Assimilation of traditional architecture influenced by the imported styles

Anton A. KIM¹, Vera I. LUCHKOVA²
¹ ant.kim@mail.ru • Department of Architecture and Urbanistics, Institute of Architecture and Design, Pacific National University, Khabarovsk, Russia
² 2000471@pnu.edu.ru • Department of Architecture and Urbanistics, Institute of Architecture and Design, Pacific National University, Khabarovsk, Russia

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Abstract
The article describes the process of transformation of the local architecture under the influence of adscititious styles. The principles of forming assimilative architecture of China at the levels of urban planning, space-planning solutions and architectural elements are determined. The basic analysis is carried out on the example of borrowed European forms in Chinese architecture of the late 19th–early 20th centuries. Furthermore, a similar process in the architecture of Europe is shown. The main trend of orientalism and its local manifestation of chinoiserie (Chinese style) is reflected. This is the example of the usage of oriental themes in the western architecture. Besides, we analyzed the processes of borrowing of the certain techniques of architectural construction at the modern stage of its development. The conclusions have also been drawn about the necessity of further study of this process as well as the importance of reconstruction, restoration and historical preservation of architecture for future generations.

Keywords
Architecture, Chinoiserie, Eclectic, Sino-western styles, Style formation.
1. Introduction

One of the factors influencing the development of architectural styles along with evolutionary processes was the formation of new movements in construction by means of acculturation and assimilation of the various national achievements. The source of such transformations for a long time has been a cultural and technological exchange at the boundaries of civilizations. It is often connected with the changes in the geopolitical world map. The resettlement colonization of Archaic Greece and cultural symbiosis in the formation of Macedonian Empire are the typical examples (Boardman & Hammond, 1982; Walbank, Astin, Frederiksen & Ogilvie, 1984). These phenomena had an impact on Europe, North and Western Africa and partially on South Asia. However, sequential colonization of Europe and the Mediterranean basin by Roman republic and empire had the greatest impact, which in many ways formed the vector of architectural development of the area for several centuries to go (Walbank, Astin, Frederiksen & Ogilvie, 1989; Alan, Champlin & Lintott, 1996).

The next integrative stage of Western culture took place in the early modern period. This stage is associated with the activation of transoceanic colonization and formation of Eurocentric world in 15th–19th centuries (Potter, 1957; Crawley, 1965). The active expansion of European nations had a great impact on the development of culture and architecture all over the world. Aside from this, the globalization took a universal form by 20th century and became one of the patterns in social development on the modern stage. It is clear that this phenomenon affected stylistic architectural development (Bury, 1960; Hinsley, 1962).

2. Methodology

The historical examples and modern trends have been examined to study the phenomenon of architectural acculturation and assimilation under the influence of indistinctive stylistic ideas. The brief analysis of the peculiarities of Sino-Western buildings of the middle 19th–mid 20th century has been undertaken. Chinoiserie style, which is considered to be the reminiscence of traditional Chinese culture in European art and architecture of 17th–19th centuries has been studied. The analysis of eclectic styles in the interpretation of Representatives of different cultures has shown similarities of borrowing.

So as to simplify the analysis of the degree of acculturation of adscititious styles and assimilation of traditional elements it was decided to consider architecture separately. It was divided in three sections: urban planning, space-planning and design. Such an approach has allowed us to estimate the level of penetration of new elements. More than that, it was taken into account that the external features are more subjected to transformation, while space-planning and urban planning features are more conservative.

Finally, an analysis of the problem at the current stage of architectural development has been carried out on the example of the leading and peripheral schools. As a result, the two main basic groups of appearance of “deformed” styles factors were found. In the first instance, it was the purpose of semantics or casual relations of the usage of elements, techniques, structures, etc. The second reason, which is a derivative of the first, relates to the lack of the necessary technical and technological base and, as a result, incomprehension of the process of formation of new elements. Both of these trends are common for modernity and the historical architectural development.

