

Study on the Impact of the Revolution of Ancient Wuchang City Wall to the Urban Development of Wuhan

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Abstract. As the gateway of Chinese traditional city, Ancient city walls profoundly reflect the comprehensive development level of the city in fields of economy, culture and politics. On the other hand, working as the urban boundary, city walls clearly define the scope of city, vividly showing the volume and form of the city. As well, the development of city has also led to changes in the size, technology and facilities of the wall. Wuchang City, as an important political and commercial port in central China, is selected as the research object in the paper. The mutual effect between the changes of city wall and urban development is discussed in the process of its gradual evolution from Shakou Fort, a military castle, to Wuchang City, a regional political, economic and cultural center. The development of Wuchang city has promoted the outward expansion of the city wall and the organic integration with the surrounding mountains and rivers. The shape of city wall also had a profound impact on the layout of the city space, with the streets extending from the city gates forming the backbone of the urban space, and streets running through or inside the city still existing as the main arteries of the city for the present. In addition, the continuous development of urban economy and functions is also a main factor leading to the changes of Wuchang city wall; to put it another way, the existence of city wall reflects the overall strength of urban economy and society to some extent. After the demolition of Wuchang city wall, a road around the city was built on the foundation of city wall, which realized the integration and development to the space of modern cities.

Keywords: Impact; Revolution; Ancient Wuchang City Wall; Urban Development.

1. The Revolution of Wuchang City Wall Across Dynasties

Xiakou City: Xiakou, initially established during the Jiangxia period, derives its name from its strategic position at the mouth of the Xia River entering the Yangtze River. Constructed in the second year of the Huangwu era (223 AD) under the orders of Sun Quan, the ruler of Eastern Wu, it served as a military stronghold. At that time, Eastern Wu's capital was Wuchang (present-day Ezhou), and the Yangtze River served as the boundary between the Wei and Wu states, emphasizing the significant military strategic position of Xiakou. The original area of Xiakou City was relatively small, encompassing only two to three li in circumference. The southern wall was built against Huanghu Mountain (also known as She Mountain), while the western wall faced the Yangtze River (see Figure 1). The southwestern corner, known as Huanghu Jiao, served as an elevated point within the city, where a military watchtower was constructed, which later evolved into the Huanghe Tower. Xiakou City eventually became the administrative center of Jiangxia County and Shaxian County.

Yingzhou City: During the Southern Dynasty, the Song Emperor Xiaowu established Yingzhou, with the administrative center located in Yingzhou City, which was expanded from the original Xiakou City. The original walls of Xiakou were preserved, while the walls of Yingzhou primarily extended outward on the east and west sides, creating the eastern and western outer city walls (see Figure 1). Each outer city wall featured a city gate, named Yingzhou Gate and Bilian Gate,

respectively. The original northern and southern walls of Xiakou City were largely retained, undergoing only minor repairs and reinforcements.

Ezhou City: From the Sui and Tang dynasties through the Song and Yuan dynasties, despite the frequent changes in political regimes in the Jiangxia region, the administrative center remained established in Ezhou City, which was built on the foundations of the original Yingzhou City. During the Tang Dynasty, the city walls of Ezhou underwent significant renovations led by Niu Sengru, the governor of Ezhou. This renovation included the expansion of the walls and the construction of a surface layer of ceramic bricks, addressing the issue of the earthen walls being susceptible to moisture damage and frequent repairs, thus enhancing the durability and strength of the walls. The circumference of the Tang Ezhou City walls increased to fifteen li, resulting in considerable urban growth. In the Northern Song period, Governor Li Yaoyu expanded the outer perimeter of Ezhou City to twenty-four li, making it the largest city in the Jiangxia region during the feudal era (see Figure 1). This period also marked a time of prosperous economic development in Ezhou, with rapid population growth. At that time, Ezhou City had three gates located to the east, south, and west: Qingyuan Gate, Wangze Gate, and Pinghu Gate, respectively. In response to the demands of urban transportation, additional city gates were established during the Southern Song period, including Zhupei Gate, Wuchang Gate, and Hanyang Gate on the western side of the city.

