# Book Review

## *His Majesty's Airship: The Life and Tragic Death of the World's Largest Flying Machine*—Samuel C. Gwynne (New York, NY, USA: Scribner, 2003, 299 pp.)

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**Stories of technological** hubris and its dire consequences have an unfailing attraction. The Greek myth of Dedalus and Icarus is a paradigm for historians of technology as powerful as that of Oedipus is for Freudian psychoanalysis. Father and son, Dedalus and Icarus, are held prisoners in a labyrinth on the Island of Crete. Determined to escape, they choose a route through the air and so create wings made of willow branches, connecting them together and to themselves with wax. The father warns his son not to fly too close to the sun. The youth ignores the warning, his wax melts, and he drowns in the ocean.

As I write this in midsummer of 2023, the newspapers are still filled with articles about the implosion of the deep-sea submersible vessel the Titan, as it sought to explore the wreck of the ship Titanic, on 18 June 2023. Ironically, four days before the disaster, a ship—an ancient technology—carrying hundreds of migrants capsized off Greece resulting in an unknown number of deaths, but probably in the hundreds. This story was eclipsed in the press by the Titan implosion.

Samuel Gwynne compellingly tells the story of the loss of the British Zepplin R101 which crashed and burned in France on 5 October 1930, about 8 hours after leaving central England while on its initial international voyage. Most of the 54 people onboard were killed. A zeppelin is a lighter-than-aircraft, named for its German inventor Count Ferdinand von Zeppelin (1838–1917), getting its buoyancy from a set of balloons filled with a gas, and held within a rigid metal frame. None of this engineering is visible if one sees a zeppelin in the air as the entire structure is covered, with a cloth-like fabric. Passengers on the R101 were housed in a gondola contained within the cloth that had openings providing outside visibility. The accommodations bordered the luxurious, featuring 50-passenger cabins, a 60-seat Art Deco dining room, and a comfortable smoking room lined with asbestos. The propulsion of a zeppelin is supplied by internal combustion engines spinning propellers. In the case of R101, the gas in the balloons was hydrogen, a choice that was to prove fatal, and propulsion came not from gasoline engines but from diesel, chosen because their petroleum-based fuel was considered to be less dangerous to the aircraft than gasoline.

In 1930, it was still an open question whether airplanes or zeppelins would be the dominant form of international air travel. In 1929, there were crashes of 51 commercial airplanes. Americans are familiar with Charles Lindbergh's 1927 solo flight to Europe from the U.S. But note that eight years earlier, there

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was an east-to-west, and back again, Atlantic crossing by a British zeppelin, the R34. Zeppelins were, of course, in competition with oceangoing liners, generally perceived as safer transportation, but zeppelins held the advantage of speed. In 1930, it took two weeks by boat to go from England to India but the R101 was scheduled to make such a trip in four days, with just one stop, in Egypt.

The British government paid for the construction of the R101. It was the largest airship ever built: in length at 777 feet, it was as about as long as 2½ football fields, the covering filled six acres, and enclosed 5½ million cubic feet. Its empty weight, without hydrogen, was ¼ million pounds and it was powered by five diesel engines each of 585 horsepower with enough fuel to go 4,000 miles.

What motivated this expensive zeppelin? As Gwynne so effectively explains, the airship was to serve as an adjunct to British colonialism. By the end of World War I, Britain was the largest imperial power in history. It controlled a quarter of the earth's land mass and with 412 million people about a quarter of the world's population. However, starting in the earliest decades of the 20th-century colonialism was in trouble, for example, with the Boer War in South Africa and the 1916 Easter uprising in Ireland. The enormous loss of life incurred by colonial subjects forced to defend Britain in the Great War created unrest in the colonies.

What better way for England to exhibit its grandeur to the colonies than by constructing enormous airships—showing its technological superiority—and ensuring that British officials could visit any colony within a matter of days? As early as 1923, a panel was set up under the British Air Ministry to promote the idea of air dominance via zeppelin. In May 1924, the British government, controlled by the Labor Party, gave birth to the Imperial Airship Scheme. Two vessels were to be constructed: the R101 financed by the government and the other, R100, was paid for by a subsidiary of the Vickers Aircraft Company.

Gwynne's book is cleverly organized. He opens with the gathering of the passengers and crew on the night of 4 October 1930, at Cardington, an industrial suburb of the English city of Bedford where R101 has been built and moored. The zeppelin is to be launched for a trip to India and scheduled for a stopover in the then-British colony of Egypt. We know that the flight will end in tragedy—just reading the book's dust jacket tells us that. But, the actual disaster is not discussed in detail until the 14th chapter—the near end of the book. Gwynne cleverly holds our attention: we want to know how the crash occurred—and he uses the intervening 12 chapters to paint not only a historical picture of the event, and a discussion of crashes and safety of earlier vessels, but also to focus on two of the men lost in the disaster.

One is Charles Birdwood Thomson, Lord Thomson, who is Minister of the Air and a prime mover in the Imperial Air Scheme. Charles grew up in a time in which Britain celebrated its imperial role. Educated at the Royal Military College, he fought in the Boer War and became the youngest major in the British Army. In 1915, he was the head of the British Mission in Romania. In that country, he fell in love with a famously beautiful married Romanian Princess, Marthe Bibesco. She was sophisticated and well-read, spoke several languages, and conducted an affair, sometimes epistolary, with Thomson close to the end of his days—but as Gwynne makes clear he was, in class-ridden European society, socially her inferior.

