

THE ROCKET MAN

AND OTHER
EXTRAORDINARY
CHARACTERS IN
THE HISTORY OF
FLIGHT



DAVID DARLING

I

THE ODDEST COUPLE IN THE AIR



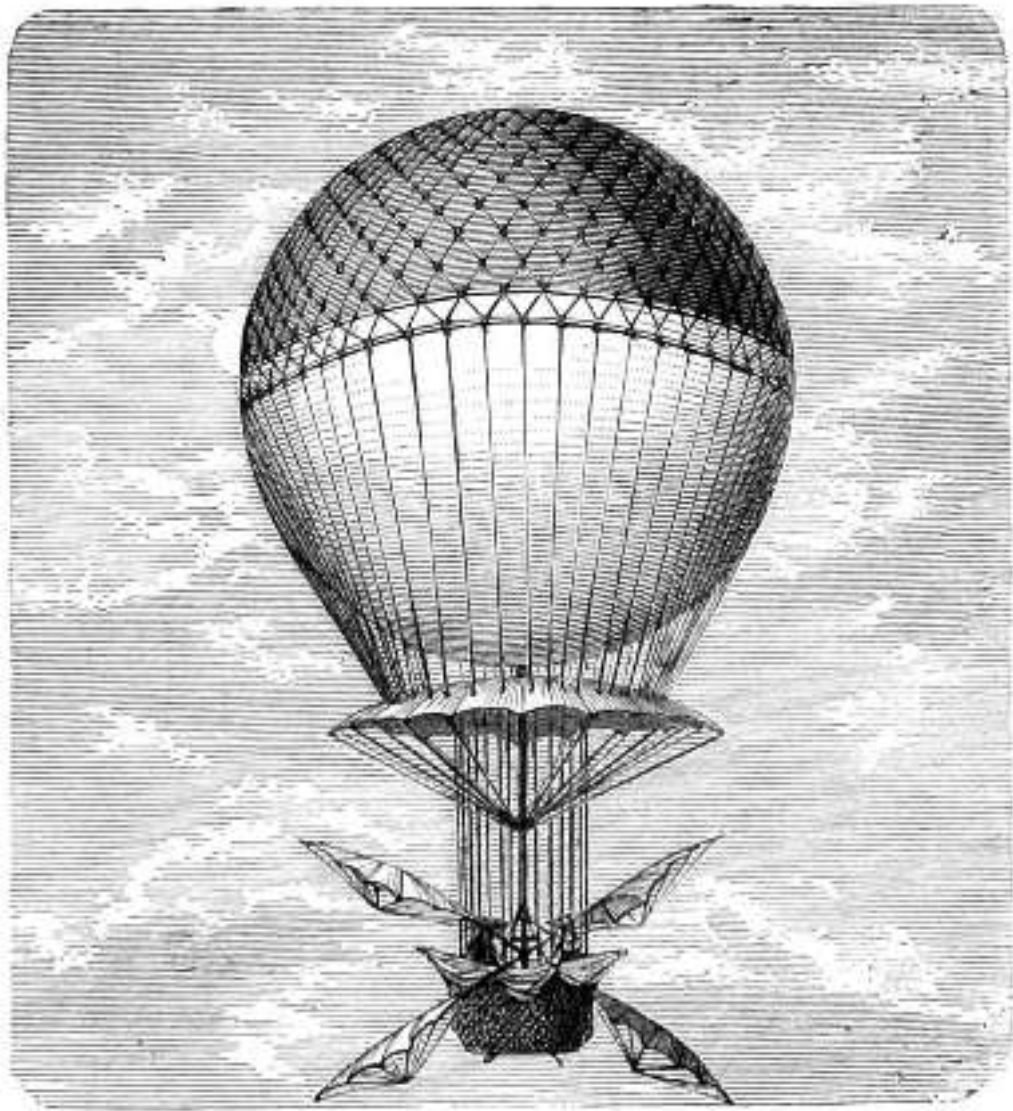
‘Test pilot wanted. Candidates should be timid, shy, physically frail, with no previous flying experience.’ Not the most likely job ad you’ll ever come across. But the chances of Marie Madeleine Sophie Armant ever becoming a pioneering aviator must have seemed about as remote. That is until, in 1804, she became the second wife of Jean-Pierre Blanchard, twenty-five years her senior, celebrated early balloonist, and all-round disagreeable character.

A great aerial pioneer and stuntman he may have been, but Jean-Pierre was also egotistical, mercenary, and not averse to stabbing a colleague in the back if it helped further his own career. Having left his parents’ rural home as a young teen, tired of the poverty he’d grown up with, he wound up in Paris as a mechanic and part-time inventor. While still a boy, he devised a rat trap that involved a pistol, a hydraulic pump that could lift water 400 feet out of the River Seine, and an early form of bicycle called a velocipede. A few years later, he became obsessed with flight. If birds could manage it, thought Blanchard, why not humans? So he came up with a *vaisseau volant* (‘flying vessel’) that used foot pedals and hand levers to flap four bird-like wings. It had about as much chance of getting off the ground as a hippo with a propeller, but that didn’t stop Blanchard from claiming to have flown it when no one was around. His opportunity to become a true and celebrated aeronaut, though, was soon to come.

