A detour to success

The world's first electric streetcar

The world’s first electrically operated streetcar, one of Werner von Siemens' major innovations, was inaugurated on May 12, 1881 in the Berlin suburb of Gross-Lichterfelde. The 2.5-kilometer-long line connected the Lichterfelde station with the military academy. From the first day of regular service the streetcar was a great success: it transported 12,000 passengers in its first three months alone. But the development of this milestone of urban transport didn't go according to plan.

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Advanced thinker in the area of mobility – The dream of elevated railways

Werner von Siemens presented the world's first electric locomotive at the 1879 Berlin Commercial Exposition. The response was something to see: Siemens & Halske received inquiries about the investment and operation costs of electric railroads from all parts of the world. But this was not enough to satisfy the company founder: For Werner, the electric locomotive was just a test model. He now began to plan electric transit systems with a lofty vision in mind: building an elevated railway in central Berlin.

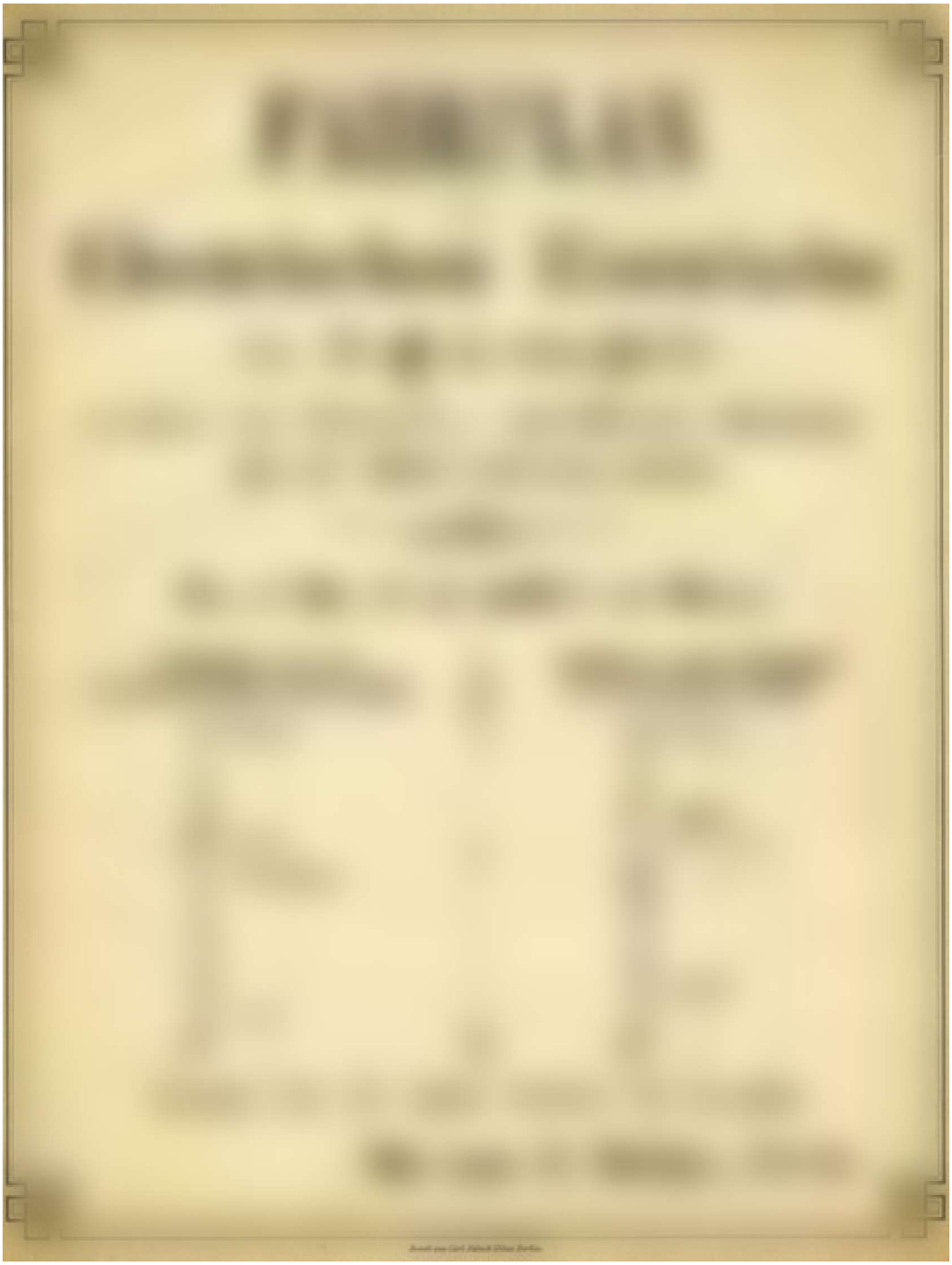
As early as 1867 Werner von Siemens, excited about the potential applications of the dynamicelectric principle he had discovered the year before, dreamed about "building railways on iron pillars along the streets of Berlin and operating them with electricity."

