

Picturesque Garden Design in Early 18th Century

The Stourhead

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Abstract—Stourhead is one of the representatives of the early 18th Century "picturesque" gardens, this paper discusses the Stourhead in the different historical period since 18th Century, and described picturesque garden's essence such as space structure and art strategy. This paper introduced the space syntax for spatial data calculation of traditional natural landscape garden for the first time, interventional comprehensive interpretation of "picturesque garden" landscape gardening and designing ideas by reading the traditional gardening means and modern analysis technique.

Keywords—*picturesque gardens; stourhead; gardening history; space syntax; spatial structure; art strategy*

I. INTRODUCTION

In the 18th century, Britain got rid of the impact of garden trend of European continent, based on the local culture, and opened an era of unique English landscape garden.

According to the differences between garden-making techniques and theories, the English landscape garden style in that period is divided into two factions: the first is Lancelot Brown as the representative of the "manor ranch" style, the second is the "picturesque gardens" style, in the late Chambers William and others as the representative, they advocated drawing on the theory of painting for artistic processing of nature. After this the eclecticism landscape gardener, Humphry Repton, critically inherited the style of Brown and absorbed the idea of "picturesque garden". English landscape garden is probably evolved in the two shift in style. The spread of "picturesque ideas" and the development of "picturesque gardens" promoted the maturity of the British garden art.

In 18th century, the amateur gardening enthusiasts played a very important role in practice of "picturesque garden"; most of them are manor owners or ranchers. These new nobles and agricultural assets who were influenced by enlightenment thought and had very high cultural upbringing began to build gardens as their wishes in their manors. Stourhead is a typical landscape work which built by non-professional landscape gardener. The banker Henry Hoare II (1705-1785) used the terrain of site, hydrology and vegetation as the basic framework to design the garden.

Stourhead's area is about 1072 hectare, including pasture, grove, grassland and Stewart River originating basin; the main

part of the garden located in the southwest of Stourhead, and the area is only about 10 hectares.

II. HENRY HOARE II GARDEN DESIGN "STONES FROM OTHER HILLS"

Henry was influenced by other landscape gardener at that time, including the most representative professional landscape gardener William - Kent, and architect Henry Felego. William Kent, who was a painter, made perspective, light and shadow and other parts of painting be involved in the garden-making. He is the first man to make picturesque play an important role in garden practice. Kent's works Cheswick, Stowe, Rousham had finished before starting to build the Stourhead. Its design method of "picturesque gardens" influenced Stourhead.

Felego and Kent were employed by Lord Burlington, Felego was Kent's apprentice and also partner. When Kent died, Felego became the architect of Burlington family. In 1744, Felego was employed by Henry, became the architect of Stourhead. Because Felego worked with Kent a long time, he was affected by picturesque style and played an important role in the style formation of Stourhead and garden construction.

In addition to the Felego and Kent, Charles Hamilton, the owner and designer of Painshill, and William Shenstone, the operator of Leasows also affect the practice of Stourhead as Henry's friends and partners. The layout structure of the road connecting with scenic spots in Leasows continues to be used in Stourhead.

III. THE HISTORICAL ACCUMULATION AND STYLE EVOLUTION OF STOURHEAD

Before 18th Century, Stourhead belongs to the local Stoughton family. In 1717, Stourhead is sold to London banker Henry Hoare I. 2 centuries later; Stourhead is more beautiful than that time.

A. During the Period of Henry Hoare in Charge of Manor (1717-1725)

Henry Holzer I did not focus on the garden construction, only the reconstruction of mansion. The Palladian architecture designed by Colen Campbell replaces original mansion of Stoughton family. In 1722, the plan of Stourhead shows the

landscape pattern at the time; the 5 dams that along with Stawell Rive is the rudiment of lake landscape in the future “Fig. 1”.



Fig. 1. Manor plan in 1722

B. Henry Hoare II Landscape Construction Period (1725--1785)

In 1725 Henry II inherits Stourhead, mainly garden-making activities concentrated in 1741 when Henry ends Italian trip returns to the manor. Before that his only garden-making behavior is increasing the fir footpath in the west of the building in 1733. Today, the fir trees in the forest forms a perspective line with 400meterslong and 14 meters wide, the focus of attention is the 50 meters ancient Roman obelisk which stands on the ridge. Fir footpath uses his tensive perspective effect to emphasize the sense of ritual in space; the exaggerated grand axis scale makes a strong visual shock and solemn atmosphere andsalutesto the classical garden style legacy and honor “Fig. 2”.



