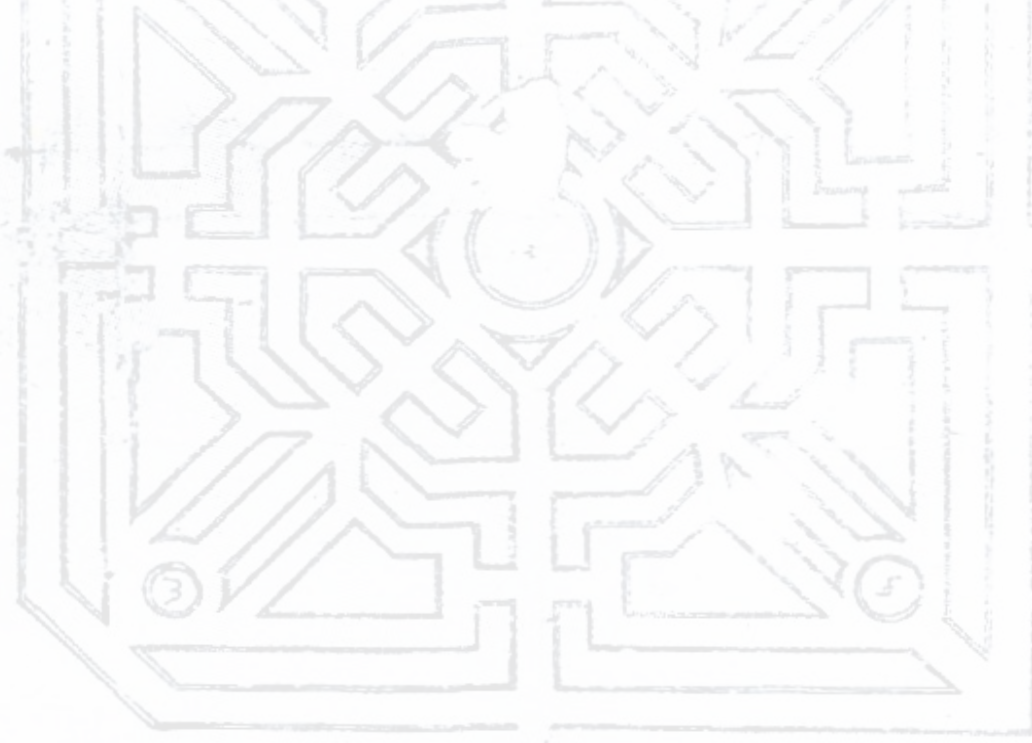


Figure 5: Courtyard analysis of of Palazzo Ducale



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2.3. GIARDINO DEI SEMPLICI



2.3. The Giardino Dei Semplici And Its Transformation

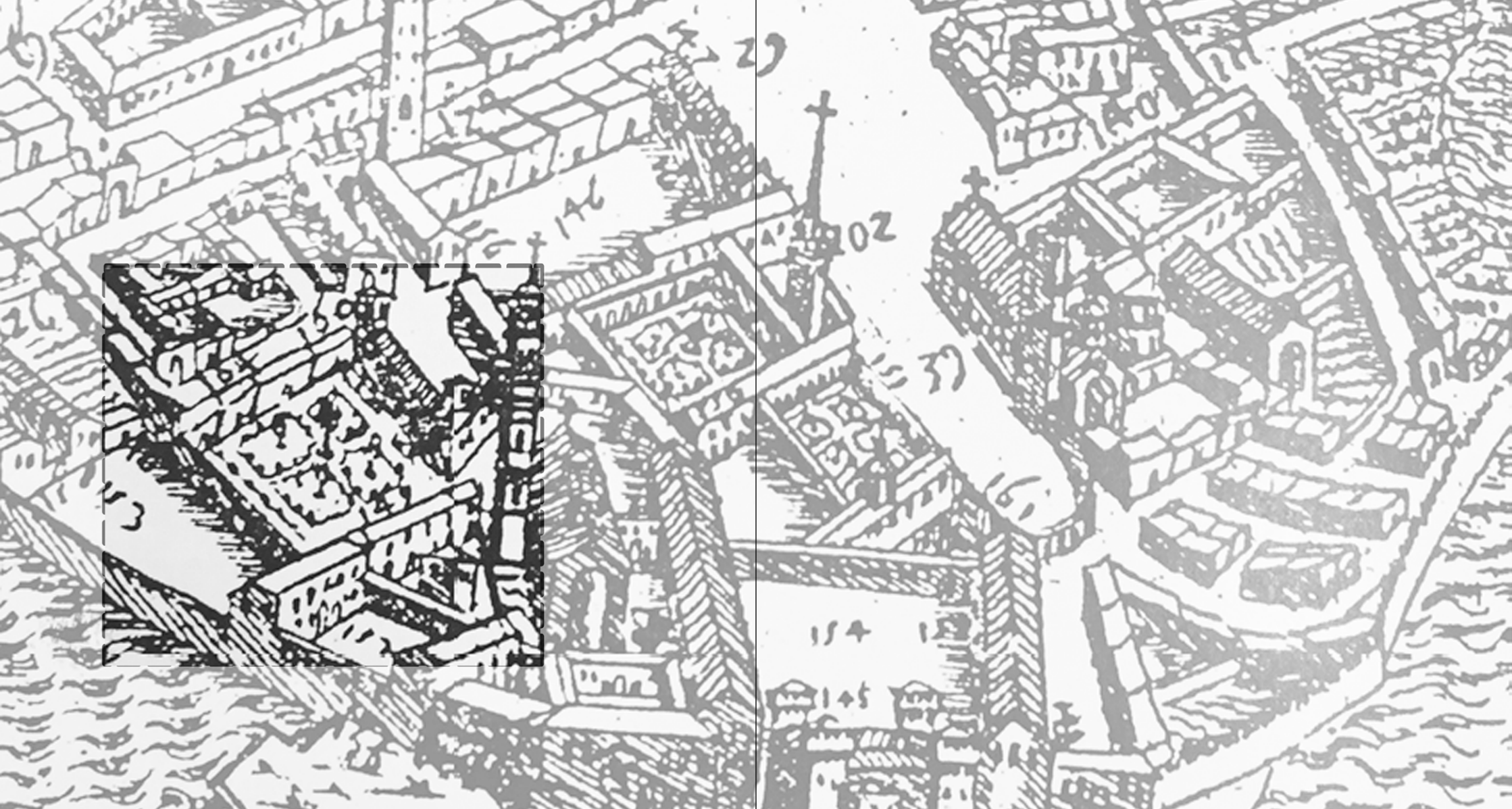


As previously mentioned in the preface, the Giardino dei Semplici has undergone many transformations, it was a pavilion garden which was built in 1581 corresponding to Domus Nova, where the pavilion can be admired from the windows of the Appartamento del Paradiso.

The name of the pavilion garden is derived from a roof which protected a nymphaeum, traces of which are still visible on the left hand side of the garden. Towards the lake, the area is enclosed by the series of arches which supports the corridor, now not in use. Later in 1603 the pavilion garden was transformed into a botanical garden as "Giardino dei Semplici" by the Tuscan friar Zenobio Bocchi.

The proposed botanical garden has a different species of plants and the geometrical layout of the garden responds to the concept of four elements of nature, earth, water, fire and air in respect to the Appartamento delle Metamorphosis.

Figure 6: Evolution of Giardino dei Semplici from 1400 to 1600



2.3.1. 16th And 17th Century Transformation

In both the drawings, there is a building facing the garden adjacent to Domus Nova. This building was one of the entry way from the urban streets to the Giardino dei Semplici , was demolished later in the 19th century.

Figure 7: Gabriele Bertazzolo, particolare della pianta di Mantova (1596).

The central point in the garden forming the cruciform coordinates, points to the four elements such as, the entry gate opening to the street, the entrance of Domus Nova, the niche from the facade of Metamorphosis room and the restored portico. These lines of view and axis is the typical character of the Renaissance garden.

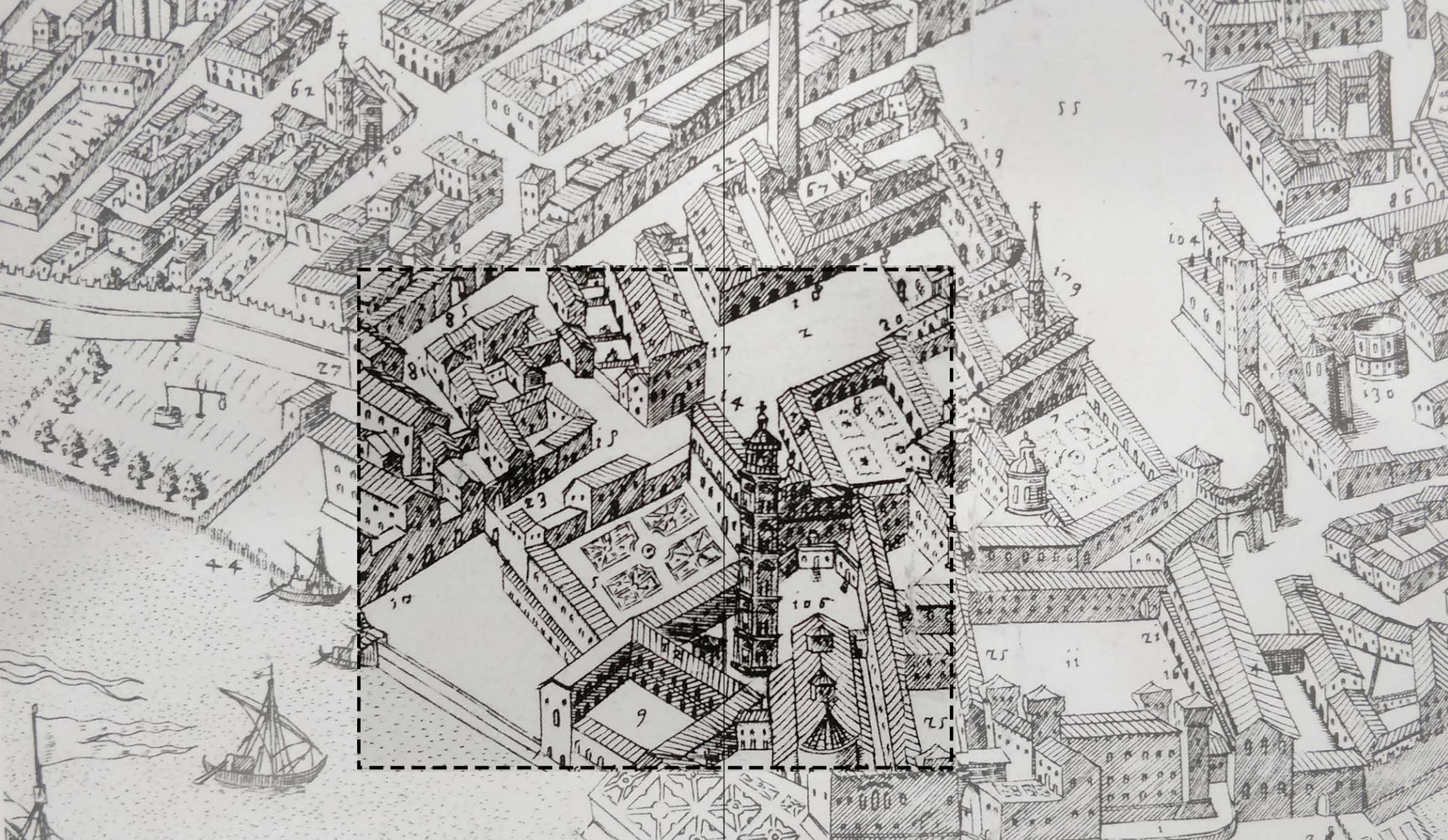


Figure 8: Gabriele Bertazzolo, particolare della pianta di Mantova (1628).

The first drawing of Gabriele Bertazzolo of 1596 (Figure 7), the “Giardino dei Semplici” is flat with scattered trees and not organized in the garden. Where as in the Bertazzolo drawing of 1628 (Figure 8), the Giardino dei Semplici has a different patterned geometrical layout. In both the drawings of Bertazzolo, we can easily identify the transformation of the garden.

