

YULIA IVASHKO*, PENG CHANG**

Modern trends in landscape design: the return to Eastern traditions?

Abstract

This paper discusses the analysis of modern landscaping trends. Today's challenges and environmental issues that reduce landscaping area in large cities force us to search for new landscaping trends. Amid global environmental problems, the popularity of green areas attached to private homes is increasing. Despite avant-garde trends, there is a growing interest in traditional oriental gardens, both Chinese and Japanese, based on the principles of harmony between human and nature. At the same time, the arrangement of modern Chinese-style private gardens in Ukraine and other Post-Soviet territories, without a deep understanding of fundamental methods, including 'one lake, three mountains', 'garden in a garden', 'mountains-water', sets such gardens apart from true Chinese design. By comparing the historical Chinese pavilions and modern Chinese-style arbours, their non-conformity has been proven, and it is recommended to arrange modern Chinese-style gardens based on the use of time-honoured traditions.

Keywords: landscape design, modern times, environmental issues, traditions and innovations, Chinese garden

Introduction

The environmental issues faced by society force us to reconsider the relations between human and nature. For this reason, landscaping as a means of restoring harmonious balance between humans and nature, becomes especially relevant. The subject of green architecture and maximal natural environment preservation are especially developed in Scandinavian countries, but these trends are gradually spreading among the most developed countries of the world. The coronavirus pandemic has clearly demonstrated the urban processes hazard, when the maximum population concentration in metropolitan areas like New York turns the city into a source of infection, a 'biological bomb' of a sort. Many scientists compare it with the Spanish flu pandemic of 1918–1920 and the pandemics of previous centuries, when the highest mortality rate was observed in big cities. All scientists, economists and sociologists state unanimously that the world will never be the same after the pandemic. There is a strong possibility that one of the emerging trends will be the dispersal of settlements and population outflow from cities to the country. A similar process is observed around large cities in different countries, for example, an entire system of cottage towns with private estates was formed around Kyiv. We can see the beginning of this process in Ukraine, when more and more rich people work in the megalopolis, but live in nearby cottage towns connected with Kyiv by many roads. Ukrainian real estate specialists noted an increase in demand for the purchase or rental of cottages with small properties immediately after the government of Ukraine announced the emergency situation, the prohibition of walks in public green areas and restrictions on staying outdoors. Another reaction to this was the outflow of citizens outside cities, to their own small properties, with the purpose of spend the confinement period close to nature. As for our opinion, most likely, this trend in

Ukraine, especially in Kyiv, will continue after the quarantine is lifted: rich people with the ability to live in the countryside and work remotely will leave cities, and those who cannot leave urban residences completely, will buy a 'retreat' in case of future pandemics, a small plot with a house. This proves that one of the most relevant architecture trends will be small-property landscaping.

At present, there exist numerous variations and trends in small-property landscaping in Ukraine. We will consider only one trend in Kyiv and private estates near Kyiv, the so-called 'Chinese reminiscences' with the arrangement of rock gardens, small bridges and Chinese arbours, that became more widespread not only on private properties, but in public parks as well. There are several reasons for this 'Chinese fashion'. The first is China's entering the international arena as a powerful state with a strong economy and original ancient culture. The second is the crisis in numerous countries, including that in the field of culture, which requires looking for new cultural and creative ideas. From this perspective, the current situation is often compared to the late nineteenth and early twentieth century, a period of mass fascination with Eastern philosophy, culture and art against the background of a crisis in Europe.

