The Historical Tracing of Tianjin Canal Transport and the Inheritance and Development of Cultural Heritage

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Abstract: In the years of development and evolution, the canal transport has not only promoted the development of politics, economy and trade of the cities along the canal, but also formed a unique regional culture. As early as in the Three Kingdoms Period, Cao Cao of the State of Wei excavated the Pinglu Canal, Quanzhou Canal and New River in Tianjin, making the Tianjin canal transport take shape. During the Jin Dynasty, Tianjin began to become an important hub of canal transport. During the Ming and Qing Dynasties, Tianjin canal transportation reached its heyday. Today, although the canal transport has been suspended, but its rich material and intangible cultural heritage is endless. The "new canal transport" also gives new life to the canal transport, and the inheritance and development of Tianjin canal transport culture is an important part of the construction of Tianjin section of the Grand Canal Cultural belt. Keywords: Tianjin; Canal Transport; History; Cultural Heritage; Inheritance and Development

1. INTRODUCTION

As the main mode of water transportation in ancient China, "water transport" mainly transported military supplies, grain and other important materials for the government and the army. The canal transportation began in the Spring and Autumn Period, due to the famine in the State of Jin, Duke Mu of Qin sent fleets to transport thousands of tons of grain from Yong, the capital of Qin, to Jiang, the capital of the State of Jin, through the Wei, Yellow and Fen rivers, which solved the grain crisis in Jin, and the canal transport began. After the continuous excavation and repair of several dynasties, the Sui Dynasty connected the capital Luoyang to Zhuojun, and then opened the Tongji Canal, which also made the role of

canal transport more and more important. Yuan dynasty in Beijing, because of the north provisions and fodder unable to meet the capital's food needs, and the most economical and fastest transportation is canal transport, so the northern region abandoned and took the straight route to Beijing, supplies from the south reached Beijing via Suzhou, Yangzhou, Huai'an, Jining, Linqing and Tianjin, formed a new canal transport route. However, with the development of commodity economy, water transport was not necessary, during the Guangxu period of the Qing Dynasty, the canal transport ceased (Zhao et al., 2023). Tianjin prospered because of the canal transport, the busy canal transport not only brought the economic development to Tianjin, but also brought a unique culture of canal transport. The canal transport culture also nurtured the rich cultural heritage along the canal. Mazu culture, Tian's ship model, Tianjin Tune, Yangliuqing New Year paintings are all important cultural brands brought to Tianjin by the canal transport.

2. THE HISTORICAL ORIGIN OF TIANJIN CANAL TRANSPORT

Tianjin, as an important pass for canal transport, has a unique geographical location and the Haihe River flows directly into the sea. On account of its establishment and development process are inseparable with the canal transport, so it is recorded that Tianjin is an important town in The Jifu Annals, "when the flood of the river and sea, and as the gateway of the city1". In the 11th year of Jian'an, Cao Cao of the state of Wei attacked Wuhuan to the north, excavated the Pinglu Canal and Quanzhou Canal in Tianjin, and opened the New River to the east. These three canals were roughly parallel to the bank of the Bohai Sea (Huang, 2017). At that time, an important transportation hub had taken shape. In the Sui Dynasty fourteen years, emperor Yang Guang built the way of Tianjin county town of yongji canal, yongji canal has always been an important channel for transporting grain in Hebei region north of the Yellow River and east of the Taihang Mountains and its location is critical, so until the Tang Dynasty, it was still an important waterway for transporting materials from the south to the border areas such as YouZhou and Yuyang in the nort. However, after the rebellion of An and Shi, in the case of confrontation between the north and the south, Tianjin water transport in a period of stagnation (Zheng, 2003). Tianjin really began to become a hub of canal transport in the Jin Dynasty. After the establishment of the Jin, the Nvzhen people moved their capital to Yanjing in 1153 and called it the central

