
Research Paper

Study on Urban Morphology Optimization Based on the Construction of Urban Memory Structure

Take Dazhi Street in Harbin as an example

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Abstract

In the late 1970s, China began the process of rapid urbanization. With the continuous expansion of urban scale and the rapid increase of urban population, the trend of urban homogeneity is deepening. Some problems, such as the lack of urban characteristics and the destruction of urban memory, are becoming more and more prominent. For this reason, urban construction also lacks the cultural deposits. Therefore, in order to make up for the lack of urban characteristics in rapid urbanization, the establishment of urban memory structure and the strategy of urban morphology optimization have become the current issues that should be concerned and discussed. Based on this, this paper takes Dazhi Street in Harbin as the research object, combs the historical evolution and development context of Dazhi Street by reading relevant historical documents and collating and comparing several versions of urban planning drawings in Harbin. The combination of questionnaire survey and field research is used to study the architecture, street interface, public space and overall spatial form of Dazhi Street in Harbin. Therefore, through the study of Dazhi Street, firstly, we construct a relatively complete urban memory structure. Based on the urban memory structure and the current development situation, we put forward five aspects of urban morphology optimization strategy: the continuation and display of historical context characteristics, the unity and symbiosis of architectural style along the street, the coordination and improvement of urban street functions, the optimization and promotion of urban Street landscape, and the improvement and integration of urban street facilities to further highlight Harbin's urban characteristics. It also provides some reference for other cities with rich historical heritage and prominent cultural characteristics to construct urban memory structure and further enhance their locality and uniqueness.

Keywords

Keyword 1, keyword 2, keyword 3 (3-5)

1. The Significance of Constructing Urban Memory Structure

1.1. Highlighting Urban Characteristics and Promoting Urban Sustainable Development

The development of a city reveals its long history and profound connotation, and urban memory is a continuation of this development process, which is the continuation of the continuity and uniqueness of urban development through collective memory. It is precisely because of the existence of urban memory that the evolution of urban material structure and social culture is influenced by this continuous memory, which makes the physical form of the city have continuity and shows unique features and images different from other cities. Nowadays, many cities in China are lack of urban characteristics, which is due to the destruction of the historical context of the city, leading to the interruption of urban memory. Through the construction of urban memory structure, we can clarify the context of urban development and find the consistent important elements in urban memory, which is of great significance for the continuation of urban history, highlighting the characteristics of the city, improving the status quo of urban convergence and promoting the sustainable development of the city.

1.2. Strengthen people's sense of identity and belonging to the city

Memory transforms the city from instantaneous to eternal, from limited to infinite. In urban history, the activity of memory has never stopped. Everyone, everything is in memory, but also in the process of being remembered (and re-remembered). It can be said that cities exist by memory^[1]. Moreover, "cities are places for people's collective memory"^[2]. This collective memory is based on the common histories to produce the emotions and common will. The most important element that makes people identify with themselves and others as a collective is the common history. These common histories condense into precious memory space, and also leave people a unique city memory, reposing people's feelings and sense of belonging to the city. Establishing urban memory structure can make people's memories have roots to follow and traceable, and connect them with the current life, so that the historical and cultural connotations and humanistic values of the city can be widely transmitted and deepened, and people's sense of identity and belonging to the city can be enhanced.

1.3. Shaping the Spirit and Culture of the City

Cities are an organic whole of the interaction between human beings and the environment. In the process of the formation of urban material form, the most important thing that can not be ignored is the impact of human beings on cities. Cities are constructed by people's subjective initiative. For cities, memory is a key factor in the formation and development of cities. It reflects the relationship and interaction between people's subjective consciousness and external physical environment. The city memory constitutes the spirit and soul of the city. With the development of the city, the city memory is constantly concrete and deepened in the process of its development. Culture includes both material and conscious factors. It is a unique way of thinking, attitude towards life and accumulated civilization in the course of history developed by the social community. It is also a bridge between individuals and collectives, and between future generations and previous generations. Through culture, people of different nationalities and times transmit, continue and develop their ideas about

life. Culture is closely related to the city. It is the product of the collective construction and identity of the city and is directly related to the spirit of the city people. Globalization and modernization make cities develop at a high speed and standardize, which leads to cultural convergence. This situation not only causes the similarity of the external image of cities, but also relates to the convergence of people's life style, behavior and psychology in cities. Therefore, the construction of urban memory structure has far-reaching historical and practical significance to embody the city's personality and vitality, inherit cultural traditions, enhance the charm of the city, and promote the development of the city.