Wuchang City: From the Yuan to the Qing dynasties, Wuchang City, which developed from Ezhou City, remained the comprehensive center of political and economic activities in the region. During the Yuan Dynasty, Ezhou City was renamed Wuchang City, serving as the administrative center of Wuchang Prefecture. In the Ming Dynasty, Wuchang City became the location of the Three Offices of Huguang, solidifying its status as the center of local governance and an important commercial hub. Throughout the Qing Dynasty, Wuchang continued to host various government offices, including the Governor-General of Huguang and the Governor of Hubei, establishing itself as the core city for political, economic, and cultural activities in the region.

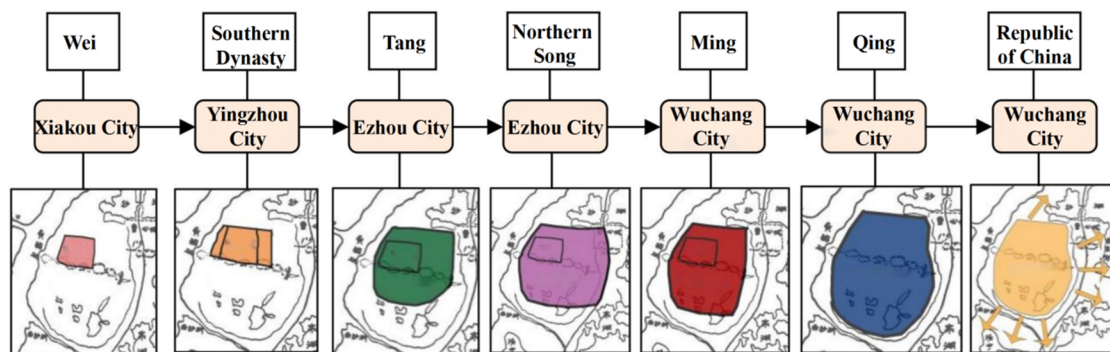


Figure 1. Changes in Wuchang City Walls over the years

Image source: self-painted

During the Yuan Dynasty, the rulers' neglect of city wall maintenance led to the belief that walls impeded governance, resulting in the gradual deterioration of Wuchang's city walls. The Ming Dynasty saw a reconstruction of the Wuchang City walls, albeit with a slight reduction in size compared to the Song period. Following the initial repairs, the boundaries of the Ming Wuchang City walls stabilized and remained largely unchanged through the Qing Dynasty and into the Republican period. After a large-scale renovation led by the early Ming official Zhou Dexing, the city circumference reached 3,098 zhang. The eastern, southern, and northern sides were equipped with moats, while the western side bordered the Yangtze River. The city featured nine gates, 13 watchtowers along the walls, and several enhancements including crenellations and paved pathways. In the mid to late Ming period, Governor-General Gu Lin of Hubei undertook significant renovations to the city gates and walls, changing the names of five of the gates. During the Qing Dynasty, the Wuchang city walls underwent several repairs, resulting in a slight increase in circumference to 3,034 zhang compared to the Ming era. The dimensions of the walls were marginally enlarged (see Figure

1), and the wall facilities became more comprehensive, with all gates fortified with barbicans and watchtowers (except for Tongxiang Gate). Two water gates were added to the west, and 40 barracks were established at various points around the city. In the mid-Republican period, Wuchang faced a brutal siege during the Northern Expedition, after which the city walls were dismantled to facilitate urban expansion.

2. Impact Analysis

2.1 The City Wall as an Urban Boundary and Its Co-evolution with Urban Spatial Development

Throughout history, the Wuchang City Wall has evolved alongside the growth of the city, responding to the surrounding topography and water features. It serves as a delineation between urban areas and nature, shaping both the physical and psychological boundaries of the city.

2.1.1 The Shifting Boundaries of the City Wall in Relation to Urban Growth and Topographical Context

As a defining boundary of the city, the Wuchang City Wall has evolved alongside the development of urban scale throughout different dynasties. The circumference of the city expanded from approximately two to three li (1.15–1.73 km) in Xiakou to 3,430 zhang (10.98 km) in Wuchang, marking an increase of nearly tenfold. The scale of the city wall underwent a process of expansion, contraction, and subsequent expansion. From the establishment of Xiakou during the Three Kingdoms period to the Northern Song dynasty's Ezhou, the city walls continuously extended, reaching their largest extent during the feudal era. However, from the Northern Song to the Yuan dynasty, the Ezhou walls saw no expansion and gradually fell into disrepair. During the Ming Dynasty, the Wuchang city walls experienced a slight reduction in size compared to the Song period, while in the Qing Dynasty, their circumference increased slightly, ultimately leading to a state of relative stability and enhancement. The transformation of the city wall boundaries corresponds to the process of urban spatial development and reflects the comprehensive economic and social strength of the city.