2.3.2. 19th And 20th Century Transformation

In the relief of the Palazzo by Luigi Marini of 1859 the gardens have a planimetric dense setting and a lot articulated, but still far from canons of the Italian Renaissance garden. In the 30s of the twentieth century after the first major restoration of the monumental complex, the gardens are renewed with a new designs.

However the plant and the relationship between architecture and green, escapes the rules of the garden of court, and one is not yet taken into account time (there was no culture of the protection of the historical garden of the particular architectonic context).

At the beginning of the 1980'S the palace in the courtyard and gardens, still kept the plant of the 30s, integrated by the tenants of the building by any type of trees, such as the pine tree.

The "restored" green plant re-proposes the "Garden of the Simple", "Garden of Medicinal herbs", "Botanical garden of Palazzo" built in the early seventeenth century and of which it is preserved in the Municipal Library of Mantova, the original drawing in 1603 (Figure 10) for the Duca Vincenzo I by the botanist and antiquarian of court Fra Zenobio Bocchi Franciscan Florentine, coming from the botanical garden of Pisa.⁴

4. (Algeri, 2003)

Figure 10: Project for the Giardino dei Semplici, 1603 (Mantova, Biblioteca Comunale), Giardino dei Semplici, Aerial view.

GIARDINO DE SEMPLICI IN MANTOVA.

Agli Eccellenti Sig. Medici, Mag. Chirurghi, & Aromatarij della Città di Mantoua.

GIA che la Serenissima Altezza di Mantoua, Eccellenti Signori Medici, Mag. Chirurghi, & Aromatarij, mi ha chiamato dalla Sereniss. Altezza di Fiorenza, doue per cinque anni continui fui compagno del Reu. Malocchi, vnico imitatore in questi tempi, del gran curioso Plinio, nello studio de' semplici, e cose naturali in Pisa di Toscana, qui arriuato, e scoperto l'acceso, & ardente desiderio di costesta Altezza, il qual è di giouare al publico, dell'altrui beneficio, e vltimo poi, come realmente è il vero, che doti sono i Medici, intelligenti i Chirurghi, e di molta confid.atione gli Aromatarij, quanto che in altro luogo ritrouar si possono, deliberai con molto mio contento, non solo per le di già dette ragioni, ma ancora per il commodo delli molti peregrini semplici, i quali quai per le conuicine campagne si ritrouano, deliberai, dissi, di ricreare (per dir così) vn copioso luogo di semplice medicina, il cui sito è il giardino del Padiglione in Corte di S.A.S.: e perche tutti coloro, ò la maggior parte almeno, che fecero, e fanno questa professione, per maggior capacità de gli essercitanti in tale scienza, andarono disponendo, & ordinando i semplici con qualche metodo, & particular modo; Mentre dunque, ch'io in tale attione mi affaticò, riceuete da me, p. adesso, Signori, l'intimazione del tiro, & il disegno del luogo, che fra poco farò di più scoperto, & la distintione de i semplici, & il numero di essi nominatamente, che in detto giardino si ritrouano. E così restando volentieri desideroso di scopola ad ogn'vno di voi, mi v'inchino. Di Corte in Mantoua, il dì 25. Agosto 1603.

Fra Zenobio Bocchi di Fiorenza, Minore Osseruante di San Francesco, Semplicista, & Antiquario dell'Altezza di Mantoua.

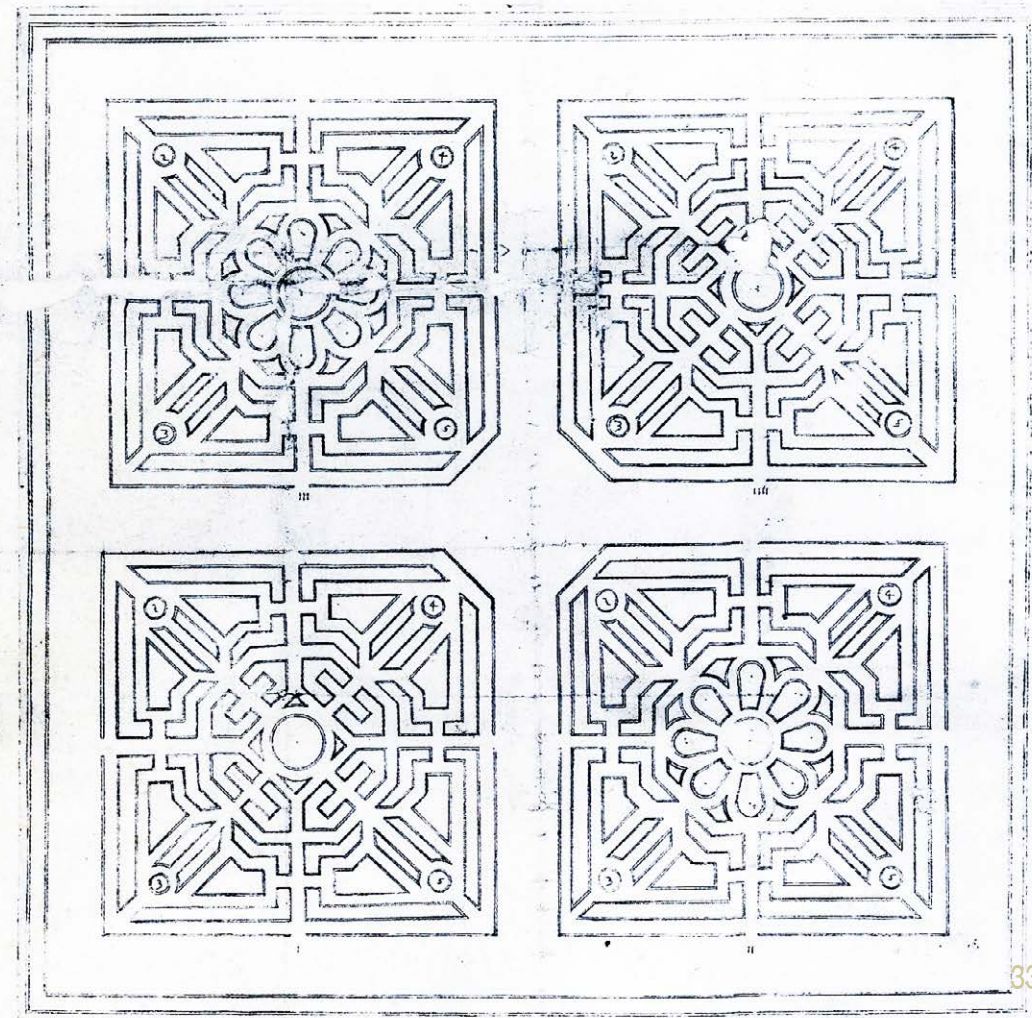
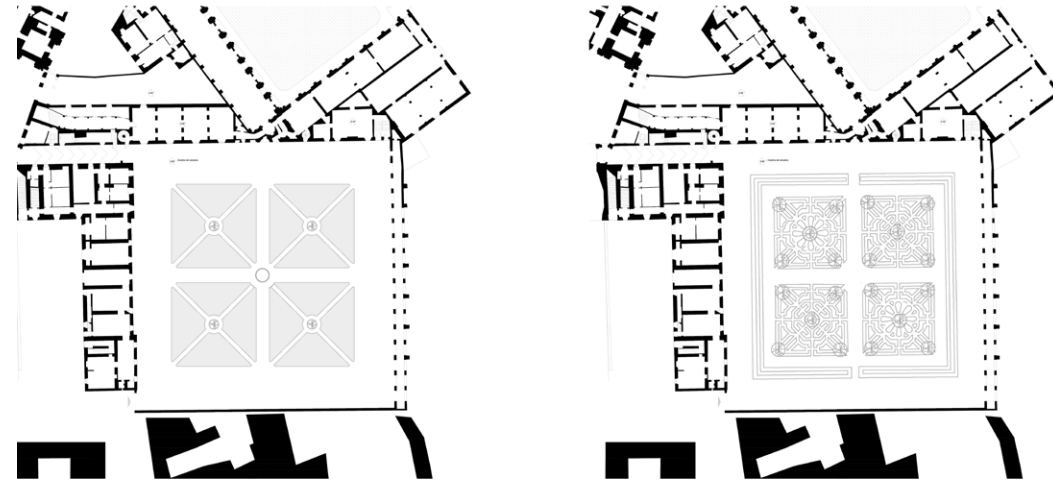




Figure 11: Giardino dei Semplici before Restoration

19th And 20th Century Transformation

The original document received consists of a single sheet, accompanied by the list and arrangement of the medicinal herbs; Luiztavia gave useful indications for the selection of essences catalogs drawn up the botanist such as Francesco Borsati 1590, Marcello Donati 1602 and in particular the list of plants in other gardens compiled in 1625 by the physician Giacomo Francesco Palperia, professor of botanical demonstration at the University of Mantova, was established in 1624 by the duke Ferdinando.



a) "Giardino dei Semplici" Before Restoration

b) "Giardino dei Semplici" after Restoration in 1980

Figure 12: The geometrical layout of Garden before Restoration and after Restoration.

The interpretation of the green architecture and of the scenography of the garden is reconstructed through a precise colorful description of the same written by a chronicles of the time (July 1612) on the occasion of the short festivities for the coronation of the torch Matthias of Austria.

The intervention carried out does not aim at the philological reconstruction of the garden of Bocchi, but interpretation, through design choices that reproduce the original design, referring in particular to the correct relationships between architectural space and green, between full (flower beds) and empty.

2.4. The Lost Pavilion And The Abandoned Corridore Del Giardino Dei Semplici

To conclude the Analysis of Giardino dei Semplici, There are two elements to consider in the revival of the Garden, the Pavilion and the abandoned portico. The revival of these elements helps in reuse of the Giardino dei Semplici more functionally in to the modern context.

The Lost Pavilion

The reasons for the demolishing of the Pavilion is still unknown and there are few evidences describing the Pavilion was mentioned in the book.

As part of the architectural complex of the Ducal court the Pavilion Garden is reported by the guide of the 1908 palace of A. Patricolo: «...assumed this name after it was built in 1581 a pavilion or portico with pillars of wall and with marble columns. In extension of the gallery of the exhibition of this pavilion we have news until 1775, and had to be demolished a few years later».

Probably the pavilion in question was built in conjunction with the works of arrangement concerning the gallery of metamorphoses

performed by the architects Dattari and Anton Maria Viani, prefect at that time of the Ducal complex.

The Corridore of Giardino dei Semplici

The Corridore of Giardino dei Semplici was constructed by Viani in 1608. The long corridor that delimits the Giardino dei Semplici on the eastern side and that originally connected the Rustica to the theater of Comici or Teatro Vecchio in Ducale.

During the 16th century, it was a period of Mannerist architecture, and the facades were heavily decorated. For example, in the portico of the Giardino dei Semplici we can see the influence of Mannerist architecture in the facade, where Viani designed the facade with the three dimensional element.

This portico was a filter space between the lake and the garden, but during the earthquake of 2012, the portico was heavily affected and later in 2017, it was structurally restored, but still lost it function as a viewing gallery.

