Photography in the Late Qing Dynasty: A Comparative Study

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Abstract. Photography was introduced to China in the early 1840s. The early Western photographers in China were mainly driven by artistic pursuit or curiosity of the Orient. This paper argues that the artistic value of photography was higher and the purpose of photography was simpler during the first years of its introduction to China than the late nineteenth century when photography was increasingly associated with colonialism. The situation of Western photography in China changed profoundly in the latter decades of the nineteenth century: photography began to serve colonialism, and photographers became accomplices of the colonizers. In addition, this paper also addresses the experience of Zou Boqi, the first Chinese photographer, who combined traditional Chinese knowledge with Western science and produced the first Chinese camera in 1844. Both Chinese and Western photography have evolved as the technology advanced over time. However, Chinese and Western photographers differed greatly in their techniques, motivations, and choices of subject.

Keywords: Late Qing Dynasty, Photography, Chinese and Western photographers.

1. Introduction

Photography was invented in the first half of the nineteenth century. At around 1800, an Englishman, Thomas Wedgwood (1771-1805), known as the earliest modern photographer, became the first person known to have thought of creating permanent pictures by capturing camera images on material coated with a light-sensitive chemical. He did numerous preliminary experiments, but these first images were only of temporary nature. In 1825, after several years of research and experimentation, the French inventor Nicephore Niepce (1765-1833), produced the first image that could be preserved for a long time (this image is still well preserved today). Nonetheless, scholars generally regard 1839 as the birth year of photography, because in 1839 the Frenchman Louis-Jacques-Mandé Daguerre (1787-1851) invented the method of recording images through a lens sensitized to light on a silver compound; this method is known as "Daguerreotype photography." Despite the complexity of the process, this method was widely praised, owing to the exquisite quality of its images. Henceforth, Daguerre became known as one of the inventors of photography. Daguerre's outstanding contribution drew the attention of the French government, who announced this discovery to the public at a meeting of the French Academy of Sciences in Paris on August 19, 1839. Soon, Daguerreotype, a sheet of copper plated with a thin coat of silver, was made public and rapidly spread around the world.

Photography first appeared in China in the early 1840s. After the Opium War (1840-1842), cameras arrived simultaneously with European cannon fire. Keying (1787-1858), the Manchurian governor of Canton and Guangxi Provinces, became close to Lieutenant-General Sir Henry Pottinger (1789 – 1856), the first Governor of Hong Kong, who gave Keying a set of exquisite portraits of himself, his wife and daughter. Keying was deeply moved by the new invention and thus became intensely interested in photography. In 1844, while negotiating a treaty with the French ambassador in Macau, he took the initiative to present four photographs to Italian, British, American, and Portuguese diplomats [1]. After the 1840s and 1850s, a number of important Chinese literati became interested in photography, too. Photography - as the "innovative toy" of the era - slowly spread along with this interest. At the same time, the development of photography was closely linked to the political, cultural, social, and even national destinies of the era.

A number of scholars have studied the development of photography in China. For example, in "John Thomson's Images of the Three Gorges," Chen Wen examines Scottish photographer John

Thomson's (1837-1921) trip to the Yangtze River during China's late Qing Dynasty. Thomson was the first European photographer who used photos to introduce the unique features of the Yangtze River area in Western publications. Chen argues that Thomson's outstanding contribution has not received much attention in the historiography of photography. In "Zou Boqi (1819-1869): China's Modern Scientific Pioneer," [2] Li Di and Bai Shangshu have surveyed Zou Boqi, China's first modern photographer and his photographic works. They have outlined some of Zou's activities in mechanics, optics, mathematics, and instrument making [3]. Xu Jingyi's "The Development of Photographic Technology and Changing Concepts in the Nineteenth Century" examines the evolution of photographic technology in the nineteenth century, taking the development of photographic technology and changing concepts of image in the nineteenth century as the main clues. Xu suggests that the main thread running through the evolution of photography is the increasing demand for photographers [4]. In general, most of the current research on Chinese photography is limited to documentary and technical studies; these authors have not approached photography from a broader perspective of East-West comparisons. Photography, however, is not merely a technology; it has broader political, military, cultural, and ideological implications.

The purpose of this essay is to analyze the "technology" of photography in a broader context through the lens of comparative history. The first part focuses on the activities of Western photographers in China in the last half of the nineteenth century, exploring their motives, purposes, and influences on photography in China. The second part examines the indigenous reception of photography in China and its further development. Photography first caught the attention of Chinese who were interested in Western technology (e.g., Zou Boqi), and then the interest of the Manchurian aristocratic class. Finally, this paper aims to summarize and compare the main differences between Western and Chinese photographers and people who were interested in this technology. In so doing, it seeks to provide an explanation to the cultural, political, and technical reasons that lie behind these differences.

2. Western Photographers in China: Art, Curiosity, and Colonization

Photography came to China after the First Opium War. In the history of modern photography in China, the earliest known use of photography was by Jules Alphonse Eugène Itier (1802-1877), the French general prosecutor of customs. During this period, most of the photographic work of China was done by Western photographers. Terry Bennett, a British historian of photography, writes that more than forty daguerreotypes on silver plates have survived thanks to Itier's efforts. These photographs, taken in 1844 in Macau and Guangzhou, are the earliest dated Chinese photographs ever found [5]. In addition, Itier had a good relationship with Chinese people and was interested in explaining the principles of photographic art to them. As he wrote in his diary on October 14 and 15, 1844: "Macau is amazing … I took pictures with a daguerreotype camera that I brought with me. The pedestrians were so cooperative to my requests for photographs. They were the friendliest people in the world and many were willing to pose for me," Itier continued, "Upon their request, I would show them the inside of the camera and the image on the polished metal plate after taking the picture. They were amazed by it." [6]

The Sino-French negotiations, which began in September 1844, were held by Keying, representing the Qing Government, and Théodore de Lagrené (1800-1862), the French Minister. The two parties signed the Treaty of Huangpu at the suburb of Guangzhou. With the signing of this unequal treaty, France acquired the same rights and interests in China as Britain and the United States did [7]. According to the Treaty of Huangpu, foreigners enjoyed greater rights in Macau and other places, which gave Itier the freedom to travel widely and shoot more photos.