GAS BAGS AND INFLATED EGOS

On 21 November 1783, Jean-François Pilâtre de Rozier and François Laurent, the Marquis d'Arlandes made the dramatic first flight in a hot-air balloon, built by the Montgolfier brothers. The era of human aviation had arrived. France was, for a while at least, the ballooning capital of the world, and Jean-Pierre Blanchard saw his big chance for fame and fortune. His own balloon would be lifted skyward not by hot air but by hydrogen – the lightest of gases and the most lethal if it caught fire. To the gondola he attached wings powered by oars, in the futile hope that they would help him steer. On 15 March 1784, the thirty-one-year-old Frenchman, accompanied by a monk name Pesch, climbed into his weird vehicle, moored in the Champ de Mars park in Paris. Brother Pesch was something of a rebel, having just escaped imprisonment at the hands of his order and become a would-be aeronaut in defiance of a command forbidding his travel in this 'invention of the Devil', designed – his closet companions argued – to undermine belief in miracles.

A big crowd had gathered to watch the launch. But just as final preparations were under way, a young man dressed as an officer in the French Army forced his way to the front. He was Dupont de Nemours, a chum of Napoleon Bonaparte from his military training days, whose request to go with Blanchard on this much-publicized jaunt had already been spurned. Now he violently demanded to be let aboard and, when Blanchard refused, began hacking at the mooring ropes and steering flaps with his sword. Before police could drag him away he also managed to stab Blanchard in the hand. After things had calmed down, Blanchard, evidently put off the idea of taking passengers, decided to fly solo, much to the dismay of Pesch who, for his troubles, was banished to his order's most remote monastery.



1 'Blanchard's Balloon' from *Wonderful Balloon Ascents* (1870) by Fulgence Marion (pseudonym of Camille Flammarion).

Once airborne, Blanchard, ever the optimist, tried manfully to 'row' north-east towards the commune of La Villette. But the laws of aerodynamics – of which he had a feeble grasp – and a contrary blowing wind forced him across the Seine to Billancourt, where he landed unceremoniously in the Rue de Sèvres. The Parisian press, having witnessed the bombastic aeronaut's manic attempts to row in exactly the opposite direction to which he was compelled to go, had fun playing with Blanchard's adopted motto – *Sic itur ad astra* ('Thus you shall go to the stars').

But Blanchard was no idiot. France was in the grip of balloon mania. There were pictures of balloons on everything from ceramics to fans and hats. Hair was styled *à la montgolfier* or *au ballon*. Any lady who was anyone wore clothing *au ballon* with outrageously billowed skirts and puffed sleeves. Every inventor and daredevil in the land wanted to take to the air. Blanchard realized that to make a name for himself, and a fortune to boot, he'd have to try his luck abroad, where there was less competition, and so in August 1784 he moved to England.

Thanks to an over-the-top publicity campaign in which he claimed the mantle of ‘world greatest aeronaut’, he won the backing of a number of wealthy patrons. One of these was John Jeffries, a Bostonian physician living in England, who agreed to finance Blanchard’s attempt at the first aerial crossing of the English Channel – providing that he could come along for the ride. Although the Frenchman was eager for his benefactor’s cash, he certainly didn’t want to have to share the glory with him. However, Jeffries insisted, even adding a clause into the contract to the effect that if his extra weight jeopardized the success of the flight, he would consider himself expendable and bail out in mid-air.

TWO MEN IN A BALLOON

With his sponsor’s money safely banked, Blanchard did everything he could to avoid Jeffries making the trip. At the launch site of Dover Castle on England’s south coast, Blanchard set up a barricade camp that Jeffries was forced to storm with the help of some hired sailors. The two men appeared to reconcile after this fracas but the wily Frenchman had one last trick up his sleeve – or, rather, around his waist. On 7 January 1785, with the balloon inflated and ready to go, Blanchard declared that it was overweight and couldn’t possibly ascend with Jeffries aboard. Suspecting foul play, the good doctor insisted on searching the slightly built hero of the air and found him to be wearing a lead belt. Finally unencumbered by surplus metal, the balloon took off with its uneasy crew of two, heading south-east under a gentle breeze.

Inevitably, it wasn’t long before Blanchard and Jeffries fell out – perhaps almost literally, given the violence of the dispute, which centred on the relative merits of their nations of birth. Both were fiercely patriotic. Hostile words and insults were exchanged and the long and short of it was that both their nation’s flags, having been proudly displayed for all the world to see at lift-off, ended up in the sea with their respective owners fuming at the loss.