capital. In order to ensure the food supply of Zhongdu, Yongji Canal was used to transport grain produced in Henan, Shandong, Hebei and other regions to Zhongdu as the main source of food for the imperial family. Yongji canal known as the "Yuhe river". The Jin Dynasty established "Zhigu Village" in Tianjin to provide "inspection" for the transportation of Yongji Canal, and the chief and deputy leaders sent troops to guard it (Zhao et al., 2022). In the Yuan Dynasty, the transportation hall was established in Dazhigu, and Zhigu Village was renamed as Haijin Town. The whole Tianjin became very prosperous in the canal transportation. Yuan Dynasty poet Wang Maode wrote the famous sentence "Dongwu turned to the sea to transport rice, and 10,000 ships were gathered in one night tide" to describe the grand situation of Tianjin's water transport at that time. The canal transport really reached its peak in the Ming and Qing dynasties, and the city of Tianjin also rose simultaneously. In the first year of Ming Jianwen, King Zhu Di of Yan launched the "Jingnan campaign" and led troops south from the Dazhigu fork entrance along the South Canal to capture Nanjing and seize the imperial throne, changing the year title to Yongle. Zhu Di, the emperor of the Ming Dynasty, called Zhigu "the place where the Son of Heaven crossed the river", so he give it the name Tianjin, which is also the origin of the name "Tianjin Wei". During the reign of Yongle, on one hand, the government ordered the lifting of the "ban on the sea", and on the other hand, it organized manpower to build the Grand Canal. At that time, the transportation of grain was mainly by river, supplemented by sea, but both river and sea, they must pass through the mouth of Sancha River Estuary in Tianjin in the upper reaches of the Haihe River. According to historical records, hundreds of millions of stones of grain pass through here every year before being transported to Beijing via the North Canal. The Sancha River Estuary later became the shipping port of Tianjin, which became the largest trading center in the north. The government also added Tianjin Zuowei and Tianjin Youwei, attracting merchants from all over the world to trade and settle here, merchant ships, water transport vessels berthed, merchants and merchants exchanges, so that Tianjin Wei has been rapid development (Huang & Yang, 2023). Grain greatly promoted the north and south commodity circulation, especially since the Ming Dynasty, the exchange of materials between the north and the south has become more frequent. In order to reduce the input of water transport, the Ming government allowed the grain transport ships to carry local special products from the south and the north, and used the profits to pay the expenses of the water transport ships, and tax was exempted. More than 2 million stone of native products were

transported through the canal every year. At that time, Zhigu and Dazhigu were the most prosperous, a large amount of grain and commodities were transferred through Tianjin port every year. At that time, the GuYi Street and Zhenshi Street selling groceries, the Yongfeng Tun selling grain, and several bird markets in old Tianjin were all prosperous commercial areas of Tianjin in the Ming Dynasty and later. Cheng Fengwen, a scholar of the Qing Dynasty, once recorded in the Tianjin Government Annals that "the capital eats millions of cao in the southeast, and learns the way here (referring to Tianjin)". The canal route not only undertakes the responsibility of canal transport from the north to the south, but also becomes a trade route, which not only brings economic and trade exchanges and collisions between the north and the south, but also witnesses the development of Tianjin's commerce and culture (Chauffert-Yvart et al., 2020). The Qing Dynasty made great efforts to control the canal transport, and the canal gradually played a leading role in communicating the north-south trade. In addition to a large amount of grain transported to Beijing through the canal, specialty products from the south and the north, silk, tea and building materials also became important materials for the canal transport. Xu Xing wrote in the Qing Jingshi Literature Compilation: "The capital was fundamentally important, the officers and soldiers served, and the salt depended on millions of grain in the southeast (Xu, 2010). " With the continuous improvement of the transportation power of the canal, the effect of "canal economy" is also emerging, and the position of Tianjin as the hub of canal transportation, commerce and culture is becoming more and more important. During this period, in addition to the busy water transport between the north and the South, Tianjin also began maritime commercial transport activities with Liaodong and other places, which greatly enriched Tianjin's water transport culture, and local commerce was more prosperous, with shops and department stores gathering throughout Tianjin. It can be seen that at this time, Tianjin has become the center of northern economy and culture, and has also become an economic and trade port and a transportation and waterway transportation hub "located in the main waterway of nine rivers and seven provinces". Since the birth of the Beijing-Hangzhou Grand Canal in the Qing Dynasty, especially in the Yuan and Ming Dynasties, the government and the imperial court have maintained its normal maintenance and penetration through the maintenance of national forces. Due to the shortage of water sources and the flooding of the Yellow River, the life of the Grand Canal has been in danger. The maintenance and security of the Grand Canal is a big project like digging a canal, so after

