WHAT FELLED THE HINDENBURG?

THE LAST SURVIVOR DIED AT 90 IN 2019

ON *MAY 6, 1937* THE GERMAN AIRSHIP ZEPPELIN LZ 129 HINDENBURG BURST INTO FLAMES IN LAKEHURST, NEW JERSEY WHILE THE AIRSHIP WAS LANDING. NASM - ARCHIVES DIVISION

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https://www.youtube.com/watch?v=XS6IONvdhA4

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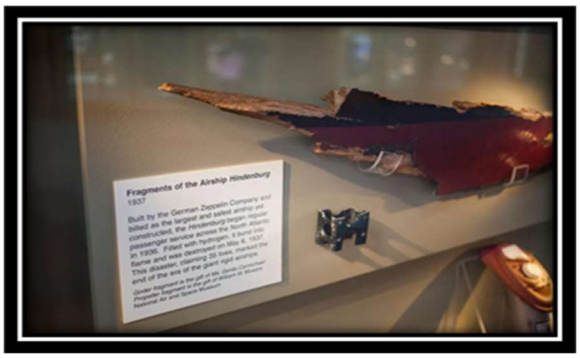
"In the 20th century, there are events that cut across all our private lives," says Tom Crouch, a curator at the Smithsonian's National Air and Space Museum in Washington, D.C. "If you were alive on May 6, the day of the Hindenburg disaster, you remember where you were."

As Crouch points out, there were newsreel film cameras present and rolling, and WLS Radio's Herb Morrison was broadcasting the events of the Hindenburg's initial American landing live to tens of thousands more over the airwaves.

"Even today," Crouch says, "anyone who hears the phrase: 'Oh, the humanity,' knows where it comes from."

"But," Crouch continues, "the age of the rigid airship had already passed, anyway." The Hindenburg disaster, he implies, was merely punctuation.

Still, being the repository for America's history, the Smithsonian Institution has a strong representation of Hindenburg artifacts and ephemera. In the Institution's iconic Castle on the National Mall, protected behind glass, is a chunk of a *Hindenburg internal-support girder, plus a fragment from one of the airship's drive propellers. (see below)*



In the basement of the Air and Space Museum, also on the Mall, is a scale model of the airship, used in the 1975 movie Hindenburg. And at the museum's Udvar-Hazy Center in Virginia, near Dulles Airport, "we've got a ladder on exhibit," says Crouch, "girder pieces on exhibit. . . the most striking thing on exhibit is a little demi-tasse cup and saucer, which are scorched from the fire." And in the collections of the National Postal Museum is a scorched postcard that was carried in the mail aboard the airship and survived the flames.

And what a spectacularly disturbing fire it was. On May 6, 1937, the world's largest dirigible airship went up in towering flames in New Jersey. While the Hindenburg had made passenger trips before, none would be like this one. On May 3, 1937, the hydrogen-floated Hindenburg departed from Frankfurt, Germany, bound for the first of ten round-trip crossings to America. Not that the Hindenburg was new to Atlantic crossings, in 1936, it had transited the Atlantic, often to Brazil, 34 times.

It supplied this service because in that era aircraft crossings of the Atlantic were still impossible, the Hinderburg trips were intended to ferry passengers over the ocean, bringing them to Naval Air Station Lakehurst, in Manchester Township, New Jersey, just outside of New York City.

This photograph was taken at about 6 p.m., as Hindenburg was preparing to land, with the mooring masts at right, and just before it caught fire and crashed. NASM, Archives Division

At Lakehurst, a mooring mast for airships awaited. Once tied up, the Hindenburg's 36 passengers could depart, where they would be picked up by representatives from American Airlines, who had contracted with the Hindenburg's parent company for this trans-Atlantic shuttling. Then the passengers would be transported to Newark Airport to catch connecting continental airplane flights.

Hindenburg's Atlantic crossing was relatively uneventful, other than some headwinds, that slowed U.S. landfall over Boston by about an hour. Then, once in the New York area, thunderstorms and bad weather thwarted the scheduled late-morning or early-afternoon rendezvous at Lakehurst.

To avoid the storm, Hindenburg Capt. Max Pruss re-charted his course: over Manhattan and out into the Atlantic, to wait until the storm blew through. The Hindenburg flew over New York City on its way out to sea and was said to have created a sensation, with people running out of their houses, offices, and stores to see the world's largest airship overhead. Consider this: the Hindenburg was roughly the size of the RMS Titanic, but it flew overhead. And seeing that in the sky over New York City? Well, that would have been something to see. Pathé News, one of the big newsreel agencies of the day, even scrambled and sent out a biplane to get aerial footage of the huge Zepplin above the Empire State Building.