Eight miles out over the Channel the pair found themselves descending prematurely. Hurriedly they tossed some ballast overboard but still the balloon headed down. Another argument broke out over what next to sacrifice. Possibly the terms of the contract were discussed. But as the cold waters came ever closer, the two men, neither of whom could swim, continued to eject only inanimate cargo. With the French coast now in sight but the gondola just a few feet above the sea, the ropes, anchors, seats, and scientific instruments were jettisoned for the sake of elevation. Blanchard even stripped his underwear and tossed his clothes overboard. At first Jeffries balked at disrobing, saying he would rather face a watery grave than the French *dishabille*. But as the frigid waters beckoned, Jeffries not only peeled down to his long johns but, having clambered like a rat into the rigging, offered his professional opinion that they should both empty their bladders and perhaps more to relieve the situation.



2 An early demonstration of the Montgolfier brothers' balloon.

All the desperate weight shedding worked – but too well. As the balloon neared the shores of France, a warm updraft swept the scantily dressed aeronauts skyward, and without any landing ropes or anchors by which to catch hold of terra firma they climbed high again. For eleven miles they drifted inland until, at last, over a forest near the town of Guînes, Jeffries was able to grab hold of some passing tree branches. As the balloon slowed and drifted over a clearing, some of its hydrogen was released and the adventure came to a tame conclusion. Reclothed by well-wishers on the ground, the intrepid pair were borne by carriage to Calais where they were greeted by cheering crowds. Although one of the items ejected had been the mail bag, Jeffries had managed to stuff a single letter, addressed to Temple Franklin, Benjamin Franklin's grandson, into his underwear. By such means was the first

BALLOONING – FOR THE RECORD

1783

- 19 Sep First balloon to carry passengers – a sheep, a duck, and a hen – demonstrated by the Montgolfier brothers for King Louis XVI.
- 21 Nov First recorded manned flight in a hot-air balloon built by the Montgolfier brothers.
- 1 Dec First hydrogen-balloon flight by Professor Jacques Charles and the Robert brothers.

1785

- 7 Jan First balloon crossing of the English Channel by Jean-Pierre Blanchard and John Jeffries.

1793

- 9 Jan First manned balloon flight in North America by Jean-Pierre Blanchard.

1852

- 24 Sep Flight of the first steerable balloon, or dirigible, by Henri Giffard.

1931

- 27 May Auguste Picard and Paul Kipfer became the first to reach the stratosphere in a balloon.

1933

- 31 Aug Alexander Dahl took the first picture of the Earth's curvature in an open hydrogen balloon.

1978

- 16 Aug The *Double Eagle II*, and its three-man crew, became the first balloon to cross the Atlantic.

2002

- 25 May Altitude record set for an unmanned balloon – 53 kilometres (173,882 feet) – launched by the Japanese space agency, JAXA.

2012

- 14 Oct Current altitude record for a manned balloon set at 38,960.5 metres (127,823 feet) by Felix Baumgartner in the Red Bull Stratos balloon.

UPS AND DOWNS

On his return to England, Blanchard, now a celebrity, went into the business of putting on balloon shows and stunts. The parachute had recently been invented, and Blanchard entertained his audience with displays of animals descending gently from his balloons – gently, that is, for the most part. Sadly, this particular spectacle lost its appeal after a dog and a sheep plunged to their doom. Unfazed, the ingenious but ethically challenged Frenchman sold tickets at a fancy price to watch a violinist play his instrument during a parachute jump. But when the musician leapt out less than ten feet above the ground, and managed only a handful of frantic strokes of his bow while in the air, the crowd grew ugly.

Seeing that the time was ripe to move on, Blanchard headed for Europe where he recorded the first balloon flights in Belgium, Germany, the Netherlands, and Poland. In 1788, he wowed onlookers in Basel, Switzerland, by cutting free the basket under his balloon in order to gain height and then hanging on from the dangling ropes for the rest of the trip. Five years later, in Philadelphia, Blanchard gave North America its first taste of lighter-than-air human flight in front of an audience that included President George Washington and future presidents Adams, Jefferson, Madison, and Monroe.

By this time, Blanchard had already abandoned his first wife, Victoire Lebrun, and their four children in favour of his total immersion with international ballooning exploits, leaving Victoire to die later in poverty. In 1804, he married twenty-six-year-old Sophie Armant, a person so nervous that she startled at loud noises and was afraid to ride in horse-drawn carriages. Heights, by contrast, didn't seem to bother her, and the quiet calm of floating in the air may even have come as a welcome relief. At any rate, she accompanied her husband on his aerial jaunts right from the start, joining him for the first-ever honeymoon trip in the sky.