3. Data

Literary and internet sources have been analysed for investigation of the problem. When considering Sino-Western architectural styles, the researches of V. I. Luchkova, Liu Daping, N. Arkaraprasertkul, Zhang Jun, Su'ning Xu, Chun-kwok Chan, Jiawei Gu etc. were taken into consideration. Along with that, the photographic, cartographic and historiographic materials have been studied. Full-sized observation was carried out as well. The studies of art historians dominate among the works devoted to chinoiserie, such as M. A. Neglinskaia, Wu Youfang, G. Alm, A. Hyatt Mayor L. Ledderose,
Zhu Ying, etc. The fundamental analysis was based on cartographic and photographic materials. The contemporary planning stage has been studied with the help of analysis the found trends in the works of P. Schumacher, Iu. S. Iankovskaia, L. Sklair, S. P. Pomorov, and others. The phenomenon of imitation of global trends in design without understanding or use of their technology and methodology has been analyzed on the basis of factual material of educational course design and actual planning activity.

4. Results
4.1. Sino-western styles

The historical context of the emergence of China assimilative styles lies in the development of Sino-Western relations, poured out in the Opium Wars (1840–1842, 1856–1860), followed by the opening of state borders (Twitchett & Mote, 1998; Fairbank, 1978; Fairbank & Kwang-Ching Liu, 1980; Zhang & Fan, 2003). This process predetermined the development of the international settlement on the territory of the Qing Empire which lead to the build up of the Western architecture in China. As a result, the three main areas of Western influence were marked: Chinese Eastern Railway with the center in Harbin, the estuary of the Yangtze River with the city center in Shanghai and Guangzhou Bay, presented by the city of Guangzhou, Hong Kong and Macau (Luchkova & Kim, 2016).

A number of new styles have been developed in these areas. The common feature of these new styles that originate from the mutual integration of the two cultures is partial assimilation of traditional Chinese architectural principles and techniques and their replacement by European. The Chinese baroque has developed in Manchuria (Levoshko & Kirichkov, 2016; Ivanova & Kradin, 2014; Yu, 2005; Yo, 2013; Cao, Dian Zhang, Ying Zhang & Xu, 2012; Qi Li & Daping Liu, 2013), in Shanghai—shikumen (Ren, 2008; Arkaraprasertkul & Williams, 2015; Liang, 2008; Arkaraprasertkul, 2009, Chan, 2014), in the southern provinces such styles as trade qilou (Jun Zhang, 2015; Ho Yin Li & DiStefano, 2016; Gu, 2014; Yang & Jia, 2010; Quan & Hou, 2008), fortification diaolou (The State Administration of Cultural Heritage of the People’s Republic China [SACH], 2006; Batto, 2006; Kuah-Pearce & Jin, 2012; Zhou, 2003; Zhao, 2010; Luchkova, 2011) and community-based Sino-Western weilou (Qui, 2001; Jiang, 2006; Kim & Luchkova, 2016). The activation of these processes in southern China is conditioned by the high

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population density of territory and the active development of the western settlements.

The impact of the Western architecture has not changed radically local urban-planning processes. The most noticeable changes took place in Harbin. In this city quite a chaotic urban-building way in the beginning has been replaced by Europeanised city blocks. However, such a change is probably occurred under the direct control of Russian engineers (Kradin, 2010). General trends contained in a significant increase of urban density. Due to this fact, the traditional structure based on hutong and siheyuan has transformed due to the reduction of the area of the courtyard (shikumen) (Arkaraprasertkul, 2009) or the complete rejection of it (qilou, diaolou) (Zhang, 2015; Luchkova, 2011). The transformation of the European courtyards that formed out of different buildings of Chinese baroque is pretty interesting (Qi, Daping, 2011). In China they have taken a form of a common Chinese courtyard.

The reduction of the area of building in the rural areas took place considering the increase of number of storeys of diaolou (SACH, 2006) and in the case of weilou their area and planning have not changed (Jiang, 2016). The construction continued to be conducted on the principles of feng shui. Weilou is not different from traditional buildings. At the same time, diaolou located in the northern part of the settlements, forming a kind of “mountain,” which corresponds both to the principles of feng shui and requirements of fortification (Luchkova & Kim, 2016). Subsequently, the tower complexes were left aside the settlements which was not typical for the traditional planning (Luchkova, 2011).