As he recalled in his diary, "I spent the whole day in Macau with my Daguerreotype camera, taking pictures of the neighborhood from different angles: the Nam Van Lake, the Torre de Macau, the inner harbor, the market street, and other places were very interesting. In addition, I found some Chinese people who volunteered to be my models and keep still in front of the camera. I would show them the

picture on the plate. However, their reaction was not as dramatic as I had thought; it is like a child's reaction when seeing something new, a kind of hazy curiosity. I think there are probably many things that we call 'miracles' in our eyes are only for scholars and people who love to think. Ordinary people may think otherwise. The Daguerreotype may be one of these things." [8].

Itier at least left behind about forty pieces of works, all of which are portraits and landscapes taken on daguerreotypes. Evidence shows that it is likely that his entire portfolio outnumbered this count, but due to the high cost and scarcity of the metal plates used for Daguerreotype photography, the actual number should not be too far from this estimate. In addition, the images had to be treated with various chemicals (such as fixatives), which were in short supply in China at the time. It is not easy for Itier's works to survive, as he was active in southern China or coastal areas, where the heat and humidity has blurred most of the photographs. In his The Scenic Daguerreotype (1995), historian John Wood writes that "Due to insufficient polishing and the use of cheap metal plates, Itier's photographs are barely legible today [9]." Wood notes that although Itier appears to have used photographic materials brought from France, these were quickly used up and he had to buy vérités of various qualities from Manila and Cairo. Wood also mentioned the fact that most of Itier's photographs were documentary rather than artistic, with only few exceptions. This is not surprising, since Itier himself was not a professional photographer but an amateur who treated it as a hobby. Therefore, the purpose of his photography is simple: he loved photography itself, and he focused on recording people, landscapes and customs with his camera. To Itier, the camera is a tool used for "amazement."

But none of these can offset what Itier has achieved. Without any predecessors from whom to draw on photographic experiences, Itier did a pioneering job in a "virgin territory" that no photographer had ever ventured into: photography of China. In other words, his photographs are the only surviving images of China from the very beginning of the 1840s that have been discovered today. If the significance of his work cannot be described as "foundational," he certainly deserves the term "pioneering."

After Itier, another Western photographer who would have more influence on Chinese photography arrived in China: The Scottish photographer John Thomson (1837-1921), also known as the "Marco Polo in photography."

Thomson was born in Scotland to tobacco merchant parents. At the age of fifteen, young Thomson was already working as an apprentice (and a child laborer) in the local optical instrument factory, and then he enrolled in the evening classes of the art department of an institution. During this period, he mastered the art of photography. Because of his talent, he soon obtained a "Certificate of Proficiency" in photography. Thomson later became interested in Asia and was led by his brother to Malaysia, where he established his first photo studio. In order to make a profit, his studio focused on portraits. Later, he traveled to India as well as Sri Lanka. His travelling during this period took him all over the Indochina Peninsula. He also practiced photography in Thailand for a while and was the first photographer to record the Angkor War in Cambodia.

During his time in Southeast Asia, he made many local friends. Many of these people had been to China, and they introduced Thomson to this mysterious Eastern country; hence Thomson soon developed a keen interest in China [10].

Thomson was thirty-five years younger than Itier, and his entry into China was decades later. Thomson was an ambitious traveler in his youth, and from his native Scotland he traveled to many countries in the East, beginning in the 1860s. However, he was particularly interested in China.

Thomson arrived in Hong Kong in October 1867, making it the starting point of his "China Tour" in his photographic career. Later, he pursued his photographic career in Tianjin, Beijing, Fujian, Guangdong, Macau, and Taiwan. He arrived in Shanghai in the fall of 1871 for a short stay. He then traveled upstream from the Yangtze River through the western part of the river and into Chongqing City. Thus, the Three Gorges of the Yangtze River was a necessary passage for Thomson. Deeply impressed by the natural geography of the Yangtze River and the people's lifestyle, Thomason left behind some of the earliest historical images of the Three Gorges. Many of Thomason's photos of

China have survived to this day. Thomson's work has been more influential in modern Chinese history from the perspective of photographic history, as his work is of great artistic value, relatively well preserved, and widely disseminated in China as well as Europe [11].

Thomson traveled to almost all the major cities along China's coast area (probably more than twenty). Thus, he went through many trials and tribulations (as many Chinese cities were not trading with the West at that time, and many places did not even have a foreigner's footprint - more rarely a foreigner with a huge camera on his shoulder). Despite the intensive travelling experiences, Thomson was very unfamiliar with China, for he was neither proficient in the Chinese language nor knowledgeable of the geography and customs of China. Therefore, it is not surprising that Thomson had a lot of misfortune during the journey.