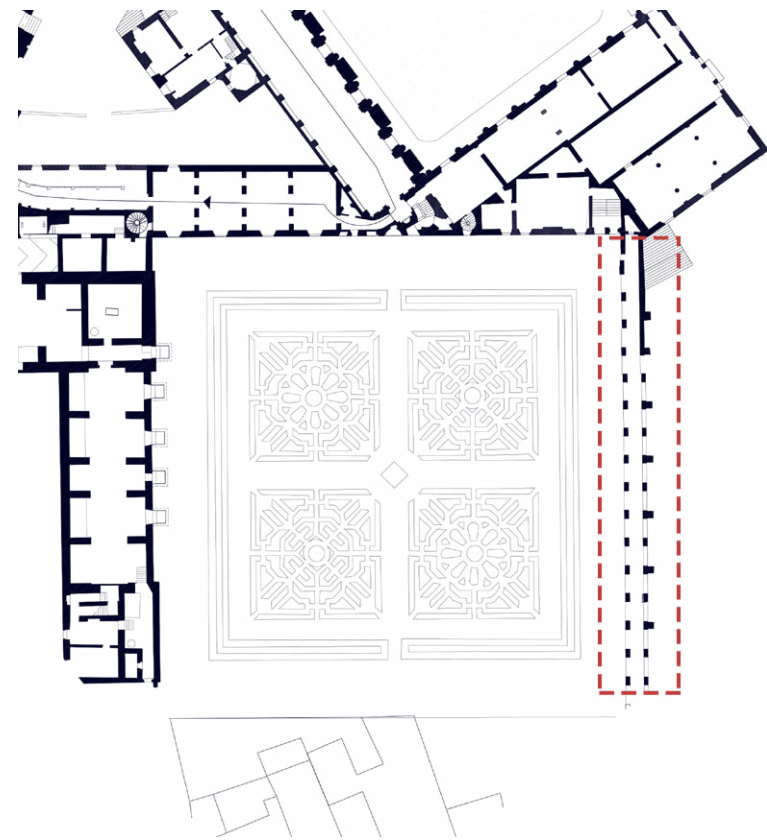
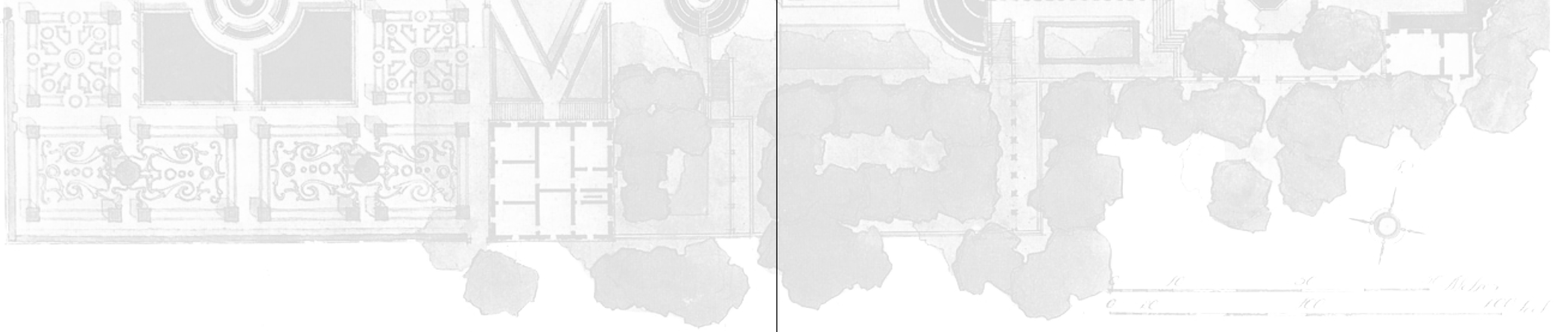


Figure 13: Il Corridore del Giardino dei semplici.



Figure 14: The Existing situation of Il Corridore del Giardino dei Semplici, Source: photos taken by the author.



3.RENAISSANCE GARDEN



3.1. History of Renaissance Garden

While medieval gardeners treasured their flowers, clipped the turf seats and swept the paths of the Hortus Conclusus, the Renaissance was slowly gathering momentum in 15th century Italy. Anxious to understand the harmonies of ancient architecture and its decoration, draughtsman studied the crumbling ruins of Rome and other relics of the Empire. There followed a glorious intellectual fusion of purpose and genius, a crescendo of creativity that still dazzles five centuries

——— <The Birth of the Renaissance>
1996 May Woods

Since ancient Rome, garden has already been an important part of villa. Because there is no Roman garden well existed the architects of Renaissance studied the Roman garden mainly according to the description of Plinio il Giovane's, letter about his villa. The first Renaissance text to include garden design was De Re Aedificatoria ('The Ten Books of Architecture'), by Leon Battista Alberti (1404–1472). He drew upon the architectural principles of Vitruvius, and used quotations from Plinio il Vecchio and Plinio il Giovane to describe what a garden should look like and how it should be used. He argued that a villa should both be designed to be looked at and a place to look from; that the house should be placed above the garden, where it could be seen and the owner could look down into the garden.



Figure 15: Plinio il Giovane (61 - after 113) Roman writer and senator.

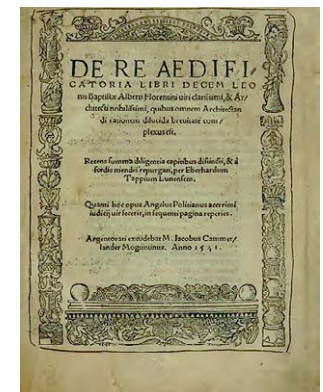


Figure 16: De Re Aedificatoria by Leon Battista Alberti.

3.2.The Layouts Of Renaissance Garden

Italian Medieval gardens were enclosed by walls, and were devoted to growing vegetables, fruits and medicinal herbs, or, in the case of monastery gardens, for silent meditation and prayer. The Italian Renaissance garden broke down the wall between the garden, the house, and the landscape outside.

Symmetrical layout with fountain and pool in the center, path is organized along the axis. This is the main feature of the Roman garden layout which is learned and developed in Renaissance. From the description of Plinio il Giovane, we can find that there is a strong relation between garden and architecture. The trimmed plants and regular division of the lawn bring the architectural interests into the nature.

In the early Renaissance style, Square and rectangular 'garden carpets' were laid out so that their unity, order and regularity could be viewed from the upper windows of a house, as they were

in Paradise gardens. In marked contrast with eastern practice, early renaissance gardens had no particular geometrical relationship between the fortified house and its garden. Patterns, inspired by knotted carpets, were used in the design of what became known as 'knot gardens'. Later the garden styles developed from period to period, but the basic features remained the same. In Alberti's ideal garden description, the layout of the garden can be abstracted as: 1.It is better to use rectangle as the shape of the garden and use straight lines to divide the garden into small regular shapes with shrub and hedge. 2. There should be classical pavilion at the end of the path. 3. Using pillars to support shading structure for the path. 4. On both sides of the path there should be stone vase as decoration. 5. Some parts of the shrub can be trimmed into niches to place sculpture in it.

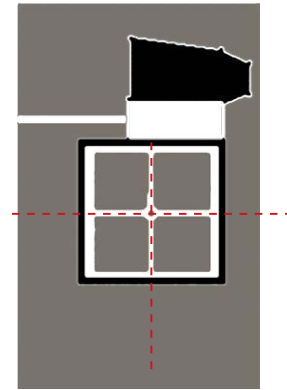


Figure 17: Early Renaissance Style 1450

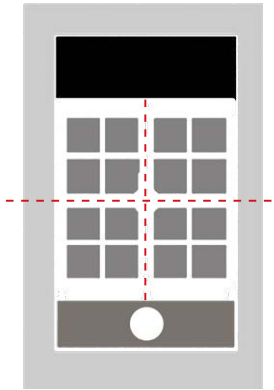


Figure 18: High Renaissance Style 1540

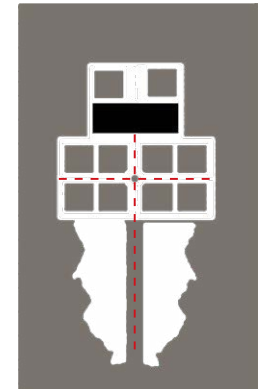


Figure 19: Early Baroque Style 1600

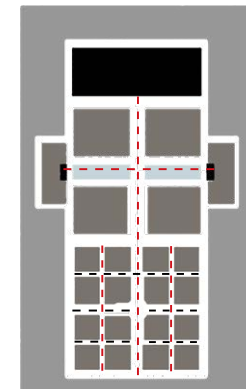


Figure 20: Mannerist Style 1660

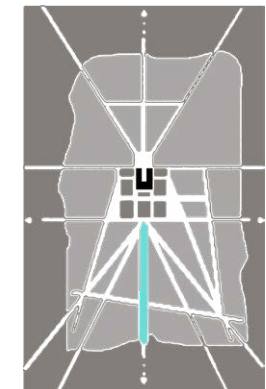


Figure 21: High Baroque Style 1650

3.2.1. The Geometrical pattern of :

Villa Gamberaia, Villa Lante, Villa Medici

The organizing principle of high renaissance gardens was first demonstrated by Bramante. He used a central axis to control the layout of house and garden. It integrated a series of rectangular enclosures with terraces at different levels. Flights of steps, alcoves, niches and fountains were disposed in relation to the axis and embellished with statues, fountains and terracotta pots holding flowers and fruit trees.

Here, we can see from the 3 cases of Renaissance garden the same type of layout is repeated, the symmetrical division, the central element of each area and the cross path. It is a way of the urban design and in this way, the nature is architecturally shaped which can be well connected with the architecture.

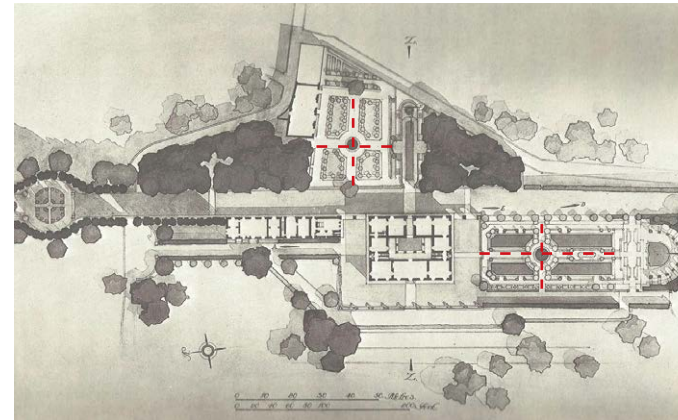


Figure 22
Villa Gamberaia: Plan by John C. Shepherd (1925, p. 50).

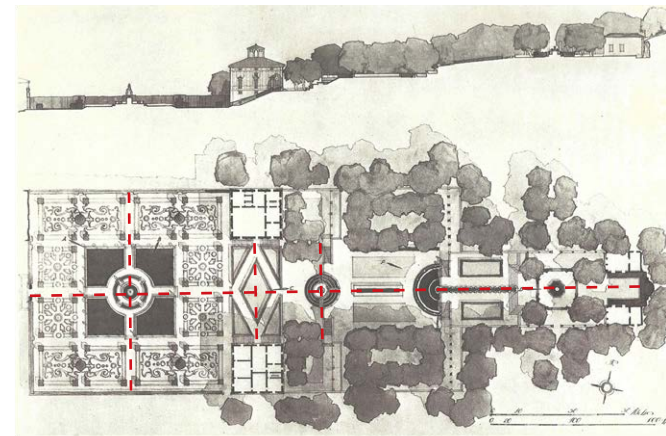


Figure 23
Villa Lante: Plan by John C. Shepherd (1925, p. 26).

