

Visual Aspects of Urban Railways in Paris and Tokyo during the Early Railway Period

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Introduction

While the infrastructure of urban railways is like a giant reticular machine governing the flow of people and things in the city, it is also a wide-flung structure that forms our view of both the above- and below-ground of the city. Anyone who knows Tokyo's railways can see at a glance that Tokyo's urban railway network differs in these two points from the urban rail networks of large cities in western Europe. Tokyo's urban railways are operated by more than 10 different companies and connect at several giant nodes (Ikebukuro, Shibuya, Shinjuku, etc.), creating an additional network superimposed on top of the Tokyo metropolitan world. The trains thunder on elevated tracks through the city between these immense stations and form an essential element of the Tokyo cityscape. This article focuses on the visual aspect of urban railways, especially on how the early novel railway structure in Tokyo was

introduced technically and socially. In addition, comparison is made with Paris to give a clearer idea of the relationship between Tokyo's urban railways and the city's appearance.

Tokyo

Japan's long time model of civilization was China, but China's defeat by the modern British army during the first opium war (ended by the Treaty of Nanking ceding Hong Kong to Great Britain in 1842), as well as the 1853 arrival of US Commodore M. C. Perry demanding international relations, pushed Japan to abandon its long-held policy of isolationism and learn Western technologies. As a typical example of the rapid pace of change during this period, the first reverberatory furnace was built in Saga in 1850. This was an important landmark in Japan's engineering history, because modern iron manufacturing played an essential role in

the development of infrastructure and industries including railways.

Actually, the Meiji government (established in 1868 after the collapse of the Tokugawa Shogunate) gave top priority to the construction of railways in its public works policy (Fig 1). However, because background knowledge of many advanced industrial techniques was limited, the shogunate and subsequent Meiji government were forced to turn to foreign engineers to catch up as quickly as possible. In the early days between 1868 and 1889, 2299 foreigners were employed by the Japanese government; 146 were civil engineers, and civil engineering was considered one of the most important sectors. However, the number of foreign employees began decreasing from 1874 as Japanese engineers were trained either by the foreigners, or overseas in western countries.

At the beginning of the Meiji period (1868–1912), the majority of foreign civil engineers were British (108), followed by



Shimbashi Station on Japan's first railway line (top) and Ginza in 1870s—Japan's first western avenue

(*One Hundred Years of Tokyo's Town Planning*, Tokyo Metropolitan Government, 1994)



Mansebashi Station—a hybrid of Japanese and western landscapes
(History of Modern Japan seen through Postcards 1902–40, City Planning Association of Japan, 1980)

Dutch (13), Americans (12) and French (11). The first railway line between Shimbashi (Tokyo) and Sakuragicho (Yokohama) was built by British engineers and opened in 1872. During the development of early railways, British engineers supervised railways in Honshu (the main island), Americans in Hokkaido (northern island) and Germans in Kyushu (southern island).¹ The Engineer Training College was established in 1877 under the supervision of a British engineer-in-chief, Thomas R. Shervinton. Its graduates were instrumental in building the 646-m Osakayama Tunnel, completed in 1880 and the first tunnel built entirely by Japanese engineers. Japan's heavy dependence on foreign expertise was a means to achieve its own technical independence.

Generally speaking, the new engineering technologies were seen as a symbol of western 'modernity' and the new urban railway infrastructure was something to illustrate Japan's success in technical and social innovation. Perhaps, the Tokyo–Yokohama route was chosen for the first railway line so that foreigners coming to Japan via Yokohama Port would see how modern Japan was when taking the train to Tokyo. However, to avoid opposition, the westernization of Tokyo's urban landscape in the following years had to

proceed with compromise, resulting in a hybrid Japanese and western landscape. Even such compromise was not free of criticism, although it did not hinder the westernization itself. Notwithstanding the Japanese admiration for the west, westernization was more a means to an end as far as city development and technology were concerned. With Japan's absolute need for modernization at that time, these foreign influences on the urban landscape were accepted positively.