Another reason for the continuous relevance of Chinese themes in landscaping are the millennia-old Chinese landscaping traditions, aimed at the preservation of the natural environment and emphasising its beauty through architecture, that is, the 'secondary' nature of the artificially created environment, that gains more relevance in connection with environmental challenges. Finally, one of the main reasons for the wide implementation of Chinese themes outside China is the high adapt-

ability of both the Chinese garden and the garden arbour pavilion. By this, we mean that traditional Chinese garden fundamentals could be implemented in gardens of various sizes, from large imperial gardens such as Yihe Yuan near Beijing, large private or small private gardens, such as Zhuo Zheng Yuan (Zhuozheng Yuan) and Lu Yuan Gardens in Suzhou. The same relates to the specificity of designing pleasures, that are called 'pavilions' in China, and 'arbours' in most countries. Despite the unfounded opinion that pavilions in the emperor's gardens had more complicated silhouettes and roof shapes compared to private pavilions, the pavilion's appearance was actually dictated by the environment. For this reason, a pavilion could be rather modest even in the emperor's garden. As a rule, the emperor's pavilions in the gardens were characterised by more expensive construction materials, images of dragons, and sometimes yellow or golden roof tiles and ceramic figures on the roof, the number of which signified the pavilion's status. Analysing the traditions of Chinese landscaping according to contemporary living needs, the author studied sources on traditional Chinese architecture, Chinese gardens, hard landscaping in gardens—publications by M. Orlenko (Orlenko, Dyomin, Ivashko et al., 2020, p. 499-512, Orlenko, Ivashko, 2019, p. 171-190), Z. Wang (Wang, 1982), W. Zhou (Zhou, 1999), R. Lu (Lu, 2004), H. Zhong (Zhong, 2004), Yu. Ivashko, T. Kuzmenko, D. Kuśnierz-Krupa, Li Shuan, Chang Peng (Ivashko, Kuzmenko, Li et al., 2020, p. 101-108, Ivashko, Kuśnierz-Krupa, Peng, 2020, p. 78-85, Orlenko, Ivashko, 2019, p. 171-190), sources on the landscape's influence on the perception of buildings (Ivashko, Kuzmenko, Li et al., 2020, p. 101-108), sources on the architecture and design monuments as objects of art (Orlenko, Ivashko, 2019, p. 171-190). In the article *The influence of the natural environment on the transformation of architectural style*, the example of European architecture in China demonstrates that changes in the natural environment are game-changing in the perception of architectural style and should be well-understood in the process of creating a modern Chinese-style garden, or designing a Chinese pavilion, arbour or gate in a foreign environment (Orlenko, Ivashko, 2019, p. 171-190). For example, this is clearly seen in the Chinese composition with a bridge and a gate in Syretz Park, Kyiv, where Chinese and hard landscaping forms were introduced into an unusual landscape, which causes a different perception of their scale and image compared to China, which is proven by the example of landscape paintings with pavilions in old Chinese gardens (ill. 1).

The formal trait of Chinese architecture, both in China and abroad, became the original roof shapes that have been so willingly copied in European and Russian landscape architecture starting from the eighteenth century. In modern arbours seen low-rise housing, the original Chinese roof shapes are copied without even thinking why the roof outlines differed between the regions of China.¹ For this reason, it is necessary to analyse whether the Chinese roof shape in garden pavilions really was an aesthetic fancy for the sake of beauty, and in what climate conditions the roof outlines are more reasonable. This



ill. 1. 'Chinese' gate with traditional lanterns in Syretz Park, Kyiv. Source: https://nashkiev.ua/novosti/v-syretskom-parke-poyavilas-chastichka-kitaya-foto.html?in_parent=novosti (Accessed on: 22.04.2020)

will help avoiding unfortunate mistakes in modern landscaping.