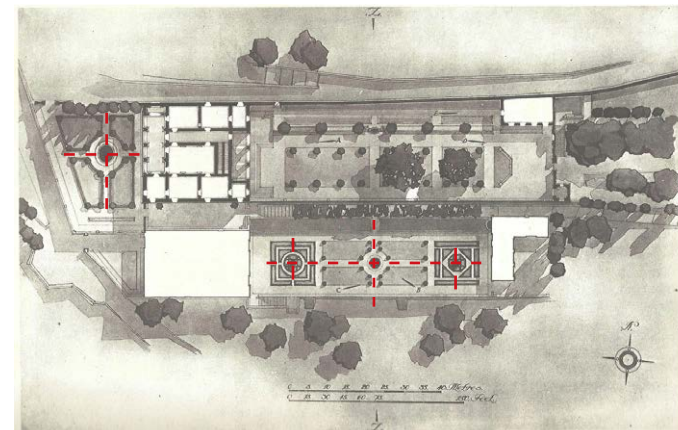
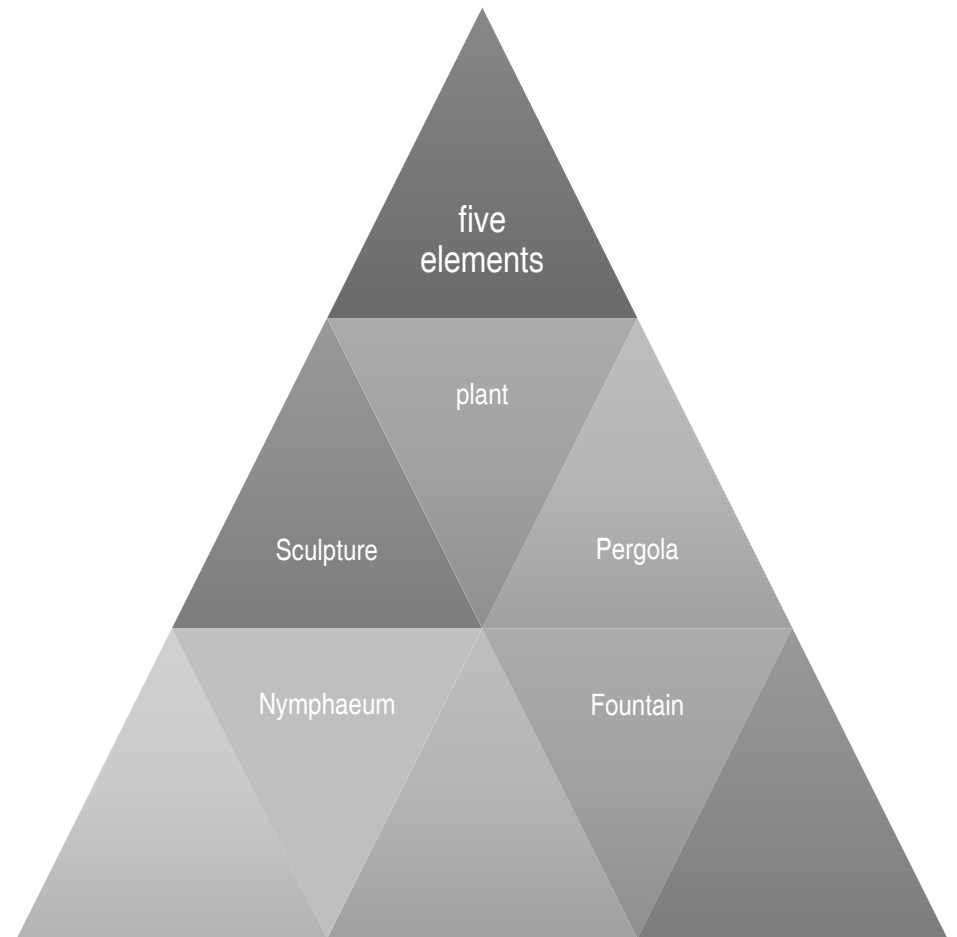


Figure 24
Villa Medici: Plan by John C. Shepherd (1925, p. 5).

3.3.The Elements In Renaissance Garden

The Renaissance universe is hierarchical, with God at the summit, human beings in the center, nature below and each part related to the other. The nature world was perceived in terms of its usefulness for human needs: plants and animals provide food and medicine. They also reflect human traits, virtues and religious. At the same time, the visible world corresponds with the divinely created cosmos, the microcosm reflects the macrocosm. Finally, some forces in nature can be manipulated and controlled to benefit human life, while other remain uncontrollable. All these aspects of mankind's relationship with nature were exhibited in Renaissance gardens, in the plants, design and sculpted ornament, but also in earth-moving, hydraulics and water-power devices.



3.3.1. The Plants In Renaissance Garden

In Renaissance garden, to create a kind of harmony, the architect use architecture to imitate nature and use nature to imitate architecture. The plants can also be called green sculpture in the garden, which is an important element to be used to imitate architecture. They were trimmed into regular shapes. Different shapes have different meanings. In Villa Gamberaia the cypress hedge was designed into a semicircular shape with openings towards the landscape to imitate the theatre. In Giardino Giusti, the Cypress was used to imitate the columns in sequence. In Villa Lante, between the two loggias on the highest level the plants were used to imitate part of the niches where the water comes from. And around the Fountain of Air the shrubs were used to present the feeling of carpet.

This method is quite common in the Renaissance garden especially in the lower level of the terrace garden because the beautiful pattern could be seen from the upper level.

Through the study of the plants and to understand the meanings of them we can find that in Renaissance garden the architecture and the plants has a strong relationship , we cannot just treat plants as landscape or only artificial nature but to understand them in architectural meanings.



Figure 25: Plants as theatre



Figure 26: Plants as column and basement



Figure 27: Plants as niches



Figure 28: Plants as pavement (carpet)

3.3.2. The Sculptures In Renaissance Garden

In Renaissance garden, if the plants and the buildings create the space and nature then the sculpture is the actor and spirit of the garden. There are many types of sculptures in Renaissance garden to represent animal, human body and gods and so on. All the sculptures have a certain kind of symbol such as the daily life of noble man or symbol of the scenes in heaven. It helps to strengthen the topic of the space to amplify the feelings.

In Giardini di Boboli, the sculptures are placed around the theatre and facing the central Obelisk which guide people to focus the central. In Giardino Giusti the sculptures are placed inside the green maze attracting people to see and discover.

In villa Farnese, the sculptures represent the servants of the water god with flower basket on their heads. With the sounds of the water it looks like the sculpture are whispering which gives life to the garden.

In the Giardino Bomarzo, the garden ran counter to the aesthetic of the times, which was characterized by rational order, geometry, broad terraces, fountains and Mannerist sculptures. The sculpture is the way the artists use to give meaning to the space. Without sculptures the artificial nature will lose vitality the space will lose its topic and spirits.

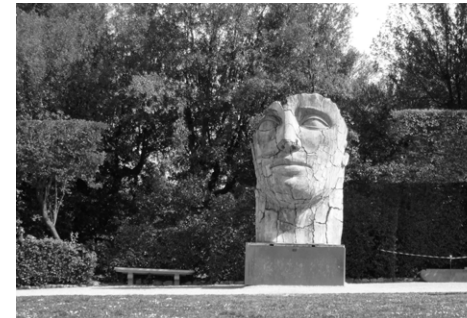


Figure 29: Sculptures in Giardini di Boboli



Figure 30: Giardini Giusti



Figure 31: Villa Farnese

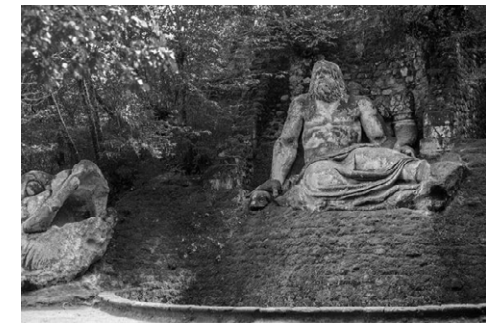
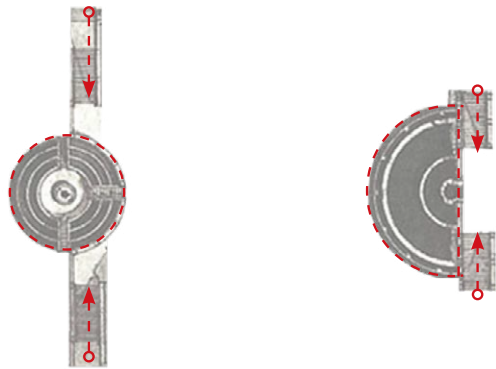


Figure 32: Gardens of Bomarzo



Fountain with staircase

3.3.3. The Fountain In Renaissance Garden

In Ancient Rome, fountain is the source of the water for the city connected with the water supply system which has a significant meaning for the city and people. It is always designed in the topic of god to represent holy and purity.

For Renaissance garden, as Alberti suggested in his book, the fountain is in the center of the garden. Like its position, fountain plays an important role.

In villa Lante, there are four different level of terrace. On each terrace there is one topic represented by the symbol of the fountain. From the first level to the last level the fountains represent air, fire, earth and flood respectively. The most interesting thing is that the staircase which connects different levels, has a strong relationship with the fountain, especially for the second level and third level, the staircase is above the fountain at the backside.

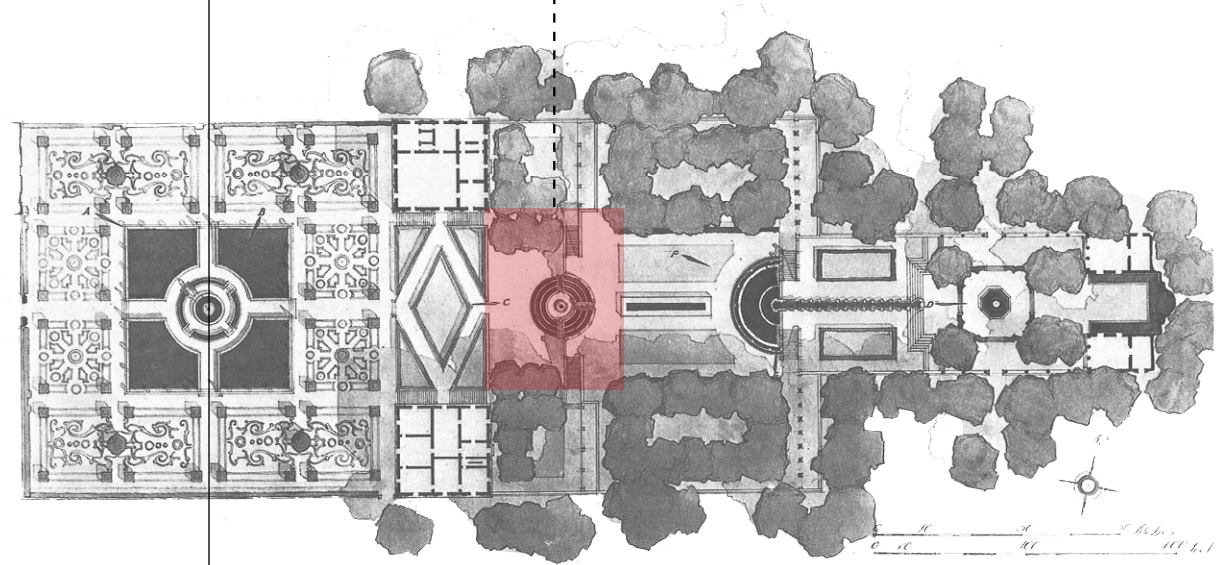


Figure 33: Villa Lante: Plan by John C. Shepherd (1925, p. 26)

Figure 34: The fountains representing four elements in Villa Lante, section by John C.

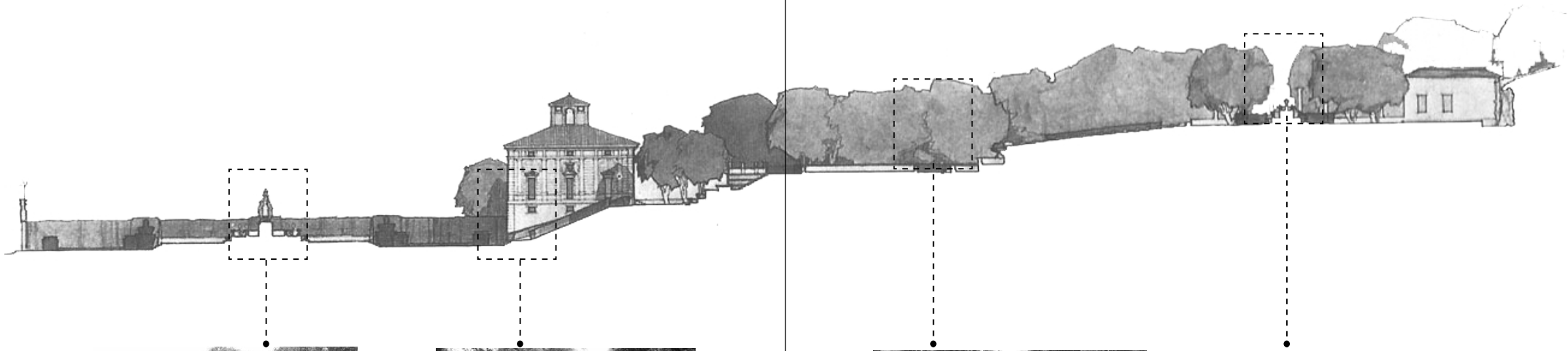


Figure 35: Fountain of air



Figure 36: Fountain of torch



Figure 37: Fountain of earth



Figure 38: Fountain of flood and dolphin

3.3.4. The Pergola In Renaissance Garden

Pergola was a typical garden structure that combined both utilitarian and aesthetic functions: support for climbing plants, shelter from the sun, visual focus, and a way-finding marker. The significance of the pergola lies especially in its space-making quality, a semi-indoor space in the midst of the garden. The subsequent appearance of the illusionistic pergolas denotes the ambiguity and ambivalence of the interpenetration of indoors and outdoors, and reveals an interest in a more sensuous experience of nature and a scientific understanding of the natural world.