Space-planning structure, as in the case of urban planning, for a long time has not changed a lot, except for the above mentioned transformations under the influence of exogenous factors (high urban density, protection from attacks, etc.) and, as a rule, had some counterparts in traditional buildings (Gu, 2014; Kuah-Pearce & Jin, 2012). The significant changes have appeared under the introduction of Western building structures, especially reinforced concrete and metal frame (Kuah-Pearce & Jin, 2012; Jun Zhang, 2015). The new construction materials had the greatest impact on mid-rise and high-rise constructions, primarily diaolou, Chinese baroque and partially qilou. More than that, the new materials allowed to increase the constructing speed of the objects.

The introduction of Western-style floor layout and differentiation in the number of storeys also came up (Luchkova, 2011). However, this trend manifested itself mostly in Harbin, where only the galleries (that had been formed along with a common courtyard) remained from the traditional planning structure (Qi Li & Daping Liu, 2013). The trend was less common in the other styles and most of the buildings were based on the transformed versions of traditional layouts of premises. A further acculturation was likely to be prevented by the termination of development of assimilative style in the mid 20th century.

One may talk of almost a complete assimilation while analyzing the facades of buildings. As early as the first stages of development, the substitution of traditional decoration by the Western occurred. The violations in proportions, tectonics and canons of classical European architectural details is a distinctive feature of Sino-Western buildings. Order and arcade systems and volutes were used most frequently. The approach to bas-relief and high-relief images whose excess decoration was a distinctive feature of all the styles except for shikumen is interesting. In addition to the non-canonical, or too naturalized Western floral garlands and geometric compositions, traditional Chinese composition scenes, in some cases, based on the classical Chinese paintings, usually depicting birds and scenery, had also been applied (Batto, 2006; Gu, 2014; Kim & Luchkova, 2016).

In addition to the assimilation of traditional East Asian elements there was a process of integration them into the Western styles. This technique had the greatest development during the extinction of Sino-western course, where such a synthesis was often targeted. However, this trend started to appear
even on the stage of development. In addition to mentioned before galleries of Chinese baroque that developed from the balconies, such examples are found in diaolou where the parapet of terrace was transformed into the wall of spirits (yinbi), or the likeness of moon gate (yueliangmen). The design of the pediment and platband above the entry gates of shikumen and window apertures in diaolou, weilou, shikumen in some cases were designed in the form of stylized Chinese traditional roof or pailou gate (Luckova & Kim, 2016).

4.2. Chinoiserie

The reverse process was happening in Europe, where since the mid 17th century chinoiserie began to develop and reached the peak in the 18th century. This style is one of the branches of orientalism. It covers various aspects of the arts and crafts and architecture (mainly the series of palaces and gardens and interiors). The basis of the style was the usage of the stylistic features of Chinese culture, which were usually interpreted within a framework of European baroque, rococo and classicism (Youfang, 2000; Ying, 2009; Almazan Tomas, 2003, Hyatt Mayor, 1941).

The development of this style was occurring, in contrast to the Chinese-Western architecture, without direct contact with the samples of Tianxia architecture. Architects were mostly to be content with illustrative images (the situation was aggravated with due regard to isolationist foreign policy of China during that time period) to create a palace and park complexes, while the objects of arts and crafts were still reaching Europe via East India companies (Decker, 1759). However, unlike assimilative architecture of China, in Europe professional architects took part in design process.

The consequences were almost a complete absence of any Chinese techniques in building compositions of park and garden complexes. Chinese village in the Alexander Park in Tsarskoye Selo in Russia, built for the Empress Catherine II in the 1780s (Milam, 2012; Gamsa, 2017; Golosova, 2010) and its inverse image—Chinese pavilion in Drottningholm in Sweden, built at the order of King Adolf Frederick in 1750–1760-ies (Alm, 2002; Neglinskaia, 2012) are the examples. Both complexes were subject to the principles of building regular gardens, that were popular during the period of their construction, and are included in the structure of the rest of European parts of parks (Ledderose, 1991).

A similar approach can be seen in structure and space-planning aspects. The impossibility of a detailed study of traditional Chinese architecture led to the fact that constructed buildings completely followed the structure of the traditional European buildings of that period. The layout is usually dominated by enfilade scheme or a single hall for smaller pavilions was used. Such typical Chinese features as the dougong and post-and-girder roof system were not applied. The introduction of a stylized pagoda structures, that was purely decorative, was one of the relative innovations (Ledderose, 1991, Golosova, 2010).