Around 1880, the electrical pioneer tried to get concessions for elevated electrical railways in Berlin's Friedrichstraße and Leipziger Straße in order to demonstrate the operation and suitability for everyday use of the promising new transport system. But he faced protest, not only from those living along the route.

Opposition by city officials – Refusal results in a makeshift solution

City officials in Berlin had such strong concerns about the construction and operation of such a rail line that they refused to grant a concession for it. Labor Minister Maybach, however, was prepared to authorize a ground-level test stretch outside of the city, in the wealthy suburb of Lichterfelde. Thus, the first electric streetcar of the world was built under sheepish circumstances.
In Lichterfelde, much of the track that had been used in the 1870s for transporting material during the building of a military academy was still in place. Werner von Siemens was able to acquire the route and reconstruct it for his purpose. He also benefited from being able to use the original rails of this track, which were set into and level with the road surface as required for a streetcar.
Siemens & Halske construcetd the railway at their own cost. They converted three horse-drawn rail carriages for use in their electric streetcar operation. The two-axle cars with 16 seats each could carry nearly 50 people. Each car had a direct current motor with an output of 10 hp that obtained its traction current (180 volts) by sliding contact with the iron-rimmed wooden disc wheels. The power was transmitted by steel cables, and the cars reached a speed of around 20 kilometers per hour.
Initially, the cars were supplied with power via the two rails rather than an

overhead line. The power came from a plant with a steam engine and a generator situated next to the station.



Quickly and conveniently from one place to another – the schedule of the first electric streetcar, 1881

“Fame and honor” – Key innovations and breakthrough

In a few days, the first electric railway will go into practical service in Lichterfelde. The affair will cause quite a stir.

Werner von Siemens, 1881

The big day finally arrived on May 12, 1881: The “little electric streetcar in Lichterfelde [is] officially tested and accepted.” Regular service started four days later on May 16. During this time, Werner von Siemens proudly told his brothers living in England and Russia about the project’s success and advertising impact.

In one such letter, he wrote to William Siemens on May 23: “It is remarkable what effect a ride on the Lichterfelde streetcar has on people. Everyone from the Minister of Labor [Maybach] to the simple railway builder is convinced that electric transportation has a great future!” Two days earlier, during an excursion to Lichtenfelde by the Berlin Association of Railway Engineers, Werner von Siemens was officially thanked for the success of his tireless efforts “to overcome the difficulties posed by the project […], thereby creating

a work that has made German engineering famous and is something he can be proud of!”

But it’s an invention which, in my opinion, is of the greatest importance for the future. With this small railway between the Lichterfelde station and the cadet school,

we’re witnessing the development of one of the most important means of transportation of modern times.

Werner von Siemens, June 16, 1881

Siemens & Halske also showcased an electric streetcar at the first International Electricity Exhibition held in Paris during August of the same year. Paris residents were electrified by the trip in the 50-passenger car from Place de la Concorde to the Palais de l’Industrie on the fairgrounds.

As a result, the streetcar played a key role in “increasing Siemens’ name recognition among Parisians” – as Werner von Siemens wrote to his brother Carl in Russia.

Despite the enthusiasm, only a small number of electric streetcars made by Siemens were developed and put into service during the remainder of the 1880s. It was not until the Siemens engineer Walter Reichel solved an important design problem with the development of the bow collector in 1889 that the electrical operation of rail vehicles came into its own.

Sabine Dittler

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