2. Establishing Urban Memory Structure

2.1. Elements of Urban Memory Structure

The reason why urban memory has become a collective memory is that although each individual memory is not the same, they all take the city they live in as a reference, thus producing urban memory. All the material elements in the city, such as urban spatial pattern, geographical landscape, buildings and structures, as well as some non-material historical events and cultural traditions, are the carriers of preserving and transmitting urban memory, which can arouse people's memories related to it. Different memory individuals in different times realize communication and dialogue in the time-space staggering through urban memory carriers. In addition, the elements of urban memory also contain the content of vertical time. From its emergence to its continuous development, cities have gone through different times and stages of development, during which all intangible memory elements are retained in the physical form of cities in various explicit or implicit ways. "With durable buildings and institutionalized structures, as well as more durable symbolic forms of literature and art, cities connect the past, the present and the future." Thus, urban memory is a complex dynamic system, which involves not only the material and non-material elements of the city, but also the subjective consciousness and emotion of people. Therefore, urban memory is a process that incorporates the vertical elements of time and is gradually constructed in the social system through the collective creation and identification of cities.

2.2. Urban Memory and Urban Morphology

In a broad sense, urban form includes not only the material form composed of physical externalization factors such as geographical region, natural environment and material structure, but also the intangible and immaterial form categories related to human behavior psychology and urban society, such as politics, economy and culture. The overall image and characteristics of a city are determined by both. The evolution and development of urban material form reflects the function of city as the material carrier of history and preserving city memory. The urban spatial pattern and buildings record the social life and events in different historical stages of the city, which solidifies and precipitates the urban history in the form of materialization. Compared with the urban memory of language and writing, the urban material space form is more directly influenced by political, economic and social reality, so it can more vividly reflect the changes of the times and the occurrence of important historical events. Although in different periods of urban development, the material space form of the city will be adjusted or changed on the basis of the original city because of the need of urban construction at that time, in order to show the political and

economic characteristics of the city at that time, in this process of continuous evolution, there are always some parts that can be preserved, so that the city can be preserved. The material form of the city still maintains its connection and continuity in the process of change. Therefore, urban physical form is also one of the most effective ways to arouse urban memory. The material traces of the city and the information contained in the material form constitute the familiar life background of the citizens, which enables them to maintain a sense of security and belonging psychologically. By analyzing the material form of the city, people can not only read the history of the city clearly, sort out the clues of the city memory, so as to construct the structure of the city memory.

2.3. Classification of Memory Elements in Urban Morphology

Memory elements in urban form include not only visible material elements, but also invisible non-material elements such as major events in the city, daily life stories of the city, which together constitute the ideological and cultural traditions contained in all memory carriers of the city. At the same time, as a perceptual experience of the environment, urban memory should also be based on the cognitive basis of the urban spatial form. In this paper, the elements of urban memory in urban form are divided into the following categories.

- (1) Natural elements: refers to the overall natural environment, which is the basis of memory generation and function;
- (2) Artificial elements: all buildings and structures that provide shelter for human beings and their functions and activities;
- (3) Humanistic elements: tangible and intangible elements such as human culture created by urban people that are worth remembering and inheriting;

3. Analysis of Memory Elements in Dazhi Street

3.1. Artificial Elements

3.1.1 Spatial pattern

- (1) The influence of western planning thoughts

Dazhi Street is located in the new city (today's Nangang District), which was planned by the Russians at the end of the 19th century. The planning reflects the traditional European urban planning ideas and has obvious Baroque city characteristics. The history of Baroque city began in Rome in the 17th century. It has the characteristics of openness and dynamic, and pays attention to the overall visual effect of urban space. In Baroque city, single building becomes a part of the system, space gains new importance and becomes the real part of the whole city. Baroque city also emphasizes the role of urban focus, which constitutes the city's landscape system. Therefore, as the focus of the city, the architecture must have obvious spatial characteristics. Therefore, the dome of the church, the Obelisk and other important monumental buildings with spatial significance are arranged in the focus of the urban system. The elements in the city interact and submit to a dominant focus, and radiate many broad straight streets from the focus plaza, connecting these focus points^[3]. The urban planning of modern Paris, Washington and Petersburg were all carried out under the influence of Baroque thought. As one of the most representative Baroque cities, Paris had a far-reaching

impact on the planning and construction of many cities in the world. Both Napoleon I and Napoleon III devoted themselves to the improvement of Paris by Baroque technique and implemented their respective Paris plans. During Napoleon III, Osman's Paris reconstruction plan focused on the construction of a number of boulevards, including Rivoli Avenue, Sebastopol Avenue and Saint-Michel Avenue, which are the arteries connecting east and west and north and south through the center of Paris, constitute the basic frame of the city. After the reconstruction of Paris, the major cities in many European countries took Paris as a model for urban planning in the second half of the 19th century.