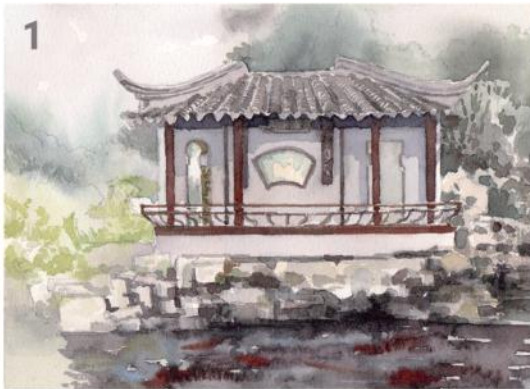
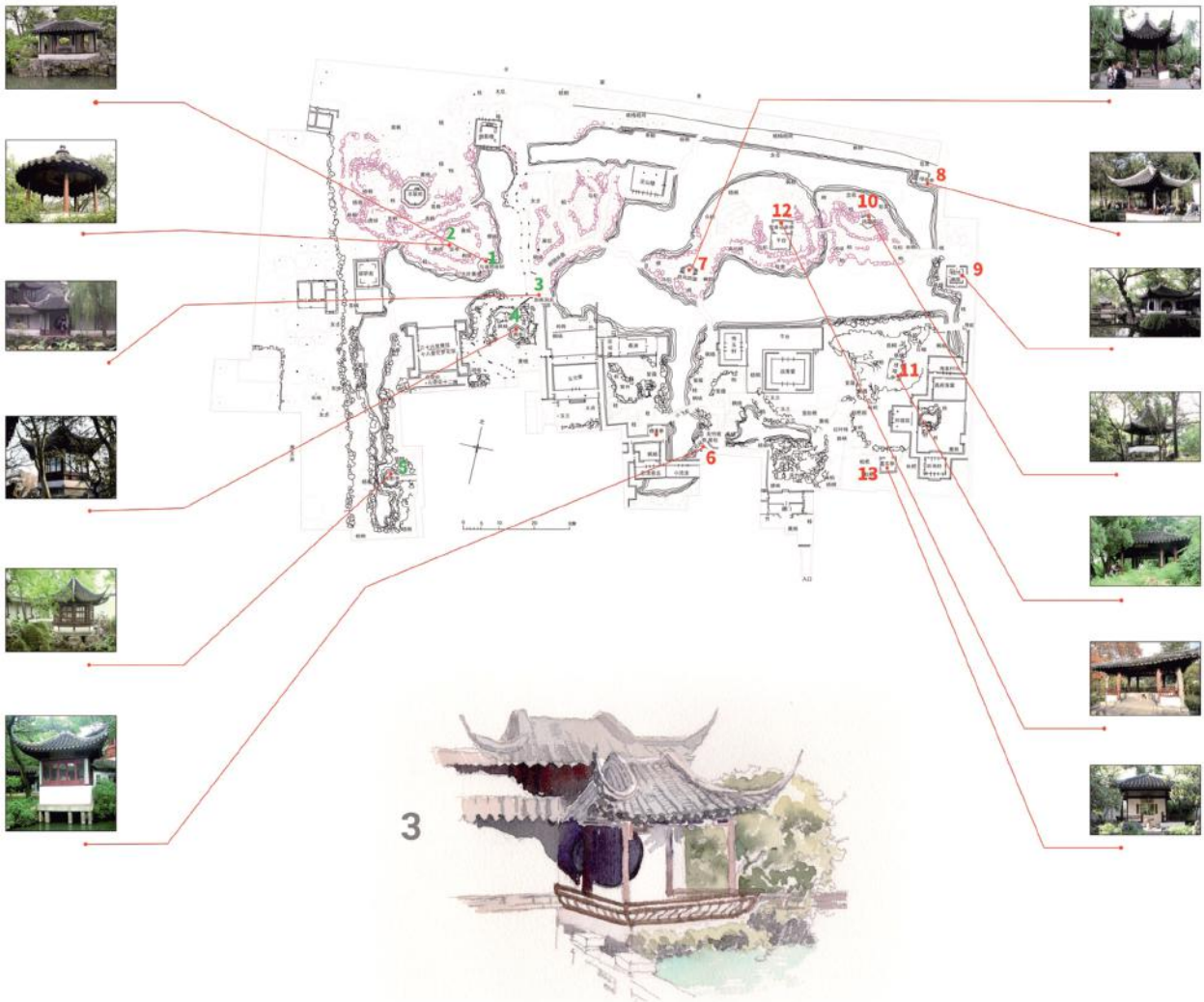
MAIN PART

Basic principles on which the Chinese garden has been based for centuries

The main purpose of both imperial and private Chinese gardens was creating a peaceful place for owners and giving a possibility to enjoy private time in nature. There was a tradition in China to seek solitude in private gardens during hard times in one's life, with the purpose of restoring mental balance, by playing chess, writing poetry, drawing, engaging in calligraphy or music, or just contemplating the beauty of nature.

