

## FEATURES OF ARTIFICIAL ILLUMINATION OF HISTORICAL AND MODERN LANDSCAPE COMPOSITIONS

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### ABSTRACT

The article is dedicated to the problem of artificial illumination of landscape compositions. As exemplified by the Château de Vaux-le-Vicomte palace and garden ensemble of the XVII<sup>th</sup> century and by the National memorial complex of the 11<sup>th</sup> September 2001, features of artificial illumination of historical and modern landscape compositions are considered. Methods of revelation of existing planning and spatial elements in historical gardens are described. Merits and demerits of use of modern technological capabilities of artificial illumination are shown.

**Keywords:** artificial illumination, landscape, composition, space, methods

The illumination problem of landscape compositions is topical from the moment of home gardens emergence. First, it was caused by a need of convenient and safe movement within the garden space and then, by a desire to prolong a possibility of its aesthetic perception. The historical landscape gardening spaces were an extension of the palace. In the evenings, the gardens lived life to the full: the people feasted, danced, listened to music and enjoyed theatre in open garden rooms. Therefore in the gardens, evening illumination with candles and torches was always envisaged. So, for example, the Sea Theatre of Villa Garzoni was illuminated with torches, which faun sculptures held in their highly raised hands. The theatrical performances were often arranged in gardens afloat with fireworks

[1]. Candles installed along paths revealed the planning patterns, the torches illuminated supporting walls, lace and water parterres, sculptures, fountains, theatrical scaffolding and stages. Until now, the evening candle lighting in Château de Vaux-le-Vicomte attracts tourists from all over the world. Here they can observe, how the famous immense ensemble is gradually absorbed by darkness and then, also gradually, it appears reviving by lighted sparks, which is beginning a dialogue with the star sky. And all of this is an apparent picture of art harmony with nature.

Today, the artificial illumination of the landscape gardening compositions with a considerable set of technological facilities is a particular complex genre of the light design. But unfortunately, technological capabilities do not always provide aesthetic qualities. Trees wired by the LED bulbs with best intentions, suddenly turn into stumps of the branches shining against the background of night sky. A familiar and pleasant space of the traditional boulevard formed by alleys disappears. It is destroyed by light tunnels, brightly illuminated arches, figures of animals, by stiffened light “fountains” and many other things. A public garden in front of facade of a well illuminated architecture memorial is quite often filled with high and fatly ornamented arches, which are brightly illuminated and coloured; however, they block the best view on a remarkable composition. A thoughtless festive illumination from temporary turns into long-term and its rich bad taste turns the city environment into a persuasive buffoonery. It destroys the thought-over, carefully built,

expressive historical and modern gardens, buildings and ensembles.

This is a childhood of the light design, with often awkward attempts of developing a new toy by a child, for whom any action is a discovery not burdened with knowledge. A theoretical foundation of the light design began to develop relatively recently, and one should notice works of N.I. Shchepetkov [2–4] as the most important among works of other researchers. The big attention to the subject of illumination of the city landscape environment is attracted by a desire to develop new technological capabilities, to use visual illusions in architectural composition [5–7], as well as desire to remind easily forgotten lessons of the past.

A purpose of this work is features understanding and revelation of composition methods of the successful artificial illumination of two landscape compositions: the historical and the modern.

Artificial illumination of the Château de Vaux-le-Vicomte palace and garden being a remarkable ensemble (Fig. 1) belonging to Nicolas Fouquet, who was finance superintendant of Louis XIV. The estate has old traditions and is an example of a masterful combination of utility and of decorative ef-



Fig. 1. An appearance of the Château de Vaux-le-Vicomte ensemble (URL: <http://www.vaux-le-vicomte.com>)

fect. The Vaux estate constructed during five years reached us “untouched” despite wars, revolutions and changes in tastes, which took place for three and a half centuries of the European history [8]. And today every Saturday, two thousand candles are lighted in the garden, recreating the situation of a magnificent festival on August 17, 1661, which was the opening day of the estate and the day, when it was visited by the king Louis XIV (Fig. 2).

To create his estate, N. Fouquet involved architect L. Levaou, artists N. Poussin and C. Le Brun. And for the garden arrangement, A. Le Nôtre was invited [9]. Well educated Fouquet brought together a group of outstanding persons of different art types who when creating the Château de Vaux-le-Vicomte ensemble to a large extent had created the French classicism itself. Here a composition method system was for the first time used, which formed a new type of the spatial arrangement, as well as an aesthetic approach system of a new style. For the managing director of the France finance, nothing seemed to be too huge, too beautiful or too expensive. The estate, which was spreading out over 500 hectares, turned out magnificent. Magnificent buildings, gardens, cascades are an axial composition extended from North to South for 1.5 km [10, 11].