Fig. 2. Fir footpath

In 1741, Hoare Henry II began to design the manor and created a landscape. Intercepting Stewart River is the main method to effect garden pattern, and the nearly triangular main lakes formed the garden core; In the later 50 years, garden owner arrangessome garden buildings and sketches designed by Felego along the banks of the river, such as Flower Temple, Pantheon, grottoes, the temple of Apollo, Abbey, Bristol Grand Cross and so on,and according to the counterpoint relation, puts them on the sight focus of perspective line, and provides a place to rest; in therounding lake area plays a role in the finishing touch.After 1765, he adds Palladio Bridge, Gothic greenhouse, Turkey tents and other elements of the garden. The garden path around the lake breaks the static characteristics of the garden, convert to dynamic journey through the geometry and scenography of the application, telling the epic Aeneid written by ancient Rome poet Virgil. With the touristsmoving, thebeautiful sceneries frequently come into the eyes of the visitors. The landscape elements guide visitors view across the lake and focus on specific points, it just like a picture that the grove is behind and the water is front, and then the space perception of "picturesque garden" forms.

In planting scheme, Henry is committed to create the effect of contrast of light and dark patterns, plant beech and fir to transform the terrain.And the wooden landreplaces the idyllic pastoral scenery, and later planting cedar, ,Chinese cypress,needle juniper, and other evergreen treesto create a conifer dominated landscape atmosphere.

C. Richard Colt Hoare Landscape Transformation Period (1785--1831)

In 1785, Henry II delivers Stourhead to his grandson Richard Colt Hoare before he died.During this period, he increases the wings and rebuildbetween the garden and the Haha wall boundary and determines the main entrance and road leading to mansion.At the same time he also coordinates the lake landscape architecture layout, removeslandscape element that conflict with the overall style, such as Gothic greenhouse, Turkish tent, increases the Gothic porch and the seats of watching the idyllic landscape and some gravel path.

Colt introduces more kinds of plants, such as ornamental trees and shrubs,meanwhile, removes some fir trees and other evergreen trees in period of Henry II, replaced with beech, maple, tulip tree and lime and other autumncolored arbors.And in the early of 19th century he also introducesrhododendron and laurel.Because Colt Hoare attaches great importance to the collection and breeding of Pelargonium, had arranged several greenhouses to plant Geranium,in 1821, he has collected more than 600 varieties of geranium.Rich plant species makes this period of Stourhead vary with the seasonal color changes, breaking the period of Henry II plants monotonous colors, makes "picturesque" a more beautiful.

D. Henry Patriarch-based Management Period (1831--1964)

Kurt's half-brother, Henry Hugh Hoare, inherits the Stourhead. Then the manor was passed on to his son Richard Hoare Henry.

In 1857, Henry Hugh Hoare's nephew, Henry Ainslie Hoare takes over the manor. And in the early of 1860s, according to Colen Campbell's original architectural design scheme, he increases the architecture colonnade, rebuilds the obelisk, at the same time, and introduces the new ornamental plant. In 1894, after the death of Henry Ainslie Hoare, his cousin Henry Hoare succeeded him in charge of the manor. And he increases the ornamental arbors and shrubs of the edge of the lake and a Pine Garden in northwest of lake.

E. National Scenic Spots and Historic Sites Trust Management Period (1964 - now)

Because Henry Hoare lost the only heir in the first war, he donates his houses and most of garden to the world's largest World Conservation Union and eleemosynary corporation, Britain National Scenic Spots and Historic Sites Trust Management, and then the Stourhead is opened to the public. From 1950s to 60 years, the focus of the management of the garden is the collection of plant varieties. In 1973, the protection of the heritage of the overall scene begin to be valued, for this purpose, the National Trust appoints a committee for the eighteenth Century landscape restoration and subsequent development of Stourhead to formulate a develop policies and plans. Today, the National Trust devotes to balance protection and promotion in management to convey the British history cultural heritage concept of "permanent protection for the national people".

IV. THE ART APPRECIATION OF STOURHEAD

In the Stourhead people can enjoy the picturesque scenery fused of poetry, painting, architecture, landscape and topography. As a plastic art, it is closely related to the poetry and painting art, and shows the idea of picturesque. At the same time, it has also become the source of the creation of poetry and painting, there are many works created about it, though pattern language to full of landscape design and form a unique aesthetic and gardening idea.