(2) Spatial pattern characteristics of Dazhi Street

The new city chose the highest position in Harbin, which laid the foundation for Harbin to become the geographic environment, administrative management and social and cultural center. In the planning and layout of the new urban area, the greatest feature is to use Baroque techniques, strengthen the form of composition, and use the spatial form of urban planning to express the colonial ruler's will and political ideas [4]. The overall layout of the new city takes the form of grid, radial road network and circular square. The planning combines the topography with the direction of railway lines, and the overall spatial pattern develops East-West along the terrain and railway. At the same time, the highest terrain is chosen as the main street of the new city, named Dazhi Street, for key planning and construction [5]. Dazhi Street is the main axis of the East-West development of the new city, with a design width of 43M. It is called "The backbone of Harbin". It is vertically intersected with the Chezhan Street of the North-South Axis (today's Hongjun Street). These two axes constitute the main space skeleton of the new city. At the intersection of Dazhi Street and Chezhan Street is St. Nicholas Central Cathedral. Five radiation roads are formed from the church square, which becomes the center of the new city and echoes with the Harbin Railway Station on the Chezhan street. In addition, with the square as the demarcation point, the new city is divided into East and West parts. The western part is the administrative office area and the railway staff residential area. With the office building of the Middle East Railway Administration as the core, a large number of buildings related to the Middle East Railway System are arranged, such as Railway clubs, men's and women's business schools, railway technical schools, residences of senior railway staff and residences of railway workers; the eastern part is a commercial district and a national Consulate area, with national consulates, shopping malls, cinemas, post offices, churches and squares on both sides of the street.

The spatial pattern of Dazhi Street reflects the distinct planning idea, people's social life and urban development, and the historical and cultural significance of Harbin. In the development of more than one hundred years, the spatial pattern of Dazhi Street has been constantly self-renewed, which is more closely related to the people living in it and more deeply integrated with the development of the city.

3.1.2 Historical Architecture

The historical buildings formed and preserved in the course of historical development are witnesses of the history of urban development, and also the essence of urban architectural culture. These historic buildings show ingenious design and flexible construction wisdom in adapting to local environment and satisfying functional requirements. At the same time, they also reflect the living habits, local customs and religious beliefs of the time in

architectural style and architectural type, and play an important role in the continuation and development of architectural culture. It also provides an important basis for the construction of urban memory structure.

The unique historical process makes Harbin show the characteristics of blending Eastern and Western cultures. As early as the 1920s, Harbin has been known as "Oriental Moscow" and "Oriental Little Paris", and a large part of this city image comes from the unique buildings in the city. The formation of urban architectural style in Harbin is closely related to its natural environment, geographical location, technical conditions and social and historical conditions. Firstly, in terms of natural environment conditions, Harbin is located in a cold area, and buildings need good thermal insulation, so Russian style buildings which are basically similar to the natural environment can be well integrated and adapted. Secondly, because Harbin is located in the Middle East Railway Transportation Hub, it can provide convenient conditions for the transportation of building materials [1]. At the beginning of the 20th century, Harbin initially formed a whole new system of western architectural types, which laid the tone of urban architectural style with Russian style, New Art Movement, eclecticism and other styles as the main style. The buildings in Dazhi Street are mainly of these styles, which can be divided into administrative office buildings, residential buildings, religious buildings, cultural and educational entertainment buildings and residential buildings according to the types of use.

(1) Administrative office architecture

The administrative office buildings in Dazhi Street are mainly divided into three categories: the Middle East Railway System Office Building, the consulates of various countries, and the office buildings of urban administrative agencies at all levels. The Middle East Railway Administration Building, built in 1902, is the largest and most important administrative office building in early Harbin. It is the seat of the Leadership Center of the Middle East Railway and the political center of early Harbin.



