From Creation to Destruction: The Hindenburg Disaster

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Success is not final, failure is not fatal: It is the courage to continue that counts

-Winston Churchill
The Hindenburg was one of the most remarkable ships to ever glide through the sky. The enormous body was the largest rigid airship at the time that they were commonly used, the luxurious craft was made over years of work and was created to give luxury and travel to tourists across the world. The ship was also the pride and power of Germany at the time. Named after their former president Paul von Hindenburg\(^1\) who was a lead figure over Germany. Many people looked up to Hindenburg up until his death, the ship was flown and in memory of their former president. The creation of the ship was its own triumph keeping workers tirelessly on job. The ship was a remarkable project even after it's explosion, the tragedy marked the end of the rigid airship. Today, engineers are looking over the designs of rigid airships and original planes to figure out new and better models of more efficient air travels.

The earliest state of air travel dates back to Dec 19, 1903 when the Wright brothers made several flights at Kitty Hawk with the first powered aircraft, these flights were not able to travel for long but were able to make brief flights. The first planes used canvas wings and were powered by a engine and a propeller in the front. The brothers tested their ideas using a wind tunnel which would allow their models to be tested over and over again, wind tunnels could demonstrate the abilities of a model that an engineer made. The state of air travel had just kicked off leading to new and more efficient aircrafts capable of flying for longer periods of time. These new aircraft models were called aeroplanes, the planes were designed based off of the common bird. Early attempts of creating a design of flapping wings like birds were not successful and were not used, instead the design was based off of a gliding bird. Engineers had to find a way to make a structure that acted as if it was the wings of a bird. Scientists such as Leonardo de vinci, Isaac Newton and Daniel Bernoulli majorly contributed towards the finding the effects of drag

\(^1\) Commanded Germany's military during the second half of World war 1. He was also a Field marshal at the time of world war 1.
and the difference between pressure and velocity. This effect is known as the Bernoulli principle\textsuperscript{2}, the principal is very widely used in the design of modern aircrafts. The first planes started experiments and tests towards finding new planes, early planes were hard to control and were difficult to fly. New tests would find easier ways to control the movement of the aeroplanes.

The first rigid airship to fly was launched and stayed afloat for 18 minutes, the first successful flight was in 1900 when a German by the name of Count Ferdinand von Zeppelin\textsuperscript{3}. Zeppelin launched his own company called zeppelin. His company flew thousands of passengers of tourism trips across the country beginning in 1909. Air ships were a big part of World War 1. At the time of World War 1, dirigibles (rigid ships) were used for dropping bombs and for scouting out the area from long distances. At this time aeroplanes had just been created and were beginning to advance, since the rigid airship was much bigger and could stay in the air longer they were very widely used. As airship technology advanced many new ships were created and upgraded. In 1931 the construction of an enormous dirigible started, the construction took 5 years to finally be complete. This rigid ship would be 804 feet long by a 134 foot long diameter, the ship's name would be the Hindenburg named after the former President of Germany Named Paul Von Hindenburg who died in 1934. The Hindenburg was Germany's pride, a massively large air ship that would make many trips to places around the world.

Germany cherished the Hindenburg and took much pride in the giant mass. The Hindenburg was the largest dirigible at the time and was one of the greatest rigid airships to

\textsuperscript{2} The Bernoulli principle explains the effects of drag and how air travels in currents. The effect helps show engineers and scientists how they can design a plane or a ship to float and stay in the air for long periods of time.

\textsuperscript{3} Zeppelin was a German general and an inventor of the zeppelin rigid ships. He was a creator of his own rigid airship company named Zeppelin.
ever fly. The Hindenburg took from 1931 till 1936 to finally be complete. Engineers worked tirelessly night and day to complete the ship, five years of working on peacing the fabric together so that no flap could come loose. Boarding the ship was an honor and an amazing experience, the ship was great luxury in the sky. Most luxury rigid ships could not come close to the comfort and size of the great Hindenburg. The captain of the Hindenburg Max Pruss\(^4\) made around 200 flights across the atlantic ocean carrying up to 110 people including the crew at a time. The Hindenburg was three times the size of the commercial airplanes that we fly now days. The rigid ship used four 16-cylinder engines (Diesel Engines, two on opposite sides from each other), and the gas of the ship was kept in 16 big cells. The designers and engineers behind the hindenburg had originally wanted to fill the ship with helium which is a non flammable gas, but since the United States export restrictions\(^5\) included helium so the germans could not get any. The only major helium holder in the world was in the United states at the time, the United States thought that the germans would use the helium for their ships in the war. The germans had to improvise, so they filled the Hindenburg with Hydrogen (Highly Flammable Gas). Hydrogen was a good substitute for helium but was much more dangerous, the tiniest spark could would ignite the gas causing it to explode in a fiery catastrophe. For the ships safety and protection, the engineers covered the fabric in a waterproof and fireproof sludge. This was so that the crew did not have to worry about the fabric catching a spark, the workers had to take into consideration that if there was a storm they would have to delay landings and not lose any fabric that was covering the hydrogen. Because the ship was so big, the crew had to make sure everything was perfect before sending the ship over the ocean.

