The Construction of the First Zeppelin in 1889/90 (Retrospective account, 1938)

Abstract

Count Ferdinand von Zeppelin (1838-1917) had studied engineering and served in the Prussian army before he undertook his first efforts to construct a rigid airship. Ludwig Dürr (1878-1956), a mechanic and engineer, joined Zeppelin's company in 1899. He soon rose to become the company's chief engineer and eventually its technical director. In this interview recorded in 1938, Dürr recounts in some detail the construction and launch of the first Zeppelin airship, LZ 1, in 1889/90, shortly after he had joined Zeppelin's company. The construction of the first airships was partly financed by Zeppelin himself with the remaining capital stemming from private donations. In 1908 Zeppelin founded the Luftschiffbau Zeppelin GmbH, which built airships for both civilian and military use. Having grown into the most successful operator of airships (which soon became synonymous with Zeppelin), the company founded DELAG (Deutsche Luftschiffahrts-Aktiengesellschaft), the world's first commercial airline, a year later. During the First World War, the German Navy deployed more than 60 airships for both land and sea reconnaissance, and also as long-distance bombers: German Navy Zeppelins dropped bombs on Liège and Amsterdam at the very start of the war, for instance, and 1915 saw a great many Zeppelin raids on English towns and cities, including London and Edinburgh, with bombing taking place primarily at night. The Zeppelin bombing did little other than kill many hundreds of unlucky civilians, but it certainly tarnished Germany's reputation as "baby-killers," which in turn undermined its international position vis-à-vis neutral countries. After Germany's defeat, the majority of its remaining airships were intentionally destroyed, but a number were confiscated by the Allies.

Source

Reporter: Dr. Dürr, as chief engineer, you experienced the development of Count Zeppelin's airship firsthand. Can you tell us something about those early days?

Dürr: In the 1890s, Count Zeppelin had finalized his plans for his airship and received a German imperial patent for his vehicle. This patent enabled him to establish the Society for the Promotion of Airships in 1898, which provided the financial basis for the construction of his airship. The count himself contributed half of the capital of 800,000 marks. The new company appointed engineer Kübler as managing director, who drew up the construction plans for the first airship with a team of engineers at [the offices] on Bahnhofstrasse in Stuttgart.

Reporter: Dr. Dürr, weren't you already involved at that time?

Dürr: Yes, I joined Count Zeppelin's company in 1899.

Reporter: Why did Count Zeppelin choose Lake Constance as the location for the airship's construction?

Dürr: The count wanted a hall for his ship that would always be facing the wind. He therefore built it floating on the lake, anchored at its tip. This allowed the hall to always face the wind. Another reason why the count chose Lake Constance was that the large expanse of water cost nothing.

Reporter: And it was in this hall on Lake Constance that the ship was to be built.

Dürr: The hall was completed in the spring of 1899, and work began immediately on assembling the hull. The count's small entourage joined ring to ring and girder to girder. The count himself closely monitored the progress of construction. He insisted on climbing the dizzying scaffolding to check the quality of the work. Neither wind nor weather prevented the count from traveling to Manzell early in the morning with his work crew, where cheerful conversation, singing, and mandolin playing set the mood for the new day's work. The long hull grew. It was covered with fabric, and soon the engines and propellers roared as a sign of thorough testing.

Reporter: And then the ship was finished?

Dürr: Yes, the hull could now be filled with hydrogen gas, which was transported in steel cylinders on pontoons along the hall. Soon the airship was floating in the hall, suspended by many ropes. The hall floor was designed to float so that the airship could be launched. The floor was pulled out of the hall like a drawer, with the hydrogen-filled ship inside it. On July 2, 1899, the exciting moment arrived when the airship could be lifted meter by meter using its holding ropes until the 300-kilogram running weight suspended 20 meters below the ship was floating freely. The airship was released into the atmosphere. The engines started and the airship began its journey through the ether above the heads of the support crew. From the ground, it was clearly visible how the ship reacted to the movements of the controls with its swivels. After a quarter of an hour of aerial maneuvers, the ship landed in Manzeller Bay in the direction of Immenstaad. The motorboat *Württemberg* wanted to take the ship in tow. However, it had become entangled in a navigation mark, which tore a hole in the hull. The obstacle was removed by sawing off the stake. The airship was towed to the raft and back to the hangar.

Reporter: And what was your impression of this first flight?

Dürr: The thousands of spectators were completely thrilled by the spectacle they had witnessed. The first flight proved beyond doubt that Count Zeppelin's steerable airship was a success. However, the count and his assistants identified a number of shortcomings in the first model that needed to be improved. [. . .]

Reporter: Yes, but this first airship was still relatively primitive, wasn't it? How big was it actually?

Dürr: The ship was 128 meters long, had a diameter of 11.3 meters, and had a gas capacity of just over 10,000 cubic meters. By way of comparison, I would like to mention that the new ships are four times larger in diameter and twice as long and have 20 times the gas volume. Given the state of technology at the time, however, the first ship must be described as primitive. It was not yet possible to obtain more powerful engines that could give the ship a higher speed. Furthermore, high-strength construction materials had not yet been developed. Such improvements only benefited later airships.

Source: Gespräch mit dem Zeppelin-Chefkonstrukteur Ludwig Dürr über den Bau des ersten Luftschiffes im Jahr 1899 und dessen erste Fahrt am 2. Juli 1900, Reichs-Rundfunk-Gesellschaft, July 5, 1938. Stiftung Deutsches Rundfunkarchiv

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