Figure 1 Middle East Railway Administration^[6]

Figure 2 American Consulate^[6]

Table 1 Historic Architectures of Administrative Office Type in Dazhi Street Area

Architectural Name	Construction time	Architectural style
Middle East Railway Administration	1902	Art Nouveau Architectural Style
Command of Amur Military Region outside Russia	1904	Russian Architectural Style
Middle East Railway Authority Office	1910	Eclectic architectural style
Soviet Consulate General	1924	Russian Architectural Style
American Consulate	1907	Renaissance Architectural Style

(2) Residential building

Private residence occupies a very important position in the development history of Harbin architecture. At the corner of the intersection of Yaojing Street and Garden Street, the most luxurious villa was built, which was the official residence of Holwart, who became Director of the Middle East Railway Administration in 1903. But he did not choose to live here, so the building was temporarily used in the Middle East Railway Club and its library during 1907-1910; after 1911, it was used as the Russian Consulate-General, which had been the office building of the Soviet Consulate-General in Harbin from the mid-1920s to the end of the Patriotic War. At that time, many luxury villas in Harbin were converted into public welfare places or office places after the owners left. For example, the Afanasiev Villa, located at the corner of Dazhi Street and Yaojing Street, became the largest railway Library in the Far East. Most of the residences of railway staff are located in residential areas not far from the office building of the Railway Bureau and the Railway Club building. They are distributed in Garden Street, Hegou Street, Jiaotong Street, Haiguan Street, Central Street (now Shenyang Street), Beijing Street, Jianzao Street (now Haicheng Street), Gongsu Street, and a part of them are located in Dazhi Street^[6]. The soil in Harbin was fertile enough to be fired in large quantities

into bricks and used as building materials. At that time, Russian architects used a large number of these building materials, so most of the residences of workers in Harbin Middle East Railway were built of bricks. On the one hand, the cost of materials was low. On the other hand, the cold climate in winter in Harbin required higher thermal insulation performance of buildings. Building thick brick exterior walls can play a strong role in resisting cold. In addition, the building uses herringbone wooden roof structure to form a single-storey double-slope roof, and the clear water is painted with a uniform beige color, which makes the overall style of the residential community harmonious and unified.



Figure 3 Middle East Railway Senior Staff Residence

Table 2 Residential Historic Architectures in Dazhi Street Area in Dazhi Street Area

Architectural Name	Construction time	Architectural style
The residence of the deputy director of the Middle East Railway Administration	1900	Art Nouveau Architectural Style
Middle East Railway General Auditor's residence	1904	Art Nouveau Architectural Style
Middle East Railway Senior Official Residence	Early 20th century	Eclecticism architectural style
Middle East Railway Senior Staff Residence	Early 20th century	Eclecticism architectural style
Middle East Railway Russian Workers'Housing Complex	Late Qing Dynasty and Early Republic of China	Russian Architectural Style

(3) Religious architecture

Harbin city is very characteristic of those religious buildings belonging to different denominations, churches have become an important symbol of Harbin^[7]. Foreigners and Chinese people in Harbin, religious beliefs including Orthodox Church, Catholicism, Christianity, Judaism, Islam, Buddhism and so on, formed the coexistence of various religious buildings in Harbin. In terms of quantity and scale, the Orthodox Church is the most prominent. In 1899, St. Nicholas Cathedral laid its foundation in the new city and was completed in December 1900. It has existed for more than 60 years since then. St. Nicholas Cathedral is located at the intersection of Dazhi Street and Chezhan Street (today's Hongjun Street), the commanding heights of the city, in the heart of the new city. The plane of the building is symmetrical along the axis with the Greek cross layout in the North-South direction. The building is Russian style, the facade is made of log overlay, the wooden roof at the entrance has three "onion roof" decorations, the main part of the roof is unequal hexagonal, the top also has "onion roof" decoration^[8]. In 1908, the Sabbath Church of the

Virgin Mary was built in Harbin's new cemetery (in today's Nangang Cultural Park) and has been preserved to this day. There are also several non-external churches in Harbin, among which the small church of business school is perhaps the most distinctive one of the similar churches. Since the October Revolution of 1917, a large number of exiled Russian emigrants have entered Harbin, which has set off an upsurge in church construction. As a result, since the 1920s, a large number of new churches have appeared in Harbin, mostly brick structures. The Notre Dame Church was moved to East Dazhi Street in 1930. It is built in Byzantine style with brick and wood structure. With the construction of Harbin city, a cemetery appeared in the suburbs of the city, later known as the old cemetery. In June 1941, not far from St. Nicholas Cathedral in Dazhi Street, a monument to the victims of the war against the Communist International was established, which is a typical architectural style of Russian churches in the 17th century. In addition, due to the national upsurge in Harbin, a number of traditional Chinese religious buildings have been built, including the Confucian Temple, the Jile Temple, the Puyu Middle School and so on.

Harbin Confucian Temple is not only the last well-regulated Confucian Temple built in the whole country, but also one of the antique buildings influenced by western architecture in the early Republic of China. It is characterized by the use of western architectural technology and materials to reflect the connotation of traditional Chinese architecture. The gold pillars of the main hall (Dacheng Hall) are converted into reinforced concrete, and the top stones of the gold pillars are made of terrazzo.