Jean-Pierre, for all his ambition and imaginative schemes, was a lousy businessman and looked on his young spouse as a way of pulling in more fans and much-needed cash. Seeing a woman in a balloon was still a novelty, and though Sophie may not have been the first of her sex to fly solo, she was the first to become a professional balloonist and the first to fly solo. On only her third ascent, on 18 August 1805, she took off alone from a garden next to the cloister of the Jacobin Church in Toulouse – a useful preparation, as it turned out, for what was to come.

In February 1808, during his sixtieth balloon flight, Jean-Pierre suffered a heart attack while airborne over The Hague. He tumbled out of his basket and fell fifty feet, suffering injuries so severe that he never recovered from them. He died just over a year later.

SOPHIE GOES SOLO

To support herself and help pay off the debts left by her profligate partner, Sophie launched into a solo

aeronautical career. Hydrogen balloons were her conveyance of choice because, although more dangerous than the hot-air variety, they were easier to handle. She didn't need to tend a fire to stay airborne and, with her slight build and a basket no bigger than a chair, could use the buoyant hydrogen design to rise easily in balloons of even modest size.



3 Sophie Blanchard standing in the decorated basket of her balloon during her flight in Milan, Italy, in 1811, to celebrate Napoleon's 42nd birthday.

Pretty soon, Sophie was the toast of Europe and, everywhere she went, large crowds came out to watch. Napoleon made her 'Aeronaut of Official Festivals', which meant she was in charge of organizing balloon displays at all the major ceremonies in France. In 1810, she flew over the Champ de Mars (near where the Eiffel Tower is today) to honour Napoleon's marriage to Marie-Louise of Austria. To commemorate the birth of their son, she again flew over Paris, dropping announcements

the event. A year later, during official celebrations of the boy's baptism, she ascended above the Château de Saint-Cloud, a magnificent palace overlooking the Seine, west of the French capital, and entertained spectators with what would become her signature trick – setting off fireworks from her balloon hundreds of feet above the ground.

Evening flights were Sophie's speciality. The air was calmer then and, as the sky darkened, her pyrotechnics could be seen to their best advantage. But it was a horrendously risky venture, working with flames so close to a big bag of the most explosive gas on the planet. The fireworks were contained in small baskets and lighted on a fuse before being allowed to drift down by parachute.

Going up in smoke was only one of the dangers that Sophie faced. She didn't go in for quiet evening jaunts within shouting distance of the ground, she flew at heights of more than 10,000 feet, endured sub-zero temperatures, and sometimes blacked out from the altitude and cold. On one occasion she had to stay high in the air for over fourteen hours to avoid a hailstorm that was going on below. On another, she narrowly avoided drowning when she crashed into a marsh.

But, despite the ever-present dangers of her job, she outlived Napoleon's time in office. Not only that but she seamlessly shifted allegiance and became a favourite of the returning royalty in the person of Louis XVIII. In 1814, she was on hand to celebrate Louis' return to the throne, ascending in style from the Pont Neuf. So impressed was the king by her performance that he gave her the slightly amended title of 'Official Aeronaut of the Restoration'.

Inevitably, Sophie's luck finally ran out. It happened on the evening of 6 July 1819, on her fifty-ninth flight – just one short of her husband's career tally. Everything started out normally, although for some reason Sophie seemed ill at ease. She had been warned plenty of times in the past about setting off fireworks near her balloon. Perhaps it was the stiff breeze that was causing her some concern. At any rate, she was determined to go ahead with the display and, as usual, was dressed to the nines for the occasion: a long white dress and white hat topped with ostrich feathers.

Up she went, waving a white flag at the enthralled onlookers in the Jardin de Tivoli. But from the outset the wind proved to be a problem, driving the balloon sideways into a tree. To gain height more quickly, Sophie threw out ballast, at the cost of some stability. Finally she cleared the obstructions on the ground, rose high into the air, and began her pyrotechnic show by setting off some Bengal Fire – a mixture of substances that burn with an intensely bright flame – to illuminate her balloon. But something went wrong. A spark from the fire reached the hydrogen, catching it alight. The crowd below, not realizing what was happening, thought for a while that the brilliant spectacle was part of the performance and burst into applause. Meanwhile, Sophie was frantically tossing out more ballast to keep herself airborne. It was a losing battle: the balloon rapidly lost buoyancy while, at the same time, the wind carried it more and more off course. In horror, the crowd watched as the balloon drifted above the buildings of the Rue de Provence, until, in the final moments, the hydrogen completely burned up and the charred envelope dropped onto a high rooftop. Even then Sophie might have

survived, but a sudden gust caught the deflated cloth and tipped the aeronaut out of her small basket and to her death in the street below.

The crowd was stunned, and the owners of the Jardin de Tivoli immediately donated the admission fees to the support of Blanchard's children. When they found out that she didn't have any offspring, the money was used to build a memorial to Sophie over her grave, on which was engraved the epitaph *victime de son art et de son intrépidité* ('victim of her art and intrepidity').