By 6:22 p.m., the storms had passed, and Captain Pruss ordered his ship to Lakehurst, almost a half-day late. By 7 p.m. on May 6, 1937, the Hindenburg was on final approach to Lakehurst.

The Naval Air Station was the selected choice because its mooring mast had a winch. Large airships like the Hindenburg dropped their lines and cable to be run down through the mast and into the winch, which then would slowly pull the airship to the ground, allowing the passengers to depart. This procedure was known as a "flying moor."

Then the winds began to shift, and Captain Pruss had to make sharp left turns on approach and manage the Hindenburg's propeller thrust to keep the airship's nose directed at the mooring mast. Twice, as the airship began to drop in altitude from 650 feet to 295 feet, the airship had to make hard left turns into the wind. It was said to be a challenging landing.

Still, at 295 feet, the mooring lines were dropped to the ground as a light rain began to fall. Then, with the Hindenburg finally tied into the ground winches, and as things were finally calming, at 7:25 p.m., the Hindenburg caught fire, the flames bursting from somewhere near the stern of the airship, though eyewitness accounts of exactly where the flames first emerged vary. Some say it was near the airship's top steering/stabilizing fin. Others say the fire burst through the airship's port side.

Also on view in the Smithsonian's Castle building on the National Mall is a fragment from one of the Hindenburg's drive propellers. Smithsonian Institution

Unfortunately, while film of the flaming airship does exist, pictures—moving or otherwise—of the moment of ignition do not.

As the Hindenburg's flaming tail began to drift toward the earth, the flames moved forward through the different hydrogen-holding cells toward her bow. The ship began falling precipitously. When the airship's stern hit the earth, the fire burst through the airship's nose-cone. The entire disaster was over in less than 40 seconds.

Remarkably, of the 97 people aboard (36 passengers and 61 crew), only 35 were killed (13 passengers and 22 crew), plus one person on the ground: for a total of *36 fatalities out of a possible 97 people*.

While the May 6, 1937 disaster will be forever remembered, *the age of the airship was over*. There would be boards of inquiry and hearings and a U.S. Department of Commerce report to try and assess what had happened, without much success. But, Crouch says, the underlying fact is, that airship production ended shortly after with the disaster.

After the fire, Deutsche Zepplin-Reederei made one last airship, as it was already on order. Then World War II, its speedy fighter aircraft easily able to feed on the slow-moving airships, ended not only the company but the industry.

After the disaster, there was one other airship still flying, Crouch says. "It was the Graf Zepplin 2, the Hindenburg's sister ship. In the end, they flew it along the British coast, to test British Radar systems before the war. But they took it down in 1937."

As for the certain cause of the Hindenburg disaster, Crouch says, we will likely never know. ***"People thought it was sabotage for a long time," he says, "but that theory has been pretty much discounted."***

Instead, Crouch says, the reigning hypothesis now is a combination of static electricity built up as the airship flew, and an unusual type of "dope" used to cover the canvas of the hydrogen-storage areas: paint that rendered the canvas gas impervious but also appears to have been highly flammable. The "incendiary paint" was a mix of iron oxide and aluminum-impregnated cellulose, which are reactive together even after drying.

"My friend, Addison Bain, has a theory that the canvas skin was doped," Crouch says, "and it was flammable…. He wrote a book about it. And as a former rocket scientist at NASA, he's familiar with how propellants work." Bain's theory is that the Hindenburg was painted with rocket fuel.

"It was a rainy, misty, dismal day," Crouch says, "and a large, ungrounded ship moving through the sky builds up quite a static charge. That's why, before landing, they always dropped the ropes to the ground, made sure they touched the ground first, to dissipate the static."

Then, Crouch says, when adding the static charge to the "flammable dope" skin, and with the vast stores of hydrogen that lay waiting just beneath, a good possibility exists that that's what caused the Hindenburg to catch fire and burn its way into modern memory—and history.

"Another theory," Crouch says, "is that the two, hard left turns near landing snapped a steering cable at the back of the airship, and the cable was flailing around, perhaps creating sparks."

This loose and flapping cable might have punctured one of the sealed hydrogen cells inside the airframe, releasing hydrogen into the air inside the Zepplin's outer skin. This coupled with static electricity and the flammable skin might have been the perfect collision of circumstances that set the Hindenburg disaster into motion.