Throughout the evolution of the Wuchang City Wall, its siting closely corresponded to the surrounding topography: for instance, the southern wall of Xiakou City was constructed on She Mountain, while the northern wall of Qing Dynasty Wuchang spanned across Phoenix Mountain and Crab Cape. In contrast, certain walls were constructed to align with water features, such as the southern wall of Tang Dynasty Ezhou, which concluded at the southern edge of She Mountain, adjacent to the numerous lakes, and the southern wall of Qing Dynasty Wuchang, which ended at the banks of Xunxi River.

2.1.2 The City Wall as a Boundary: Dual Limits of Physical and Spiritual Realms



Figure 2. Tongxiangmen in Wuchang before its demolition in 1926.

Photo credit: Shanghai Tianmin Baozuyu Bianjian 1926 (No.14). November 27, 1926.

The city wall serves not only as a boundary of the physical urban space but also as a delineation of the spiritual realm. It represents a threshold between life and death, light and darkness, and the human world and the underworld. As illustrated in Figure 2, the area outside Tongxiang Gate was

historically a site for temporary or shallow burial of coffins, with the arrangement of coffins faintly visible in the lower right of the image. Consequently, the Wuchang City Wall became a defining line separating the domains of the living and the dead: the interior represents the vibrant life of the city, while the exterior embodies the desolate wasteland inhabited by the deceased. Moreover, the city wall functions as a boundary of political power, distinguishing between the ruling authority and the populace. Within the walls lies the center of governance, exerting control and dominion over the rural areas beyond its confines (see Figure 3).

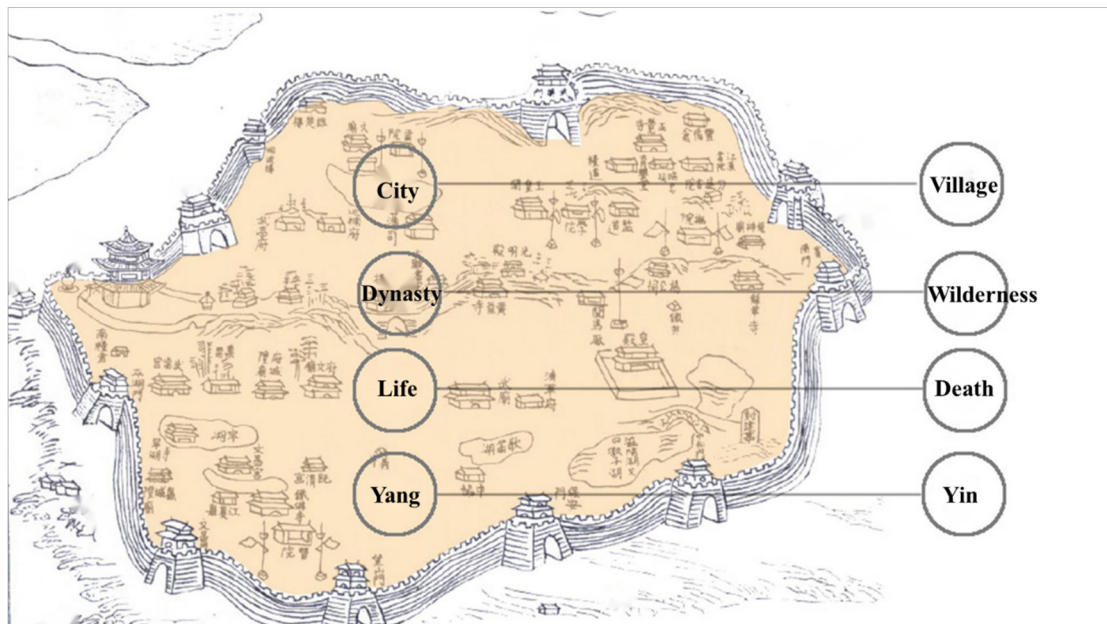


Figure 3. The city wall divides the inner and outer space of the city with different attributes. Image source: redrawn, base map in Wuhan Historical Atlas Compilation Committee. Wuhan Historical Atlas [M]. Beijing: China Map Press, 1998:19.