In Fujian Province, he nearly capsized his boat in the turbulent Min River in order to photograph the lives of the locals. In Shandong Province, he was nearly hit to death by villagers on an ancient bridge across the river when he tried to photograph local people: because in those days, many Chinese who saw photographic equipment for the first time considered photography as "the art of twisting the soul"; and photographers were considered to be "prophets of death." In the villagers' mind, the "image" would take away the "soul" of a person. Especially in the face of a foreigner from a distant country (the European "traits" of blue eyes, blond hair, high nose might have provoked a "grotesque" and unseen appearance in the local villagers' minds). The camera equipment Thomson carried on his shoulders (especially the "gun-like" lens) certainly increased the anxiety in the mind of these people. At one point, a village woman from Shandong even knelt down and begged him not to take away their "souls." The village woman probably saw the images of people in the photographs as materializations of her souls [12].

Apart from these hardships and dangers, Thomson had to overcome far more difficulties along the way. The camera of his time was exceptionally difficult to operate, requiring repeated experimentation and strict adherence to procedures for commissioning.

The general steps are as follows: 1. The surface of the silver-plated metal plate should be cleaned and made smooth. If the surface was rough, a special polisher must be used for meticulous grinding; 2. Iodine vapor fumigation to the metal plate for photography, in order to form a silver iodide coating; 3. The metal plate (equivalent to today's photographic film) placed behind the camera lens at a suitable distance.

Then, through exposure imaging, the chemical composition of the silver iodide on the metal plate is changed. This chemical change is what results in the final image. The color varies depending on the intensity of the light. After the photo is completed, the development process must be carried out, generally in the following steps: Heat mercury to fifty degrees Celsius, using mercury vapor to fumigate the metal plate, until the metal plate begins to display the image. Finally, the image of the metal plate needs to be immersed in sodium sulfate solution for fixing treatment. After these steps are completed, the image is preserved. Each of these steps required precise equipment and specialized handling. Therefore, photography in those days was not for the average person. Even though photography was highly popular after its invention; yet, like painting, it had enormous technical barriers that could not be overcome by ordinary people. That said, it was difficult to preserve photographs for long periods of time. Because the images on the metal plates of daguerreotypes are very fragile: they must never be touched. Even the slightest inattention will cause the metal plate image to be permanently erased. Therefore, even if the photographer can complete the process, it is difficult to preserve their photos. Photographs taken at that time using the silver plate method of photography did not have a backing up plate, and the positive image was obtained directly and uniquely, so that the lost photographs could not be reproduced. Because of this, the photographs of that time were as unique as paintings [13].

The photographic technology of Thomson's time (1860s) was much more advanced than that of Itier's era (1840s): in particular, it is important to point out that the metal plates were transformed into glass plates. In terms of image quality, the glass plate was significantly better than the metal plate. However, the glass-plate photography and metal plates have the same Achilles' heel: bulky.

Photographers not only have to carry around bulky glass negatives, but also need to use the Wet Plate Collodion. As a result, Thomson had to carry a lot of weight on his back on the road (at a later stage, Thomson also hired several local Chinese coolies to carry the photographic equipment). The weather of some cities that Thomson traveled was unpredictable and there was a lot of rain. The glass plates could be damaged by water; henceforth it was a problem for Thomson and the coolies to ensure the stability of the glass plate images during the occasional "storm."

A great photographer like Thomson not only strove for aesthetic perfection, but also paid close attention to communicating with the subject. As we all know, the intensity of light in the scene can lead to different exposure times. The early cameras' adaptability of the light could not be compared with today's equipment. Therefore, Thomson used a camera that required several seconds or even a dozen seconds of exposure time to complete the photograph. It is not difficult to predict that the cameras of this period are mostly known for shooting unmoving objects. Nevertheless, Thomson was fond of portraits or things of moving scenes. Only such kind of work, in the eyes of a true photographic artist, can reveal the natural state of the subject (because such a capture eliminates the "careful preparation" process that precedes photography). Obviously, this "capture" is not as simple as today's cameras (technically speaking, because of the extremely long exposure times required by the old cameras mentioned above). The other difficulty comes from the subjects themselves. Due to the Chinese commoners' superstitious views about photography, Thomson had to communicate a lot during the photographing process so as to capture the more natural and precious moments of Chinese environment.

Thomson was regarded as the "Marco Polo" of photography for his superb photographic skills, easy-going personality, and open-mindedness, which gives him the ability to communicate with his subjects. Even by today's standard, the works he left are of great artistic value. As for his professional skills, he was well-recognized in both China and Britain. His clients included some of the most powerful people of his time, such as Queen Victoria and Prince Gong (1833-1898), a Manchu royal member who led China's Self-strengthening Movement (1861-1895).

It is a great pity that later Western photographers to China were unable to carry on Thomson's career. Many of them could not stand up to Thomson artistically and failed to capture the subjects spiritually. Moreover, they seem to have deliberately used their photos to emphasize the so-called backwardness of Chinese culture. In so doing, the later photographers turned the camera into a tool for the colonization and used images to vilify and stigmatize China, Chinese people and Chinese culture in general; they provided the necessary visual basis for the proliferation of colonialism in China: they photographed cruel punishments such as "tear a body limb to limb," "death by a thousand cuts," beheading, and burn by the stake and published these images in popular journals in Europe. In these photos, China was unilaterally represented as poor, backward, ignorant and barbaric. Henceforth, in the work of Western photographers at the end of the nineteenth century, the image of China has shifted from the earlier mysterious celestial empire to an oriental despotic plagued with vices. The attitude of the Western photographers also shifted from curiosity to stereotypes and prejudices.