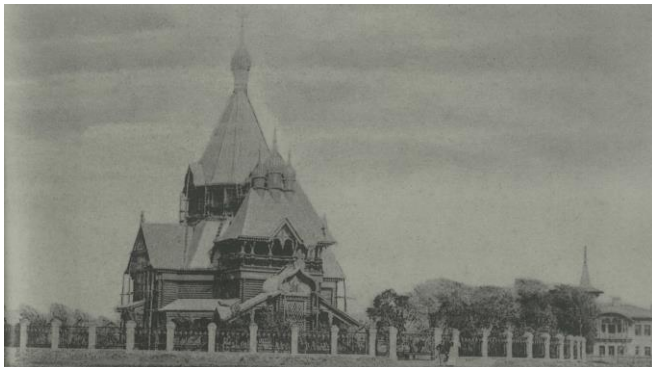


Figure 4 St. Nicholas Cathedral

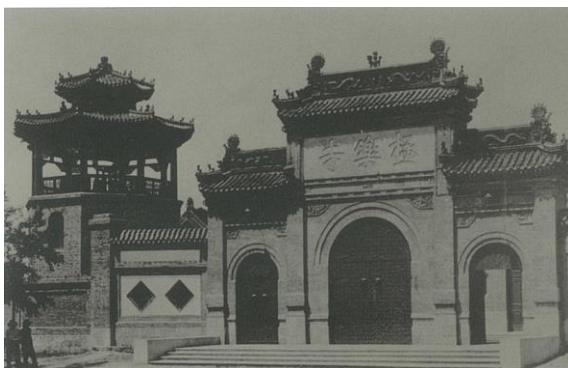


Figure 5 Jile Temple



Figure 6 Confucious' Temple

Table 3 Religious Historic Architectures in Dazhi Street Area

Architectural Name	Construction time	Architectural style
St. Nicholas Cathedral	1900	Classical gothic
Christian Lutheran Church	1916	Gothic style
Orthodox Virgin Mary Patron Church	1922	Byzantine Architectural Style
Jile Temple	1923	Chinese Traditional Architectural Style
Confucious"Temple	1926	Chinese Traditional Architectural Style

(4) Cultural, Educational Entertainment Architecture

Harbin's modern cultural, educational and entertainment architecture started earlier. School buildings appeared one after another in the early 20th century. The Middle East Railway Administration built Harbin Railway Technical School and Business School in Dazhi Street around 1906. After the completion of the Middle East Railway, the Middle East Railway Administration began to pay attention to the training of professional cadres for "correct use of railways". For this reason, the railway system has opened several schools in Harbin, the most important of which is the Business School. The teaching building of Harbin Business School (male school and female school) is composed of two parts which are identical and symmetrical. The school is in the best position in the new city, juxtaposed with the Middle East Railway Administration Building, opposite the two buildings is the Middle East Railway Club Building ^[6]. Established in 1906, the campus of Sino-Russian Industrial Technical College includes teaching buildings, dormitory buildings, office buildings, practice factories and residences, all of which are in the style of Art Nouveau architecture. Later, after several expansion, it was the predecessor of Harbin University of Technology and Harbin Institute of Architectural Engineering. The Puyu Middle School (now Harbin Third Middle School), which was built and put into use in December 1927, was designed by Russian architects, but the whole building belongs to pure Chinese classical style. Puyu Middle School is the first large-scale Chinese-style building built in Harbin. It is the first successful attempt to integrate Chinese traditional architectural style with European architectural style. It also has the first innovation of key technologies, such as using concrete pilasters instead of log pilasters, but it still maintains a purely Chinese classical style in appearance ^[6].

In terms of entertainment architecture, the Middle East Railway Club, as the largest entertainment building in Harbin, is very representative. The front of the building extends parallel along the street. The two sides of the building are irregular geometric plane structures. Including theatre and library, outdoor open-air square and various flower beds,

Harbin's early eclecticism style of architecture^[8]. There are theatres, film projection rooms, book reading rooms, chess and card rooms in the room, and cultural and entertainment facilities are very complete. The Middle East Railway Club was built in 1911 and is located on Dazhi Street, across the street from the Middle East Railway Administration Building. There is an open space in front of the building, and there is an open-air plaza and various flower beds outside. The front of the building extends parallel to the street, and the sides of the building have an irregular geometric plane structure. The building consists of two parts, the theater and the library. It is an eclectic style building that appeared earlier in Harbin^[8]. There are theaters, movie screening rooms, book reading rooms, chess and card rooms, etc., and cultural and entertainment facilities are complete.



