

# The German Technical Museum in Berlin and its Railway Collection

Alfred Gottwaldt

## German Railway History

The 19th century development of railways in what is now Germany is very much like the story of any other European country—except Great Britain—and German railways played an important part in the nation's history. Only 6 years after the famous Rainhill Trials near Liverpool in England, demonstrating the practical feasibility of steam locomotive traction, the first German railway was opened in 1835 in Nuremberg, Bavaria, a kingdom in what is now southern Germany. (At that time Germany was not a united country.)

Railways grew quickly in the lands now making up Germany and the railway system became the locomotive (both literally and figuratively) of industrialization. By the time the first united Germany was established in 1871, there were already 8 well-established railway systems in Prussia, Bavaria, Saxony, Badenia, Württemberg, Hesse, Oldenburg, and Mecklenburg. There

were 30 German locomotive builders, and a specified architecture for German stations and other railway buildings.

At the end of the 19th century, some railways in Germany were state-owned while others were built and operated by private capital. However, the state railway systems became omnipresent and in 1910, German railways were employing more than 1 million people. They operated 30,000 locomotives, and had 20,000 stations on a total track length of 55,000 km. German railways were the backbone of transportation during WWI carrying troops, munitions, supplies, and prisoners. During the following period, railways in Germany were already starting to suffer from emerging competition with the car. Some 30 years later, railways in Germany were again playing a role in WWII, carrying troops to the front and Holocaust victims to the concentration camps in Eastern Europe.

After the defeat and following an order by the Soviet supreme command, railways in Berlin remained under control of

Deutsche Reichsbahn based in the Deutsche Demokratische Republik (East Germany). This situation continued after the Berlin Wall was built in 1961 and onwards when it came down in 1989—railway systems in the east and west of the country were not reunited until 1995.

## Berlin Railway History

The first railway line in Berlin, the Prussian capital at that time, opened in October 1838, only 3 years after construction of the Nuremberg line. As with many other railways in Europe during this period, the engines were made in of Newcastle, England.

Within just a few years, Berlin became the central hub of many railway lines and networks in northern Germany, and within 30 years, eight different lines radiated out into the surrounding country each from an imposing station terminus in Berlin.

Due to rapid growth of rail traffic, soon after the 1850s, most of the small first-generation Berlin railway stations were demolished and replaced by larger second-generation stations. Between 1866 and 1880 when the economy was growing at a fast pace and neighbouring France had suffered military defeats, the station buildings were rebuilt on a much grander scale, with no regard to the historic value of the earlier railway stations.

Only good luck led to the preservation of the Hamburger Bahnhof in north Berlin, serving trains to the port city of Hamburg. In 1884, its trains were diverted to another newer station and the Hamburger Bahnhof was converted into an office building by the state railways some time later. Then the Prussian government converted it to the Museum of Railways and Construction exactly 100 years ago in 1906.

Prior to 1900, all railway lines in Prussian were nationalized but it was not until 1920 that all railway lines in Germany were amalgamated into the national Deutsche Reichsbahn system.



Water tower and railyard buildings now host the Deutsches Technikmuseum. Locomotives Class 01 for express (left) and Class 50 for freight (right) of German State Railways (Deutsches Technikmuseum Berlin)

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## Railway Museums in Berlin

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By 1900, most of the earliest railway equipment was obsolete, and had been scrapped to disappear without trace after a few years of operation. Concern for the history of technical advances developed slowly after most relics had been lost. Therefore, many transport museums opened in Germany after the turn of the century and their main task was to demonstrate the progress of railway technology and to educate young railwaymen.

The first in Berlin was the Museum of Transport and Construction opened on 14 December 1906 in the old first-generation Hamburger Bahnhof dating from 1846. It had only one steam locomotive on display to show the principles of a railway engine. It was closed again in 1943 just before the end of WWII.

Two other museum buildings were opened in 1925: The German Museum for Masterpieces of Science and Technology (Deutsches Museum today) in Munich, displaying only a few pieces of rolling stock, and the National Railway Museum (DB Museum today) in Nuremberg, the town where the first train ran in Germany.

The partitioning of Berlin after 1945 prevented the reopening of the Museum of Transport and Construction, so a smaller transportation museum was opened in 1950 in Dresden, East Germany. Around 1970, there were even plans to build an autobahn motorway through the museum grounds in Berlin. When the building was finally reopened in 1984 after many political discussions, the West Berlin government decided to convert it into a museum of contemporary art, a decision that was clearly influenced by the Musée d'Orsay art museum in Paris, France. Since the Berlin building was to hold a museum of modern art, many of its interior installations had to be neutral or simply white, so all the large Art Nouveau lamp

holders and many other period details were removed after 1984.