Paris

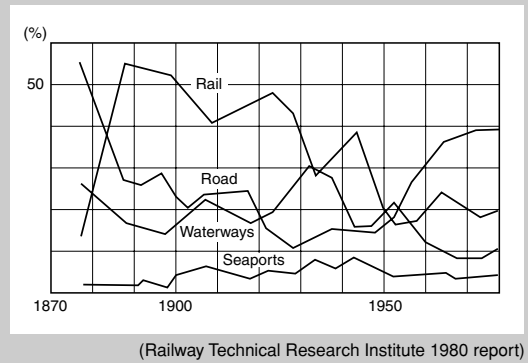
British engineers pioneered railway techniques at the time of the industrial revolution and French engineers realized that they were behind and needed to catch up. The initial circumstances were the same as in Japan, but the catching up took a different course.

French engineers were trained traditionally according to the unitary engineering concept of pure science and arts. Mostly hired by the government, they were highly specialized in conventional highway and waterway technologies but lacked the multidisciplinary skills required for modern civil engineering such as dynamics, mechanics, land and town planning, etc.

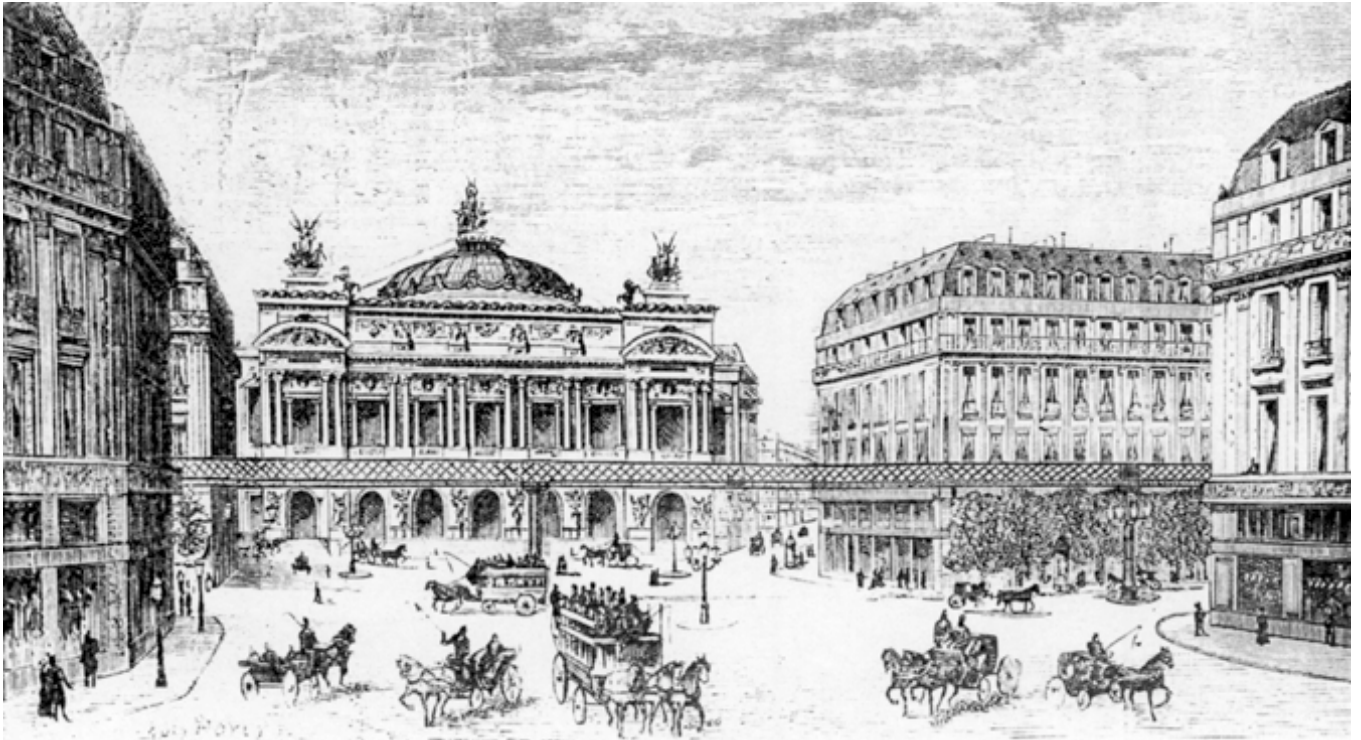
Consequently, when they joined the private sector, they had to abandon the old unitarian ways of thinking. The railway contributed to the breakdown of the French civil engineers' traditional thinking, through the variety of parameters required for railway planning and construction.