\(^4\) Max pruss was a rigid airship captain who had made many trips across the atlantic ocean and had flown the Hindenburg before.

\(^5\) America did not want to give germany helium at the time because they could easily use it for the war, as a result restrictions were put into place that could limit countries from using or bringing certain chemicals and materials into the united states.
On May 6, 1937 the Hindenburg exploded killing less than half aboard and hurting Germany's pride. The cause of the explosion is still a mystery today, although there are many legitimate theories behind the event. Some theories point to the idea that someone sabotaged the blimp with a loose flap to express hate towards Germany, others are as simple as during the storm a piece of fabric came loose or there was a buildup of static electricity. The explosion took place at a docking yard in New Jersey during a fierce storm, the storm majorly delayed the landing of the Hindenburg. Even though the explosion did not kill the majority of the people aboard it still affected Germany and their pride. To the Germans, the explosion was a very big upset, they created the largest blimp in the world at the time and it exploded for a mysterious reason causing many to wonder what had happened. News spread fast about the explosion, the footage was captured in black and white shows the deadly explosion. Pathe News\(^6\), recorded the event and commented that the explosion was amazingly big. The total death toll from this explosion was 35 including the crew, passengers, and one ground crew member. The captain of the ship (Max Pruss) survived the explosion but suffered major burns and was in critical condition for days and was in extreme pain after the event. The trip across the ocean was the same as many others, the only difference that had taken place that flight was the landing delay due to winds and a storm rolling in. Originally the ship was scheduled to dock at six in the morning but was moved to six later that night. As the day went on wind speed picked up so that the ship had trouble navigating the sky and the dockyard, later that day a storm came in and stopped the Hindenburg from being able to land. People from the ground reported seeing a small spark on the port side of the ship just before it exploded into a fiery eruption, many families watched in horror and shock as the flames littered the sky in bright oranges and pinks.

\(^6\) Pathe News was a news crew that had recorded commentary live as the Hindenburg crashed in New Jersey. The crew only was able to get pictures and record commentary.
The flames were magnificent, brighter than the sun some said after seeing the explosion first hand.

After the event, people did not trust dirigibles anymore and would wait till better plane travel was created. Germany no longer sent dirigibles over to the americas on passenger trips, the germans did not use the dirigibles after that for purposes other than in the war. During world war 2 the germans could use the rigid ships for many different missions that involved scouting or bombing, because they could stay afloat for long periods of time and could see from long distances. As world war 2 came to an end dirigibles no longer had a big use and would not see the battlefield again, no one had a use for the rigid ships because there were faster and more powerful planes. In the 1930s commercial aircrafts were a popular alternative to the rigid ships due to their faster and safer travels. Commercial aircraft planes could carry around the same amount of passengers and could make the trips in twice the speed that any rigid airship could, the commercial planes were also a lot safer because they were not filled with hydrogen. Today we dont use rigid ships the way that they used to be used, we instead use planes and large jets to fly from one side of the world to another. Dirigibles can still be found, they are just not common due to more efficient technologies.

The Hindenburg disaster was an important moment in history because the explosion marked the end of dirigible usage in the aeroplane history. The event both showed a triumph and tragedy over the lifespan of the famous dirigible. Because rigid airships were no longer used after the event, commercial aircrafts companies pushed their way into popularity and flying favor. Commercial airplanes are now used many times every day to take people from one side of the world to another, or simply just across the country. Modern aircrafts acquired more and
more features by testing and learning from other airplanes that failed or succeeded. If the Hindenburg disaster never happened we would probably still be using rigid airships to travel across the oceans or for site seeing trips, in wars we would still use the rigid ships to gain an advantage over enemies. The Hindenburg's explosion also helped engineers figure out safer and stronger ways that they could make planes and other vehicles run, the engineers no longer used hydrogen as much because they did not think that it was safe anymore. If the disaster had never happened we would never be able to learn from the things that the engineers could have improved or changed, therefore we will have better more efficient ways of traveling through the air. As a result we will be able to continue creating faster, stronger and more reliable technologies.

Although the engineers and the crew made preparations and to in account for bad weather or possible delays, they were never ready for the deadly explosion that would end the usage of the common rigid airship. Less than half of the people aboard died but many were severely injured and in critical condition. The cause of the explosion is still a mystery to this very day and is still looked into for more information and knowledge on air travel. Everyday engineers are planning and discussing new ideas to create the transportation and technologies of tomorrow.
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Secondary Sources-