In ancient China, there was no term like 'park' for the general public; the term 'garden' meant an exclusively private area of greenery for its owner and their family where they could act as host. The owner's status was the only difference: the emperor's garden represented a large area with hundreds of various buildings, the official's garden clearly showed their social status and financial capacity (Zhou, 1999, Lu, 2004, Zhong, 1989). However, all gardens were governed by the same canonical landscape and Feng Shui principles. For example, a garden had to meet the 'one lake, three mountains', 'garden in a garden', 'mountains-water' principle; it was impossible to see the entire garden at a time, like the Versailles, it had no straight alleys because, according to ancient beliefs, evil spirits could move only by following a straight line, so the straight trajectory was 'blocked' by natural 'screens'—tree groups, pavilions, etc. Moreover, water occupied an important place in the garden (Zhou, 1999, Lu, 2004, Zhong, 1989). All these principles are to be present in the modern Chinese garden, if the ancient traditions are to be kept. These principles are not arbitrary, and each of them has a certain philosophical and religious foundation.

Arbours on the plan of the garden Zhuōzhèng Yuán



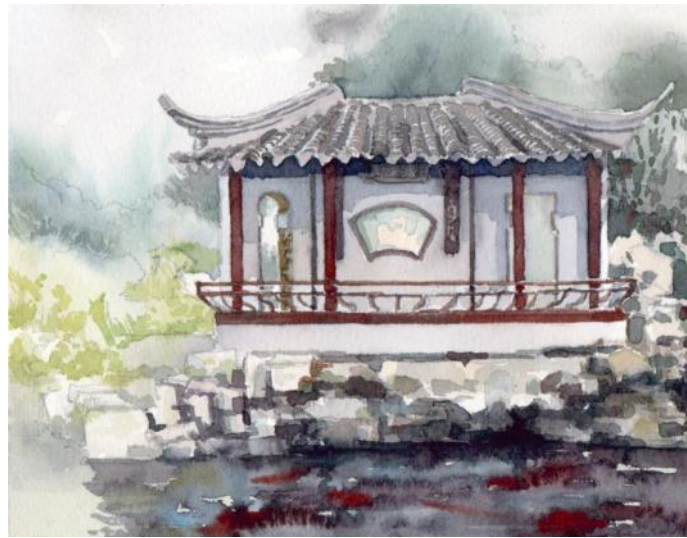
ill. 2. The Zhuo Zheng Yuan (Zhuozheng Yuan) Garden layout with arbours. Layout by Chang Peng, 2020, based on existing sources. Watercolours by Chang Peng, 2020

The 'one lake, three mountains' principle is related both to ancient Chinese mythology and to Taoism: the Chinese believed that these mountains were inhabited by three immortals, and the sea is situated at the bottom of the mountains, so the literal objectification of this landscape scenery should ensure immortality to its owner, whether an emperor or an official (Zhou, 1999, Lu, 2004, Zhong, 1989).

The typical example of the transformation of this canonical plot into a small housing area is represented by private gardens in the city of Suzhou, where most parts of the garden are occupied by water bodies and artificial slides. The Suzhou Gardens are considered to be a quintessence of a classic Chinese Garden with a harmonious combination of water, artificial hills, flower beds, plants and pavilions with various functions; the Suzhou climate was also perfect for these tasks, especially due to the fact that the city itself had no natural hills, but there were many stones in the neighborhood that allowed creating such man-made hills in gardens.