Therefore, photography accelerated the spread of negative impressions of the West towards the Eastern culture (more precisely, the Chinese culture in the Qing Dynasty). As a result, Western society in the late nineteenth century had negative attitudes toward Chinese culture and politics, which then makes Western colonization of Asian societies appear more legitimate because it is a necessary means toward universal "human progress." For many Western "colonial" photographers of the time, the desire to expand the geographical space of the empire and to capture everything possessive needed to be rationalized through the medium of photography. The "material" colonial photographers provided to Western periodicals continued to stimulate the imagination and desire of Westerners. These images also "compelled" them to go to the East, to "transform" Eastern societies by means of war, to replace the backward civilization with an advanced one by means of colonization, and to sing the elegy of Eastern civilization via cannon fire. Much of this rationality came from the "photographers" who were active in China at the time.

The outstanding representative of such "photographers" was the Italian Felice Beato (1834-1907). He was a notorious war photographer of the late nineteenth century. A pioneer in military reportage photography, he accompanied troops to China during the Second Opium War between China, Britain, and France in 1860 and left behind a large number of photographs. He took a large number of photographs of the defeat of the Qing troops and the burning of the Old Summer Palace (Yuanming Yuan) by the British and French.

The Summer Palace, praised by Western missionaries as the "Garden of Ten Thousand Gardens," which combines the best of Chinese architecture, was sacked by the British and French forces. It was burned from October 18 to 20, 1860, by the mob of 3,000 to 4,000 soldiers. It was in the Summer Palace that Beato took a set of photographs a few hours before it was burned down on October 18. There are two lines of records left by Beato at that time, although the handwriting has been blurred, but we can still see the text: "The great imperial palace Summer Palace, before the burning, Peking, October 18th, 1860 [14]."

Later, Beato and another colonial photographer took many photographs of the corpses of Qing soldiers at Beitang Fortress in Tianjin City. Behind these photographs there is not only the arrogance of the colonialists, but also the smugness of being the victor of the war.

Beato's other photos were taken at the Dagu Fortresses (about 50 kilometers from Tianjin City), the most important fortification to hold the Jinmen Gate, flanking both sides of the Baihe (today's Haihe) River. Three Dagu Fortresses were on the north bank and two on the south bank, with mutual fire support between the forts, making them easy to defend and difficult to attack. At six o'clock in the morning of August 21, 1860, the allied troops first attacked the front and smallest of the three forts on the north bank. At around 7:30 a.m., the allied forces launched a medieval-style white-knuckle battle; a couple of hours later, the allied forces burst into the fort, with about 400 Qing defenders killed in action and more than 100 soldiers fleeing. The fort was captured by the Allied Forces. At 2:00 p.m., the Allied Forces attacked the second battery, and a staggering scene occurred: without any resistance, the French troops entered the battery and inside were thousands of Qing troops assembled and ready to surrender. The commander-in-chief of the Dagu battery, Le Shan (?-1860), died while sitting at the Shijiazui battery. No soldiers dared to replace him in command, so the Qing troops chose to surrender. On the same day, another fort on the north bank and two on the south bank also surrendered without a fight. All the important scenes in the Dagu Battery were recorded and kept by Felice Beato.

"What a wonderful battle scene!" Beato repeated with a heartfelt exclamation. Before the smoke cleared, Beato entered the battlefield with British envoy James Bruce (the eighth Earl of Elgin, 1811-1863). This time, he did not have to bother dragging the remains of enemy soldiers over as props, because the scene was already full of such props, even a little too many, which affected his composition. Beato photographed the post-war rock crevice fortress from multiple angles and multiple views in both directions. The most powerful photographs include the entrance to the fort, with Qing soldiers' corpses strewn across the scorched earth in the close-up; and the fortifications constructed of mud and logs that were blasted into rubble by the British Empire's heavy artillery in the mid-ground. If not for the British officers sitting leisurely chatting on Qing gun carriages inside the Beitang Fort, taken a few days earlier, could have been mistaken for a picture of the British officers in the Beitang Battery a few days earlier, sitting leisurely chatting on the Qing gun carriages and the "Jack" flag flying in the wind in the distance. Beato succeeded in creating an iconic scene of British victory: for all of this speaks of the fact that the Chinese Empire was not invincible in the face of the British Empire! The Illustrated London News published these photographs in a series of engravings, making Beato the most famous war photographer in Europe at the time.

On October 24, 1860, Beato accompanied the British army to Beijing and photographed the historic ceremony of the signing of the Convention of Peking between the British and Chinese sides at the ceremony hall. Around 4:00 p.m., the British envoy, James Bruce, arrived in a sixteen-carat, gold-roofed, green-wrapped mourning gown specially prepared for him by the Qing court. He went out with a big show: drums and music as the front guide, together with about a thousand soldiers. He

was greeted by Prince Gong who stepped forward to greet him. Nevertheless, what made Prince Gong feel indignant was that the Earl from England pretended not to see him and walked straight to the signing hall without even looking back. This supercilious Englishman took his own seat, which had been prepared for him in advance. The British envoy's arrogance and unreasonableness seriously stabbed the pride of Prince Gong. After the signing of this unequal treaties between the two sides, the Earl suddenly shouted really loudly, followed by all the foreigners who stood up; all the other startled Manchu officials also scrambled to get up. At that moment, a photographer came out of the hall and skillfully completed the following action: "click" to capture this historical moment. What made people feel more chagrined was that most Qing officials did not know what the camera was. In this hateful, intimidating and suffocating environment, the Sino-British Convention of Peking was signed. Beato was the photographer who "clicked" and left the Qing officials dumbfounded. The signing of the Convention of Peking marked a new era in the late Qing history: a time when the West could be recognized as having finally defeated the most powerful nation in the East. This also initiated a new era in Chinese history: the age of treaties. One of the authors of The Cambridge History of China claims that the Western powers created a system of unequal treaties through war, which allowed China's sovereignty to be concealed or abolished on its own soil, and that foreign troubles grew thereafter. Beato's photograph bears witness to the beginning of the treaty era in China [15]."

