

The Student becomes Master!

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After obtaining a licence in Japanese language and culture from the Catholic University of Leuven in Belgium in September 1999, I was offered a grant for a 1-year stay at Kansai University in Osaka where I had the opportunity to put my theoretical knowledge to practical use. Ever since I was a child, I have been interested in trains, so it is not surprising that my final thesis was on the history of Japanese railways. My travels to Japan allowed me to check my thesis against reality—travelling on the shinkansen was like a dream come true!

Railway Cradle

From their birth, railways have been a source of fascination and a symbol of progress, standing at the front line of technology. It is wonderful to see how Japan quickly developed into one of the leading countries in railway technology. However, the cradle of railways is in England where the development of the railway industry went hand-in-hand with the Industrial Revolution, starting around 1840 and ending in 1870 with the building of the nation's railway network.

Due to the railway and other factors, this small island nation became the leading industrial power and the New Society spread from England across the European continent. Early on, the bourgeoisie, landowners and capitalists had already brought the feudal economy and social order to an end and the growing capitalist economy, and industry, especially mining, stimulated the development of technology with the need for powerful pumps to remove water from coal mines and engines to replace barges as the means of transporting bulk coals. This need was fulfilled by the invention of the first steam-driven 'engine' in 1769 by James Watt (1736–1819). Within a few years, Richard Trevithick (1771–1833) had developed the first steam engine on rails and then George Stephenson (1781–1848) ran

The Rocket on the Stockton–Darlington railway opened in September 1825. Not surprisingly, it was a mining line for transporting coals. The first passenger line was the Liverpool–Manchester railway opened in September 1830 between Liverpool, the most important port for cotton, and Manchester, the centre of the weaving industry. This development in England was noticed by countries in continental Europe which soon developed railways in the following decades—Belgium in 1835; Germany in late 1835, France in 1837, The Netherlands and Italy in 1839. Japan only developed an interest in this new means of transportation, much later in 1872.

Opening of Japan

During the Edo period (1603–1868), Ieyasu Tokugawa (1542–1616) feared colonialism and implemented an isolationist *sakoku* policy, closing Japan to the western world, except the Dutch, who had a small trading post on Dejima in Nagasaki Bay. This unilateral isolationism did not match the West's expansionist politics, especially because the western powers wanted to bring Japan under their sphere of influence, open it to their markets, and use it as a bridgehead into China. The Portuguese, British, Americans and Russians, tried to change the isolationist policy for 200 years, but none succeeded. By the end of the 19th century, the international market economy was reaching a peak and there was an urgent need to open up new markets and expand existing ones to postpone stagnation. The decisive moment in ending Japan's isolation was the 1853 arrival of an American fleet in Tokyo Bay under US Commodore Mathew Calbraith Perry (1794–1858). Perry returned to Uraga in 1854 and forced the Tokugawa *bakufu* regime into signing an American–Japanese Friendship Treaty (*Nichi-Bei Washin Joyaku*). The next few years were very turbulent. The Tokugawa regime collapsed in 1868 with the restoration of the

Meiji Emperor as the head of government. The Meiji Emperor set about modernizing the nation by abolishing feudal economic structures and introducing western technology and ideas. The nation had already been unified under the Tokugawa regime but the new government sought to centralize its power. In response, Sir Harry Parkes (1825–85), the British Consul, suggested building railways as a faster means of transporting people and goods and cementing the new government's authority. As a result, the Japanese government agreed to hire western (mainly British) engineers to build and operate Japan's first railway at narrow gauge (1067 mm) between Tokyo and Yokohama, although some ministers disagreed, fearing the large influx of foreign workers. Parkes was instrumental in arranging foreign finance and hiring British engineers, but the Japanese retained full autonomy over the railway and foreigners have never had railway rights in Japan. Edmund Morel (1841–71) was one of the first engineers hired and his advice was largely responsible for establishing the Ministry of Public Works in 1870 to supervise the building of railways. The Japanese railway era started with the opening of the narrow-gauge line from Tokyo to Yokohama in 1872. Other lines were also built under the supervision of British, German, American and other foreign engineers with most of the materials imported from England, Europe or the USA. The Japanese rapidly assimilated the foreign railway technologies and later lines were built entirely by Japanese engineers—domestic production of rolling stock soon followed!