The famous gardens in Suzhou: Zhuo Zheng Yuan and Liu Yuan, their history and planning were described in the publication by Yu. Ivashko, D. Kuśnierz-Krupa, Chang Peng (Ivashko, Kuśnierz-Krupa, Peng, 2020, p. 78-85) while the author also analysed the types of arbours, their composition, silhouettes, forms and colours. The most famous of these gardens, and the one with the largest area is the Zhuo Zheng Yuan (Zhuozheng Yuan) Garden, with 3/5 of its area occupied by water ponds, pools, small rivers among hills with stones, small bridges and blooming lotuses (Zhou, 1999). The garden layout was designed during the reign of Emperor Zheng De of the Ming Dynasty (1506–1521) by the former state censor Wang Xian Chelen, and one of the most famous artists of the period, Wen Zheng Ming, took part in the zoning (ill. 2). The garden was built from 1509 to 1529 (according to different sources, from 1510 to 1513), but after the official's death, it was divided into three parts and changed owners several times, each making their own adjustments. The Zhuo Zheng Yuan Garden is divided into three meaningful parts, the Eastern, the Central, and the Western, with their respective landscape features. The Eastern part has man-made hills, meadows, bamboo shrubs, pine forests and curved-bed streams. The Central part is considered the most perfect by combination of landscape and architecture. One of the main locations in the private garden was occupied by pavilions, the habitual name of which to us is 'arbours' (ill. 3–5).

The same methods were also implemented in the smaller Liu Yuan Garden, built in 1593 that became well-known due to the used 'garden-in-a-garden' method, where the entire plot is a kind of a kaleidoscope of separate miniature landscape sceneries: one scenery immediately opens into the subsequent one (Zhou, 1999). In the garden centre, there is a landscape scenery based on the 'one lake, three mountains' principle, the eastern part has a 'mountain' composition based on a combination of stones, the north-western part has a landscape scenery that embodies a mountain forest with a stream in miniature.



ill. 3. Yushuitongzuo ('With Whom Shall I Sit') Pavilion in Zhuo Zheng Yuan Garden. Watercolour by Chang Peng, 2020

between the ravines. The picturesque landscape sceneries were complemented by floral lawns, bamboo, and were well-thought-out in terms of colours. The absence of straight lines, far perspectives allowing one to see the entire garden from distant points were determined by Feng Shui principles and protection from evil spirits that move along the straight lines. With this purpose, landscape sceneries were intentionally designed in such a way that natural elements, such as man-made hills, thickets of plants and trees, and, from time to time, small architectural forms act like screens, preventing long-distance viewing.

In a masterly fashion, the Suzhou Gardens implemented the basic Chinese Garden principle: the creation of its own microcosm, a perfect world, separated from the real world by an external wall

ill. 4. Be Yu Dung Tiang Ting («New Circumstances Arose») Pavilion in Zhuo Zheng Yuan Garden. Watercolour by Chang Peng, 2020





ill. 5. Dai Shuang Ting ('Waiting-for-the-Frost') Pavilion in Zhuo Zheng Yuan Garden. Watercolour by Chang Peng, 2020

with the purpose of creating an atmosphere of silence, harmony, serenity, and solitude (Zhou, 1999). Contrary to large-scale emperor's gardens built on vast plots, private gardens were much smaller, causing the miniaturisation of landscape sceneries and attention to detail, such as visually curved small bridges, small springs, streams, man-made stone slides, narrow alleys, blooming lawns with trees and refined pavilions with original roofs and exotic silhouettes. Since garden arrangement has become widespread in Suzhou, it led to the appearance of a special term for Suzhou Gardens, 'Urban Mountains and Groves' (Zhou, 1999).

Often, designers of modern Chinese-style arbours do not perform deep analyses the foundations of their formation, proportional and metrical and rhythmic structure, so these arbours often differ from Chinese architecture and represent a certain variation on Chinese themes.