3. Photography in the Chinese Mind: Exploration versus Traditionalism

In 1844, the first camera in China was born, only five years after the invention of modern camera by Daguerre. This camera was manufactured by Zou Boqi (1819-1869), based on studies of light refraction in ancient Chinese texts as well as his own observations and experiences. Yet, despite the many references to ancient Chinese texts in Zou's own Chronicle of the Photographic Apparatus (circa 1844), we believe he must have had contact with Western technologies.

After a lot of bad luck on the road to the Imperial Civil Exam, Zou only gota Xiucai Degree ("cultivated talent," or bachelor's degree, held on the local-prefecture level), hence he gave up on the Imperial Exam and was determined to engage in the study of science and technology. Zou Boqi believed that Western technologies such as mechanics optics were rooted from ancient Chinese sciences. It is clear that Zou was a great expert in traditional Chinese science. He noticed that the Chinese ancients had a more detailed description of the sunflint mirror: ancient people gathered light in the center of the concave surface under the sun and placed mugwort in the center of the flint to make it burn so as to obtain fire. Zou recalled that at the age of seventeen, he read the book Dream Pool Essays by Shen Kuo (1031-1095), a statesman and an enthusiast of sciences in the Song Dynasty. Shen mentioned an interesting principle called "reflection of the sun flint": As the sun flint face puddle, shines towards the sun, the light is gathered inward, one or two inches away from the mirror, as a point, as large as hemp beans, and when the object is put on the fire, this is the finest part of the waist drum. This means that Shen was aware of a kind of multi-functional flint, which was a concave mirror and could ignite fire under the sunlight [16].

In Dream Pool Essays, Shen noted that when the object is close to the mirror, the image of the object is upright; when it is far away, it is gradually invisible; however, once it exceeds a certain distance, it will generate an inverted image. Intrigued by Shen's observation, Zou Boqi began to explore this principle carefully. He conducted experiments by observing the shadows of clouds and flying birds and their changing images through a small hole [17]. In addition, Zou was inspired by Mozi's (476-390 BCE) text, in which the ancient Chinese artisan-philosopher mentioned small-aperture imaging. Zou believed that this text suggested that ancient China already had a prototype of photography technology. Zou's enthusiasm about bringing science and technology to China was largely motivated by China's subjugated status to Western colonial powers. Like many literate people of this time, Zou believed that the major reason of China's suffering at imperial hands was its economic backwardness and the underdevelopment of science and technology.

Zou was quite confident of his own scientific background, and decided to make his own camera. No one believed in his idea at that time, and all took it as a joke, yet Zou did not give up. The road was full of hardships and obstacles. At that time there was no glass manufacturers in Zou's hometown; hence it was necessary to buy lenses and other materials for making glass plates. Eventually, Zou crafted the first fully functional camera in China in 1844. Zou's manuscript Chronicle of the Photographic Apparatus have detailed the steps of how he had made this camera from scratch.

There is only a five-year gap between Daguerre's invention of modern cameras (1839) and Zou Boqi's camera (1844), and many Chinese scholars tend to believe that Zou invented photography almost the same as Daguerre did. Zou Boqi's account has led many scholars to believe that Zou's understanding of photography and the making of the camera was entirely inspired by traditional Chinese science and technology. They therefore argue that Zou mastered photography "without reference to Western photographic sources and without the assistance of Western photographers [18]." If this had been true, Zou's contribution to the history of photography was remarkable. Multiple scholars of Chinese photographic history have described Zou Boqi as an "extraordinary achievement" and wanted to prove that Chinese cultural traditions could also nurture modern scientific inventions. As a result, the history of photography quickly became associated with "Nationalism and Patriotism." Nevertheless, as one of the five trading ports after the signing of the 1840 Treaty of Nanking, Zou's hometown Canton was a cosmopolitan city where Chinese interacted with Westerners on a daily basis. This suggests that Zou must have had some degree of exposure to Western technologies.

Following Zou, a number of important Manchu officials, and even the royal family, dabbled in photography. As mentioned above, photography was invented by the French in 1839, and after it was introduced to China in the early 1840s, it did not spread quickly.

In addition to the scarcity and high cost of photographic equipment itself, another difficulty derived from a Chinese superstition that believed that taking pictures would take away the "soul" (or at least damage life). But some people did not believe in this, one of them was Keying (1787-1858), the Manchu governor of Guangdong Province. Itier took pictures for Keying during the negotiation of the Treaty of Huangpu between France and China in 1844. Keying considered this an important diplomatic activity and reported it to the Daoguang Emperor (1782-1850) in the form of a memorial. Today, Keying's photos are still well preserved: they are in the Maison Européenne de la Photographie in Paris, France, as historical artifacts; he is also the earliest documented Manchu minister to have taken photographs of China [19].

Keying's open-mindedness about photography helped to soften the Manchu ruling class' attitude toward photography. They gradually started to celebrated this technology as "miraculous and obscene."

A few years later, photography began to be accepted by the Qing imperial family, and many of the imperial members were eager to hire foreign photographers to take pictures for them, e.g., Prince Gong and Prince Yixuan (1840-1891) and their families had their portraits taken by foreigners. Even the old Empress Dowager Cixi (1835-1908) also occasionally loved to take pictures: she had ordered the internal affairs department to recruit a photographer to take pictures of the celebration scenes on the occasion of her sixtieth birthday (October 1894), but later, due to the invasion of the Eight-Power Allied Forces, the capital was in chaos and a photographer could not be found until it was pacified. After the peace with the countries, the palace hired an imperial photographer for Cixi. The photos of Cixi in the Palace Museum are mostly taken in the beginning of the twentieth century. Yet, overall, photography was expensive and unpopular in China at the time, and most people had never even heard of the word "photography." Even the few intellectuals who lived in Guangzhou and had wide knowledge of photography did not actually experience it themselves.