that, the Haihe river transportation gradually replaced the function of the canal and became an important channel of waterway transportation in Tianjin. The parallel development of river transportation and sea transportation made Tianjin Wei, as the gateway of the capital and the fortress of water and land, develop rapidly (Geng et al., 2020). In 1855, the Yellow River burst in Tongwaxiang area of Lanyang, Henan Province, and the water passed through the canal into the Bohai Sea, resulting in silt blocking the canal and interrupting the water transport (Dong, 2017). After that, grain from the south no longer reached Tianjin by sea via the canal, and then reached Beijing via the Haihe River and the North Canal. This situation lasted until 1904. Except for Jiangsu and Zhejiang provinces, canal transport in other regions was abolished, so the Tianjin section of the Grand Canal lost its transport function, but the river still retained its basic shipping function. Until modern times, it gradually declined, and left a rich connotation of the canal transport culture (Liu et al., 2022).

3. CULTURAL HERITAGE FORMED IN THE GRAIN TRANSPORT OF TIANJIN

Tianjin has been popular since ancient times because of the canal transportation. It can be said that "the nine rivers below Tianjin Wei, three pontoon Bridges and two passes."The geographical location of Tianjin Wei, located slightly below the Jiuhe River, gives it a unique canal transport culture. The canal transport culture has made it a famous economic and cultural city, and Tianjin has also developed a rich grain transport culture, leaving a precious cultural heritage for the present (Gravari-Barbas et al., 2023).

3.1 Mazu Culture

"Mazu culture" came into being along with the canal transport. Mazu was originally the sea god of fishermen, boat people and seafarers along the coast of Fujian in the Northern Song Dynasty. In order to conform to public opinion and maintain national stability and security, several generations of emperors since Yuan Shizu named Mazu "Heavenly Princess". Because of the technical situation, social contradictions and occasional natural disasters at that time, many displaced transporters often encountered a lot of sudden difficulties, so faith in the hearts of these working people grew up and became their spiritual strength to overcome difficulties. Because the working people's belief in Mazu was transmitted

to Tianjin, it also contributed to the unique "Mazu culture" in Tianjin. In 2008, Tianjin Mazu Festival (Tianjin Imperial Association) was included in the second batch of national intangible cultural heritage list. In 2009, "Mazu Faith and Custom" was included in the "Representative List of the Intangible Cultural Heritage of Humanity" by UNESCO (Yan, 2021).

3.2 Tianjin Tune

Tianjin tune is one of the songs with strong local flavor sung in Tianjin local dialect. Its performance combines the kaoshan tune, Yuanyang tune, Sanxian, Sihu, Jieziban and other forms. Tianjin tune has been popular in Tianjin since the end of the late Qing and early Republic of China. At that time, the Haihe shipping and canal transport in Tianjin were flourishing and prosperous, and the residents along the coast all depended on the canal for a living, especially young adults were mostly boatmen and porters engaged in waterway transportation. The folk songs and minor tunes popular among the workers were bold and free, and the atmosphere was lively during the performance. It is suitable for Tianjin people's cheerful and humorous character. In the 1930s and 1940s of last century, Tianjin tunes gradually declined. After the founding of New China, the government and related literary and artistic workers reformed the traditional tunes in line with The Times, making the folk minor tunes passed down from the working people into more formal singing tunes and creating many high-quality programs. After the reform and opening up, Tianjin tune has been revitalized day by day, and many classic tunes and pieces have been performed successively, which makes Tianjin Tune have the vitality of the new era. In 2006, Tianjin Tune was included in the first batch of national intangible cultural heritage list as one of the representative folk art projects (Cheng et al., 2023).

3.3 Tian's Ship Model

When it comes to the canal transport in history, we have to mention fishing boats, "relying on mountains and water". The fishermen along the canal have been living on fishing for generations, and fishing boats are their companions. Among them is the Tian family, whose family not only relied on the canal ships for a living, the descendants of the Tian family is to create exquisite ship model manufacturing skills. Tian's ship model was included in the fourth batch of intangible cultural heritage of Tianjin. With the passage of time, although the traditional canal transport wooden ships have gradually withdrawn from the historical stage, the traditional