But a source of the funds spent to create this masterpiece was too obvious. And this excited anger of the young envious king. Less than in a month after the festival, on September 5, 46-year-old Fouquet was arrested, accused of embezzlement of public funds and flung in prison, where he died 19 years later. All experts working in Château de Vaux-le-Vicomte together with the pupils were transferred



Fig. 2. Lighting of candles in Château de Vaux-le-Vicomte (URL: <http://www.vaux-le-vicomte.com>)



Fig. 3. The lace parterre in Château de Vaux-le-Vicomte (URL: <http://www.lenotre.culture.gouv.fr/fr/de/index.htm>)

to Versailles. The Château de Vaux-le-Vicomte garden is an alternation of lace and water partners, channels and grottoes decorated with vases and sculptures. But the new style and distinctive “manner” of Andre Le Nôtre were not created by a set of elements and a high degree of their decorative effect. This set was already used in terrace gardens of the Italian Renaissance and medieval French gardens: covered alleys (berceau), pergolas, channels, broderie level spaces – (broderie means embroidery, lace) (Fig. 3) [1].

The main feature of Château de Vaux-le-Vicomte was an immense expressly horizontal composition subject to the axis, along which a wide 1.5-kilometre perspective was built. Height of all vertical elements, i.e. rows of trimmed plants, sculptures, bosquet walls and even of the palace is insignificant in comparison with width and depth of the observed space involved in the composition.

The palace surrounded with a channel is located in the northern estate part. Its southern facade is turned to the garden. The palace is the centre of the composition. From the palace, along the main composition axis, an open integral space decorated with a sequence of lace and water level spaces is spreading. However, the “soaring continuity” is an optical illusion. As the garden was arranged at several levels, harmony of horizontal planes is interrupted by channels, cascades and a grotto crossing the main perspective and composition axis creating deep vertical partitioning of the space and enriching the perception. According to increase the distance from the palace, the areas and elements are rhythmically enlarged, the pattern becomes simpler. The open space is flanked by trimmed bosquet walls forming green halls. The main perspective is closed with a transverse channel and with a plasti-



Fig. 4. A revelation method using dotted contours (URL: <http://www.vaux-le-vicomte.com>)

cally cultivated hill, at which top Heracles’s statue is installed in the perspective convergence point. Thus Le Nôtre changed not elements but the nature of their spatial interrelations, partitioning scale, proportions and composition scale as a whole.

In the 17<sup>th</sup> century, the garden was illuminated with candles and torches and fireworks were arranged in feast days. Flame of the candles placed in a metric principle, emphasised contours of the main garden paths and of the level space pools. Evening illumination revealed the planning but shifted focus, emphasised plasticity of the palace facades, and integral level space garden composition was turned into a dotted waving flickering mirage [10, 11].

Due to the dotted candle arrangement with equal intervals, the architectural and park ensemble became light, aerial and more integral. As if thousands glow worms having flied out from the palace windows, plashed in the pools, ran on the fountain edges, hid and giggled in the lace arabesque labyrinths (Figs. 2 and 4). A fabulous atmosphere increased expressiveness of the ensemble.

Garden and park art has always been opened for all news and provided its spaces for experiments. So, Château de Vaux-le-Vicomte today also tries fresh technological capabilities of art illumination on itself. At present, not only candles but also electricity is solving problems of art revelation of historical composition at night using different light scenarios in different cases (Fig. 5).

At normal weekends, low-key, restrained illumination of the road network using lighted candles designates boundaries of the basic elements reproducing the historical illumination.

Within these contours, low ground luminaires located at the level space part angles “pull out” an-



Fig. 5. An evening view of the palace from Sheaf fountain (URL: <http://www.vaux-le-vicecomte.com>)

gular fragments of the broderie level spaces from darkness turning the huge composition into a dialogue of “fragmentary phrases” and giving human imagination a chance to finish drawing the rest independently.

In holidays, the illumination is more decorative but keeps less to be elusive. To reveal lace arabesques, a tight moisture-proof LED tape is used with a monochrome yellow glow repeating their pattern. It also outlines external contour of the lace level space. The same tape is used to emphasise spherical crowns of the trimmed plants (Fig. 6). With other scenarios, a LED tape is applied in combination with low ground luminaires. The luminaires are located along the level space main axis and directed perpendicularly to it, with their white glow stripes, reveal top plane of the arabesques, which are cut off from boxwood (Fig. 7). Besides, contours of large elements: terraces, supporting walls and ladders underlined with LED tapes articulate the garden space giving together with the illuminated palace facade the third dimension of the majestic composition.



Fig. 7. A revelation method by “filling” (URL: <http://www.vaux-le-vicecomte.com>)



Fig. 6. A configuration revelation method using linear draughtsmanship by light (URL: <http://www.vaux-le-vicecomte.com>)

Fireworks, although they are historical but seem a vulgar invasion, which in a barbarian way disturb integrity, adequacy and silent harmony of the ensemble, instantly turn it into chaos and force to expect fading the sparks and a gradual return of the recognizable configurations of the palace and garden (Fig. 8).

Illumination of the Château de Vaux-le-Vicomte ensemble shows that in case of a restrained and proportional use of modern technological facilities, the main problem, which is a revelation of the historical composition features, can be successfully solved. Moreover, different illumination scenarios can enrich perception of the ensemble art image.