As early as 1868, Prince Gong, the sixth son of Emperor Daoguang (1782-1850), asked the aforementioned John Thomson to take his portrait [20]. But it is very strange that Prince Gong only had three or four photographs left, which is very different from Cixi or Li Hongzhang, who took hundreds of photographs in their lifetime.

Within the Forbidden City, there were only a few people who liked photography, including imperial concubine Zhen Fei and the Empress Dowager Cixi[21]. Nevertheless, this common interest not only did not bond the two together, but even indirectly led to the death of Zhen Fei (Tatarasu, Manchurian Red Banner, 1876-1900). She was beautiful and virtuous, and was interested in poetry, painting, and photography. After entering the palace, she and her husband Guangxu Emperor (1871-1908) deeply loved each other. This caused the jealousy of Guangxu Emperor's main wife – Empress Longyu, who was also the niece of Cixi. Zhen Fei and Guangxu shared the interest in photography, they often dressed in various costumes and took photos for pleasure. However, Zhen Fei's passion for photography completely failed to impress the Empress Dowager Cixi. After China's failed Hundred Days' Reform (1898), the conservative Empress Dowager put Emperor Guangxu under house arrest at "Yingtai." Zhen Fei, who supported the emperor's reform, was also under Cixi's control. In July 1900, the Eight-Power Allied Forces invaded Beijing, and Cixi fled westward to Xi'an City, holding Guangxu hostage. Before leaving, She ordered the eunuch Cui Yugui to push Zhen Fei into the well behind her palace. Zhen Fei, the royal photographer, died at the age of twenty-five.

Yet, Zhen Fei's death did not entail the doomsday of photography with the Qing royal family. Xun Ling (?-?), the second son of Yu Geng (1838-1905), who was China's ambassador to France from 1899 to 1903. France, the birthplace of modern photography, was still at the forefront of photography in the world. Therefore, Yu's son, Xun Ling, had a unique advantage in studying photography. Xun Ling studied at a French army school, but spent a lot of his spare time studying photography. Xun Ling was the elder brother of the famous Princess Der Ling (Elisabeth Antoinette White, 1886-1944). Having accompanied her father to Europe, Der Ling was well-educated in Western languages, music, painting, and photography. After returning to China, Der Ling was recruited by the Empress Dowager as her personal advisor on Western cultures. Because of Der Ling's closeness to the Empress Dowager, Cixi recruited her brother Xun Ling as the imperial photographer in 1903. His photography skills were recognized and praised by Cixi, and most of Cixi's photos came from his hands.

"In photography, Cixi never cared about the cost, in order to take good photos, she "specially sent an imperial decree in front of her Summer Palace to build a mat scaffolding, with a set screen as a backdrop, and according to the style of the temple decorated with luxury furnishings. At that time, although the Summer Palace had electric lights, it did not yet include photographic lighting equipment. In order to highlight the three-dimensional image of the main character (Cixi), and to improve the clarity of the phase, only natural diffused light was used, to achieve the best results of her "dignity". Cixi in the photo before, personally studied the calendar to select the auspicious day. When taking pictures often ordered the imperial photographer Xun Ling for its continuous shooting on several different posture of the palace like, and cannot wait to order each of the magnification of several, but also quickly to the water with the sample film has not yet been varnished presented to the imperial court [22]."

Cixi not only liked to take pictures, but also had her own ideas about taking pictures, so she would choose her own location and light before taking pictures. For Cixi, these photographs not only made her image more realistic, but more importantly, they showed her status as a "noble" person. Xun Ling's photographs of Empress Dowager Cixi consisted of three types of photographs: single full body shots; photos of life in the palace; and photos of entertainment in costume.

In addition to documenting her life, Empress Dowager Cixi's motives for taking photos were also diplomatic. She gave her portraits to foreign heads of state and ministers for diplomatic activities - at that time, Cixi often met privately with the wives of ministers and distributed her personal photos as gifts. These costume photos were not just for fun, but also revealed the ambition of Empress Dowager Cixi.

"Cixi was a Buddhist, and she dressed herself as the Bodhisattva Guanyin; hence she acquired a name Lao Foye (lit. Old Buddha), who saves suffering and saves all beings (the Qing people). She wanted to express that she was the only one capable of bringing stability to the common people in a society where times were turbulent, wars were frequent, and life was difficult. Behind the seemingly simple costume photo was the determination of Empress Dowager Cixi to maintain the rule of the

Qing dynasty, and to show that her position was unshakable. The costume photos that we take for granted today were not done easily back then. Before taking pictures, the design had to be done beforehand, and then the civil affairs department would prepare the set, props and other materials in advance. Near the time of the photography, the Empress Dowager Cixi would also put forward her detailed requirements to Xun Ling [23]."

Cixi played a pivotal role in the spread of Western photography in the court. In both Chinese and foreign accounts, Cixi was often labeled as "extravagant", "cunning and vicious", "dictatorial" and "traitor to her country". However, such negative comments were redeemed to a certain extent by Cixi's photos.

Xun Ling was not Cixi's only photographer. Cixi recruited two professional Westerners, Katharine Carl (1862-1938; affectionately called by Cixi as "Miss Ke") and Hubert Vos (1855-1935). The works of these two established a new image of Cixi. Through their lens, the Empress Dowager was not only a gentle, virtuous, and graceful Oriental woman. Her new photos revealed the majesty and solemnity of a Manchu royal dictator.