At the practical level, the French railway companies were first inspired by foreign achievements. In most cases, the foreign techniques were appropriated by sending missions in the 1830s and 1840s to Britain, Belgium and Germany. Their mission reports show the French engineers' critical mind as well as their admiration for foreign techniques. For example, struck by the 'English' liberal and commercial design of stations, the French civil engineer Malézieux regretted that 'this layout doesn't lend itself easily to the monumental effect and to exterior decorating.'³ A journey to the USA gave Legoyt the occasion to appreciate the railway landscape 'where all the bridges are in wood, built in a very cheap, lowly fashion'⁴, while Chevalier suggested adopting the American building style rather than the English for economic reasons. In addition, the economic aspect didn't always clash with monumentality. At the beginning of the July Monarchy (1830–48), a chief engineer from Le Havre noted 'one should not judge the cheapness of a

Figure 1 Public Works Fund Allocation in Japan (1877–1977)



(Railway Technical Research Institute 1980 report)



Project Chrétien; The Paris Universal Electrical Expo of 1881 envisioned a network of electric trains on elevated tracks as symbolized by this planned view of the front of the Paris Opera House. (Kitagawa Collection)



Project Leroux; Some people thought that the trees lining the banks of the R. Seine served no good purpose other than providing shade and this picture shows a plan (1890) to replace them with elevated train tracks. (Kitagawa Collection)

thing by how much it costs, but by how much it is worth...'.⁴

After the growth of railways, this French approach can also be found in the Paris metro. 'Paris was one of the world's last cities to build a subway system, even if it was the first city to conform to the industrial age after the great 19th-century city transformation.'⁵ The city fathers wanted to make up for the backwardness of urban transport in Paris and entrusted the work of building the subway to Empain of Belgium. The Compagnie du Métropolitain de Paris (CMP) was one of its subsidiaries. A municipal commission visited London in 1876 and study missions were organized later. One of the delegates, Deligny, reported that 'the railway cannot be only underground. There is no doubt about it; it will not be attractive...'. As a result, he set the Place de la Bastille as the starting point for all routes and declared himself in favour of a solution mixing underground and elevated railways.⁶

There were two differing standpoints at the time: the hygienist majority in favour of an elevated network promoted mainly by the technicians, and a smaller minority that favoured taking the traditional urban landscape into account. The world fairs held in Paris in the late 19th century gave impetus to changing the urban landscape to demonstrate the new techniques, however, the realization of a new transport system proved difficult due to differing viewpoints, provoking even political debates. In fact, even the spirit of world fairs in Paris was different from that of other big cities such as London. If Londoners could observe contemporary industrial techniques at the 1851 Great Exhibition, Paris world fairs in 1855 and 1867 emphasized artistic and sumptuous dimension and demonstrated challenging models of town planning. The salon spirit dating back to the Louis XIV days was revived as an antithesis of the London spirit. It is during this period that today's Paris stations were built.

Conclusion

The impact in France of new foreign technologies was surely less strong than in Japan, which rapidly entered the industrialized era after a long 250-year isolationist policy. Even prior to this, Japanese and French technologies had developed differently so the emotional reaction to railways was naturally different between the two countries even if there were similarities regarding technical catch-up.

In Japan, foreign engineers were selected based on their technical strength but with a mind towards escaping from dependency on westerners. Confrontation with the past or criticism of city development was not very apparent. The philosophy was that mastered techniques were to be adopted. The Japanese were eager to leave the pre-industrial era, and technical independence presented a means to create a new Japan. The notions of technical and social catch-up were no longer separable and took on a unique meaning—innovation. The huge destruction wreaked by the Great Kanto Earthquake in 1923 and the aerial bombardment at the end of WWII in 1945 obliterated most of the traditional Tokyo landscape and this spirit of innovation did not allow rebuilding in the traditional fashion.

In France, like in other countries, the implantation of the railways and stations was synonymous with the new era of technical progress. However, the critical mind led to a certain distance between the

technical and social stakes, particularly between technical development and its application. This approach was widespread in Paris at the time of French industrialization. Even if the concept of technical catch-up had permitted a radical change in civil engineering training and methods, city development was not seen in the same context as in Tokyo. In other words, if the new Tokyo was thought out positively in comparison to modern western cities, the new Paris placed itself in relation to the old Paris through a critical reading of the territorial dimension of the new techniques. ■

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