Figure 39: Interior of a typical Pergola

<PhD dissertation of Natsumi Nonaka, School of Architecture, University of Texas at Austin>

From the paintings of Villa d'este and Villa di Medici we can find that the pergola is something between the architectural construction and nature. It follows the existing path of the garden and the axis. More interesting thing is that for the both cases the middle part of the pergola is highlighted which seems to be the place where people can stay.

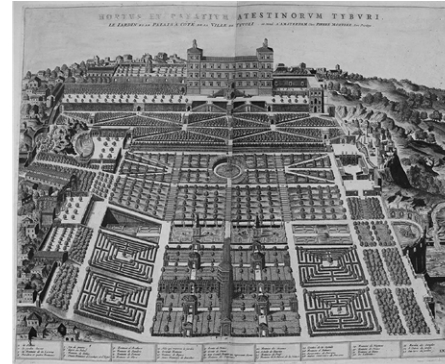


Figure 40: Villa d'Este

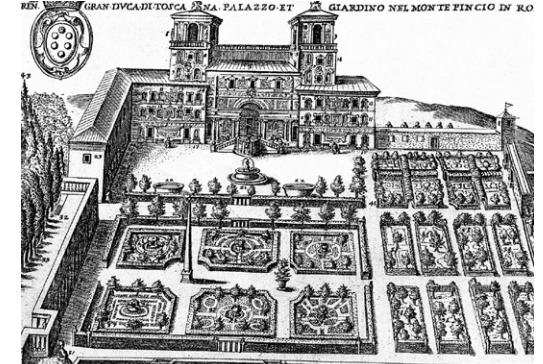
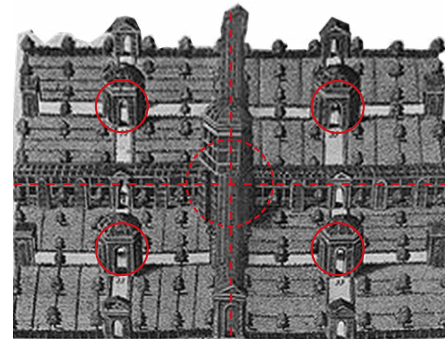


Figure 41: Villa Medici



3.3.5. The Nymphaeum In Renaissance Garden

A nymphaeum or nymphaion, in ancient Greece and Rome, was a monument consecrated to the nymphs, especially those of springs. These monuments were originally natural grottoes, which assigned as habitations to the local nymphs. They were sometimes so arranged as to furnish a supply of water, as at Pamphylian Side. A nymphaeum dedicated to a local water nymph, Coventina, was built along Hadrian's Wall, in the northernmost reach of the Roman Empire. Subsequently, artificial grottoes took the place of natural ones.

Where High Renaissance art emphasizes proportion, balance, and ideal beauty, Mannerism exaggerates such qualities, often resulting in compositions that are asymmetrical or unnaturally elegant such as the two Nymphaeums in Villa Giulia and Villa Barbaro, each statue is in a different state with different expressions.

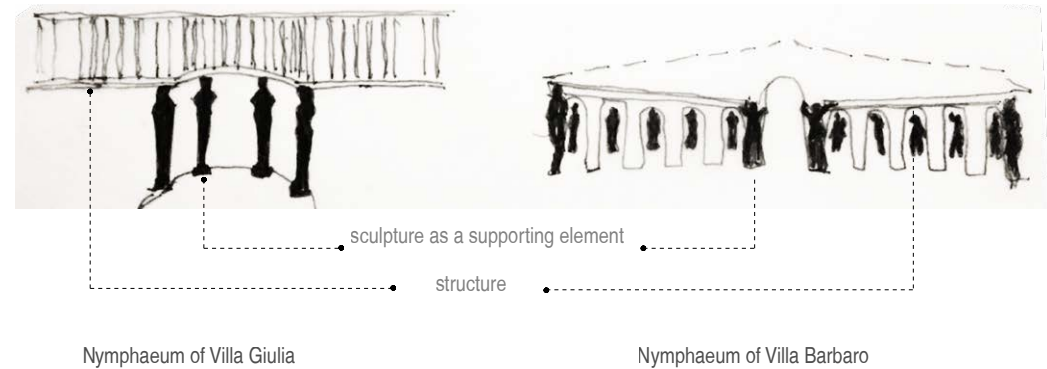
From the images we can see that the supporting elements of the Nymphaeum are the statues. In this way the statue plays a role of structure also gives the Nymphs habitations sense of holy and mystic.



Figure 42: Nymphaeum of Villa Giulia

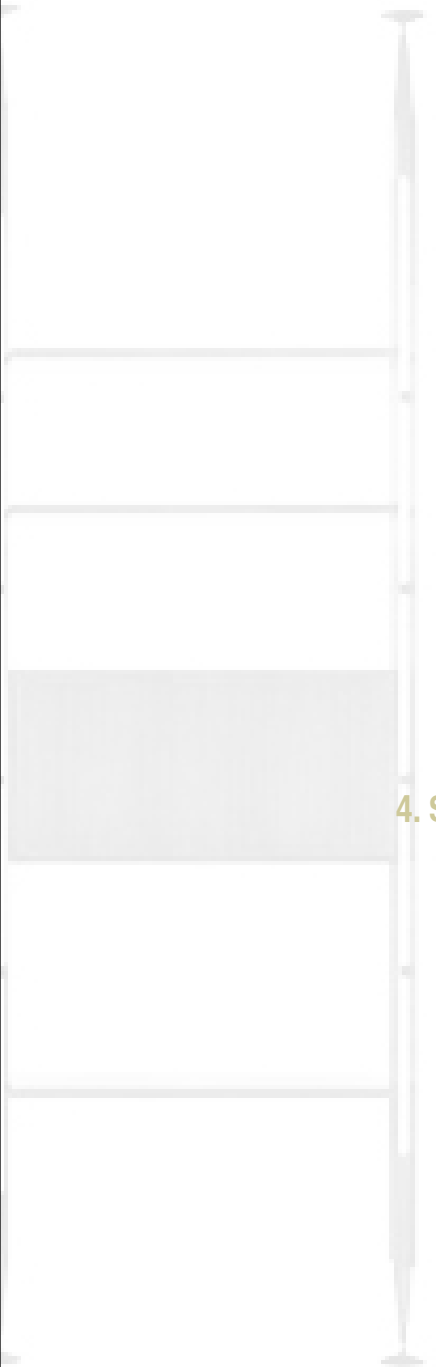
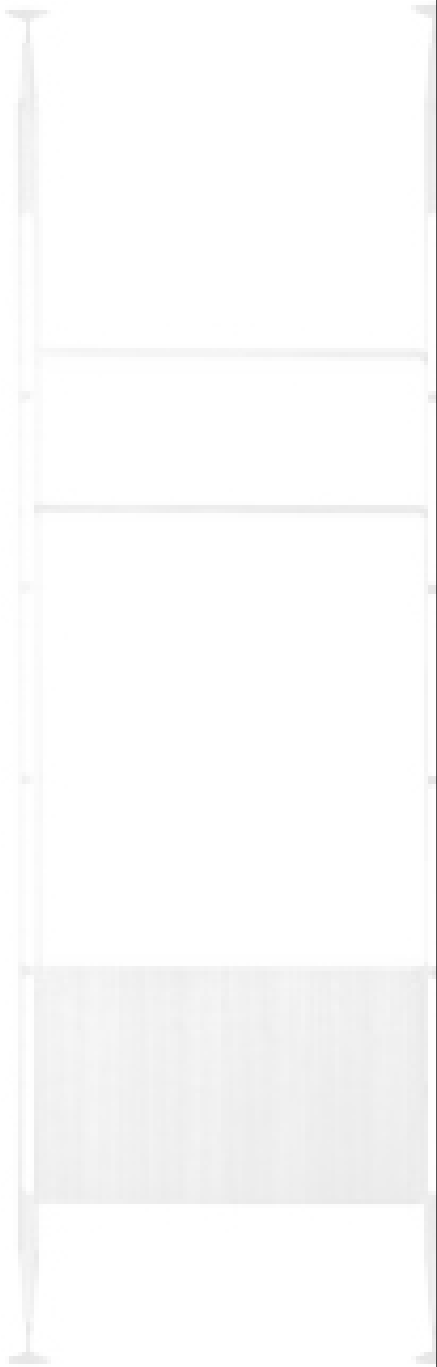


Figure 43: Nymphaeum of Villa Barbaro



Nymphaeum of Villa Giulia

Nymphaeum of Villa Barbaro



4. STUDY CASE OF TEMPORARY EXHIBITION



4.1. Case study 1

Castelvecchio museum, Verona
Carlo Scarpa



Figure 44: View of the connection part between the two volumes of Castelvecchio



Figure 45: The suspended exhibition of Castelvecchio



Figure 46: The installation inside the museum

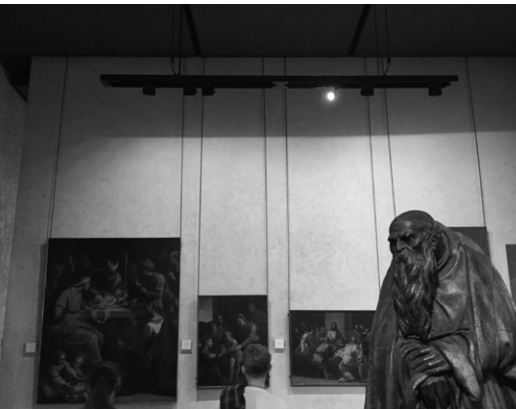
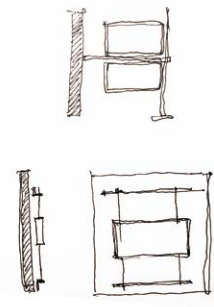


Figure 47: The exhibition of the paintings and sculptures



Fragments as connection



Installation as connection

Detached Connection

Castelvecchio museum is a restoration work from Carlo Scarpa. The old castle is destroyed partly because of the post world war. The main feature of the restoration result is that we can read the old part and the added part very clearly.

One reason is the difference of the material: the old brick against the concrete and the metal. Another reason is that the connection way between the old part and the new part. From the outside (Figure 44), we can see that the two volume are detached, the only connected part is the bridge. However the rest part looks like reaching each other, all the elements of the building and the exhibition are displayed isolated, and there is a gap between the old volume and the new. From the inside, because of the light and suspended installations, the exhibitions is also detached from the building. And there is also a gap between the new pavement and the old wall.

In this way, the old context is well protected while the new exhibition is also well organized. They share one space without touching each other.

4.2. Case study 2

The Sculptural exhibition In Gallerie d'Italia di Piazza Scala, Milano



Figure 48: The Cracking Art In Gallerie d'Italia di Piazza Scala, Milano



Activation by exhibition

Exhibition as a method to activate the garden

Cracking art is an attempt to connect common reasoning to individual meditation, creating installations with animals that appears unexpectedly in everyday places. The surprise of seeing an ordinary subject made extraordinary through its supersize, vivid color and form, attracts the attention of passersby, inviting people to reexamine their perspectives on urban life.

The installations in the garden of Gallerie d'Italia exaggerated the figure of animal in size, color and form. In this way, artificial lives and nature are brought into the garden. It is no longer a garden which is enclosed by modern architectural elements but with the joy of magic and life.

The exhibitions and the site are perfectly combined as the garden supply the animals with environment, meanwhile the animals can give life and joy to the garden.

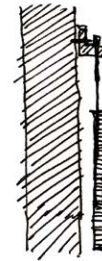
4.3. Case study 3

The intervention of Palazzo Rosso, Genova
Franco Albini



Flexible, light, suspended installation

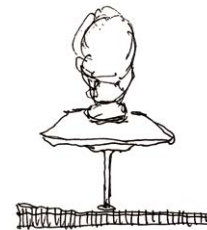
The first objective of the designer was to display the palace itself, a great baroque monument, restoring it to its original state, and also enhancing it through interventions. In the presentation of the works of art, a thin, light and flexible metal installation is used to provide the largest possibility of exhibition and protect the context (historical building) as much as possible.