Also in 1903, the U.S. Minister to China, Sarah Pike Conger (1843-1907) strongly recommended the sister of the former East Customs Commissioner, Katharine Carl, to paint the portrait of Empress Dowager Cixi[24]. It is important to note that Cixi first took a portrait photo, and then asked the painter to paint based on the photo. The advantages of doing so are at least the following: Cixi can avoid sitting still for a long time for the portrait; the secondary creation through Western oil painting can effectively modify the deficiencies in Cixi's appearance (such as wrinkles; the mediocrity of her features). The photographer's work satisfied Cixi and she let Katharine Carl to stay in the palace for about nine months. Because of this, Carl became the only Westerner to get a closer look at Cixi's life and the life of the Manchu court.

As with the photographic set-up, Cixi paid special attention to choosing the auspicious day to start and finish the writing. Cixi made every effort to make her personal impact known to the public, and she even arranged for her images to be escorted to the St. Louis Exposition in the United States by Pu Lun (1874-1927), a special envoy of the Qing court and representative of the imperial family.

"The 1904 World's Fair in St. Louis was an event hosted at great expense by the United States to celebrate the 100th anniversary of the "purchase" of St. Louis from the French and to show off its national power. It featured cutting-edge technology and consumer products such as airplanes, automobiles, radio communications, and egg cones and ice cream. At the same time, the Qing government was eager to mend relations with the world powers after the invasion of China by the Eight-Nation Alliance in 1900. With the active facilitation of the United States, the Qing government paid extra attention to the fair [25]. Cixi thought that this would make her image "prominent" in the world. Cixi's portrait experience also (passively) made her a pioneer in the cultural "enlightenment" of modern Chinese society (at least from the perspective of photography) [26]."

The Dutch painter Hubert was invited to the palace to paint Cixi's portrait. The arrival of Hubert indicated Cixi's growing openness to Western customs: she was willing to be painted by male painters. During that time, such an act was considered "progressive." Hubert's paintings were done in the same way as Katharine Carl's: Cixi first had the photographs taken and developed, and then created oil paintings from them. Unfortunately, Cixi soon expressed a lot of dissatisfaction with the male painter's "uninteresting" work: "After seeing the small sample of her photos, Empress Dowager Cixi immediately asked to remove the shadows above and below the eyes and nose, and increase the eyes, full lips, the corners of the mouth needed to curve upwards, and her eyebrows were to be straighter. Hu Bo had to abandon the basic essentials of Western portraiture and modified his painting style according to Cixi's requirements. Although Hu Bo was forced to do so under pressure of Cixi, his dissatisfaction was obvious: in Hu ' s opinion, the first principle that painters (and even photographers) should follow is realism; that said, to record history in the form of images.

According to Hubert, the so-called "image" is just another form of words. Soon, Hubert developed his complaints into written form. In his letters, he complained to a friend: 'In short, no shadows, no shadows, no shadows, and no wrinkles!" The game between Hubert and Cixi, perhaps,

shows the collision between Chinese and Western thinking about the cultural aspects of photography and painting, as well as the aesthetic differences between different countries [27].

"Of course, the fact that the Empress Dowager took so many photographs are inseparable from her "narcissistic" appreciation of herself. Peng Yingzhen's article explores the images of the Empress Dowager Cixi's self-portrait. Traditional Chinese paintings of ladies used the image of a woman looking at herself in a mirror to criticize her superficial vanity, love of beauty and narcissism. There is no doubt that this is derogatory. However, Empress Dowager Cixi graciously appeared in front of the camera with the image of a woman looking at herself in a mirror, without any shame. This shows her "recognition" and "appreciation" of her own appearance. Peng continued to argue that Cixi thought her "beauty" was a glorification of her sources of power [28]."

Cixi's public image was totally destroyed when she declared a war to all Western powers (and Japan) during the Boxer Rebellion in 1900. This caused her reputation to plummet in the eyes of Westerners. An example is the French magazine Le Rire: in July 1900, the cover of this periodical showed an ugly, violent and unforgivable old Asian woman; no doubt she was Cixi. Or more precisely, this picture represented the image of Cixi in the eyes of Westerners. This undoubtedly offended the long-standing sensitive nerve of the Manchus to be billed as "barbarians" in the history of the Qing dynasty. This time, however, the mockery came across as far more profound and comic than any of the Han ridicule: the Empress Dowager Cixi - the most powerful Manchu woman - is being presented to the world as an ugly, barbaric, foolish and absurd caricature. Cixi decided to take up the weapon of "photography" to defend herself, at least in terms of her appearance. This also explains why she immediately sought to improve her "international image" through the "lens" in 1903.

Although Cixi was not nominally a monarch; she was de facto supreme ruler in China: The Empress Dowager's body (as a ruler) was sacred, while a woman's body/appearance was, at that time, somewhat private. Such a complex mentality was mixed with the narcissistic posture of the Empress Dowager: she was proud to be a woman; in other words, if it were not for her "beauty" and fertility, she would not have entered the palace, would not have become the Imperial Concubine Lan Guifei, and would not have given birth to the Tongzhi Emperor (1856-1875). In other words, her fertility was the source of her great political power. For these reasons, Cixi considered herself "worthy of celebration" and even more worthy of being documented visually. In addition to advancing many of the photographic themes mentioned above, Cixi also posed provocatively, thereby asserting and proclaiming her supremacy. Such a mindset is concentrated in another of her photographs, in which she is seated on a throne, crossing her right leg over her left knee in the Buddhist manner; her body is leaning back on the cushion, her shining, watchful eyes deliberately averted. This posture was, in the eyes of those days, out of place for someone from a prestigious family. Women, as much as possible, should avoid exposing their bodies (or the contours of their bodies) to outsiders. A popular textbook for women's education from the sixteenth century onward, was a powerful warning to women of that era: "A crooked body and sloping feet hurt decency, and showing one's face is bad for one's reputation. This notion persisted into the twentieth century, as even modern women are expected to cross their legs in public in the correct manner. Yet, Cixi paid little attention to these famine restrictions and let her cameras visualized her in history.