Decoration was the main method of imitation of a Chinese construction. This fact corresponds to the trends of Sino-Western architecture. Trianon de porcelaine (1670–1671) in Versailles (France), built by the order of King

![Figure 2. Chinoiserie: 1) Trianon de porcelain in Versailles (France); 2) Chinese pavilion in Drottningholm (Sweden); 3) Chinese village in Tsarskoye Selo (Russia).](image_url)
Louis XIV is one of the first examples. It showed the Chinese style through porcelain tiles and flowerpots in pseudo-Chinese style, as well as in interior design (Ying, 2009; Neglinskaia, 2012). The characteristic bend of the East Asian roofs, poorly expressed in first buildings and exaggerated in some later constructions, started to appear in the buildings of the late 18th century. The roof covering was usually made of metal sheet instead of glazed tile. The Europeanized figures of dragons (chiwen) on the ridge of a roof and roof joints, or any replacing them ornamental shapes were less often used. In general, the dragons theme was one of the most popular, they were used in low relief, as the brackets and other architectural elements. The compositions based on Chinese painting became stucco motifs or the pseudo-Chinese geometric patterns (Ledderose, 1991; Thomas, 2009).

4.3. Modern period

The modern development of architecture in many ways erased the traditional boundaries and entered the stage of globalization (Knox & Pain, 2010; Sklair, 2006). When saving national schools, an increasing role is played by international global trends. In this context, the leading architectural schools with manifest objects and oriented in the same direction peripheral schools are standing out (Iankovskaia, 2006). The biggest problem here is copying the techniques and methods of modern construction of architectural environment without taking into account assumptions that had influenced the application of some items in the original project (Miljacki & Reeser Lawrence, 2013). In this line stands out as a direct copying due to the lack of preliminary analysis, and due to the limitations of a technical nature at the level of design.

The first type relates generally to the more classical forms, when during designing climatic, demographic, economic, environmental, and other conditions are not taken into account. These conditions allow to judge the appropriateness of the use of this or that method. The consequence of this is the use of individual elements, which as a result may not work in a particular environment, or else be harmful at all. At the urban-planning and constructive-planning level unwarranted use is easier to regulate through exposing some legal restrictions. However, image component affecting the non-constructive elements, which in the course of a violation of semantics also lose their original meaning and context, is almost not subject to any control. Similar problems arise in the development of projects in the national or pseudo-historical styles, where instead of conscious stylization often occur gross violations, primarily related to the semantics of the architectural style.

The second type has arisen due to the integration of the design process and computer systems, actively developing over the last decades. Creation of digital, fractal and partly non-linear architecture implies understanding of the algorithms of their constructions, based on systems of patterns, mathematical formulas, hierarchical regularities, etc (Schumacher, n. d., Pomorov, 2014). These areas require from architects partial rethinking of design system and increasing the infusion of material resources, which is quite difficult for the peripheral schools. The result is an attempt to copy these methods, which is particularly common in conceptual design. However, such an approach in the absence of understanding of the fundamental laws in most cases leads to unsatisfactory results.

In summary, the observed trends are consistent with the processes discussed above in Sino-Western style and chinoiserie, which is also where the lack of knowledge of semantics and structural elements lead to free interpretation and transformation of borrowed elements. In this process partial or complete loss of traditional (national) characteristics occurs in historical and contemporary architecture under the borrowing.

5. Conclusions

The result of the study was identifying patterns of assimilation of traditional architecture under the influence of external factors. Decorative elements, facades composition were exposed to the highest transformation, while constructive and layout structure were, as a rule, undergoing suffi-
ciently prolonged impact, or they were transformed during the introduction of the unknown building materials or technology, which were foreign to local construction culture. Urban planning features virtually do not transform, with major changes occurring only with the direct intervention of the representatives of other cultures. This process is characteristic of different cultures and periods of development.

The features of the emergence of synthetic styles have been detected, that, on the one hand, are about technical and technological limitations, and on the other hand, lie in ignorance of the semantic features of the historical context and prerequisites for the appearance of any method or element. In this regard, it seems necessary to further study this problem. It is also worth noting the significance of this issue, not only in the formation of new style, but also in the processes related to the preservation of national identity in architecture and its restoration, which is impossible without a study of the history of architecture.

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Table 1. Influence of the imported style on the local architecture.


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