A. The Space Structure of Stourhead

The space structure of the picturesque garden is in accordance with the characteristics of the terrain, and the irregular form is used to give the complexity of space and the line of sight. It breaks the characteristic of taking in everything in a glance of pasture style garden; the tortuous garden path and the various vegetation make people feel different sceneries with moving.

1) Spatial Organization Analysis

Stourhead has both the segmentation and the connection in the space organization. The whole garden is divided into different space types by means of terrain modeling and plant enclosure. Each space has its own characteristics. In order to better analyze the spatial organization of Stourhead, based on the sensibility knowledge analysis of garden, introduce the space syntax as a quantitative analysis method, to seize the quantitative relationship between traditional garden-making means and modern analysis technique, build an intuitive bridge between the subjective sense of space and quantitative data estimates.

Based on the landscape characteristics and perceptual analysis, the part of the existing physical space partition of Stourhead is divided into seven sub space "Fig. 3", respectively are A. Entrance courtyard landscape area, B. Line of sight control landscape area, C. Pedestrian mall area, D. Six wells valley area, E. Rounding main lake landscape area, F. Turner's paddock Lake, G. Public building service area. Among them, A, B, C, E and G constitute the part of main excursion area of Stourhead, and D, F is the sights expand area of the garden.

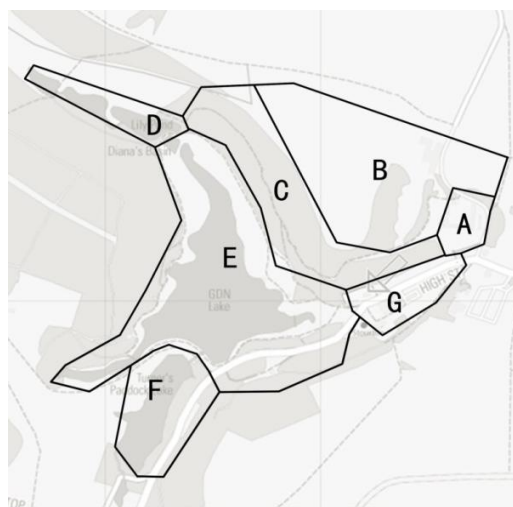


Fig. 3. Stourhead secondary landscape space divisions

The people's usual activity pattern in the space shows that the architectural and landscape elements are the main line of sight focus. In addition, the ways which must be passed between different spatial divisions are also more important node space. Regarding the various destinations that play the role of space control in Stourhead as abstract node. Blanking minor vegetation landscape elements, Stourhead's main tour region can be preliminary summarized on the grounds of the space group composed of 7 nuclear cells "Fig. 4". Each node gives the number, including six space link node, eight visual viewing node, and 19 entity landscape node.

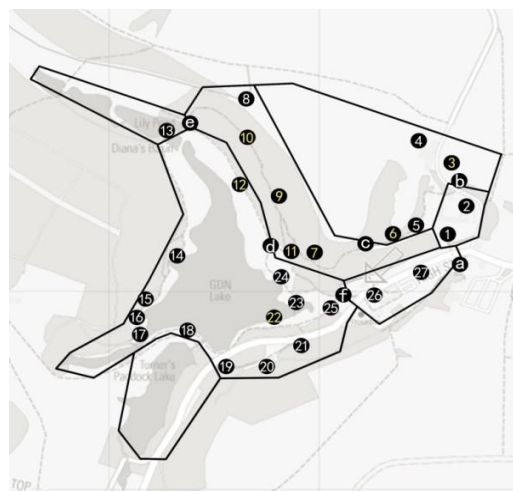


Fig. 4. Stourhead space nodes

2) Analysis of tour line

The path of Stourhead links sub-space and makes them connect in series. At the same time the node give rhythm for the tour activity. The garden path and a series of nodes attract tourists and bring satisfaction.

Abstract the relationship between the nodes as the path that the absolute length is 1. Ignored the characteristics of the spatial layout, according to the levels of path nodes to integrate tour line, and make the whole node space relation diagram that the external entrances and exits a is the starting point and the end point, and the topology shape is ring annular "Fig. 5".