INSANITY IN A PINSTRIPE



Just eight years after the Wright brothers' historic first flight in 1903, a sharply dressed pilot loaded up the gas tanks of his flimsy-looking plane and announced to the watching crowd that he intended to fly straight up into the sky till his fuel ran out. For over an hour and three-quarters he spiralled upwards until finally his engine sputtered and died. Then, in what seemed like a suicidal plunge, he tumbled back down before levelling out just above the ground and gliding to a safe landing. The plane's pressure gauge showed that he had peaked at 11,578 feet – a new world altitude record. That's how Lincoln Beachey rolled. One of the most naturally gifted aviators who ever lived, he was arrogant, brilliant, and a consummate showman.



4 Lincoln Beachey seated at the controls of his plane (1913).

Born in San Francisco in 1887, Beachey began tinkering with machines at an early age and opened his own bicycle shop when he was thirteen. A couple of years later he graduated to fixing motorcycles and their engines. Soon after that, he joined the performing stunt team run by pioneering balloonist and former circus trapeze artist Thomas Baldwin, starting out as a mechanic and quickly moving on to becoming a pilot as well. In 1900 Baldwin got into the business of building dirigibles – rigid airships powered by small engines. Beachey helped Baldwin put together a dirigible called the *California Arrow*, propelled by a motorcycle engine supplied by Glenn Curtiss, who would go on to found the US aircraft industry. In 1905, still only seventeen, Beachey took the controls of the *California Arrow* and made his first solo flight. There and then he was hooked, and shortly after went into the dirigible business himself, advertising his airship in a style that no one would get away with today – flying it around the Washington Monument and down the Mall, before cheekily touching down on the White House lawn.

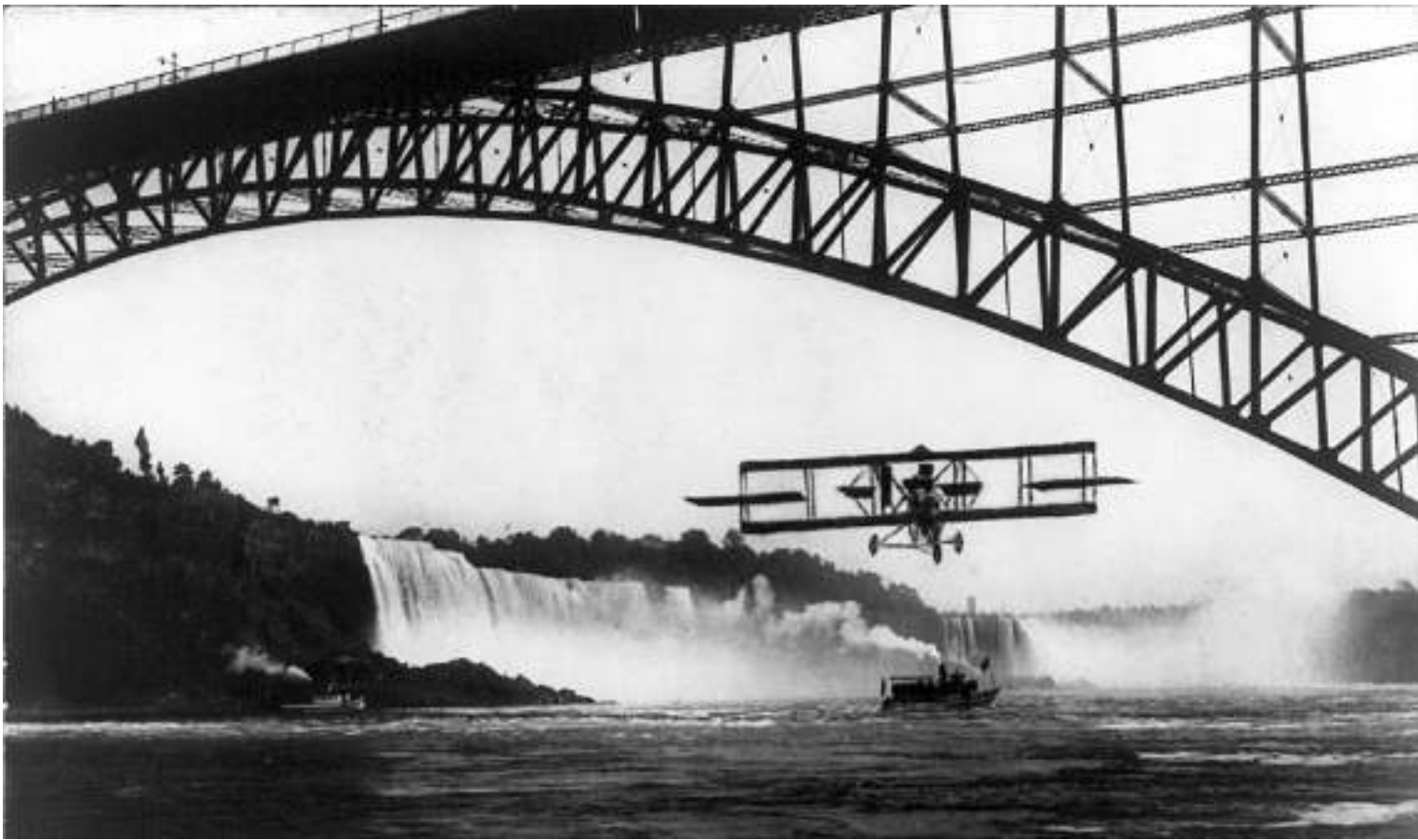
More and more obviously, though, the future lay with planes and, grasping this, Beachey signed up for lessons at the Curtiss Flying School in San Diego. He quickly mastered the Curtiss Model 1 biplane – the first aircraft in the world to be built in any quantity – and was put on the company