handmade ship model has become a vivid portrayal and cultural epitome of Tianjin canal transport culture (Chen & Jones, 2019). The ship model is made according to the shape and structure of the real fishing boat in strict proportion. The production process of the ship model is very complicated. From material selection to production, every step has extremely strict standards, which makes the ship model produced almost the same as the real ship. The production process of ship model is complex, and the wood has strict requirements. The wood with few defects and good color needs to be carefully selected from dozens or even hundreds of pieces of wood. From the splitting material, planing wood, to the installation of the hull, the deck, the ship side, the mast, every step of the process and every small part, it has paid decades of experience and effort of the artisans. And these are inseparable from the Tian family generation by generation. The ship's Windows, which can be opened and closed freely, are vivid and accurate in size, which requires the maker to have a good knowledge of the vessels. Carved is the need for more than ten days of meticulous carving by experienced and paint-based masters. Those lifelike parts, so small that they can only be made with fingertips, the producers not only have a good carpentry foundation, but also master a variety of production techniques, from design drawing to production decoration, in this step by step, has already integrated the design concept and craftsman spirit of the inheritors, which is exactly the value of Tian's ship model (Lin & Luo, 2022).

3.4 Yangliuqing New Year Pictures

Yangliuqing New Year pictures is the representative of the northern Chinese New Year pictures, because it comes from Yangliuqing Town in Tianjin, Yangliuqing Town was called Liukou Town in the Qing Dynasty, and changed its name to Yangliuqing in the Ming Dynasty, and has been used ever since. At the end of the Yuan Dynasty and the beginning of the Ming Dynasty, an artisan who was good at painting and carving fled to Yangliuqing Town in Tianjin. Whenever the New Year was celebrated, he would often carve some wood-block lithography pictures such as the Kitchen God and Door God and sell them to local residents, which caused the town to imitate one after another, but the New Year pictures were still in the primary single stage. YangLiuqing's woodcut New Year pictures inherited the tradition of Song and Yuan Dynasty painting in painting style, absorbed the expression forms of woodcut prints, arts and crafts and drama stages in Ming Dynasty, and combined template overprinting with manual painting. It was not until the Yongle period of the Ming Dynasty that the canal, which had experienced the war, resumed transportation with

the support of the government, and the fine paper, high-grade pigments and watercolors produced in the south were transported to the north and shipped to Yangliuqing Town, where the Yangliuqing New Year pictures were developed greatly. At the same time, Yangliuqing New Year Pictures also relied on the advantageous geographical location of Tianjin canal transport dock to get a good spread and diffusion, local villagers can also better open sales through the canal after the creation of New Year pictures, and make the outside world understand this folk art of Yangliuqing New Year pictures. "Yangliuqing County Annals" once mentioned that the reputation of Yangliuqing New Year pictures has gradually improved, sales across the country have increased, sales have expanded, and a large number of New Year pictures have been sent to other places, especially the southern region. During the period of Guangxu in the Qing Dynasty, Yangliuging New Year Pictures entered the stage of production from the creation of individual craftsmen. At that time, Yangliuqing Town and even the surrounding towns and villages were almost engaged in the operation of New Year picture workshops. In the heyday, Yangliuqing Town was the center of New Year picture creation in Tianjin, and 32 villages in the surrounding Nanxiang were printing New Year pictures, which can be said that "every family can dye and every household is good at painting". The theme of Yang Liuqing's New Year pictures also has a unique folk flavor due to the increase in the number of people participating in the creation and the rich cultural exchanges between the south and the north brought by the canal. From the end of the Qing Dynasty to the Republic of China, the Qing government stepped down, foreign enemies invaded, social unrest, wars occurred frequently, and many Yang Liu youth painting workshops were damaged to a certain extent. After the founding of the People's Republic of China, the creation of Yangliuqing New Year pictures revived. Premier Zhou Enlai visited the newly opened Yangliuqing Painting Society. With the support of the Party and the government, its popularity also increased day by day, and this folk art inherited for many years also flourished and blossomed into a new glory (Zhao et al., 2021).