2.2 The City Wall as a Guiding Framework for Urban Spatial Structure and Layout

After delineating the urban space, the layout of internal streets and spatial divisions within the city are influenced not only by the prevailing ideas of city construction but also by the alignment of the city walls and the locations of the city gates. Together, these factors collectively shape the urban spatial configuration.

2.2.1 The City Wall and Gates as Defining Frameworks for Urban Spatial Structure: The Layout of Streets

The city wall not only delineates the boundaries and contours of the city but also plays a crucial role in the spatial structure and street development within it. The ideal urban space and street layout, as depicted in the planning of royal cities in the "Book of Rites: The Craft of Construction," exemplify how city walls define urban spaces. Ancient capital cities often adhered to this model, presenting a grid-like layout, such as in the cities of Luoyang during the Han and Wei dynasties, Chang'an during the Tang Dynasty, and Kaifeng during the Northern Song Dynasty. Although several rivers traversed Kaifeng, these waterways did not exert a controlling influence over the city's spatial organization or street layout.

In contrast, the topography of mountains and lakes significantly impacts the street layout in Wuchang City. As the highest political authority in the Huguang region during the Ming and Qing dynasties, and with the presence of the Prince of Chu's residence in Wuchang during the Ming Dynasty, the city developed its streets according to the ideal model of a royal city, while also considering the natural topography of mountains and lakes, as well as the locations of the gates and the alignment of the city walls. Streets radiate from the city gates into the interior, navigating around or halting at mountains and lakes, thereby delineating urban spaces. The north-south and east-west

gates often cannot be directly connected by a single street. The main thoroughfares that facilitate connectivity across the city include three primary streets: the first horizontal street extends from Hanyang Gate to Zhongxiao Gate, the second from Hanyang Gate to Binyang Gate, and the vertical street runs from Wangshan Gate to Wusheng Gate (Figure 4).

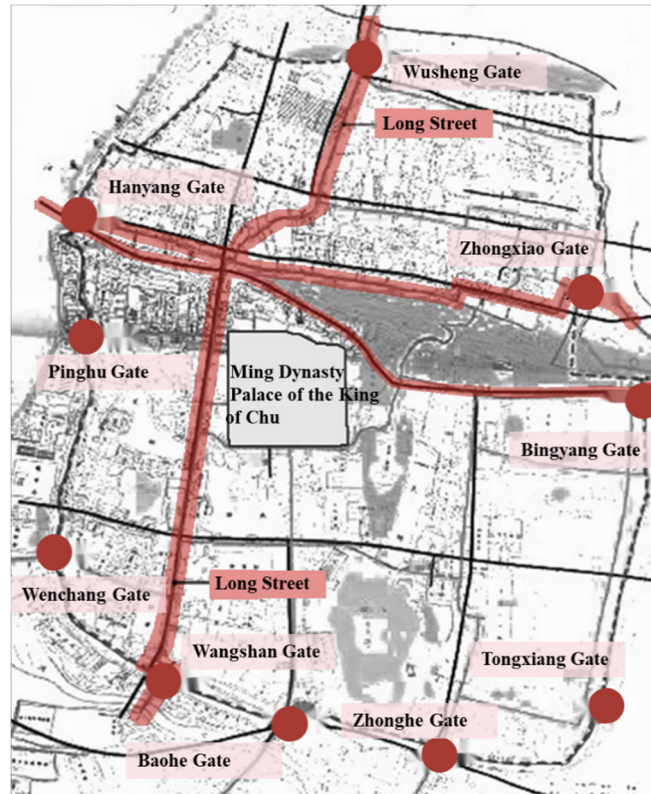


Figure 4. Street map of Wuchang City in Ming and Qing Dynasties

Source: Based on the latest street map of Wuchang in 1909, the original map can be found in Wuhan Historical Atlas Compilation Committee. Wuhan Historical Atlas [M]. Beijing: China Map Press, 1998:31.