According to the U.S. Department of Commerce report on the accident, a ground crew eyewitness named R.H. Ward, spotted "a notable fluttering" in the airship's skin about two-thirds back down the airframe as they began the landing process. As did R.W. Antrim, who was atop the mooring mast. This may have been a sign that hydrogen was leaking from one of the cells.

Still, in the end, even the U.S. Department of Commerce and the U.S. Navy couldn't come to any solid conclusion in their report, either, instead simply stating the obvious: the firey disaster was a result of the "mixture of free hydrogen and air."

Four score years have now passed, and everyone knows the story—and has seen the footage—of the burning airship, and yet the mystery Hindenburg disaster lives on, likely never to be definitively solved.

WERNER DOEHNER, LAST SURVIVOR OF THE HINDENBURG DISASTER DIES AT AGE 90.

THE EVENT "WAS A REPRESSED MEMORY" SAYS DOEHNER'S SON

NOV 18, 2019

In early May 1937, 8-year-old Werner G. Doehner and his family boarded the *Hindenburg* for a trans-Atlantic flight from Frankfurt, Germany, to New Jersey. As the zeppelin attempted to land at the Lakehurst Navy Air Base on the night of May 6, it burst into flames, killing 36 of the 97 people onboard.

Doehner's father and sister were among those who died in the accident—*now considered one of the most notorious in aviation history*—but the boy himself survived despite suffering severe burns to his face, arms, and legs.

As Mariel Padilla reports for the *New York Times*, Doehner was, in fact, the last remaining survivor of the Hindenburg disaster before his death at age 90 on November 8. According to Doehner's son, Bernie, the cause of death was complications stemming from pneumonia.

The *Hindenburg* was an 800-foot-long airship intended to be "*a huge flying billboard for German aeronautical supremacy*," historian Rick Zitarosa of the Navy Lakehurst Historical Society tells Padilla. Powered by highly flammable hydrogen gas, the *zeppelin* had made multiple successful North Atlantic crossings before the explosion, carrying more than 1,000 passengers on 10 scheduled trips between Germany and the United States.

The vessel's last journey, however, would end in tragedy. The ship departed Germany on May 3, 1937, with 36 passengers and 61 crew members on board, but its landing was delayed due to poor weather conditions. As the *Hindenburg* finally descended toward the ground on May 6, it caught fire, likely due to an electrostatic discharge that had ignited leaking hydrogen. The hull burned up in seconds, creating a horrific scene captured on both film and radio.

In the decades after the incident, Doehner worked as an electrical engineer in Mexico, Ecuador, and the United States, where he settled with his family in 1984. He remained largely silent about the disaster that had blighted his childhood; as Bernie tells the Associated Press' Kathy McCormack, "It was a repressed memory." Once, Bernie's father took him to the Lakehurst Navy Air Base, the site of the explosion. But the pair did not visit the nearby *Hindenburg* memorial.

Ahead of the 80th anniversary of the explosion in 2017, Doehner gave a rare interview to the AP's Shawn Marsh. At the time of the disaster, he said, the Doehner family was returning from a vacation to Germany; the plan was to take the *Hindenburg* to New Jersey before traveling on to New York and Mexico City, where Doehner's father worked as a pharmaceutical executive. Doehner's parents, brother, and sister were all on board the flight.

Much of the journey proceeded uneventfully. The children played games their mother had brought to entertain them and toured the zeppelin's control car and catwalks. As the *Hindenburg* started approaching Lakehurst, Doehner's father pulled out his video camera to film the ground below. Then, he headed back to his cabin.

"We didn't see him again," Doehner told Marsh.

When the ship erupted in flames, Doehner's mother grabbed her sons and pushed them out a window. She tried to do the same with her daughter, but the girl was "too heavy," Doehner later recalled."My mother decided to get out by the time the zeppelin was nearly on the ground."

Her hip broken, Doehner's mother asked a steward to rescue her daughter from the burning wreckage. But by morning, the girl was dead.

The surviving family members all sustained serious burns. Doehner stayed in the hospital for three months before being sent to New York City to receive skin grafts.

"Burns take a long time to heal," he said.

Psychological scars lingered, too: "My dad was secretive about the disaster," Bernie tells Padilla. "[He] didn't like to talk about it."

VIDEO OF THE DESTRUCTION OF THE HINDENBURG

COPY AND PASTE THE BELOW LINKS INTO YOUR BROWSER

https://www.youtube.com/watch?v=5Mcg0mynVXE (4 Min 24 Sec)

https://www.youtube.com/watch?v=g9bkQ7OiEdQ 5Min 49 Sec

The *Hindenburg* disaster marked the end of the era of passenger-carrying airships.