

The Evolution and Thoughts Based on Urban Form of Guangzhou

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Abstract: History truly exists in every construction site, and provides a wealth of design resources for architects. The city is the working field of various forces. The evolution of the city is also closely related to economic, politics and other factors. This paper demonstrates the process of urban change from the beginning of the establishment to the present situation according to the historical processes in Guangzhou. Combined with several important points of time to analyze the various factors leading to the formation of urban typology changes. Focus on the urban changes from initial development of treaty ports, the cultural aggression and expansion after the Opium War, the economic and policy changes of Guangzhou after China's reform and opening up to the intermingling of population and culture in Guangzhou today. This paper summarizes the theoretical elements related to the urban form and the changes in the road, the composition of human beings and the urban hybrids in the historical process, which have an attempt to conceive the future urban construction.

1. Introduction

Why must culture be at the heart of sustainable urban development? City is not only the space carrier of historical culture, but also the cultural landscape of social economy. As the carrier of reflecting space of urban social life and institutional culture, the historical space pattern of ancient city is an important content of people's understanding and memory of historical and cultural city and context. Guangzhou is such a city. Here are some general information and essential data on Guangzhou.

Guangzhou, which is also called "Canton", borders the South China Sea, the Hong Kong Special Administrative region and the Macao Special Administrative region. It is China's southern gateway to the world. Guangzhou is a hilly area with a high terrain in the northeast, a low in the southwest, a mountainous area in the north and northeast, a hilly plateau in the middle and an alluvial plain in the Pearl River Delta in the south. The Pearl River, the third largest river in China, flows through Guangzhou. Due to the topography character of Canton, it has many commercial intercourses with other cities and countries.

Here is the basic data about Guangzhou population. According to the latest information on the Internet, Guangzhou's existing urban population has reached 15 million. Besides, the population in 2017 is around 14.5 million and in 2014 is around 13 million, increasing at an average annual rate of 5.1% since 2000. From 2004 to 2013, Guangzhou's household registration popu-

lation increased by 950 thousand people approximately, at an increase of 12.8%. By contrast, the number of residents in Guangzhou increased by 3.3 million, at an average of 33.8%, at the same time. What needs to mention is, there are more people without household registration in Guangzhou than those with household registration. And resulting in this situation is Guangzhou's culture, which is quite inclusive.

With regard to the spatial distribution of population density, compared with the change of population density in Guangzhou streets in 2000 and 2010, it can be seen that: Firstly, the population density is on the rise as a whole. Secondly, the number of high-density streets has not shown a downward trend, but has increased to a certain extent. Taking the street with the largest population density in the central district as the core, the law of decreasing in the outer layer is presented. Most streets have population densities of less than 2000 people per square kilometer. The population in the suburbs is growing rapidly and the density is increasing significantly, which the process of population suburbanization has been strengthened.

According to the data, the road width of Guangzhou over the past few years have no obvious change. Which reminds the concept of generic city. In Rem Koolhaas theory, the trend to globalization and generic city is inevitable to some extent. A. Smithson and P. Smithson appealed people to focus on the importance of city infrastructure. It is argued that the community should be divided in "perceptible unit" that the road constitutes the basic material infrastructure of the community. In terms of road traffic, the road width in Guangzhou has not changed significantly in this period of time, and it is no different from the average road width in other cities.

2. Methodology

The blending of different cultures in cities has become a topic of concern today. What needs to be focused is the relationship between urban morphology and hybridization of the culture especially on the invasion of foreign cultures and people in Guangzhou. Urban morphology as being continuously produced or reproduced through social practice are rooted in a given spatial context and at the same time to identify the most significant elements of the physical context in the terms of livability or inhabitability. The relationships between these elements can have a different nature, since they can express different emotions and behaviors to the space which is connected to the urban morphology and building typology. This relationship is never a deterministic one, but it is the result of a peculiar combination of multiple factors. According to the present situation of Guangzhou, different spatial configurations are generated.

Guangzhou is realizing a transition from a single-center city to a multi-center city. Guangzhou's urban space still shows a more typical single-center urban structure. From 2000 to 2010, the urban structure was centered on the central part of the city, and the population around the core presented the characteristics of a stratified distribution. Although there were a few sub-centers in 2000, their population capacity was insufficient relative to the central district, and until 2010, the population sub-centers were still not obvious. But in 2010, the population density in the central district still showed an upward trend.