exhibition team. But like many geniuses, Beachey was as stubborn as he was talented and managed to smash up several planes while attempting extreme manoeuvres before emerging as the team's star performer and Curtiss's top money-spinner. Whenever he flew he dressed as if he was on a big night out, complete with pinstripe suit, high collar, fancy tie, and golf cap turned fashionably backward. Crowds would gasp as he did his signature stunt – the 'Dip of Death'. In this, he would climb his plane to 4,500 feet, then plummet towards the ground at full speed with his arms outstretched. At the last moment he levelled out, gripping the control stick with his knees and waving with both hands to his adoring fans.

The years 1908 to 1915 spanned the 'exhibition era' of early aviation, when promoters staged extraordinary stunt shows to enthuse the public in the new heavier-than-air flying machines. This was the time when people started to get excited about not just the tricks that aircraft could perform but the possibilities for their practical uses in the future. It was the age when the focus of attention shifted from airships to aeroplanes. And the greatest of the exhibitioners – the man who commanded the biggest salary and audiences – was Lincoln Beachey.

NO STUNT TOO EXTREME

Beachey first won international fame when, on 27 June 1911, he dined with death above Niagara Falls. Taking off from an airport in New York, he arrived at the falls and circled several times over an estimated 150,000 spectators before plunging down towards the mist and spray in the gorge. Pulling up just twenty feet above the turbulent river, he then continued down the gorge before astonishing onlookers by flying under the arch of Honeymoon Bridge (also known as Fallsview Bridge). Later that year, he flew above a speeding train and brushed his wheels against the top of the carriages as they passed beneath him.



5 Lincoln Beachey's flight under Niagara Falls Bridge, 27 June 1911.

With every stunt, Beachey grew more bold and ambitious. In a profession with a devastatingly high mortality rate, he wanted to push himself and his machine to the absolute limit. In 1913, he became the first to fly a plane entirely indoors. Taking off inside the Machinery Palace on the Exposition grounds at the San Francisco World's Fair, he circled his plane around and around at sixty miles per hour before landing again, all within the confines of the hall.

Whenever Beachey heard of others who had pioneered new stunts, he immediately wanted to master the tricks himself and then give them his own special twist (sometimes quite literally). On 2 September 1913, a French aviator, Adolphe Pégoud, working as a test pilot for the great Louis Blériot, performed an inside loop – flying horizontally at top speed before pulling back on the control stick and doing a complete vertical circle. Pégoud thought his loop was a world's first but it turned out that he'd been beaten to it, twelve days earlier, by a Russian military pilot called Pyotr Nesterov at an army airfield near Kiev. Both men had flown monoplanes (single-wing aircraft) that were more manoeuvrable and equipped with more powerful engines than anything that Beachey had access to.

The American was desperate to do the loop himself and urged Glenn Curtiss to build him a plane that would make it possible. When Curtiss refused, Beachey stormed out of the flying team and, what may have been more a fit of pique than anything else, composed a melodramatic essay in which he wrote: 'I was never egotistical enough to think that the crowds came to witness my skill in putting