The route of official guide manual of current Stourhead is formulated in line with the 18th century Henry Hoare II and guests daily tour route, covering in addition to node 8 (Obelisk) all entity landscape nodes, the route layout rationality is evident.

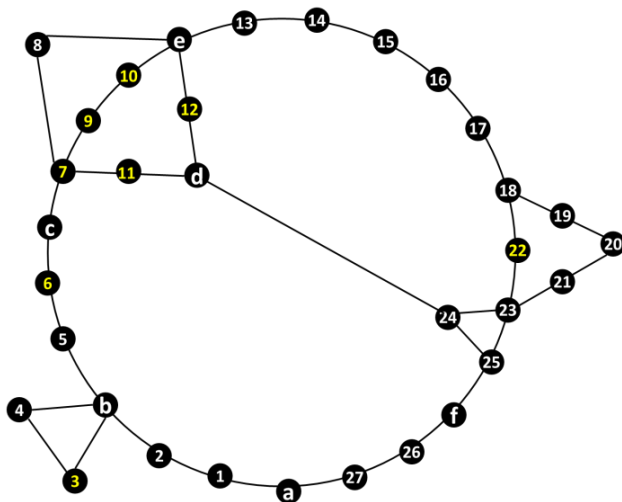


Fig. 5. Stourhead overall relationship diagrams

3) Sight control analysis

Many accessorial building and landscape elements are seamlessly arranged in visual contact constraints, through the plant cover and penetrate to make vision relationship be in by accident. From the view of the relationship between the lines of sight and be seen to analyze, each can be the center and constitute a complex network of sight. The whole garden layout and scenic spot show the unique ingenuity under the restriction of this invisible grid.

In order to introduce the space syntax to make view field diagram, first of all need to draw the scope of sight and main barrier, in process of analysis focus on the visual perception of outer space, extract, purify and simplify the landscape elements the effects spatial level and sense control "Fig. 6". Regard the sightseeing district of Stourhead as an analytical model with clear boundaries and interior partition. Calculate the index of connection degree, integration degree and important node depth value by Depthmap, in order to reasonably analyze space visual penetration, spatial dispersion polymerization degree, accessibility of node in the topological sense and other graphic elements.

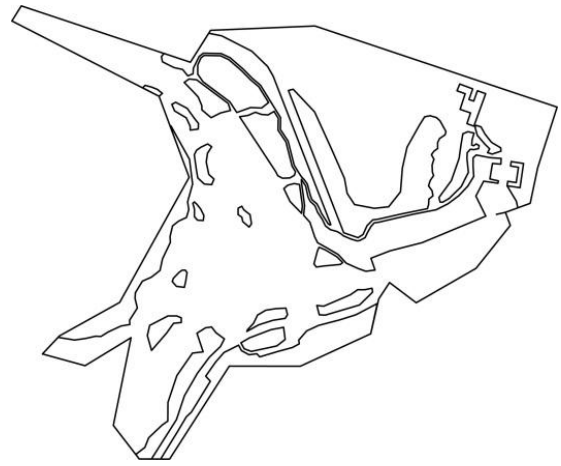


Fig. 6. Stourhead abstract boundary diagram

• Connectivity value

From the perspective of the whole space, the area with the highest visual connectivity value is the node in the south of main lake area in the E area, which is connected to F area, and the main lake area in southeast, connectivity value up to 6000. The area with the lowest visual connectivity value is the footpath in C, E and F area, and the especially reserved plant landscape space in B and C area "Fig. 7".

Most of the tourists visit the garden in accordance with the A-B-C-E-G. There is a hypothesis that the space with a high connectivity value has a strong visual perception stimulating, in the space with a low connectivity value, because visitors cannot understand the whole spatial form, it has a weak visual perception stimulating. So the order of visual perception of the whole garden is weak – middle – weak – strong – middle. The area with the highest connectivity value is not the first space from the entrance, and it is in the middle E area. The sequence shows, in the process of visiting garden, space creating affects the mental feelings of people, forms a rich rhythm changes.