By studying the spatial distribution of the present public facilities in the whole city and analyzing the common center, the Murphy index technology is used to combine three factors that the peak land price, the unit function and the traffic network, which are also define the boundary range of the present Guangzhou central district quantitatively. Furthermore, it makes clear that the central system of Guangzhou is composed of Beijing Road Central District. The ninety-three central districts which is located at upper and lower section constitute the framework of Guang-

zhou's urban center system and serve the whole city of Guangzhou. According to the data, the total land area of urban central system has reached 15.03km² and the total building area of 32.6 million m², distributed along the main city ring road to Jiefang Road, Guangzhou Avenue and Zhongshan Road, forming "two vertical and one horizontal" axis pattern.

The city is the working field of various forces. In 1973, D. Harvey proposed that it is necessary to evaluate the construction of the city from the different needs and values of different groups of people in the city, and the space must be divided into different spaces, from the point of view of political economy. The evolution of the city is closely related to economic, political and other factors. The Chinese government has established a yardstick for all cities. The most developed cities are called first-tier cities. First-tier city refers to a metropolis that plays an important role in the national political, economic and social activities and has the leading role and radiation-driven ability.

The urban axis is the product of the urban development planning and architectural design of the past dynasties. It is the symbol of urban culture formed to a certain extent, which reflects the cultural and historical heritage and changes of the city. During the long history of Guangzhou's development, the form of urban space has been changing constantly. So far, two urban centerlines, traditional axis and new axis, have been formed, carrying different urban development processes and assuming different functions.

The traditional axis is located in the central city of Guangzhou. The origin of the traditional axis can be traced back to the Qin Dynasty. Furthermore, the central axis of the node with political and historical significance is the political and cultural center in Guangzhou. The new city axis is developed after the reform and opening up, which is the product of urban planning.

Residential area is an element, is a part of urban form and closely related to the evolution and nature of the city. Residential areas themselves are made up of parts, which in turn make up the image of the city. Guangzhou is one of the fewer cities in the country that completely preserves the old urban areas. In addition, the problem of the villages in the city of Guangzhou is also prominent, and has its unique regional background and characteristics. The number of villages in Guangzhou is large, and the distribution is wide, the building density is high, and the population is large. Therefore, it is relatively complicated for the government to operate.

Besides, the historical blocks of Guangzhou generally have the defects of building aging and poor housing conditions, and the proportion of public rental housing and private housing is relatively high, and the housing forms are mainly joint low-row houses and ordinary multi-story houses. Secondly, aboriginal people leaving and ageing phenomenon prominent. The resident population in this block is moving out and the transient population is on the increase. The composition of resident is diversified and the service demand scope is larger. Thirdly, infrastructure and supporting facilities are imperfect. There is a lack of greening in many places and there is little room for activity. Finally yet importantly, traditional wholesale industry and modern life pump can be well integrated. According to the map and the corresponding data, it can be seen that there are more shops in the old city, but the economic contribution is less.

3. Analysis/Results

When put the spotlight into the Canton's Urban Development Time Point, some highlight upgrades have been showed. China is a country with a long history, and Guangzhou is the city that has existed from thousands of years ago, so it is very important to understand the history of Guangzhou. The following is a schedule of developments and related plans based on various types of information. The timeline will be based on the history of the Chinese dynasty. The

early days of Guangzhou's urban development were in ancient China. In addition, each dynasty has the phenomenon of intermingling and correcting each other.

Canton have the best-preserved, earliest and largest ancient sluice site in the world. The Sui and Tang dynasties were the flourishing period of Kaiyuan in Guangzhou. As a result, great construction, opening of canals, building palaces, and connecting traffic between the north and the south have become an indelible feat in history. Interestingly, some of these ancient canals have been preserved and become the urban texture of Guangzhou today. They are not only to defend against the enemy, but also to defend against the flood, in order to facilitate the discharge of accumulated water and waterlogging, the wall must also set up water closing gates.