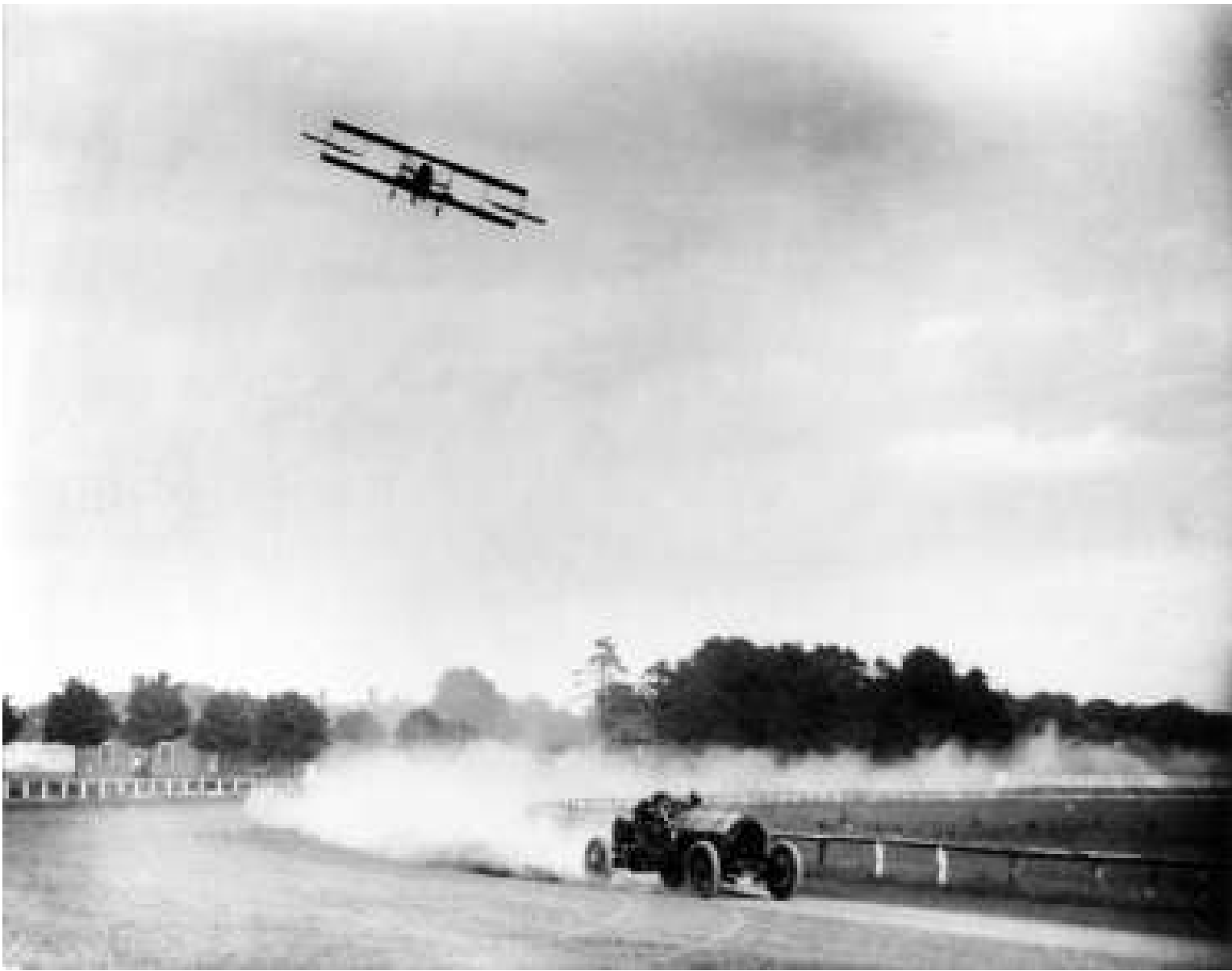
a biplane through all the trick-dog stunts. There was only one thing that drew them to my exhibition ... They paid to see me die. They bet I would, and the odds were always against my life, and I got big money for it.' On 7 March 1913, he announced that he had quit professional flying because so many young aviators had been killed trying to copy his stunts.

INS AND OUTS AND LOOP-THE-LOOPS

Beachey's retirement proved to be brief, however. Within a few months Curtiss relented and stumped up the funds to build a plane powerful enough to tackle the loop. On 7 October, Beachey was behind its controls at Hammondsport, New York, ready to add to his aerobatic prowess. But the flight went badly wrong. As Beachey banked around over the airfield, shortly after take-off, a downdraft – possibly a mechanical glitch caused the plane to dip, sweeping two naval officers and their lady companions off the roof of a hangar from which they had been hoping to get a perfect view of the event. Beachey's plane ended up a mangled wreck in a nearby field, although the aviator himself escaped with only minor injuries. Not so fortunate was one of the women, who died from her fall.

Beachey quit aviation a second time after the accident but, again, only temporarily. A circus poster depicting a plane flying upside down – a stunt never before attempted – fired his imagination. He simply had to get back into the cockpit and master both the loop and flying horizontally with his head pointing at the ground. This time he opted to go it alone, without the backing of a big company. After conquering the loop, which he went on to repeat many hundreds of times, he wrote in his usual theatrical style: 'The silent reaper of souls and I shook hands that day. Thousands of times we've engaged in a race among the clouds. Plunging headlong in to breathless flight, diving and circling with awful speed through ethereal space ... I have imagined Him close at my heels. On such occasions I have defied him ... Today, the old fellow and I are pals.'