Figure 7 Confucious' Temple



Figure 8 Sino-Russian Industrial Technology School



Figure 9 Puyu Middle School



Figure 10 Harbin Business School

(6) Commercial and Service Architecture

Harbin's commercial buildings can be said to be a new force, with rapid development^[6]. The most famous one is Qiulin Company. In 1904, Qiulin Company was founded in Dazhi Street of New City. With the development of the whole city, Qiulin Company gradually expanded. Later, after expansion, it became a large-scale department store with higher standards in Northeast China. The plane of the building is L-shaped. It is a two-storey brick-wood structure with the main entrance at the corner. The top crown dome, the wall shape concise by eaves, cornices and daughter walls constitute a key decoration. Later, it was expanded into a four-storey building in 1982, which generally maintained its original style. Moscow Mall, built in 1906, is an important building in the central square of the new urban area. It is two stories high and one story underground. The plane is composed of three standard segments and two corner links, which is the style of the new art movement. With smooth curved piers, windows and domes, a beautiful shape and unique skyline are formed. The building was changed into a museum in 1922 and is now the Heilongjiang Museum. The Middle East Railway Administration Hotel, built in 1902, is the first large-scale hotel building in Harbin, with three floors high, complete functions and high specifications. Architectural style has both Renaissance style and new art movement charm. These commercial and service buildings with high artistic quality constitute an important part of Harbin's urban landscape. They all play an important role in adapting to modern urban life and shaping the unique style of squares and streets^[8].

To some extent, architecture has characteristics independent of social background. Although the times are changing, the architecture left over from the past can preserve their own

values through the new functions and profound historical significance given to them in the new era. Harbin's modern architectural activities for more than one hundred years have brought the spread and application of advanced western science and technology, new structural forms, new building materials, new building forms and new technologies, which not only promoted the prosperity of modern construction industry, but also promoted the development of social economy. In addition, the emergence of new architectural forms enriches the urban architectural landscape, activates the image of the city, and forms the orderly coexistence of Chinese traditional architecture, western architecture and Chinese-Western blending architecture. The emergence of new building types in cities, such as libraries, museums, stations, schools and hospitals, reflects the development of cities and social progress.



Figure 11 Qilun Company

3.1.3 Squares and Streets

In the planning of New City, the setting of square is very important. The plan takes Dazhi Street as the main axis, arranges three circular squares in succession and connects several roads to the square. The three squares include St. Nicholas Church Square, Educational Square and the Front Square of the Middle East Railway Administration (pictured) ^[5]. These squares are connected in series with important landscape nodes and playing a symbolic role. Saint Nicholas Church Square is a circular square formed by the intersection of Dazhi Street and Hongjun Street. On the basis of this, two radiation paths are extended from the square to form the geometric center of the new city (figure). The Jiaohua Square is located in front of the main entrance of Harbin University of Technology, forming an important spatial node in Dazhi Street; the front square of the Railway Bureau is a typical pre-construction plaza, highlighting the space importance of the Middle East Railway Administration building and forming another important space node on Dazhi Street together with the Middle East Railway Club across the street. The spatial layout of multiple squares on one axis not only highlights the important role of Dazhi Street as the axis of the city, but also emphasizes the role of Saint Nicolas Square as the focus of the city. The radial road around the square also facilitates urban traffic, and the traditional layout has been successfully applied to modern urban planning, which makes urban construction reflect profound cultural connotations ^[5].



Figure 12 St. Nicholas Cathedral Square

3.1.4 Greening and Essential Elements of Sketches

At the beginning of urban planning in New City, the planning layout of urban greening system embodies multi-level characteristics because of drawing on the concept of urban planning in Paris. It adopts a combination of concentrated Park greening, street garden, square greening, street greening and scattered courtyard greening to carry out greening layout. In 1898, when Nikolay Cathedral was built in the new city, trees were planted in the church yard and its surroundings, and a 22-hectare Park (now the campus of Harbin Institute of Technology) was planned between today's Jiaohua Street and Fuxing Street, Dazhi Street and Majiagou River. In 1906, the first street green park (now Beixiu Park) was established between Dazhi Street and Railway Street. At the same time, trees were planted in Jiashu Street, Garden Street, Dazhi Street and Songhua River Street. The main roads in Harbin are relatively wide, and the roads in residential districts are up to 13m. Most of the buildings on both sides of the roads retreat a few meters, thus forming a variety of street greening modes with distinctive features before buildings. This kind of greening method mostly combines roadside trees, flower pools and green space together with simple paving, chairs, hedges and so on, which constitutes a variety of different combinations of roadside greening mode (figure1)^[9]. Harbin's greening landscape relies on the original natural basis, so it can quickly form a good landscape effect after the beginning of urban construction. The local tree species in Harbin are mainly pines, elms, birches, elms and cloves, which are very suitable for the greening, landscape application and architectural planting of Russian-style western cities. These diverse and characteristic greening make the overall landscape of Dazhi Street richer.