At the highlight of the Tang Dynasty, Guangzhou has become one of the three major commercial cities in the country. At the heyday of the Tang Dynasty, Guangzhou had become one of the three largest commercial cities in China (the other two were Yangzhou and Bianliang). With the development of foreign trade, many people moved to Guangzhou. The city of Tang Dynasty is flourishing day by day, the population is large, the scope of the city has already broken through the idle of the city wall, and we can see the general scope and the form of the city of the Tang City. The city wall of Guangzhou in Tang Dynasty is very small, the city form has formed the layout form of sitting north to the south, forming a central axis of north and south, thus laying the foundation for the building of NanHan dynasty.

The second upgrade is the form of treaty port. Guangzhou was the only seaborne foreign trade port in the Qing Dynasty. The monopoly of foreign trade was named by the Qing government as the "Thirteenth Bank", or "Foreign Bank". With the continuous growth of the export trade volume of the Thirteen Banks, Guangzhou became the center of foreign trade in the Qing Dynasty.

The third upgrade is in China's reform and opening up. Since 1975, the Chinese government has carried out a series of measures to promote reform and opening up. Guangzhou, as the first city to be reformed, has been extensively developed. Therefore, the development during this period was mainly oriented towards political reasons.

History truly exists in every construction site, and provides a wealth of design resources for architects. Thus, the following is from the holistic perspective to introduce Canton. The city is the working field of various forces. The evolution of the city is also closely related to economic, politics and other factors. The following demonstrates the process of urban change from the beginning of the establishment to the present situation according to the historical processes in Guangzhou. Combined with several important points of time to analyse the various factors leading to the formation of urban typology changes. Focus on the urban changes from initial development of treaty ports, the cultural aggression and expansion after the Opium War, the economic and policy changes of Guangzhou after China's reform and opening up to the intermingling of population and culture in Guangzhou today. This paper summarizes the theoretical elements related to the urban form and the changes in the road, the composition of human beings and the urban hybrids in the historical process, which have an attempt to conceive the future urban construction. The following will highlight developments and changes in urban planning in Guangzhou, which is connected with the urban morphology and building typology coinstantaneous.

Shameen Canton is the product of this era. Guangzhou has signed two unequal treaties and then was colonized by France and Britain. Among the unequal treaties of the Qing Dynasty in China, Nanjing Treaty and Guangzhou Bay Concession Treaty is connected to Guangzhou, opening Guangzhou as a Trade Port, which attributed to the development of economy. As the seat of colonial power and the center of political-military activities in Guangzhou from 19th to

20th century, the Shameen Consulate region has a history that began with the delineation. The British government made urban planning here. A 15-foot-wide central thoroughfare extended from east to west. Parallel to this central avenue, there is a 6-foot wide road between the north and the south. Vertically, these roads are set up with several 3-meter roads to form a primary and secondary chessboard road network, which divides the sand surface into 12 regular zones. Britain occupies four-fifth of the land; France occupies 1/5 of the land. In the existing consulate building in Shameen, the United Kingdom, the United States, Germany, Russia and France stand out, not only because they played an important role in the recent history of China, but also because the consulates of these countries were built earlier and of higher quality. After a hundred years, more than 10 countries have set up consulates, foreign banks in Shameen, which witnessed the change of Guangzhou's Modern History.

Three cities pattern. The culture bleeding was obvious in Song dynasty from the ancient China first time. Due to the destruction of the wall during the Southern Han Dynasty, the Northern Song Dynasty was built, and then Guangzhou formed the spatial pattern around the triple city wall. The Song Dynasty was a connecting stage for Guangzhou. After the Southern Han Dynasty, the middle region of the north was still regarded as the political center. The commercial districts in the west and along the Yangtze River were consolidated, and the style of the city was greatly improved, and the characteristics of opening and popularizing were presented to promote the formation of the unique culture of Guangzhou. The three cities are Xicehng, Zicehng, Dongcheng. Xicehng is the major commercial district. Zicheng is built on a previous basis. Dongcheng is for the Palace people's residential and scenic area.