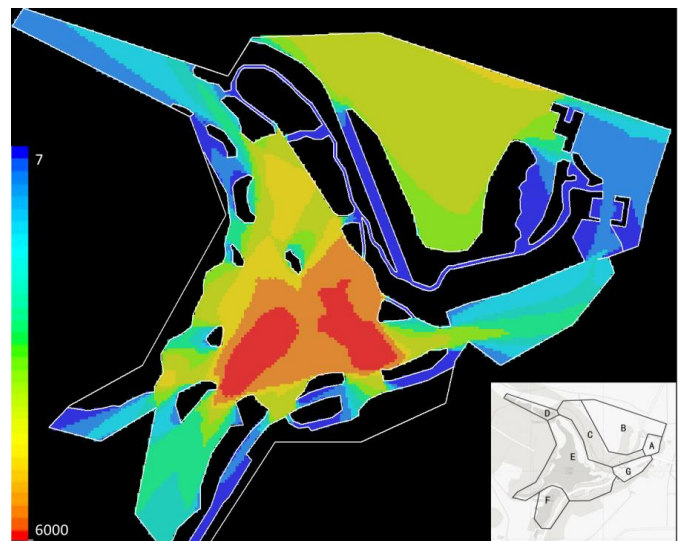


Fig. 7. Integral connectivity value diagrams

- Integration value

Data results show that the highest internal integration value of Stourhead is the lake surface in the south of E area and the main passageway that is the connection point of A area and G area connect, the maximum value reached 982. And the minimum value is 2.04; it located in the footpath in C area “Fig. 8”.

Comparing with the calculation results of connection value, it can be known that all the national secondary spatial division the change in the aspect of integration is much smaller than the gradient of the connection value. Therefore, there is no necessary connection between the sight accessibility and the integration degree of the node. There is no direct view coverage between the nodes, but in essence of spatial structure, there is a layout integration level that can control visits.

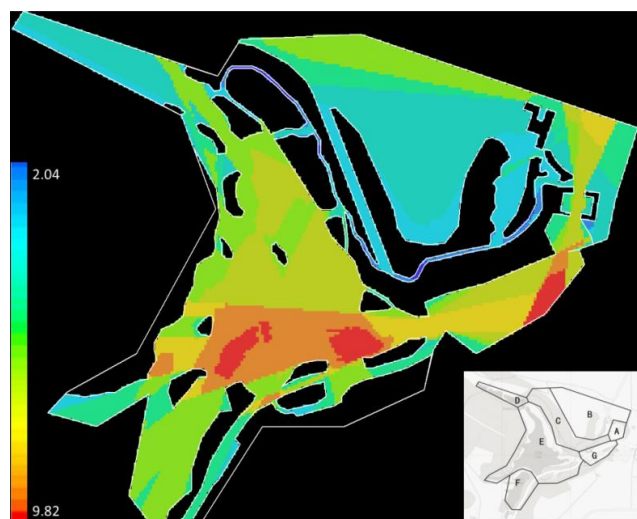


Fig. 8. Integrated integration level diagrams

- Relative depth value of important nodes

The average depth reflects the visual accessibility of each unit node in the overall layout. It can be found that the calculation result of average number of steps has relevance with the integration level. Here, the main building of the several visual nodes and entity landscape nodes is elected to analyze.

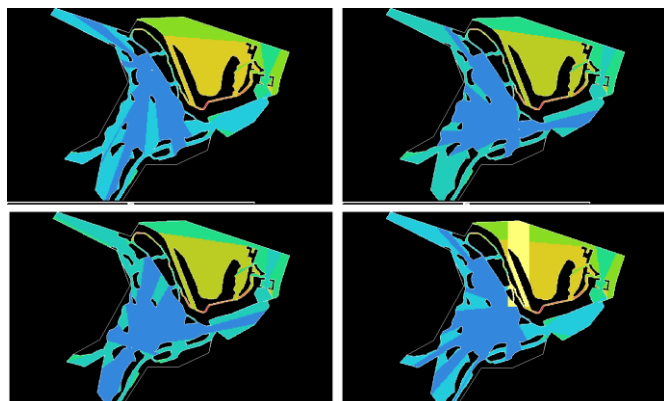


Fig. 9. The relative depth value of observation points surrounding the lake

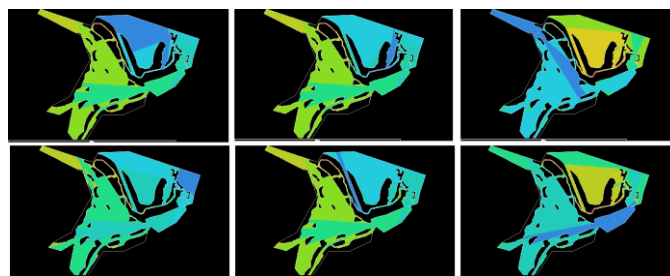


Fig. 10. The relative depth value of observation points non-surrounding the lake

The above diagrams show that the path around the lake as a sample of observation point, the area of blue is larger, comparing with other sub space, the field of vision of the main landscape area around the lake is the most open, the visual accessibility of landscape architectural around the lake is stronger, and has a larger influence for the feeling of tour, form visual core area of the Stourhead, which can be the unique experience of space (Fig.9, 10).