Installation as connection

Restoring the building to its original integrity, renewed the fluidity and continuity of internal spaces which are the splendid feature of this monument of the Genoese baroque.

The lighting of the works is regulated by spotlights suspended with an angular metal arm from a bar that runs along the springer of the vaults. Some lamps are double, with one reflector facing the vault, the other to the painting. With this unique system the lighting and the hanging of the paintings are resolved in every room. The space of the palace and the art items are in one harmonious relationship.



Installation as connection

Figure 49: Exhibition of Palazzo Rosso, Interior photos taken by the author.

5.CONCEPT AND STRATEGY

The problem of the current situation



Figure 50: barricades in the Giardino dei Semplici



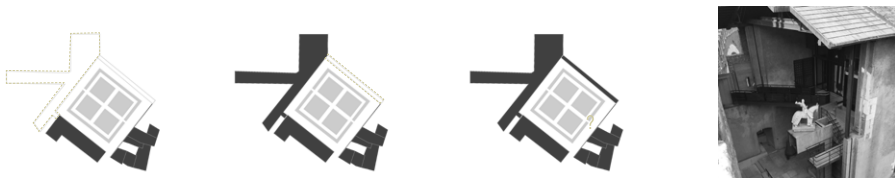
Figure 51: Existing situation of the Entrance view at Giardino dei Semplici



Figure 52: Existing Situation of Restored portico

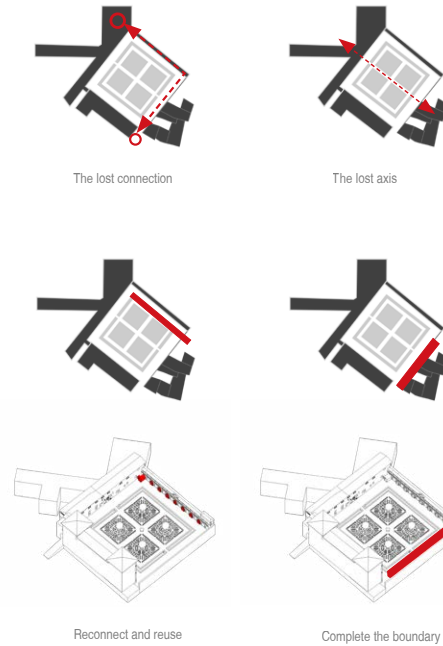
Currently the Temporary exhibition takes place in the "Galleria della Mostra" and the entry route for the Exhibition starts from Giardino dei Semplici. The existing entry way is blocked by the trees which lacks the guidance for the visitors. The abandoned porch lost its function and the Renaissance garden is not allowed for visiting, hence the visitors cannot enjoy the geometrical pattern of the garden. Therefore the design proposal is focused on the "Reborn of Giardino dei Semplici".

The current way of connection

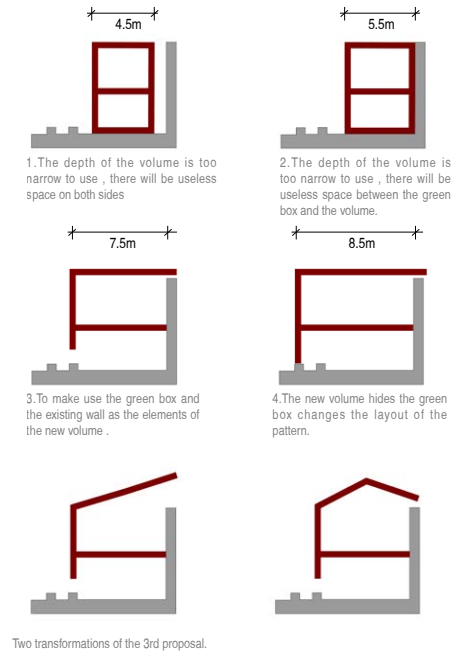


The old way of connection is a vertical way from one volume to another. Therefore the new volume should also be vertical to the portico. But not like the old way, Carlo Scarpa's solution in Castelvechio is more interesting in which he keeps the stratification of the history.

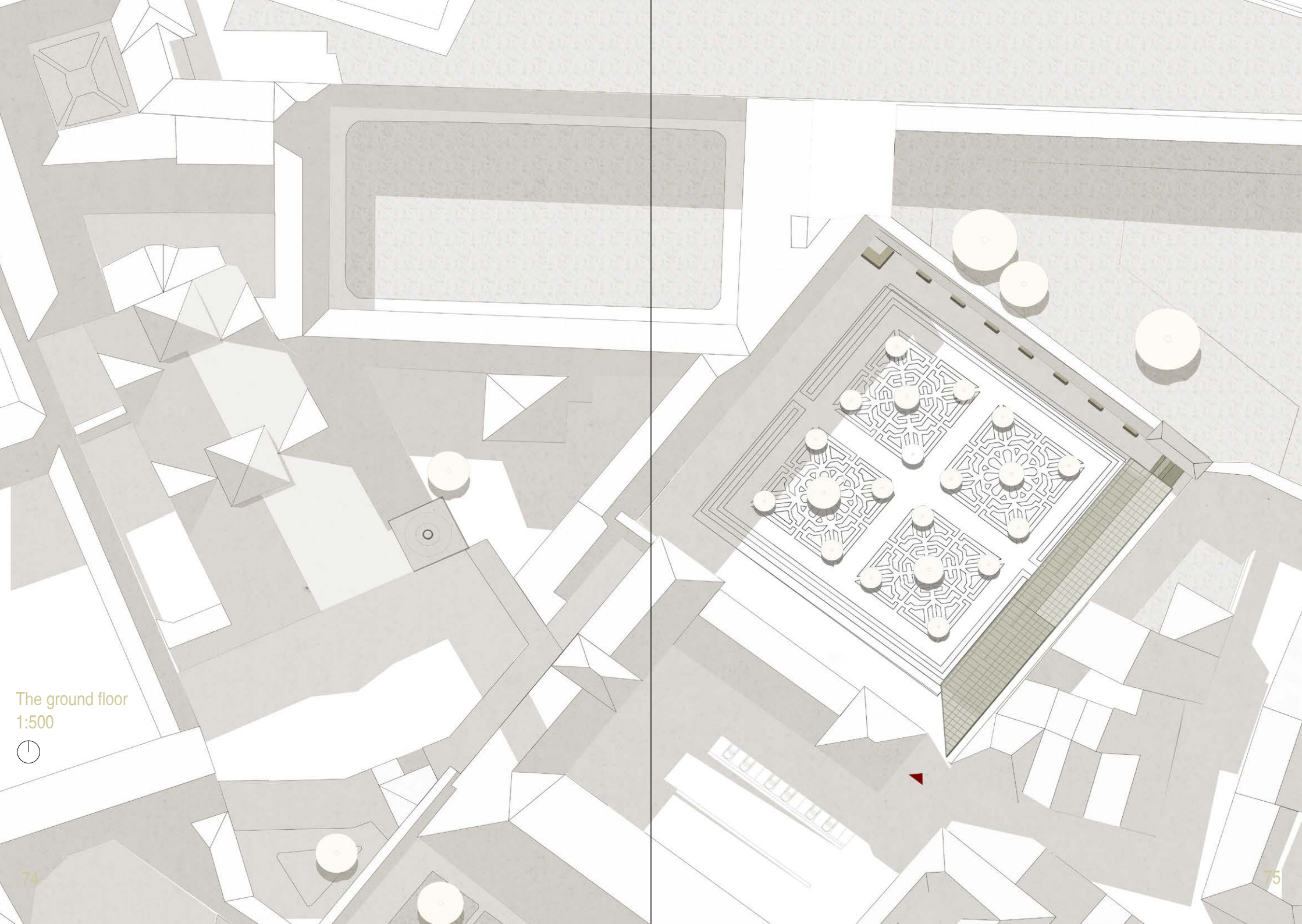
Strategy on the plan



Strategy on the section



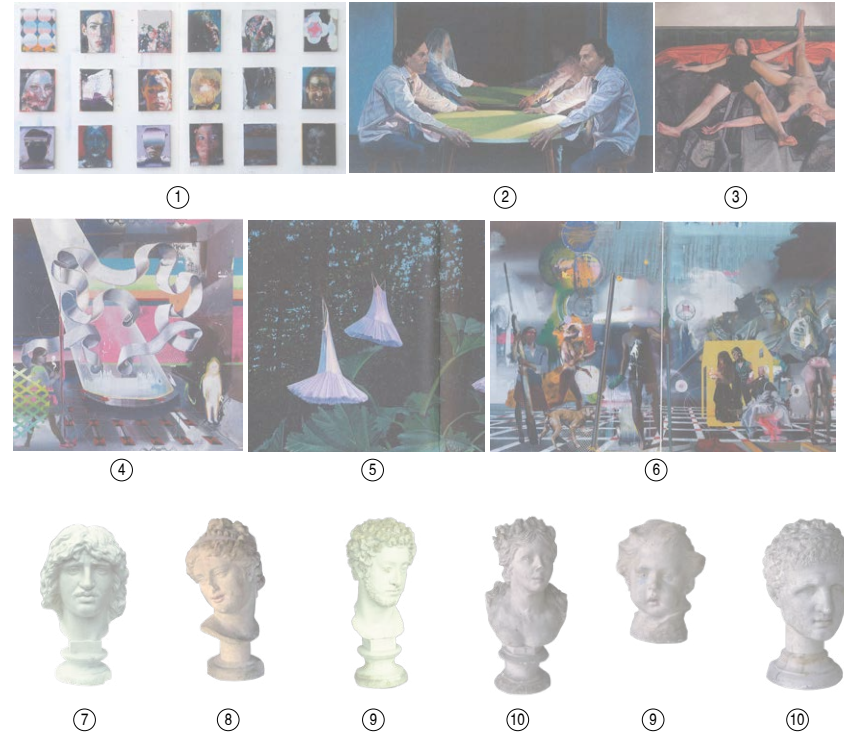
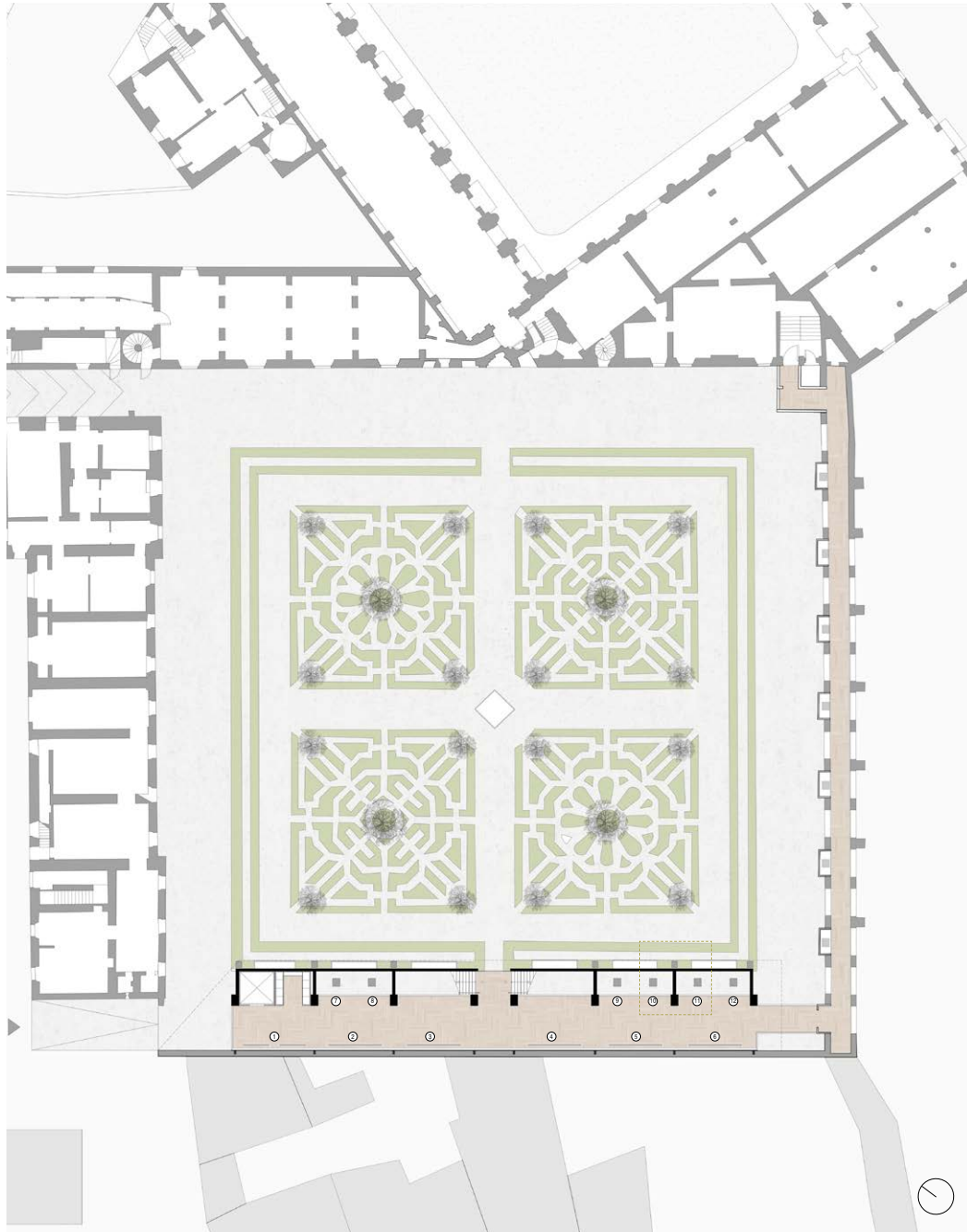
6. PROPOSAL AND TECHNICAL DRAWINGS