4. THE CULTURAL VALUE OF THE "NEW CANAL TRANSPORT"

4.1 From the Ancient Canal Transport to the "New Canal Transport"
The Grand Canal is unique in the world, just like the Great Wall, Grand
Canal itself is a valuable world cultural heritage, the earliest in the history

of human waterway transportation, the largest coverage, the longest transportation mileage, the busiest business and famous, it left a continuous transport culture, but also nurtured Tianjin, the ancient city of water transport and the people. In recent years, China's rapid economic development is accompanied by great progress in the transportation industry, railway transportation and air transportation occupy the central position of modern transportation. Although canals still retain the waterway transportation function of transporting bulk materials, the role of canal transportation has disappeared, but the canal transportation culture has remained in the rapid development of The Times. On May 26, 2017, the General Secretary Xi Jinping made important instructions in the report of the Research Office of the General Office of the CPC Central Committe, "Creating a golden card to display Chinese civilization -- Some reflections on the construction of the Grand Canal Cultural Belt". "The Grand Canal is a precious heritage left to us by our ancestors, and it is a flowing culture, which should be properly protected, inherited and utilized." As a historical capital and a famous cultural city, Tianjin shouldered the important responsibility of protecting and inheriting the grain transport culture. In February 2019, the General Office of the CPC Central Committee and The General Office of the State Council issued the Outline of the Plan for the Protection, Inheritance and Utilization of the Grand Canal Culture. In the document, it is proposed to adhere to the principles of taking culture as the guide, taking people as the center, adhering to scientific planning, highlighting protection, making the past relevant to the present, strengthening inheritance, optimizing layout and rational utilization. Create a splendid cultural belt, a green ecological belt and a colorful tourism belt along the Grand Canal. After the policy was introduced, all localities responded positively, refined plans, strengthened measures, accelerated the implementation of the cultural construction of the Grand Canal, and created a "new canal transport" with the characteristics of The Times and cultural attributes ("Grand Canal Cultural Protection, Inheritance and Utilization Planning Outline issued by the State Office of the People's Republic of China," 2019). "New canal transport" refers to the use of the unique transport lines of the Grand Canal to transport water resources from the south to the lack of water resources in the north, a good balance of China's water resources since ancient times. Nowadays, canal transport has changed from transporting grain and commercial waterways to the east-route project of the South-to-North Water Diversion project, which mainly carries water. Use the Grand Canal to better serve the national strategy and benefit the people along the coast

(Gao et al., 2022).

4.2 The Inheritance and Significance of Canal Transport Culture

In history, the canal transport had a profound impact on politics, economy and culture. Therefore, the canal transport gave birth to rich historical and cultural connotations, and the canal transport culture was of great significance in the context of rapid economic and social development. Firstly, the canal occupies a central position in the ancient transportation China, the main government transportation, transportation, and even commercial transportation revolve around the canal, and the canal transport shows the social, political and economic conditions of the time from all aspects. Therefore, the study of canal transport is another entry point for historical research. Secondly, although the canal transport was established by the rulers and served by the ruling class to consolidate their own political power. At the same time, it is undeniable that the canal transport also played a wide range of social functions. In history, there were examples of water transport being used to transport food and relieve disasters and famine, and the social significance of the canal transport at that time has been better reflected today. The function of the "new canal Transport" is not only the continuation of the social function of the previous canal transport, but also an excellent embodiment of the government's optimization and redevelopment of the canal function, and its social significance is more significant now. Finally, the tangible and intangible cultural heritages such as dramas, New Year pictures, handicraft works and local delicacies along the canal are huge and valuable assets left to today's society, which enable future generations to look back on history and experience ancient culture, and are also historical references for developing cultural and economic exchanges among various regions, provinces and countries (Meng et al., 2022).

5. THE INHERITANCE AND DEVELOPMENT PATH OF CANAL TRANSPORT CULTURE

In recent years, under the instructions of the CPC Central Committee with General Secretary Xi Jinping as the core, various local governments and relevant institutions have actively implemented the Grand Canal canal transport culture, which has been developed to a certain extent, and new cultural tourism products have emerged in an endless stream. However, it is undeniable that there are still some deficiencies in the development of

water transport culture.

5.1 Problems Existing in the Protection and Inheritance of Canal Transport Culture

5.1.1The Physical Landscape was Destroyed

The rapid development of cultural tourism industry has become a "double-edged sword", on the one hand, it has played a positive role in promoting the development of canal transport culture and has made great contributions to the promotion of national cultural soft power. But at the same time, the increase in the number of visits and the increase in the number of people have brought great pressure to the protection of the physical landscape, and various cultural relics protection areas across the country have been more or less destroyed in the past few years. The canal transport culture has also suffered certain damage in the process of development. With the process of modernization and urbanization, some buildings with cultural significance have not been properly protected or even demolished, which will certainly cause losses to them.