Based on Chang Peng analyses of forty-two historical pavilions in different regions of China, the existence of four main silhouette types were proven (according to V. Chepelyk and Yu. Ivashko) (Ivashko, Kuśnierz-Krupa, Peng, 2020, p. 78-85):

- type 1—undeveloped silhouette;
- type 2—developed silhouette with active roof mobility;
- type 3—developed silhouette with tier roof mobility;
- type 4—highly developed and strongly structured silhouette with active tier roof mobility.

When comparing silhouette types to determine which one was the most widespread, it will be type 2 (twenty-five of the forty-two pavilions), which enables assuming that the developed silhouette with active single-tier roof mobility was the most com-

ill. 6. Landscape painting in Liu Yuan Garden. Watercolour by Chang Peng, 2020



mon in traditional Chinese pavilions, that could have various purposes, and it proves the main role of the roof dynamic outline in creating a typical silhouette and even the image of not only a Chinese pavilion specifically, but Chinese architecture in general.

The complexity of the proportional analysis of historical pavilions is represented by the inability to obtain data concerning their proportional, metrical and rhythmic schemes based on the application of European schemes of proportional construction due to the fact that purely Chinese construction systems were applied, such as: 1) roof rise is 1/3 of the support column height; 2) column height equals 10 column diameters; 3) the distance between the spans equals 4 column diameters (Orlenko, Dyomin, Ivashko et al., 2020, p. 499-512, Lu, 2004). These are the simplest ratios possible to be implemented in a modern arbour, while some ratios lost their relevance due to new materials and design layouts, which was discussed in (Orlenko, Dyomin, Ivashko et al., 2020, p. 499-512):

- Doukou (Dou groove width), a primary module that defined the diameter of supporting columns, beam sizes, and fixed distance between Dougong axes (11 Doukous);
- A module that equaled the size of the Gong console bar in Dougong;
- Jian—a modular cell that determined length and width, and was created by two cross lines of columns connected with the beam system from the above;
- Kaijian ('open jian')—a room width measurement unit, equaling the Jian in width, approximately 3.3 m;
- Elevation by the height of one span above the other $0.5 X-0.7 X-0.8 X-0.9 X$, where X = distance between the spans;
- Dougongs (their number between the extreme columns)—a module that determined the span width according to the façade, where the middle span was 6–8 Dougongs, side spans were less, and in some cases, Dougongs formed the decreasing row—6, 5, 4, and the narrowest span that connected with the gallery had 1 Dougong.

When designing a modern Chinese-style arbour, the possibility of varying layout decisions should be taken into account, because pavilions of previous eras could be square, round, hexagonal and octagonal, paired in two cross circles, or having a shape of two connected hexagons; in some examples, layouts of the two-tier pavilion upper and the lower tiers did not match.

As we have already mentioned, the most typical feature of Chinese architecture was the roof. It is considered that the most characteristic type was a painted roof. However, the author defined six major roof types with numerous varieties, and with the certain differences in roof types in the north, north-east, east, center, and southwest of China. Paired roof pavilions became widespread in the northeast of China; in regions with heavy rainfall in the east and, less frequently, in the centre and southwest, there were pavilions with pronouncedly upwards-bent, 'horned' raised roofs, which were not typical of northern and northeastern China.

The traditional Chinese pavilion could have the following roof types: four-slope (one- and two-tiered); four-



ill. 7. Example of a modern arbour that is presented as 'Chinese'. Source: <https://besedkis.ru/stil/besedki-v-kitajskom-stile> (accessed on: 22.04.2020)

slope one-, two- and three-tiered with edges pronouncedly bent upward; conical; tent with curved faces in orthogonal plan; cut tent with edges bent upward in hexagonal plane; semi-gable. The original roof outline with the edges bent upwards was conditioned both by climate conditions and the construction layout with the use of bamboo trunks, when heavy clay tiles were laid on bamboo scaffolding, and the roof sagged and became curved under its weight.