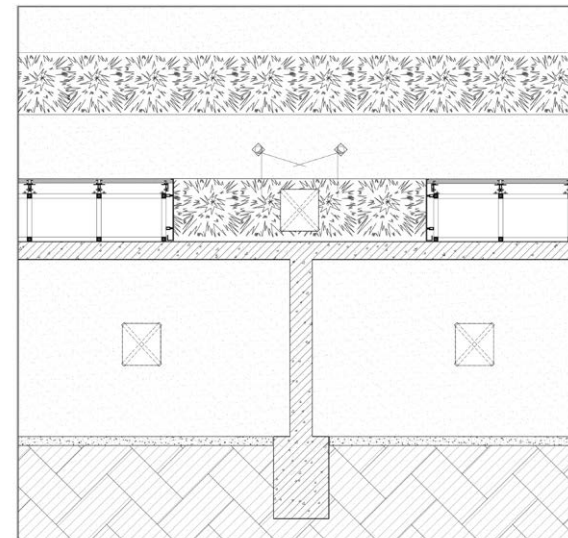
The ground floor
1:500



The ground floor
1:500



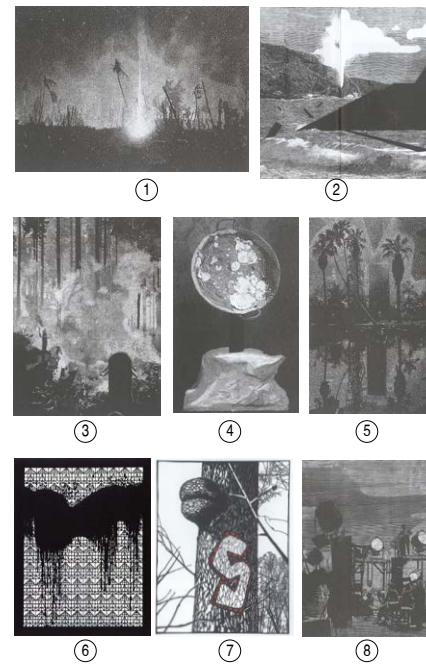
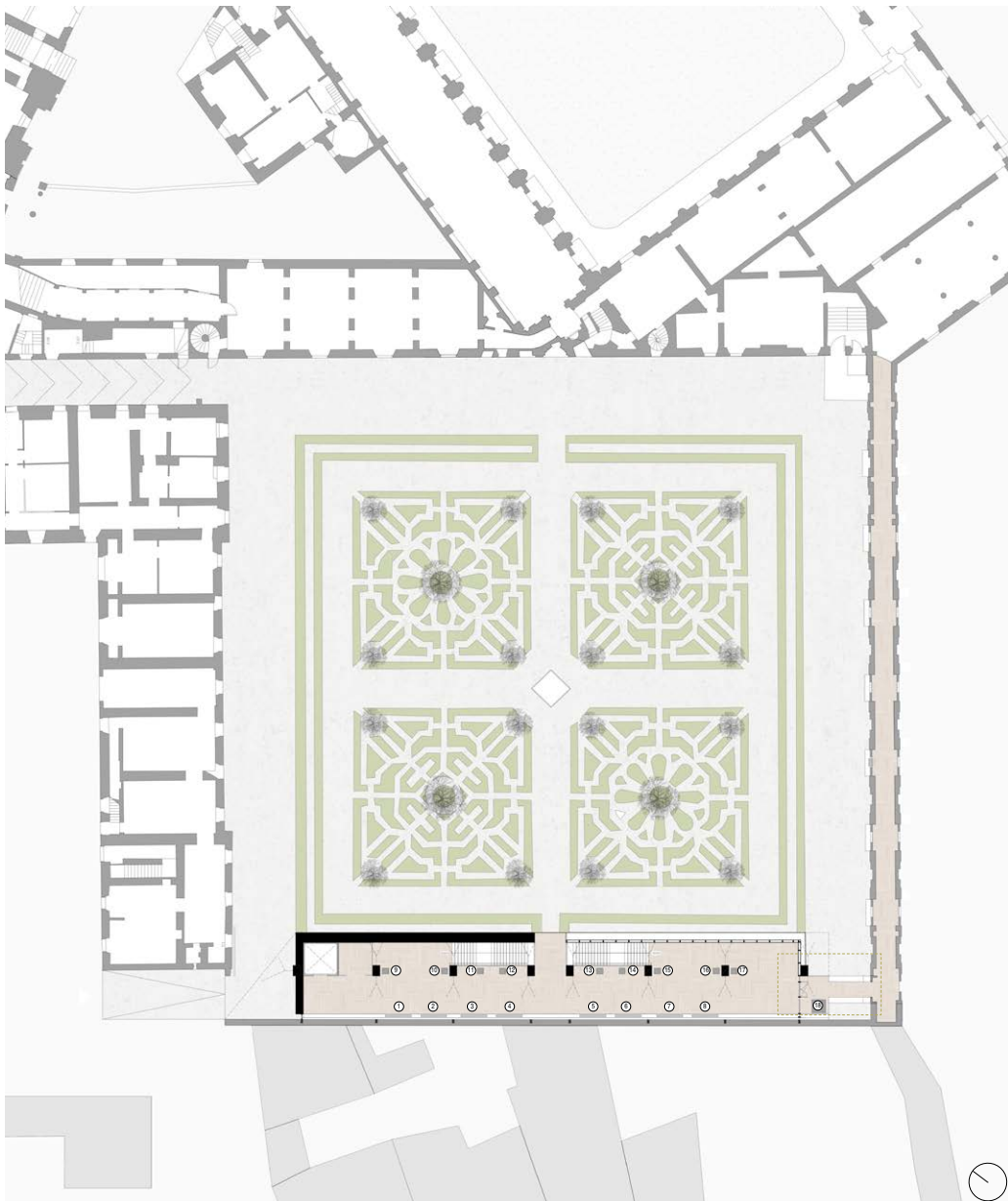
The enlarged plan 1:100



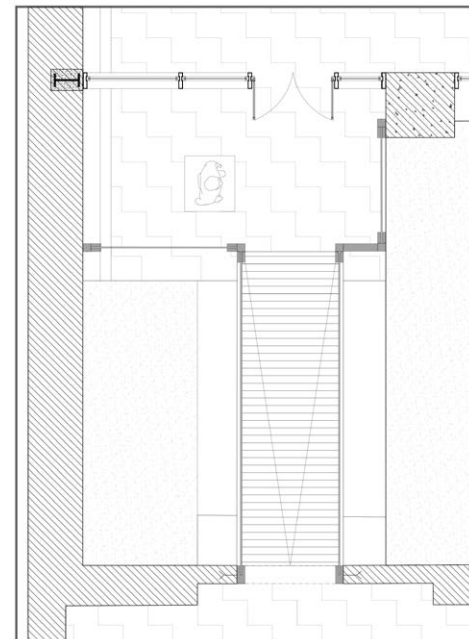
Exhibition of the ground floor

The exhibition are held on both sides of the passage. The topic of the exhibition are about humanism and nature which can be a method to activate the atmosphere of the historical garden. The painting are exhibited on the existing wall while the sculpture are placed in the bay between the structures.

The first floor
1:500



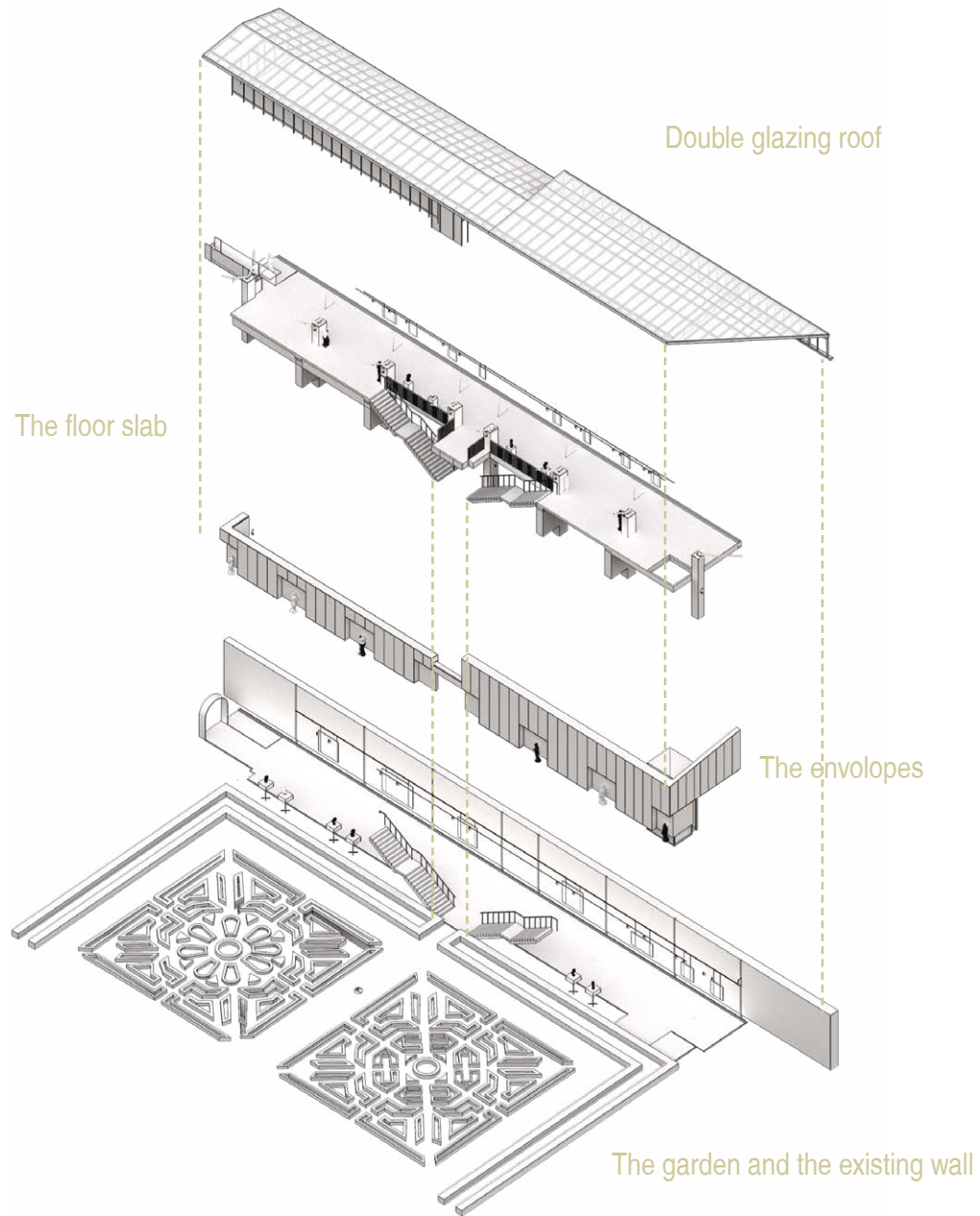
The enlarged plan 1:100



Exhibition of the first floor

The exhibition topic is about nature and humanism. On the existing wall the paintings in black and white are exhibited on the installation of the wall. The sculptures are in front of the columns, the structure are used as a background. The sculpture are places towards the direction of the paintings to create a dialogue between the exhibitions.