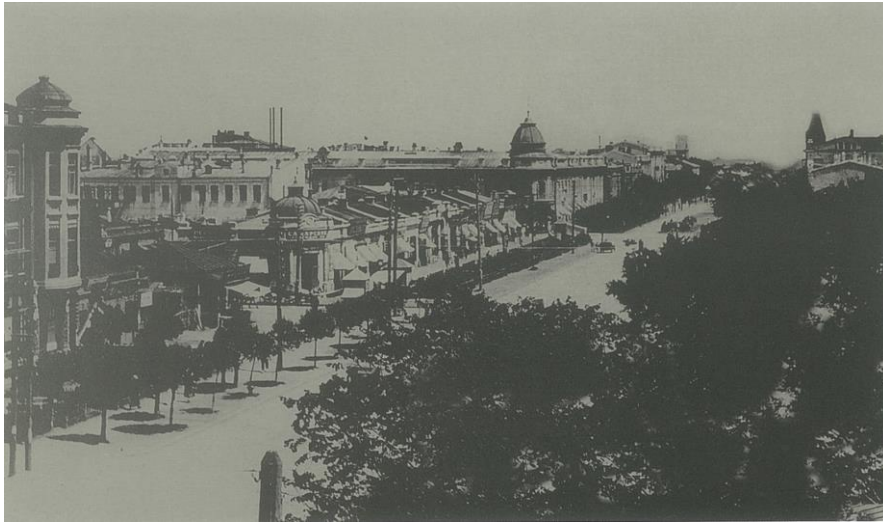


Figure 13 Greening Landscape of Dazhi Street

3.2. Artificial Elements

3.2.1 Topographic features

Topography refers to the fluctuation of the terrain, which can also be called the form of the surface. Such as mountains, hills, rivers, lakes, seashores, swamps and so on. Usually people design and plan a city according to its topography and landform. Street landscape as an important part of the city, will also be combined with the city's topographic characteristics show. While satisfying the street function, combining with the city's topography, it can make the original scenery more beautiful, and also add new artistic characteristics and personality to the city's image. The new urban area has chosen the highest position in the whole city, thus laying a material foundation for him to become the geographical environment, administrative management and social and cultural center of Harbin. New city's topography is undulating. The hilltop extends from southwest to northeast. The slope on both sides is large. The right side is near Majiagou River. The left side is bounded by the Binzhou Railway Line, which separates the new city from the port.

3.2.2 Mountains and rivers 'patterns

Landscape pattern is an important part of a city's natural elements, which reflects the harmonious coexistence of the city and nature. Dazhi Street is adjacent to Majiagou, and the part near Majiagou in the section is perpendicular to it in road planning. Majiagou is integrated into the overall landscape system of the new town to carry out the corresponding landscape planning, thus enriching the urban landscape types.

3.2.3 Vegetation types

Because Harbin is located in the cold area, the greening color in the city is usually monotonous. Generally speaking, the main trees planted in Harbin streets are elm, birch, maple, maple, Manchurian ash, yellow pineapple, walnut, oak, pine, cypress and so on. Clove is a city flower in Harbin. There are more than 35 kinds of clove in the city. In view of the geographical characteristics of Harbin, the natural vegetation here is usually dominated by coniferous and broad-leaved mixed species such as pine, elm and birch. Among the low shrubs, the urban area used to be dominated by elm trees, while there are many kinds of

cloves, so Harbin has the reputation of "City of Cloves" and "Yudu". The Russian colonists made full use of this feature. After the construction of the Middle East Railway, elm and clove were taken as the main greening tree species in the street landscape. The planning concept of Western Garden City was adopted in the planning of Harbin's urban landscape, which greatly improved the greening degree of Harbin.

3.3. Humanistic Elements

The city is not only an important material space carrier for the inheritance of historical context, but also indirectly embodies the contents of social change, humanities and arts, moral concepts, religious beliefs, local folklore and so on, forming the cultural connotation of the city, i.e. intangible culture. Focusing on the elements of human memory helps to enhance people's cultural identity and build a more complete urban memory structure.