5.1.2 The Form of Transmission has Limitations

The canal transport has rich cultural connotations, related tangible and intangible cultural heritages, which are of high research and appreciation value. However, the existing forms of communication and utilization are too limited, and most cultures cannot be well disseminated, so it is difficult for cultures to integrate with existing technologies and networks, and sometimes the cultural connotations are not fully reflected when they are propagated, or it cannot be well disseminated while retaining its connotation, and it is difficult to fully show the charm and influence of the canal transport culture itself.

5.2 The Development Path of Canal Transport Culture

5.2.1 Create a Brand and Increase the Quality of Publicity

The establishment and dissemination of the canal transport culture brand is a systematic project, which requires not only the support of the government and the active participation of social institutions, but also the addition of new media. As the new media and the Internet environment tend to diversify, the public is easier to accept in a short period of time from different channels. It is necessary to fully combine online new media and traditional media for publicity, actively explore younger publicity channels, and develop public accounts, apps, we-media and other forms to

expand communication channels and give play to the role of major online platforms in guiding public opinion, provide positive orientation. In addition to the publicity of media information, various carriers can also be used to output cultural value and spiritual emotion, and to achieve the connection with the public by establishing emotional sustenance with the audience.

5.2.2 Cross-Border Integration to Enhance Public Interest

Traditional culture is more academic in form, and there is the problem of too far away from the audience, and the same is true of canal transport culture. Today, with the rapid development of information, the tendency of the national entertainment is prominent, and attention should be paid to the combination of canal transport culture and cultural creative industry. Cultural creative industries have high attention, high communication and strong entertainment. If the concept of IP is enhanced and cultural IP is taken as the benchmark point, cross-border cooperation can not only maintain the authenticity of culture, but also increase the entertainment and attraction. The emergence of cultural creativity in recent years has the background of this era. Nowadays, the public does not blindly like vulgar, popular and fast pace, but has high-level cultural needs, and the development of cultural and creative industries is exactly in line with this characteristic. At the same time, the external communication of the canal cultural brands is also the process of Chinese culture to the world. Therefore, it is not only necessary to tell Chinese stories, but also to tell Chinese stories well in the world language, and promote cross-border and cross-cultural exchanges and cooperation.

5.2.3 Using Virtual Reality Technology for Diversified Display

Under the background of "Internet +", the canal transport culture should also learn from the excellent experience. First of all, digital technology can be used to restore and reproduce the prosperous scene and style of the canal transport. As time goes on, even under the extremely perfect protection measures, many historic sites have been damaged due to the traces of time. Digital technology can retain the form of the existing landscape and provide reference for future research. Dynamic and interactive images can also be made to provide visitors with a human-computer interaction experience. Various cultural institutions and museums also tend to increase the technical display methods. Dunhuang Museum and Guangdong Museum Porcelain Exhibition use interactive,

digital and virtual reality augmented technology, and even some large museums at home and abroad put forward the concept of mobile phones, computers and other mobile devices as "storytelling" tools, and developed online museums. During the Spring Festival of 2020 during the epidemic period, in order to follow the national epidemic prevention policy and meet the needs of visitors, the museum launched the online museum "Digital display column" according to local conditions, which can clearly browse the 360° panorama of the Terracotta Warriors and make maximum use of the Internet for display. On November 1, 2011, The Grand Canal Culture Exhibition was officially opened at the National Museum of China, the exhibition details about 170 historical relics related to the canal, such as the Canal Map of the Ming Dynasty, the River Defense Map and so on. One of the most anticipated exhibits is the Canal Transport Map, provided by the Tianjin Museum. The picture is elegant in color, vivid in scenery and detailed in content. Not only reflects the superb map painting techniques and drawing skills at that time, but also brings the canal transportation culture to the public's eye once again through the exhibition of this picture and other collections. Digital images and interactive projects are added to the exhibition. The historical development of the canal, the excavation process, the canal transportation and the cultural heritage are systematically displayed for visitors, the addition of digital technology increases the audience's sense of experience and enables the public to have a strong interest in the canal.