Appearance of Shinkansen

The demand for faster transport in the postwar economic growth period kindled the ideas of high-speed trains. The existing narrow-gauge network with its sharp curves was not suitable for high-speed operations,

so the standard gauge used in most European countries was adopted when the first Japanese high-speed shinkansen was officially opened in October 1964. Suddenly, Japan the railway student had leaped 20 years ahead of Europe to become the master! The shinkansen is not only a huge commercial success without precedent, but it also pioneered high-speed railway technology for the French TGV and the German ICE.

The TGV became the first high-speed train in Europe in 1981 when the first TGV (Train à Grande Vitesse) left Paris with paying passengers on 27 September 1981 bound for Lyon. In 1988, Italian Railways (FS) launched the TAV (Treno Alta Velocita) and the first ICE line (Intercity Express) was opened in Germany in 1991. One year later, the Spanish introduced their AVE (Alta Velocidad Espanola) high-speed train. Since 1997, the *Eurostar* and *Thalys* high-speed trains have been passing through Belgium on a dedicated track built especially for them.

The big advantage for the European railways is the fact that they can use the existing infrastructure for high-speed operations because the European network consists mainly of standard-gauge tracks (1435 mm). However, most older tracks in Japan are narrow gauge, so the high-speed network has to be built from nothing or existing narrow-gauge lines have to be converted to standard gauge to operate shinkansen trains. The latter method was used for the Akita and Yamagata mini shinkansen.

The current shinkansen network has seven lines and work is underway to expand the network to connect Hokkaido and Kyushu to Honshu. In Europe too, countries are working on the European high-speed network to connect France, Belgium, Germany, Spain and Italy with the rest of Europe by high-speed services.

In the meantime, railways have taken their place in society; they have changed the world and in a changing world, have themselves become the subject of change.



Author standing in front of *Nozomi* Series 700 at Tokyo Station

(Author)

The future will show if the European high-speed network is as successful as the Japanese one.

I rode my first shinkansen on 4 November 1999 as a member of Kansai University's badminton team travelling to Tokyo for a tournament. I travelled second class without a reserved seat on the *Hikari* limited express from Shin Osaka to Tokyo and managed to go back on the *Nozomi* super express, with a small extra payment. Both the *Hikari* and *Nozomi* have 16 passenger cars. *Hikari* has five cars with non-reserved seats while *Nozomi* needs reservation for all seats. Passengers without reservation had already formed an orderly queue (which would be unthinkable in Belgium) to take the *Hikari* 30 minutes before departure. The train was exactly on time, and I never expected otherwise. In second class, there are two rows, one with two seats and the other with three seats. The Green Car (first class) carriages have two rows as well, but with two seats each. (For comparison, the TGV and ICE also have two rows with two seats each in second class and one plus two seats

in first class because they have much narrower bodies than the shinkansen). Since shinkansen seats swivel around, we could sit together as a group. Although dining cars are no longer available, there are food and beverages carried around on trolleys and on-board vending machines sell alcohol, which surprised me. In Europe, one ticket check is carried out in the train by the ticket collector (not on subways or metros), but in Japan there were two ticket checks—one at the ticket wicket, the second on board. In Europe, people seeing others off have direct access to the platform, but in Japan one has to buy a platform ticket.

Time flew, as did the landscape I admired from the train. Before I realized it, we had reached our destination and the trip was over. With great regret, I disembarked from the 'bullet train'. ■

Note

1. These and subsequent developments are explained in more detail in *A History of Japanese Railways 1872–1999* recently published by East Japan Railway Culture Foundation.



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