Among these, the vertical street plays a particularly significant role in shaping urban space. Also known as the "Long Street," it emerged after the demolition of city walls during the Song Dynasty and flourished during the Ming and Qing periods (see Figures 4 and 5). This street runs roughly parallel to the north-south orientation of the Wuchang city walls, extending north from Wangshan Gate to the western end of She Mountain, then bending northeast through Qinglong Alley, and finally proceeding north via Deshengqiao Road to Wusheng Gate. It serves as the arterial route for north-south transportation within Wuchang.

The Long Street directs the flow of people, vehicles, and goods from outside Wangshan Gate and Wusheng Gate into the city. The bustling market and wharf near the Catfish Mouth area outside Wangshan Gate have spurred the development of commercial establishments along the street leading into the city, facilitating its northward extension. The formation of this Long Street is closely tied to the development of the urban commodity economy, as well as the establishment and regulation of city walls and gates. In fact, each city gate connects to a principal street within the city, serving as an extension of the traffic and commercial markets associated with the gates, and reflecting the inward radiation of the city's boundary effects.

As shown in Figure 5, the Long Street extends from Bao'an Gate, traversing the valley of Huanghu Mountain (also known as She Mountain) and leading northward into the city. Lined with numerous shops, the street is bustling with commercial activity.



Figure 5. South section of Long Street, Wuchang City, Qing Dynasty

Image source: Redrawn from the Qing map of Huangguksan Mountain; for the original map, see (Qing) Hu Danfeng. Huangguanshan zhi. Now in the Wuhan Local History Compilation Office.

2.2.2 Walled Cities: From Multiple Closures to Full Openness

From the establishment of the city at Xiaokou during the late Eastern Han Dynasty to the demolition of the Wuchang city wall in the Republican era, various local government agencies remained permanently stationed within the city, and the city wall stood as a crucial element of urban defense. The boundaries of urban space were distinctly defined, and the control exerted by local authorities over the city remained stringent, with gates opening during the day and closing at night. This resulted in a strong sense of closure and inward orientation within the urban space. Particularly before the demolition of the alley walls during the Song Dynasty, the lanes and streets within Ezhou were also separated by walls, creating enclosed residential areas, markets, and administrative offices. Urban social life unfolded within these multiple layers of enclosed spaces. After the removal of the alley walls, the market spaces became more open, significantly enhancing the inward openness of the urban environment (Figure 6). The expansion of urban space during the Song Dynasty, which reached its peak size in the feudal period, may be closely related to this increased openness, which fostered social and economic prosperity and urban expansion.

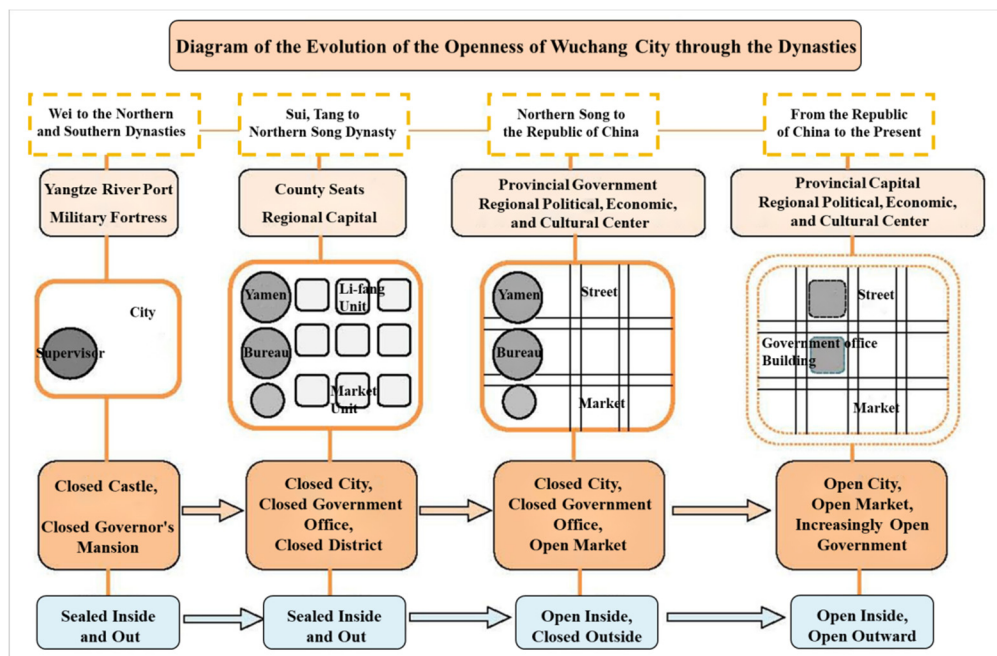


Figure 6. Schematic diagram of the changes in the openness of Wuchang City through the ages
Image source: self-painted