Stourhead's "picturesque" is not only caused by the two-dimensional experience of color image of Claude Glass, but also people experience space by thinking. The complexity and diversity of the organization of spatial organization, travel route organization and control of line of sight build a bridge between objective cognitive behavior and subjective creation behavior for visitors; also dim the diaphragm between man and nature, mind and physical landscape.

B. The Micro Art Strategy of the Picturesque Garden

The picturesque gardens in England in eighteenth Century not only a kind of perception of aesthetics, but also a feasible design method and theory. The picturesque garden art macroscopic strategy is the cognition and creative process for the picturesque beauty, and then next is the discussion on the mode of operation of gardening landscape, poetry and painting in the process of garden-making. In microscopic view, it is the think of the landscape architecture and plant strategies that plays an important role in the picturesque gardens. It is to analyze the specific corporality art strategy on Stourhead, "picturesque" artificial factors— building and "picturesque" artificial factors— plants, to explore the application means of landscape elements of the picturesque gardens.

1) *Garden architecture*: The famous British landscape historian John Dixon Hunt said that the garden architecture provides a kind of garden experience for visitors in *The Afterlife of Gardens* (2004). The picturesque become the important scenery line of the picturesque gardens, and also bring greater imagination. The introduction of the building can make people think of the glorious era of the ancient times or rural life is also a manifestation of exotic.

Because Stourhead's design philosophy is taken from the ancient Rome myths and legends, the landscape architecture along the path has obvious characteristic of Greek temples and ancient Rome architecture, such as Pantheon, Flower temple, the temple of Appollo and so on. In the whole space, these buildings play a role of controlling. These non-

practicability architectural has clear history and the style target, with its complete image, belonging to different scenic spot that plant and waterscape constitute, a decentralized layout, dotted in the natural environment. At the same time, poetic prose on the building represent the human, and make the people's cultural taste and the spirit of the world blend in the natural environment.

2) *Landscape plant*: In the first half of 18th Century, 61 kinds of new tree and 91 kinds of shrubs were introduced into the United Kingdom. The application of plant color promoted the change of landscape architecture design in England. The color, light and shade of plants provide the development space for the picturesque effect of the gardens. According to the color and posture of plants, the landscape gardeners combine them in accordance with the principle of combination of painting. Plants as a "live brush" develops the practice of "gardening painting".

Current Stourhead's plant landscape is formed with native plants and exotic things. In the 200 years process of development and transformation, ornamental shrubs, deciduous trees, evergreen tree and art processing form the whole art. As the seasons change, Stourhead shows the different seasonal plant landscape, plant space has also become a carrier and container of time.

V. CONCLUSION

Stourhead shows characterization of picturesque garden in terms of landscape gardening and gardening thought:

In the landscape gardening, to retain the characteristic of "manor garden" style which is the pastoral scenery as the basement, garden combines with the external environment; The architectural sketch, plant and other corporality art strategies of garden decides the composition art to become the main body of the picture; Considering the movement of people in the scenic park, according to the tour route and the different viewpoint and perspective of spatial design, it has an emphasis on dynamic composition.

In gardening thought, the picturesque garden shows the inalienable relation of poem, painting and garden with the help of literary works or paintings; the literary symbolism of Stourhead and appearing in films and television programs reflects the symbolic characteristics and dramatic features of the picturesque garden; The purpose of creating a picturesque environment is not just to provide a static picture of the landscape, but to create a kind of garden cognitive pattern, which can be appreciated, can be described, can be painted.

From the 18th century to the beginning of the 19th century, the garden style originated from visual art full of the English landscape garden system, deduction becomes more mature. English garden style, gardening activity in Britain are more active than ever, landscape gardening theory and practice has reached its peak.

The appearance and development of Natural landscape garden and the rise is the feedback of British learning landscape architecture from the European continent, and plays a leading

role for the further development of British garden art in the 19th Century.

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