City wall is an important feature of the development of ancient Chinese cities and records the changes of a city. At the beginning of the Northern Song Dynasty, the city walls of Guangzhou were built from the Tang Dynasty to other five dynasties. As a result of many wars and hurricanes, the wall has been ruined, defenseless. The city wall of the Song Dynasty occupies a very important position in the history of Guangzhou's urban construction, not only because it created the city wall pattern of the three cities of east, middle and west, but also because of the large-scale expansion of the city area. What is more, the city wall of Song Dynasty was the beginning of the transformation of the wall of Guangzhou into a brick wall. The project is fairly solid. From the morphological point of view, the city wall in song dynasty can be summarized as the following characteristics.

Firstly, the function of the three cities is clear. This pattern continued until the Ming and Qing dynasties. The main functions of the three cities are politics, economy and houses respectively.

Secondly, planning facilities are more perfect. It can be summed up from the drawings that the street layout T-shaped, the largest area of the city for the commercial ship area, a well-shaped. Urban water supply and sewerage systems continue to play an important role in the period of the Republic of China. Thirdly, the material of city wall is transformed from soil into brick, and the city wall project is spectacular.

By the end of the Qing Dynasty, due to the weakness of the rulers and the policy of closing the country, China was repeatedly invaded by foreign powers. The first Opium War and the Second Opium War stagnated China's development, leading to changes in many cities, so as Canton. The first Opium War was launched jointly by Britain and France with the support of Russia and the United States. In order to further open up the Chinese market and expand the interests of aggression in China. The Qing government signed a series of unequal treaties with Britain. Among them, Nanjing Treaty opened five Chinese cities as ports of trade. At 1757, the Qing government closed other customs and kept Guangzhou

as the only treaty port. Thus, Guangzhou has been developed partly and Shameen Island has established.

When comes to the Anti-Japanese War and Civil War, years of internal and external wars have destroyed the development of urban space. In 1932, the Guangzhou government released the first official document in the history of Guangzhou city planning. In this document. The overall layout divides the city into four functional areas, industrial residential, commercial and mixed. Therefore, the internal forms of urban space are also gradually changing, showing a regional, diversified development trend, diversification development represents the basic characteristics of the overall urban spatial form in modern Guangzhou. The modern urban spatial structure of Guangzhou is roughly composed of the old city, the administrative center, the new commercial space and other collages. During the War of Resistance against Japan, Guangzhou was destroyed and the development of the city entered a period of retrogression and stagnation.

After the founding of People's Republic of China, Guangzhou began a modern urban planning attempt. All these are closely related to the evolution of the national system Beijing, and can be divided into three stages, taking the founding of the People's Republic of China and the reform and opening up as the demarcation points.

4. The period of the Republic of China: the attempt of Modern Urban Planning

When comes to the period of the Republic of China, it is an attempt of Modern Urban Planning. The 1932 draft outline is considered to be the first systematic and comprehensive master plan in the history of Guangzhou planning. From the drawing, we can know that this is only the road system designed by the city government at that time, not the road determined by the final field visit. It can be seen from the map that each road in Guangzhou is designed to form a grid. The planned road has been extended to Tianhe, the west of Fangcun and the whole island of Zhuhai. In 1932, the South China Sea and Panyu counties were successively moved to Foshan, newly built, and officially assigned to the jurisdiction of Guangzhou. Another drawing detailed description of the city's main streets and roads in 1932 is shown in Guangzhou, with yellow markings on roads built and red on roads that have not been built. It can be seen that at the beginning of the Republic of China, the roads built in Guangzhou were mainly concentrated in the old urban areas, and the streets in the city were expanded in the late Qing Dynasty. The planned new roads were mainly concentrated in Dongshan and Henan areas. It shows that Dongshan and Henan are the main developing regions in this period.

However, because of a lot of social resistance, part of the draft cannot be put into practice. Although most of the draft has not been effectively implemented due to the war and political turmoil, it still laid the foundation of Guangzhou's modern city and promoted Guangzhou from ancient city to modern city.

5. From the Founding of the People's Republic of China to the Reform and opening up: planning based on the layout of Industry and Infrastructure

From the Founding of the People's Republic of China to the Reform and opening up, the planning is based on the layout of Industry and Infrastructure. During this period, Guangzhou put forward corresponding planning targets around the national policy of urban construction at that time. Gradually change Guangzhou from a consumer city to a socialist production city.