During the Ming and Qing dynasties, as society developed, urban space further extended beyond the constraints of the Wuchang city walls. The markets and residential areas to the south and along the river became increasingly vibrant. Within the city, various levels of administrative offices and military garrisons, as well as residences for officials, predominated. The enclosed spaces within the

city concentrated centers of power, while the open waterfront areas along the Yangtze River and Xunyi River outside the walls became the stage for urban commerce and social life.

During the Republican period, after the demolition of the city walls, the physical boundaries of the city were completely dissolved, transforming the walls into roads. The city adopted a wholly open orientation, shifting its spatial dynamics from inward to outward, and began to expand into the surrounding areas (Figure 6).

2.3 The Evolution of the City Walls Driven by Urban Economic and Functional Development

Throughout history, the Wuchang city walls have served as an interface that both separates and connects urban economic activities, while also reflecting the overall level of urban development.

2.3.1 The Development of Urban Economy and Functions Driving Advances in Wall Construction Technology

The comprehensive development of urban economy and functions led to an increase in the perimeter of city walls, requiring construction and maintenance techniques to keep pace, which in turn promoted technological advancements in wall construction.

The functions of Wuchang's successive city walls became increasingly diverse, with the city's internal and external economies flourishing, resulting in urban expansion and the gradual extension of the city walls' perimeter. During the Wei to Southern Dynasties, the scale of Xiakou and Yingzhou cities was relatively small, with perimeters ranging from 1.15 to 1.73 km. The walls were constructed using rammed earth. However, the size of Ezhou city increased significantly during the Tang Dynasty, with the perimeter expanding to 7.97 km, more than tripling. The rammed earth walls were prone to moisture damage, and the cost of maintenance had risen beyond what the populace could afford. As a result, Ezhou's prefect, Niu Sengru, initiated a technological upgrade—fortifying the rammed earth core with fired ceramic bricks on the surface, making the walls more solid and durable. This brick construction technique was subsequently adopted by later generations for the walls of Ezhou and Wuchang.

2.3.2 The Development of Urban Economy and Functions Consolidated and Perfected the City Walls and Their Facilities

The comprehensive development of Wuchang's cities in terms of function and economy propelled the establishment of a more robust and fortified feudal city defense system, which solidified and perfected the construction of the city walls and related facilities.

Throughout the city's development, in response to the evolving functional needs of the city and supported by economic resources, the city walls were continuously repaired and reinforced. At times, they were destroyed and rebuilt, ultimately leading to their complete demolition during the Republican period, marking the transition from a feudal city to a modern one. By the late Qing Dynasty, the feudal-era Wuchang city walls had reached a state of near perfection, with barbicans constructed at the city gates, city towers built, moats dug around the exterior, drawbridges installed, and garrison troops assigned to manage daily maintenance and patrols. This formed a comprehensive city wall defense system.

During the same period, the development of city wall facilities showed diverse trends. For example, the tenth gate of late Qing Dynasty Wuchang — Tongxiang Gate — was built to facilitate access to the train station located outside the city, allowing for the movement of goods, materials, and people. As Tongxiang Gate primarily served transportation functions and was not related to city defense, it became the only gate among Wuchang's ten gates that was not equipped with a barbican or city tower (Figures 2 and 7). In contrast, other gates such as Zhonghe Gate, Bao'an Gate, and Wangshan Gate were all equipped with defensive facilities, including barbicans and city towers. However, the size and scale of these defensive structures varied, reflecting some inconsistencies (Figure 7).