Axonomic view



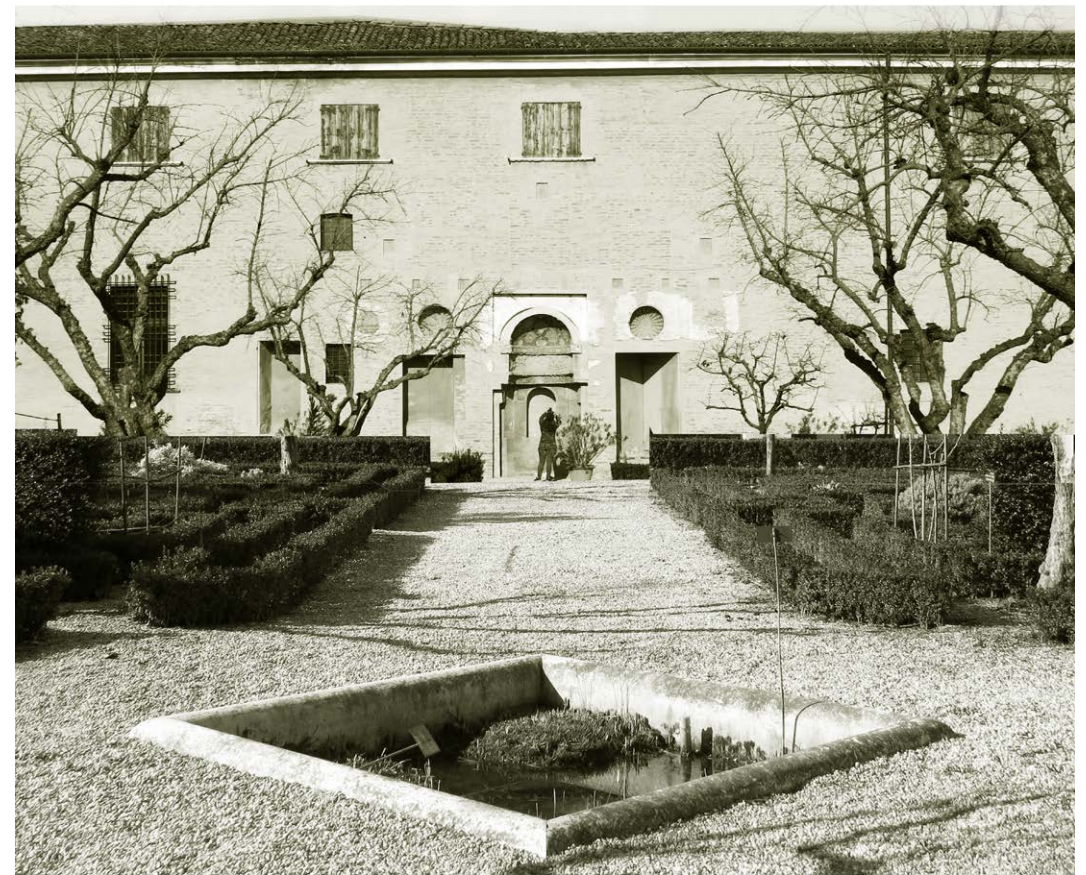
The Facade Towards The Courtyard



The New Entrance Towards The Courtyards

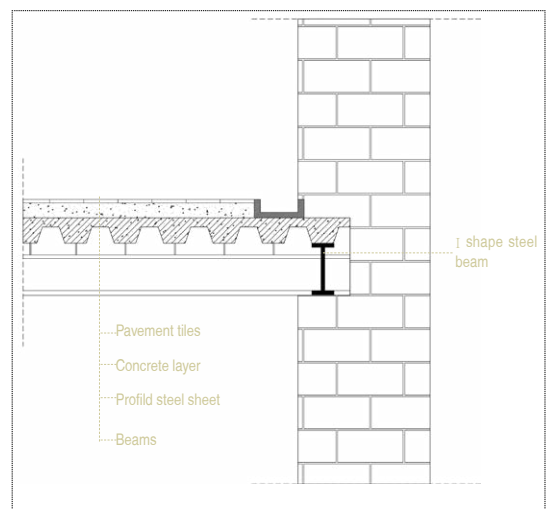
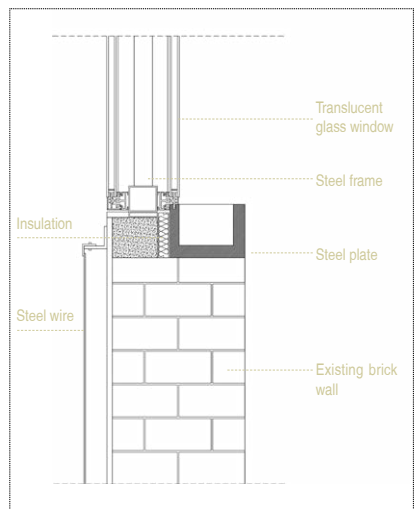
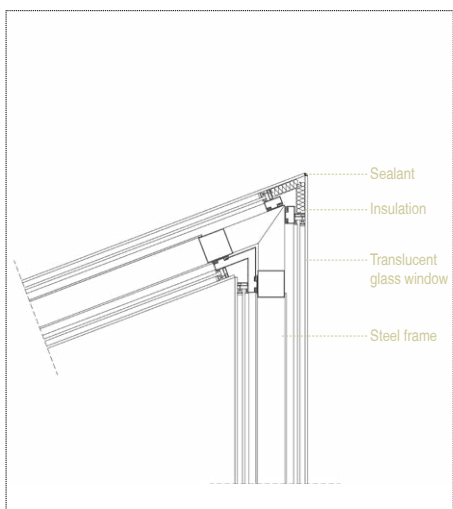
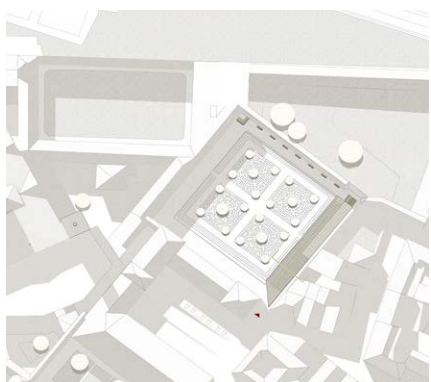


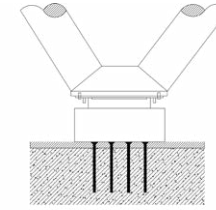
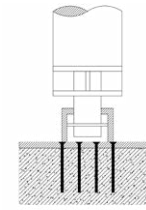
The Old Entrance Towards The Courtyards





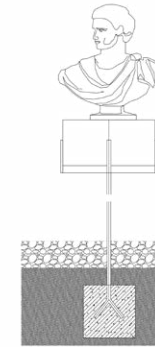
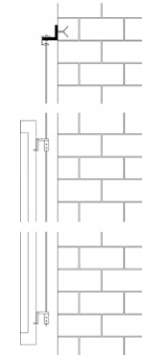
The Facade Towards The Courtyard



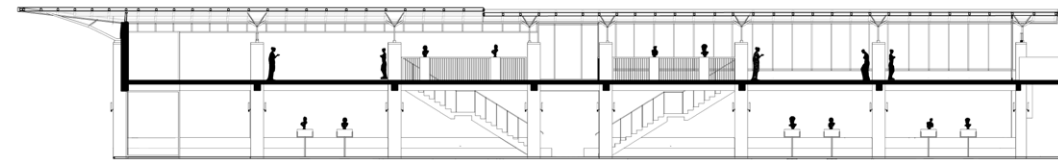


Connection between column and roof

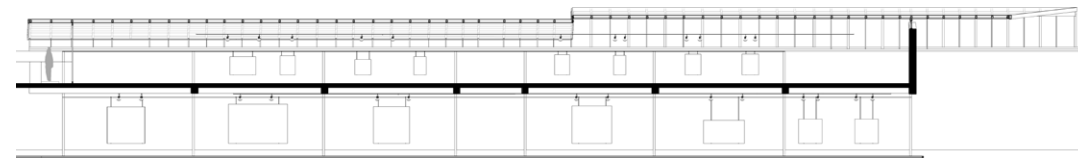
The column is heavy in a large dimension to give a feeling of a continuity with structure of the old porch. But the roof needs to be light and transparent for the exhibition.



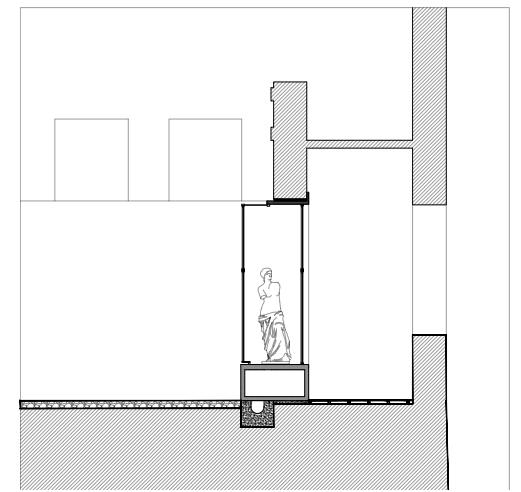
A steel structure placed on the top of the concrete columns plays the role to connect the light roof and the heavy columns.



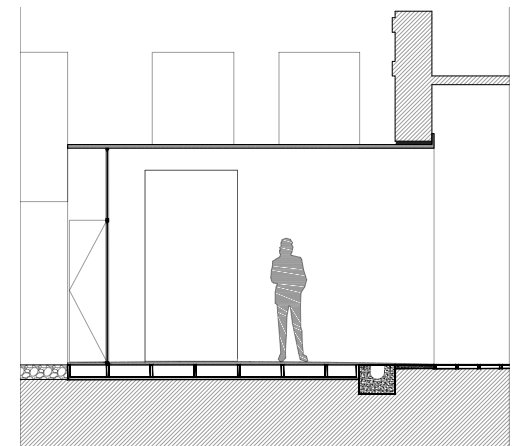
Longitude section 1:500



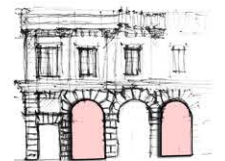
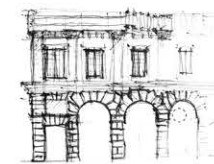
Longitude section 1:500



Exhibition box , Detailed Section



Inserted entrance box , Detailed Section



c) In the portico of Giardino dei Semplici we can see the influence of Mannerist architecture in the facade, where Viani designed the facade with the three dimensional element respecting Giulio Romano style.

d) Proposed metal display box protruded from the surface to enhance the depth of the mannerist facade



7.THESIS CONCLUSION

The whole project is in a historical context, the important thing of this project is to achieve a kind of continuity in terms of the uncompleted courtyard. When the new volume is placed inside, the original idea of the context is strengthened because the new volume recovers the past axis of the garden and also improved the function of the whole existing museum system.

A special treatment for the green box is not only a creation for more width of the section but based on the knowledge of Renaissance garden. In Renaissance garden the green box can be played as architecture elements such as niches or carpet and so on. Therefore the green box is used as the new basement of the project. Not only can the existing wall be used as one part of the new building but also the plants. This concept can be reasonable in a Renaissance garden. The whole concept of this modern design is totally from the knowledge of the past.

In Mantova campus, all the projects are in a historical context. Before design, it is important to study the knowledge of the past, in this way we can find a reasonable solution for the project. So the history is not only a document but also can be a tool or in another word a kind of resource of the idea. From the 2-year study in Mantova campus, I begin to understand why history is important for the project in a historical site and also begin to use history as a design trigger and also a weapon to solve the problem on the site. It means a lot to me for my career.

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9. Sitography

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9.1. For general references:

- <http://www.archdaily.com/>
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