6. EPILOGUE

The canal transport began in the Spring and Autumn Period, and finally declined in the late Qing Dynasty, but it had a profound cultural heritage. The CPC Central Committee with Comrade Xi Jinping as the core proposed that all relevant units should actively promote the protection, inheritance and utilization of the canal culture, and focusing on the construction of the canal cultural belt will enhance the country's cultural soft power. Tianjin is a city closely related to canal transport and the canal transport culture formed over the years is the precious wealth of Tianjin and also the treasure of the Chinese nation. Therefore, promoting the protection and inheritance of canal transport culture is of great significance to show the image of Tianjin city and promote the development of tangible culture and intangible cultural heritage. Looking forward to the future, the development of the canal culture has great room for improvement in brand

creation, cross-border integration, and the application of virtual reality.

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Reference

- Chauffert-Yvart, B., Ged, F., Lu, Y., Mengin, C., & Rousseau, É. (2020). Tourism and heritage in the enhancement of Tianjin. *Built Heritage*, 4(1), 9.
- Chen, J., & Jones, D. (2019). Cultural routes in China: The urban heritage trails of Chóngqing. The Routledge Handbook on Historic Urban Landscapes in the Asia-Pacific, 294-312.
- Cheng, W., Yiwen, Z., Liang, L., Yihua, Y., Guanhua, W., Xin, Q., & Yangqinxue, Z. (2023). Structural equation model of the spatial distribution of water engineering facilities along the Beijing-Hangzhou grand canal and its relationship with natural factors. *Heritage Science*, 11(1), 245.
- Dong, J. (2017). A Study on the Yellow River and the Social Changes in Modern Jinan. *Journal of Jinan Party School of the Communist Party of China*.
- Gao, W., Zhu, M., Yang, L., & Hu, Y. (2022). The Waterfront Space Planning of Urban Historical River based on Cultural Context: Taking Xi'an Zao River Park as Example.
- Geng, M., Hong, L., Ma, K., & Wang, K. (2020). Evolution of urban public space landscape in tianjin port city. *Journal of Coastal Research*, 104(SI), 142-146.
- Grand Canal Cultural Protection, Inheritance and Utilization Planning Outline issued by the State Office of the People's Republic of China. (2019). *China Tourism News*.
- Gravari-Barbas, M., Guinand, S., Lu, Y., & Li, X. (2023). Heritage and tourism development in China's former international concessions. Tianjin as a place study. *International Journal of Tourism Cities*.
- Huang, P. (2017). (Qing Dynasty), Cui Guangshe: General Annals of Gi-Fu. Hebei University Press, 3, 278.
- Huang, Y., & Yang, S. (2023). Spatio-temporal evolution and distribution of cultural heritage sites along the Suzhou canal of China. *Heritage Science*, 11(1), 188.
- Lin, Y., & Luo, P. (2022). A Study on the Implicit Structure of Historical Environment in Urban Space of Xuzhou. *Sustainability*, 14(11), 6837.
- Liu, Y., Chen, M., & Tian, Y. (2022). Temporal and spatial patterns and influencing factors of intangible cultural heritage: ancient Qin-Shu roads, Western China. *Heritage Science*, 10(1), 201.
- Meng, L., Zhu, C., Pu, J., Wen, B., & Si, W. (2022). Study on the Influence Mechanism of Intangible Cultural Heritage Distribution from Man–Land Relationship Perspective: A Case Study in Shandong Province. *Land*, 11(8), 1225.
- Xu, X. (2010). Qing Jingshi Literature. Academy Publishing House(47), 35.

- Yan, H. (2021). The making of the Grand Canal in China: Beyond knowledge and power. *International Journal of Heritage Studies*, 27(6), 584-600.
- Zhao, Y., Bian, G., Sun, T., & Yan, J. (2023). The In-Situ Spatial-Temporal Evolution of the Settlement Space along the Grand Canal Tianjin Section from the Perspective of Cultural Heritage. *Land*, 12(5), 1023.
- Zhao, Y., Yan, J.-W., Li, Y., Bian, G.-M., & Du, Y.-Z. (2022). In-site phenotype of the settlement space along China's Grand Canal Tianjin Section: GIS-sDNA-based model analysis. *Buildings*, 12(4), 394.
- Zhao, Y., Yan, J., & Hou, S. (2021). "Scenes" updating the cultural landscape of villages along the Grand Canal under the all media communication. IOP Conference Series: Earth and Environmental Science,
- Zheng, L. (2003). "Interbasin Water Diversion Projects in Chinese History" South-to-North Water Diversion and Water Technology.