Therefore, the planning scheme of Guangzhou in this period also presents the characteristics of service for production. From the urban layout, industrial land as the most important spatial elements. At the same time, considering the political reasons, the industrial zone should be distributed according to the principle of decentralization to ensure the safety of the city.

In conclusion, during this period, the political factor is playing an important role. And industrial projects, infrastructure and other spatial layout location have been designed during this time. However, as a result, many of the planning drafts were ultimately reduced to the tools needed to influence the political situation and were of little practical use.

6. Reform and opening up to the early 1990s: turning to Comprehensive cities

At the period of reforming and opening up to the early 1990s, Canton has turned to Comprehensive cities (China reform and opening up in December 1978). Under the influence of political and economic construction, Guangzhou's urban function changes from production to life and from industrial city to comprehensive city. Transformation of urban structure from single-center expansion based on the old city to zonal cluster pattern

After 1990s, Guangzhou has been steady developed. Due to the political changes in Guangzhou, Guangzhou began to develop slowly during this period. After this, Guangzhou government controls planning gradually, at present Guangzhou maintains stable development.

Furthermore, during this timescale, the Inflow and outflow of population need to be mentioned. Due to historical and geographical factors, Guangzhou attracted a large number of people from other countries to settle here. As a window of foreign trade, Guangzhou is called the third World Capital.

For economic reasons in the Pearl River Delta, many people who run small businesses come here, of whom there is a certain proportion of black people. When talking about the gathering place, it also has the unique feature. A WikiLeaks file in 2008 shows that the municipal authorities in Guangzhou are worried about the existence of black people. There is also a view that the black in speech will be excessive harassment to women in Guangzhou.

Compared with Beijing and Shanghai, Guangzhou is not the earliest development in the history of the city. But Guangzhou has an innate advantage in business. From the Song Dynasty to the Qing Dynasty, Guangzhou has been the center of China's foreign trade since ancient times. In the Qing Dynasty, the four customs offices of Guangzhou, Zhangzhou, Ningbo and Yantai were opened to trade with Western businessmen. However, the only open port is Guangzhou. Guangzhou has the policy of trade monopoly position, also gave birth to the "Thirteen HANG" such as government-business organizations. As a result, chambers of commerce have been promoted to promote the development of Guangzhou.

7. Discussion/Conclusion

Which influencing factors of Urban Spatial form can be summarized into four factors.

Firstly, planning factors. The construction of urban spatial form can be divided into "planning construction mode" and "organic growth mode". The former is the artificial molding and unified planning of the city shape. The latter has no unified planning thinking, but under the influence of many factors, it spontaneously develops in a reasonable direction. Talking about the development of the ancient city of Guangzhou, because it was the political center of the

feudal centralized government, the city layout of Guangzhou was special in the form of prefectures. However, Guangzhou was located in a remote area and foreign trade port play an important role at that time. Thus, the influence of economy on Guangzhou is greater than that of politics. Besides, the government did not attach much importance to the construction of the city and city in Guangzhou. The development of the Guangzhou is in a natural pattern. Guangzhou has become the capital of the local government three times in the history. Guangzhou became a commercial city comparable to other famous cities in Nanyue dynasty. The construction of the capital city of the Southern Han Dynasty broke the pattern of the Canton in the past, which continued to this day. In these two dynasties, the control of planning thought is embodied.

Secondly, economic factors. Due to the input of foreign power, the development of Guangzhou's Modern Urban form presents the phenomenon of cultural hybridization. According to the planning bureau, the modern urban form of Guangzhou is based on the principle of functional zoning, which including old urban areas, central districts, industrial zones, residential areas, etc. and has a growing momentum.