3.3.1 Symbolic Elements of Geographical Names

The place names of Harbin reflect the changes of history and the development of the city. For example, since 1920, China has gradually regained its sovereignty over Railway dependencies and become a special administrative region that continues to open to the outside world. During this period, Harbin experienced a wave of revival of national culture. In March 1925, the General Administration of Police of the Eastern Provincial Special Area made a change in the name of the street originally named in Russian in Harbin. At the same time, some street names were renamed and some of the old names of the street were restored^[10]. Some street names in the new city where Dazhi Street is located have been changed accordingly (Table 4).

Table 3 A List of Changing Street Names in Harbin^[10]

Urban Area	Before renaming	After renaming
Butou District	King Hillkov Street	Diduan Street
	New City Street	New City Street
	China Street	Central Street
	Cossack Street	Gaoshi Street
	Shitoudao Street	12th Street of China
	Japan Street	6th Street of China
New City	Holwalt Street	Chezhan Street
	Dazhi Street	Dazhi Street
	Nikolayevsk Street	Temple Street
	Fengtian Street	Fengtian Street
Majiagou	Brusselov Street	Zhonghe Street
	Balkan Street	Bashan Street
	Officer Hospital Street	Wenzhi Street
Xiangfang District	Lujun Street	Lujun Street
	Junguan Street	Junzheng Street
	Zuolin Street	Ankang Street
Xin'an Port	Mikhailov Street	Anding Street
	Albazin Street	Anle Street

3.3.2 Dietary culture

With the construction of the Middle East Railway in the early 20th century, a large number of Russian immigrants came to Harbin, and at the same time brought Russian food habits here. As Dazhi Street is located in the administrative office area of the Middle East Railway and the residential area of Russian workers, it has been deeply influenced by Russian catering culture. The Middle East Railway Club on Dazhi Street not only has the function of

recreation and entertainment, but also is the earliest Western restaurant in Harbin. Many large banquets for the inauguration, welcome and farewell of diplomatic missions, international associations and senior officials are held here. In the 1920s, Harbin gradually developed into an international city, and the demand for Western food was increasing. The main restaurants managed by Russian overseas Chinese gradually became operated by multinational nationals, and there were more Russian-style restaurants managed by Chinese people [12]. The influence of Russian dietary culture on Harbin has lasted till today. Eating Russian food is still a part of Harbin people's dietary habits. Russian food such as Large column Pakistan, sausage and so on is a common dish on Harbin people's table. As a traditional staple food of the Russians, Large column Pakistan is not only loved by the Russians and Europeans, but also by the Chinese living in Harbin[13].

4. Conclusion

The study of urban memory has led us to form a new way to understand the city and find a better way to plan and build our city. Through the construction of the memory structure of the city, it can enhance the public's sense of identity and belonging to the city, enrich the public's emotional experience of history, and connect it with the current life, so that the historical and cultural connotation and humanistic value of the city can be widely transmitted and deepened, so as to optimize the current urban spatial form and shape the city's characteristics. It provides a feasible way of thinking.

5. References

- [1] Lewis Mumford(1968). The City in History: Its Origins, Its Transformations, and Its Prospects[M] London:Mariner Books.
- [2]Rossi, Aldo(1982).The architecture of the city.Cambridge: MIT Press.
- [3]徐苏宁(2007).城市设计美学.北京：中国建筑工业出版社.
- [4]刘泉(2008). 近代东北城市规划之空间形态研究.大连理工大学.
- [5]刘松获(2004).近代哈尔滨城市转型下的城市规划.哈尔滨工业大学学报.
- [6]克拉金(2007).哈尔滨——俄罗斯人心中的理想城市. 哈尔滨：哈尔滨出版社.
- [7]石方(1995).中东铁路的修筑对哈尔滨经济社会发展的作用与影响.学习与探索.
- [8]侯幼彬,张复合,村松伸,西泽泰彦(1992).中国近代建筑总揽•哈尔滨篇.北京：中国建筑工业出版社.
- [9]王一婷(2011). 哈尔滨历史街道景观视觉特征研究.哈尔滨工业大学.
- [10]越沢明(2014).哈尔滨的城市规划.哈尔滨：哈尔滨出版社.
- [11]哈尔滨市志•城市规划 土地 市政公用建设(1998).哈尔滨：黑龙江人民出版社.
- [12]何宏(2008).哈尔滨的早期俄式西餐.学理论.

[13]庄鸿雁(2008).城市文化与文化城市——哈尔滨：城市记忆与文化思考.北京：中国文史出版社.