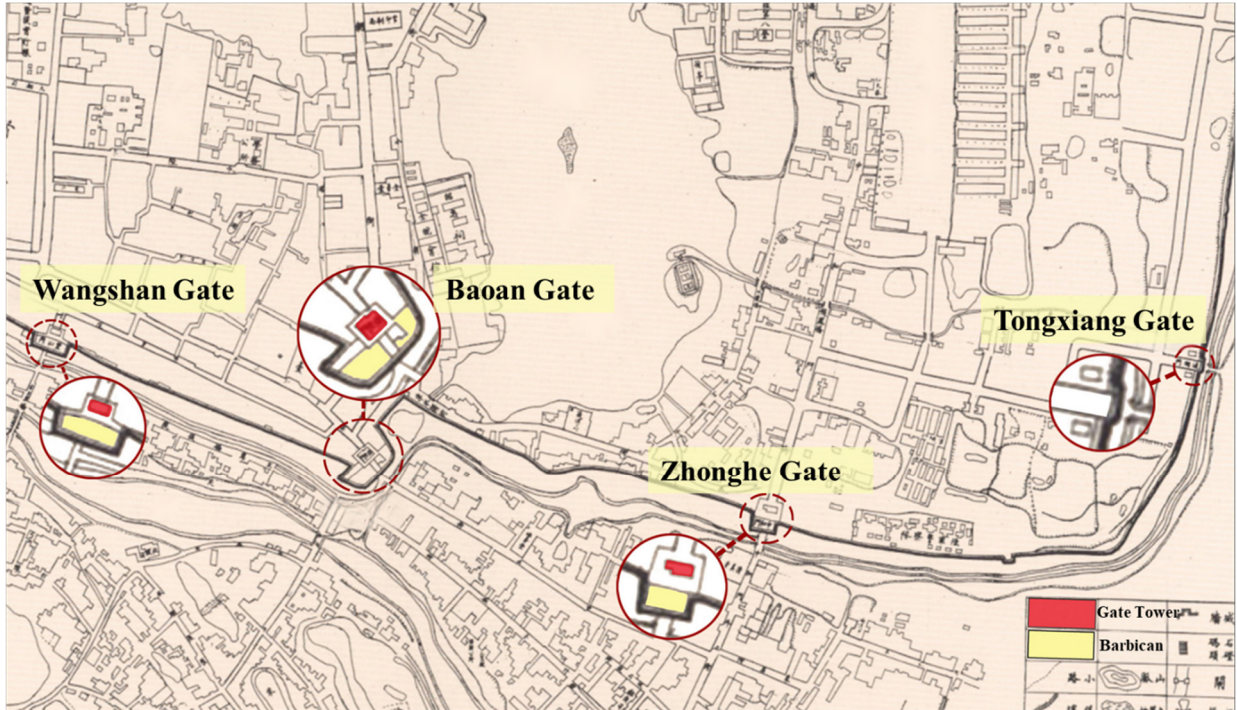


Figure 7. The Four Southeast Gates of Wuchang City in the Late Qing Dynasty

Image source: altered, the original map is the latest street map of Wuchang Provincial City in 1909, Wuhan Historical Atlas Compilation Committee. Wuhan Historical Atlas [M]. Beijing: China Map Press, 1998:31.

3. Conclusion

The city wall is not only the physical boundary of a city but also the boundary of its governance system. The Wuchang city wall served as a tangible boundary, delineating the spaces inside and outside the city. It was also a means of administrative control, defining the limits of the city's governance. In essence, the nature of urban control lies in the establishment of boundaries, with enforcement taking place at these edges. Additionally, the Wuchang city wall represented a spiritual boundary, separating the realms of life and death, yin and yang.

The Wuchang city wall always relied on the natural terrain of mountains and water, standing firm with the protection of these geographical features, and expanding alongside the development of the city's spatial growth. The wall influenced the layout and direction of the streets within the city, shaping a unique urban structure in conjunction with the city's topography. It also served as a physical manifestation of the city's economic and functional development. Every stage of the Wuchang city wall's evolution corresponded closely with the city's comprehensive development process.

Although the Wuchang city wall has disappeared, and the city's boundaries are no longer confined to physical limits, urban expansion is no longer significantly constrained by the natural terrain of mountains and water. However, elements such as economic development, urban functions, and the growth of road and rail transport continue to drive the transformation of the city's invisible boundaries. Historical research may still offer insights for contemporary urban development.

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