Thirdly, environment factors. Urban form is the comprehensive expression of both the material shape and the cultural connotation of the city as a whole. Guangzhou is a city of mountains and rivers since ancient times. In the course of modern Canton development, the main urban area was connected to the Dongshan area in the east direction, the binuclear development in the west direction and the Xiguan area, and the extension to the Henan area in the south, and the natural barrier effect in the north due to the Yuexiushan Mountains. Under the condition of modern technology, it is difficult to break through the mountain barrier and expand the urban space to the north. In the southwest of the city, the Shang Guan area was expanded and a

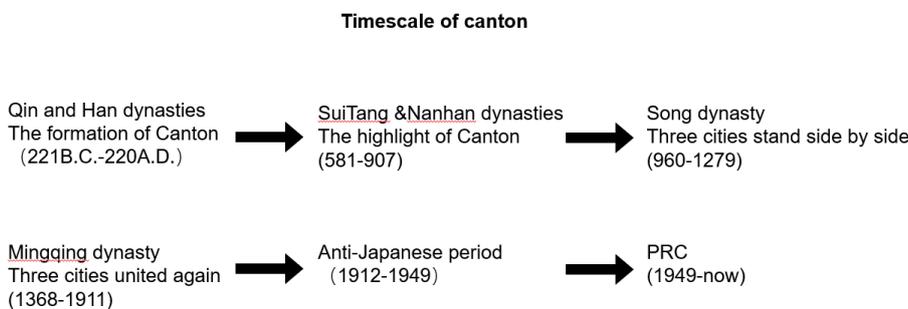


Figure 1. *Timescale of Guangzhou.*
(Draw by the author)



Figure 2. *Map of Guangzhou in Song Dynasty* (Wang Yuan, Wang Jiangang, Cui Haiying, *The historic characteristic and evolution of Guangzhou urban form*, 2001).

new embankment was built. The Pearl River became narrower through the waterway of Guangzhou City, and the urban space was also expanded.

In 1933, the Huizhou Bridge was opened, and the development of the urban area broke through the Pearl River barrier. The old urban area and Henan area break through the Pearl River constraint and present the characteristics of continuous development. It can be seen that the change of natural environment is an important factor influencing the urban spatial evolution in modern Guangzhou.

Fourthly, political factors. As one of the ports of modern Guangzhou, with the overlapping of modern political power and political turbulence, the development of urban space was greatly affected by politics. Founded in the early Qing Dynasty, it was a merchant association that operated all the Chinese and Western trade in Guangzhou in the early Qing Dynasty. During the Nanhan dynasty, in order to embody the dignity of imperial power, the city adopts a symmetrical layout. After the decline of the “Thirteen Shops”, the eighteen monks who were founded in the Ming Dynasty flourished again, especially after the second Opium War. When the Shameen were opened up as concessions, this area was used as the pivot for Guangzhou’s external traffic. For a while, commerce flourished. During the timescale from 1920 to 1930, Guangzhou was in the period of peace construction, and the urban construction had entered a period of rapid development, and the space was also characterized by homogeneous development in different directions. In the late modern period, Guangzhou was occupied by the Japanese army, the government was busy resisting the Japanese invasion, and then was affected by the civil war. The urban construction entered the period of stagnation and restoration, but the overall change was not much.