Light design of the 11<sup>th</sup> September National memorial and museum in New York is beyond the framework of a just local illumination and revelation of an architectural and landscape composition. An initial reaction was a light installation on the



Fig. 8. Destruction method (URL: <http://www.vaux-le-vicecomte.com>)



Fig. 9. 11<sup>th</sup> September National memorial and museum (URL: <http://www.pvpla.com>)

tragedy place named “Dedication using light” (*Tribute in Light*). On September 13, 2001 President of Arnell Group Innovation Company presented the installation idea to heads of Consolidated Edison Energy Company serving New York. The project was developed by architects J. Bennet, G. Bonevardy and R. Nash Good, as well as by artists J. Leverdyer and P. Mioda. The installation has been created by a company specialising in high power lighting installations. Already in half of a year, two “light towers” appeared. They were lighting installations with 44 powerful searchlights with a xenon lamp in everyone. These temporary installations operated during a month, and since 2003 the searchlights are switched on annually on September 11, and in fine weather, their light can be seen at a distance of 100 km. Since 2008, the installation power supply generators use a biodiesel powered by utilised oil from local restaurants.

In 2003 an international competition on the memorial of the World Trade Centre project as a tribute to the memory of the terrorist attacks victims on September 11, 2001 was announced. On January 6, 2004 the winner was selected. It was the Reflecting Absence project. Construction of the Memorial began in 2006 according to the project of an architect Michael Arad and a landscape architect Peter Walker. It was completed in 2011 [12–17].

The memorial ensemble has a public garden appearance and is located at the place of the destroyed towers of the World Trade Centre. Main elements of the memorial composition are two deep squares in plan pools at the Twin Tower places. Along inner steel surfaces of their walls, water streams, covers the bottom with a thin layer and disappears in bottomless wells. The pools are surrounded with read-



Fig. 10. 11<sup>th</sup> September National memorial and museum with evening illumination (URL: <http://www.pvpla.com>)

ing desks of bronze plates along their perimeters with names of 2,983 victims. The garden composition around is a visible embodiment of the silence moment. Metric rows of horizontal lawns are followed with a metronome of strict rows of white oaks and eucalyptuses (Fig. 9). Later on, under the pools, a museum was constructed, which was opened on May 21, 2014.

In evening and night time, art illumination significantly increases imaginative expressiveness of this minimalist composition (Fig. 10). First of all, bright light illuminates water flows violently streaming along the pool walls, which turns them into flows of fire lava as an eternal reminder about the tragedy burning souls of the visitors (Fig. 11). Among the trees, standing lamps with a dull glow are accidentally on purpose scattered. The yellow glow makes an impression of commemorative candles.

Despite the installation high price, annually including September 11, 2017 powerful great light columns virtually recreate the towers against the background of the dark sky (Fig. 12). In the considered case of modern architectural and landscape composition, illumination not only reveals planning and spatial volumetric configurations but also creates new configurations supplementing the composition and new “night” dominants transforming daytime perception. The illumination also takes part in formation of an art image.

## CONCLUSION

When designing illumination of historical and modern architectural and landscape compositions, different problems are solved: in the first case illumination is a facility to reveal the existing configu-



Fig. 11. A method of light imaginative expressiveness using colour (URL: <http://guruturizma.ru/memorial-911-v-nyu-jorke>)

ration, in the second case, it is a facility of a new form shaping.

In historical compositions, one should save and reveal valued composition features of a memorial applying illumination facilities, which do not deform both: the space as a whole and configurations of separate planning and volumetric elements. As exemplified by the artificial illumination of the 17<sup>th</sup> century ensemble “Château de Vaux-le-Vicomte”, one can notice methods of revealing landscape composition with light as follows: creation of a dotted contour of basic volumetric and planning elements; linear draughtsmanship of most important elements; emphasis of plant geometrical configuration surfaces (dot and plane).

When designing modern architectural and landscape compositions, illumination initially is a form shaping method. In the above considered case of artificial illumination of the 11 September National memorial and museum in New York, light initially was the only form shaping facility. It also initiated its spatial composition and to a large extent determined it. The composition in the day-time expresses a silent grief and a rest state. The light design methods are directly purposed to create an art image. Scenario of evening illumination causes a sharp emotional pain due to lighting among trees yellow sparks of standing lamps as commemorative candles, which turn water of the pools into streaming fiery lava, and due to constructing virtual phantom towers. From the day-time reality we are transferred to an illusory metaphoric space created by light and by its colour.

Illumination facilities of architectural and landscape objects should correspond to the time of



Fig. 12. A method of creating new virtual configurations using light (URL: <http://www.shutterstock.com/.../stock-photo-twin-towers-memorial>)

their creation, to the technologies and materials, to the rhythm, pace of life and to the life features. Therefore, use of torches and candles is pertinent to illuminating historical objects. And use of modern facilities should be limited and careful. Modern objects do not limit the illumination facilities choice. Everything that is available from the technological point of view is pertinent.

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