4. Conclusion and Comparison

Western photographers had earlier access to the technology of photography; hence compared to Chinese photographers, Westerners were more knowledgeable about it. As the earliest photographer in China, the Frenchman Itier's photographic career was based on his personal interest, hobby and curiosity. Thomson focused on the art of photography, because in terms of technology and technique, Thomson was much more advanced than that of Itier. In terms of the photographs themselves, the photographs taken by Western photographers before the 1860s and 1870s had a more artistic quality because their photographic aims were pure. In the latter decades of the nineteenth century, however, there was a major shift in the way Western photographers took photographs, as colonialism became

more and more rampant. Photography thus began to serve colonial purposes, and photography became a device to the colonizers. This was deeply reflected in Beato's photographic "work," which exposed the dark side of late Qing society, such as the cruel punishments of beheadings and five horse dismembering; and published these photographs in major European periodicals, demeaning China and portraying it as a barbaric and uncivilized society. Such negative propaganda rationalized European aggression, or rather, justified it. The "colonization" played a triumphant song for the "justice," and the invasion became a cruel but "necessary" means to "enlighten" the uncivilized Chinese society. Thus, photography began to go far beyond technology itself and became closely integrated with politics, invasion, diplomacy as well as military. The photographic lens was no longer a tool in the hands of a photographer, but became another "cannon" in the hands of the invaders.

In the case of Chinese photographers, many authors believe that Zou Boqi made the camera independently [29]. Admittedly, Zou Boqi had been inspired by traditional Chinese texts that discuss preliminary photographic technology, such as Mozi's principle of small-aperture imaging and the optical principles recorded in Shen Kuo's Dream Pool Essays [30]. However, although Zou Boqi pioneered Chinese photographic technology, we must note the great difference between Zou Boqi and Louis Daguerre: modern Western chemistry was not introduced into China until the late nineteenth century. Therefore, Zou Boqi did not have that type of access to modern photographic technology like his Western counterparts did – he had to order fixatives from the market. Yet, the availability of fixative itself illustrates the influence of Western civilization on Chinese society. That said, the fact that Zou himself was able to buy European products also reflects the increasing interactions between China and the Western countries, which was a major trend of late nineteenth century: the Treaty of Nanking (1840) opened five ports of commerce, including Guangzhou, which connected China to the Western world. Again, although Zou Boqi made his own camera, it was more for realistic reasons: cameras were extremely expensive and difficult to buy at the time. So, Zou Boqi had to make his own camera. Overall, it is necessary to adopt a hybrid view: Zou drew on both traditional Chinese optical principles and Western science and technology that was better disseminated in the Guangzhou area at the time.

There are fundamental differences between Chinese and Western photographers. Most importantly, they had different motivations for photography: Westerners were motivated by curiosity, or, in more "noble" terms, by the "art of photography," or by a photographic understanding of Eastern society. These are the motives of the Scottish photographer John Thomson, who was known as the Marco Polo in photography. Nevertheless, in the later period, photography mainly served colonial purposes. The second difference lies in the technical level: the photographic techniques and technology of Western photographers were far more advanced than those that Chinese photographer could access to. The equipment of Western photographers was extremely large and expensive; for example, Thomson spent a lot of money on glass plates, developing and fixing solutions. He brought a great deal of complex equipment with him on his China trips, and his photographic glass plates (including 14-inch plates and much larger ones) alone took up several wooden boxes. These glass plates were so heavy that it required four people to lift them up. Thomson also spent a great deal of energy and money on traveling. The advanced Western photographic technology was difficult for Chinese photographers to access. In contrast, Zou Boqi's camera was very rough and simple. Nevertheless, by the end of the nineteenth century, Chinese photographic technology had a significant improvement, as the Chinese borrowed more from the West. For example, Xun Ling ordered expensive photographic equipment from France to take photos for Empress Dowager Cixi. Thirdly, the themes and subjects that Chinese and Western photographers each chose were also different. We may note that Western photographers in China seldom took photos of themselves. For example, when they arrived at the Old Summer Palace, they did not take their own images; instead, they only shot scenery: the Italian photographer Beato preferred to document scenes of the Old Summer Palace before and during its burning process, rather than taking a picture of himself in this royal park as a "souvenir." Of course, their own images are not entirely absent, and the few visible images of their own influence probably include John Thomson with several poor Manchurians. Yet, why did Thomson choose to

take a picture with a Manchurian pedicurist, rather than a Chinese scholar-official? Did this photo represent a deliberate attempt to highlight the social or racial differences? On the contrary, Chinese photographers were very different from Westerners in their choice of subjects, as they mostly produced portraits with the purposing of preserving the image of influential individuals in history in the form of photographs. This preference of Chinese photographers was consistent throughout time. For example, Manchu royal photography enthusiasts such as Keying, Prince Gong, Zhen Fei, and Cixi tended to take their own images.

Photography has indeed transcended the technology itself. Photography represents the collision and integration between different countries; it involves intermingling, acceptance, spreading and progress; and it has played a facilitating role in the political rivalry as well as the friendship between the East and the West. The broader political, cultural, and ideological implications of photography have contributed to the progress of human society.

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