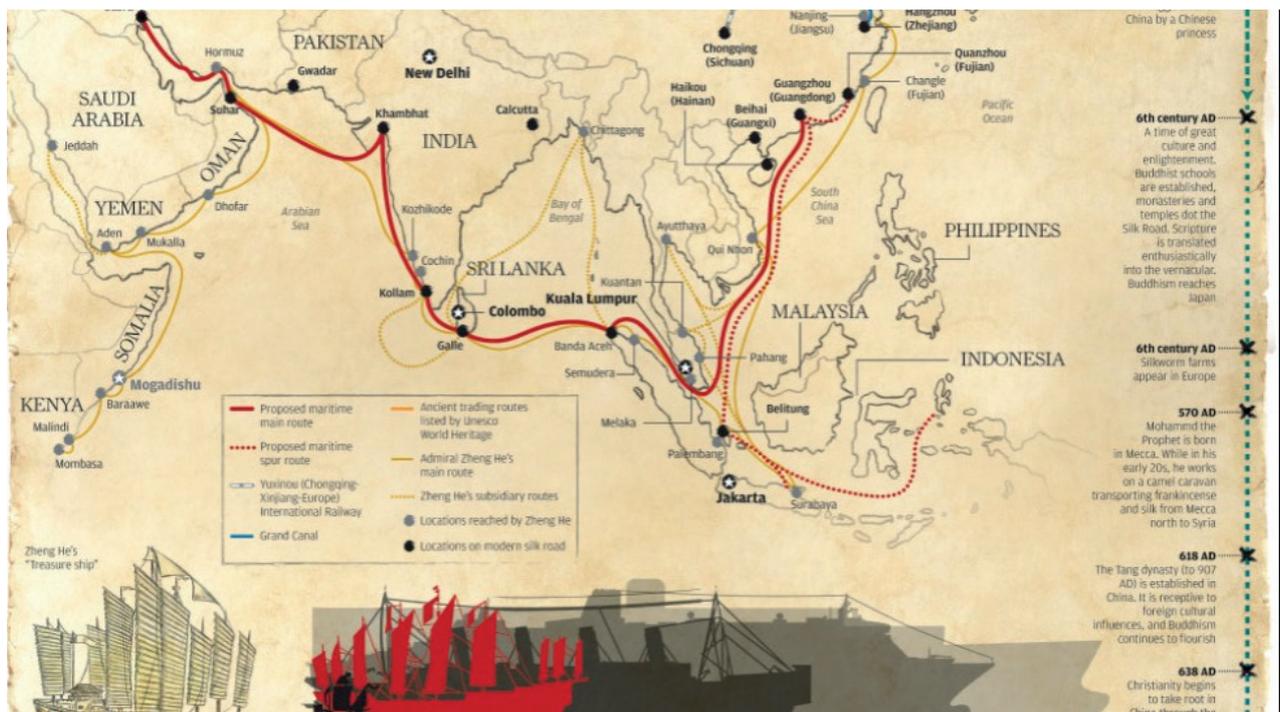


Figure 3. Ancient maritime Silk Road (138B.C.-119B.C.), (http://blog.sina.com.cn/s/blog_406290f50102yae8.html)

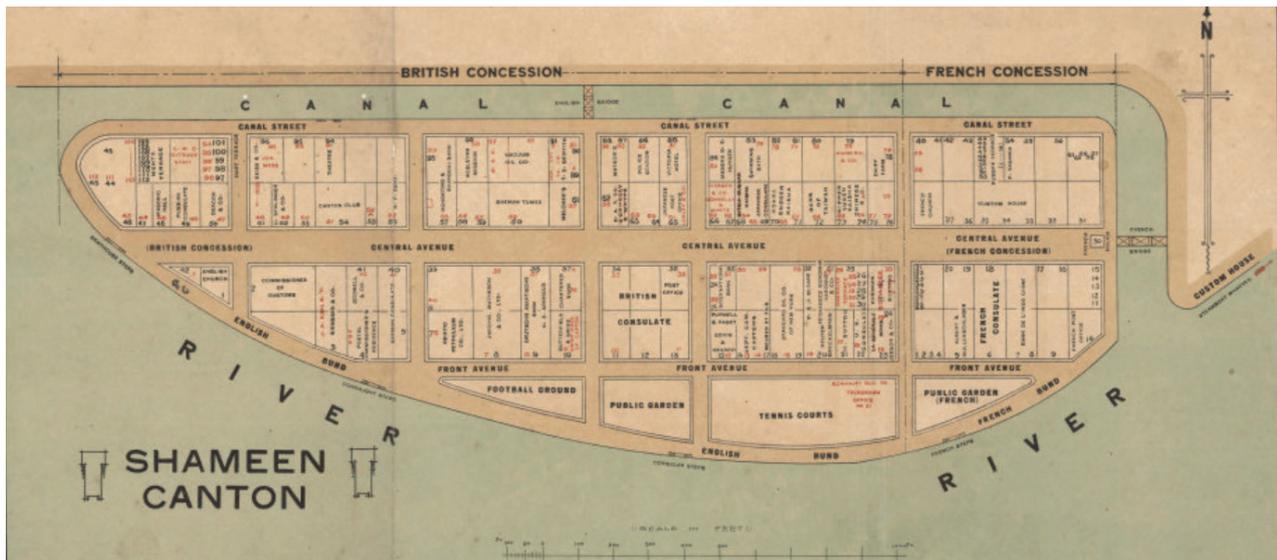


Figure 4. SHAMEEN CANTON, 1910 (http://blog.sina.com.cn/s/blog_40629of50102w976.html).

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