Thomson left the army with the rank of General at age 44 and ran twice for Parliament, as a Labor party candidate—a curious choice given his elite colonialist background—and lost. Through politics, he met the Labor Party leader Ramsay MacDonald who made him Air Minister in his government.

As early as 1923, a panel was set up under the British Air Ministry to promote the idea of rapid travel to the colonies by means of airships. Thomson would soon present his airship plan to the government: a vessel of 5 million cubic feet that could take 100 passengers and 16 tons of cargo nonstop to Egypt. She would be twice the size of anything ever flown.

In May 1924, the British government, controlled by the Labor Party, started the Imperial Airship Scheme. Two vessels were to be constructed: the R101 financed by the British Air Ministry, and the other, R100, which became known as the "capitalist airship" was to be developed by a subsidiary of the Vickers Aircraft Company.

Gwynne conjectures that Thomson imagined that with the successful connection to India, he would be a likely candidate to be Viceroy of that country, a promotion suggested in the British press and which came with a 340-room Edwardian baroque palace in Delhi and the responsibility to govern 319 million people. And with this grand position, he would rise in the estimation of his lady love.

In studying the history of the tragedy of R101, we must be mindful of Thomson's public statements on the safety of the ship. In the June preceding the October 1930 tragedy, Thomson addressed Parliament filled with enthusiasm for the project and reassured his listeners with some hubris, "there is to be no danger while I am in charge." However, just nine years before, another British zeppelin the R38, then the world's largest airship, ruptured during a trial over England, exploded from its hydrogen, and crashed, killing 44 of its 49 crew members. Among those investigating the crash was Major Herbert Scott who was to die aboard the R101 and who like Thomson becomes a focus of Gwynne's story.

In 1919, Scott had commanded the east–west–east double crossing of the R34 zeppelin. During World War I, he commanded a number of airships and to the English public, he was something of an airship hero and expert. It is conjectured by Gwynne that onboard the R101, he may have compromised the authority of the Captain, Carmichael Irwin, as it was known that on other zeppelins he had usurped the commanding officer. As Scott was known to be an alcoholic and had likely been drinking heavily before the takeoff, it is plausible to assume that command of the craft was in shaky hands.

The question of weather looms large in this flight of R101. A zeppelin cannot make a safe unscheduled landing, unlike an airplane landing in a field. It is released from a pylon and completes its flight by tethering to one. The pylon awaiting this craft was in Egypt. On the night of the flight of R101, the chief meteorological officer for the vessel was certain that because of deteriorating weather, the voyage would be canceled, as he told his wife upon leaving home. Despite the weather, Scott made the call to take off into what would become a storm with a 44-mph gale. All of the test trials had been in good weather. Whether Thomson influenced him we do not know but it seems certain he desperately wanted to get to Egypt and India on schedule.

Why did the ship crash and burn? A court of inquiry was convened to investigate. The Chair had been a member of the committee investigating the sinking of the RMS Titanic 18 years before. The name *Titanic* seems to turn up as a *leitmotiv* in these disasters including the recent one involving the submersible vessel. The court decided that the high winds of the storm tore the cover of the vessel open exposing the hydrogen-filled gas bags, which ruptured, sending the craft down. Impact with the ground set off sparks causing three hydrogen explosions. The event marked the end for British zeppelins. Research on the cause of the tragedy continues into our era. In 2014, a retired engineering faculty member at Cranfield University in the U.K., Dr. Brian Lawton, put forth the theory that a broken elevator control cable had snapped bringing on the descent and crash. Using a well-known software, MATHCAD Professional, he programed the equations of lift, motion, and drag for the R101, solved them, and determined that the angle at which the vessel hit the ground was consistent with the broken cable.

As an American reading this book, I am puzzled that my countrymen know much more about the crash of the Hindenburg, which happened in May of 1937 than they do about R101 even though the loss of life on the Hindenburg was less: there were 97 people on board of whom 35 died—the majority lived—while there were 48 dead out of 54 on R101. Unlike R101, the crash of the Hindenburg was filmed, the accident found its way into movie theater newsreels and is available on YouTube: https://youtube.com/watch?v=fURATK5Yt30.

An eyewitness account was also recorded and played many times over the radio. There may have been an element of American schadenfreude at work here too: the Hindenburg had giant swastikas on her tail fins and sported Nazi flags.

**My one quarrel** with the book stems from its treatment of helium, the safe alternative to hydrogen. The author tells us that in the year following World War I, production of helium was too limited to be used in airships. But, he tells us that as early as 1923, seven years before the R101 tragedy, the U.S. Navy had received the helium-filled Shenandoah. In 1924, the ship flew from New Jersey to Seattle and back without incident. Although helium is less buoyant than hydrogen and more expensive to produce, one wonders why hydrogen remained a gas of choice as late as 1937. Had it been employed universally starting in 1924, perhaps zeppelins might still be in use today as transportation faster than oceangoing ships. ■

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