Unfortunately, typical modern arbour designs in Chinese-style small properties have little in common with traditional designs, and are not associated with China in many cases. (ill. 7)

The example given on a website of one of the companies is an example of an original park and garden building. However, the one without features of Chinese architecture, which is seen from the non-typical roof outline, supports, the ratio of parts that are not determined by traditional Chinese modules. Modern pine wood or even brick arbours are offered; the dimensions of the specific arbours are 2.6 x 2.6 m, 4 x 2.8 m, the foundations are made of blocks or cast piles bored on-site, the roof is made of soft tile or metal tile sheets. The main roof shape is that of a 'bell', but in the course of research, the author found a much wider palette of outlines of conventional roofs, bent both down and upwards, or hipped roofs without curvature, with many varieties. Moreover, the free combination of the specific quotations from Chinese architecture with modern materials, without following the conventional proportions and metrical and rhythmic structure, causes errors that existed in the chinoiserie style, which did not represent authentic China but a European perception of China.

With the purpose of avoiding the perception of Chinese-style arbours as theatrical stages among cherry orchards, a comprehensive approach to landscaping can be recommended, with a preced-

ing thorough examination of ancient Chinese traditions with a combination of landscape style and garden furniture forms. Obviously, today European companies will not use ancient Chinese modules and all the conventional design schemes and materials for arbours, but it is possible to use the main construction principles based on the ratio of parts, conventional roof shapes according to climate conditions, and avoid the mistakes of transforming the modern arbour into a multi-tier luxury pseudo-pagoda, for one of the main signs of the Chinese pavilion was its simple architecture and its secondary place in the natural environment.

Conclusions

The millennia of landscaping experience in China proves the possibility of creating 'miniature gardens' even in the conditions of small private areas. This becomes relevant to people who crave a private area with a house outside the city. In Chinese-style private gardens, there is a miniaturisation of natural landscape imitation with high banks and water basins below, and small, light polyfoil bridges seem to be non-material, the same as sophisticated arbours. At the same time, to prevent the perception of Chinese arbours and pavilions, that are so widely produced by construction companies from modern materials and structures, as poor-quality theatrical set pieces, the foundations of the traditional Chinese landscaping should be understood:

In ancient China, the pavilion roof shape that has become a major feature of China abroad, was determined not by the architect's aesthetic fancy but by the specifics of the Dougong system loads, the climate conditions of a specific region, and the suitability of the pavilion image to the surrounding landscape. Upon superimposing images of ancient China arbours on the climate map, it can be seen that in regions with heavier rainfall, roofs were more sharply bent upwards, and raised;

A pavilion has always been a delicate supplement to the landscape and played a secondary role;

The traditional methods of landscape panorama sceneries were 'one lake, three mountains', 'garden in a garden', 'mountains–water', and the absence of remote perspectives and straight lines.

In Ukraine, the Dougong system, which is complex in manufacturing and arrangement, is not used for garden arbours, so the roof outlines are not substantiated by construction reasonability and suitability anymore. At the same time, it is necessary to take into consideration the climate zoning of the pavilion's construction site, selecting an arbour with a higher or lower roof pitch, its 'horns' more or less bent upwards for water removal from supports and foundations. Images that are close to traditional should be created by means of landscaping, avoiding straight-lined paths and distant perspectives.

ENDNOTES

¹ Chinese-style: gazebo with original roof [electronic resource]: URL: <https://nasha-besedka.ru/dizajn/stilevye-napravleniya/120-v-kitajskom-stile-besedka> (access date 26.10.2019)

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ONLINE SOURCES:

[1] Chinese-style: gazebo with original roof [electronic resource]: URL: <https://nasha-besedka.ru/dizajn/stilevye-napravleniya/120-v-kitajskom-stile-besedka> (access date 26.10.2019)