The West Berlin government did not decide to establish a new technical museum cover the history of transportation and technology in general until 1980 when it founded the Deutsches Technikmuseum (German Technical Museum). It is a technical museum rather than railway museum, so there are departments for aviation and navigation and automobile history, as well as for telecommunications, film and photography, energy generation, textile manufacturing and industry, and urban transportation. Although the museum is still under construction, it plays host to more than 500,000 visitors a year with an exhibition space of about 35,000 m<sup>2</sup>. All the authentic historic objects from the old Berlin railway museum were transferred to another relic of Berlin's railway history, the Anhalter Bahnhof in the south of the city. Built in 1880, it suffered severe damage in WWII and was finally demolished in 1960, leaving a small part to serve as a reminder of a great past and

the tragedy of war. The ruins of an extensive freight station and large locomotive depot with two turntables and two locomotive roundhouses with 40 tracks next to the derelict passenger terminus were converted by the government from 1984 until 1988 into the Railway Department of the new West Berlin Museum of Transportation and Technology. The cost of building the railway gallery was about DM50 million (\$25 million).

The locomotive roundhouse is the single best exhibit owned by the museum. Although most of the old building structures could be saved and renovated, both present railway regulations and modern energy-saving restrictions necessitated some changes to the old design. Heating had to be added, but some parts of the premises were not restored and were left derelict to show visitors more about age and decay. Three tracks were left overrun by nature in order to remember the post-war history. The displays include nearly 40 pieces of rolling stock.

The museum was built and operated by the state authorities with 100% funding



Museum hall in former Museum of Transport and Construction at Berlin in 1984, when all objects were taken out because of conversion into Museum of Modern Art. (Deutsches Technikmuseum Berlin)



Wintertime on the premises of Deutsches Technikmuseum with all mechanical equipment of a locomotive depot showing operable diesel railbus Class VT 95 (Deutsches Technikmuseum Berlin)



Modern diesel locomotives (left and right) and a multi-current electric locomotive (centre) of the Deutsches Technikmuseum collection (Deutsches Technikmuseum Berlin)

from the Berlin regional government and no participation by any railway company. However, its status changed to a state-owned foundation in 2001. Compared to many other world museums, it seems like a young venue, but its 25-year history is worth telling.

### Museum Collection

Many large railway objects in the museum's collection came from the old Berlin Museum of Transport and Construction after its final closure in 1984.

There were two steam locomotives and as many as 30 rare models at the 1:5 scale. Other locomotives and railcars were given to the museum by the state-owned German Federal Railways, and some were acquired by railway enthusiast organizations that played an important role in the museum preparations. Just a few engines have been collected by museum staff from various European countries during the last 25 years, because space in the locomotive roundhouses is very limited.

Only very few original artifacts from the early 19th century were available for the museum collection; the oldest steam locomotive is a 1913 replica of a 2-2-2 Beuth steam locomotive originally built by August Borsig back in 1844. The oldest original passenger carriage is an open wagon design, dating from 1843. The oldest original locomotive dates from 1860; it is an Austrian lignite burner in service on a colliery line for more than 100 years and donated to the museum when the mine closed in 1962.

Not only has the museum collected rolling stock from German railways, it has also collected from German colonial lines in Africa, and from industrial lines and narrow-gauge tracks in Germany. Only a few railway equipment from other countries were added to the collection.

These objects are lined up in 33 stations or display chapters throughout the two roundhouses. The tracks, turntables, and loco shed equipment in the surrounding 'museum park' allow operation of modern and old railway equipment. The museum does not have any steam locomotives in working order, but there are vehicles with combustion engines in service on the tracks.

### Museum Gallery Displays

The general idea of all departments in the new German Technical Museum is to show technical objects as an integral

part of the nation's political and social history. Some older museums only covered technological developments, whereas the Berlin museum wants to demonstrate the interdependencies between railway and society. The exhibitions are planned to attract everybody with a general interest in history, not simply railway experts.

Therefore, the display philosophy in the railway gallery is different from the others in three main aspects. First, it has a clear chronological structure over the two centuries from 1800 to 2000 for all exhibits. Second, it deliberately addresses a number of political issues. Third, it dares to display some objects in 'as-received' condition without any so-called restoration. The size of objects can vary from locomotives to train tickets, and there are carriages, uniforms, architectural objects, as well as models and everyday objects, such as porcelain from a restaurant car or even clothes hangers from a sleeping car.

As examples, the museum has a replica wooden wagon from a 16th century silver mine that children can push through a mock-up tunnel. And a large 4-6-0 express locomotive is displayed in the roundhouse with electrically driven cylinders, rods, and wheels.

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### Restoration of Museum Objects

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The museum staff understand the many differences between restoration and repair, and between reconstruction and refurbishing of railway objects. Preparation for museum display is usually performed by railway workshops that generally have a lot of maintenance experience. But clearly there will always be slightly different viewpoints between museum railways and railway museums. All rolling stock in the museum will never be used for transport again and the Berlin staff are especially interested in explaining



Replica of the first electric locomotive built by Werner Siemens in 1879. The original is at Deutsches Museum, Munich. This operable replica was made in 1979 (Deutsches Technikmuseum Berlin)

to visitors what age and time mean to an object. The museum curators decided to have a 'case-by-case' policy for restoration. All objects that go to the workshops are examined beforehand. Of course, they are examples of industrial mass production, but all have an individual history. The main appraisal questions we ask are: What particular evidence does an object give if it is left in the condition in which it arrived? What story can be told by the object? Which historical traces would be lost to restoration and repainting as done by most transport museums?

Consequently, full repainting of locomotives is necessary only in rare cases. Not all colleagues share this opinion. What the museum tries to do—after much debate and many doubts—is to translate the concept of restoration from the fine arts to technical artifacts. In other words, we try to apply the UNESCO code and to conserve rather than restore old objects. In short, we prefer use of the dry duster to the paint brush. Some of our locomotives are rusty and greasy, but they

are genuine, they are 'real,' and they are discussed ardently by visitors.

Some examples are a Prussian class P8 steam locomotive built in 1910 that came directly from a Polish scrapyards into the museum gallery with broken windows, without coupling rods or number plates, but with 'locomotive smell.' It symbolizes the lost glory of steam traction and of Prussia, and also gives an idea about the hard work of locomotive men. A modern class V 200 diesel engine built in 1955 could only be bought by the museum as a derelict ruin, but after some reflections it was reconstructed to 'its old glory' in a locomotive works. This was a compromise between conservation and story telling, because it stands for 'modern times' after WWII in railway history.

Obviously acquisition, restoration and conservation of railway objects are often expensive. Therefore, some stock donated to the museum has already been 'polished up' before arriving in the gallery. For many reasons, it is not always possible to influence restoration carried out by the donors, and their ideas of publicity may



Railway equipment nearly one hundred years of age: Express loco from 1911 (left), shunter made in 1899 (centre), and electric freight engine built in 1922 (left) outside the museum (Deutsches Technikmuseum Berlin)

not always match the museum's restoration philosophy. A good example is a 1939 class E19 streamline electric express locomotive that was fully repainted by the builder before it was donated to the museum in 1988. Restoration aims can also differ from country to country. This was experienced when an Imperial Saloon rail car from 1888 was discovered in the former German Democratic Republic inside a railway depot. The carriage was in poor condition and before it was handed over in 1992, the railway company wanted to repaint it externally, so all historical traces on it would have been lost. Maybe railway restoration is considered differently in other continents, such as Asia, due to a question of local cultural traditions. Some provocative questions are: Should we dare to rewind an Egyptian

mummy in modern fabric to give it the immaculate appearance it once had? Of course not. Then why apply polyurethane paint to rusty metal sheets from 1880? Even if the proper recipe for 1880 oil paint is known, is it worth mixing 'old' paint again and using it today? What is the idea behind exhibits that look as if they have just left the factory? Do technical objects embody an engineer's idea only, or do these objects live a life of use, change, and development, which is worth keeping

visible? Perhaps there is no single answer for all cases, but it is good to know that the museum's visitors are asking some of these questions too. ■



**Alfred Gottwaldt**

Mr Gottwaldt is Senior Curator at the German Technical Museum since 1987. He studied laws and modern history in Frankfurt am Main, and is author and editor of many books and magazines about German railway history with a focus on Berlin railway history. His career includes curator of the railway collection at the Museum fuer Verkehr und Technik in Berlin. His focus of studies is railway architecture, railways at war, and restoration philosophy.