Beachey's problem was that he needed to make a living by charging people to come to his displays, so he did his flying only over exhibition grounds to which there was an admission fee. But because the stunts took place well off the ground, people could just as easily watch for free from a distance – which is exactly what many of them did. Frustrated by his lack of income, the imperious airman retired for a third time. But, unsurprisingly, not for long.



6 Lincoln Beachey in his plane racing against Barney Oldfield, 28 June 1912.

RACE TO FAME

It so happened that Beachey shared a publicity agent with a well-known racing-car driver called Barney Oldfield. The agent hatched an ingenious plan that would put both Beachey and Oldfield firmly in the public eye *and* force people to pay if they wanted to see the action. Eye-catching posters were printed in which the ‘Demon of the Sky’ was shown pitted against the ‘Daredevil of the Ground’. All over the country, on courses surrounded by a high fence to ensure there were no freebies, Beachey and Oldfield raced for ‘The Championship of the Universe’ – Beachey flying a new plane he had designed and built himself, called the ‘Little Looper’, which had B-E-A-C-H-E-Y painted in three-foot-high letters on its upper wing, against Oldfield’s famous red 100-horsepower Fiat. Crowds flocked to see the spectacle – 30,000 strong in Dayton, Ohio, home of the Wright brothers – and thrilled as the two vehicles, throttles open wide, unmuffled engines roaring, sped past the grandstands.

with clouds of dust billowing from the wheels of the big car. Although Beachey's plane was faster, the whole affair was staged so that the stars of the show knew exactly who would 'win' each time. After the pair crossed the finishing line, always nearly neck and neck, Beachey would soar up into the sky and put on a breathtaking aerobatic display – adding more and more loops as time went on, in order to keep ahead of the records set by other stunt pilots. Eventually, he was doing as many as eighty loops, one right after the other.

As well as his mock races with Oldfield, Beachey took his solo aerial shows to no fewer than 12 cities around the US between May and December 1914. In total, 17 million Americans turned out during that frenetic seven-month period to watch the Little Looper put through its paces, and everywhere he went the 'Alexander of the Air', as the press hailed him, was given superstar treatment. In the summer of 1914, Beachey also achieved another of his long-held ambitions – to fly in front of the great Thomas Alva Edison.

'I want to show such men as Henry Ford, Thomas Edison and other inventive and manufacturing geniuses', he said, 'how I handle the Little Looper. I do not believe they dream such things as possible ... I want to open the eyes of the people to the possibilities of the aeroplane. My tour this summer will help advance the science of flying by ten years.'

He certainly made a lasting impression on Edison. 'I was startled and amazed,' said the inventor, 'when I saw that youngster take to the sky and send his aeroplane through the loop and then follow that feat with an upside-down flight. I could not believe my own eyes, and my nerves were a tingle for many minutes.'

Another famous engineer who came in for a surprise that summer was Orville Wright. He had earlier doubted that Beachey actually flew loop-the-loops or upside down. 'It is probably done high in the air,' said Wright, '3,000 feet or so, an optical illusion and promoter's hype.' Some of his scepticism probably stemmed from a feud that had been going on between Glenn Curtiss and the Wright brothers for several years and that had come to a head after Wilbur Wright's death in 1912 – an event that Orville attributed to stress from the dispute. But all doubt about what Beachey could do evaporated when he saw the stuntman fly first-hand and watched the incredible finale to his show. Loop after loop Beachey performed, then flipped his craft over, flew it upwards until it stalled, fell backwards, tail first and upside down, brought his tail up until he stalled backwards, upside down, and repeated the whole manoeuvre, again and again, falling out of the sky as he tipped back and forth – all with his arms stretched wide, operating the plane with his knees and body alone. Wright couldn't believe his eyes: 'An aeroplane in the hands of Lincoln Beachey is poetry ... His performance not only surprised me, but amazed me as well. He is more magnificent than I imagined.'

INVASION WASHINGTON

Beachey did a huge amount to promote aviation in the US, but more than anything he was desperate to persuade the powers that be to invest more in military planes. In 1914, the Russian armed services had over 1,500 aircraft at their disposal, France and Germany each had over 1,000, and even Mexico had 400, while the US could only muster a mere 23. Beachey distributed millions of brochures around the country, urging people to put pressure on their representatives to argue for more military investment in aerial forces. He also invited government officials to a demonstration of how effective a plane could be in combat. But when only two members of the cabinet showed up for the event, he decided to take matters into his own hands – and buzz the White House and Congress in a mock attack.

According to one account, President Woodrow Wilson was at work in the Oval Office when he heard a noise that at first he took to be a fly. As the buzzing grew louder, he realized it was coming from outside and looked out through the window to see a biplane heading straight towards him. The machine pulled up at the last moment and continued with repeated ‘attacks’ on the White House, Marston and Capitol.

Some of the details of Beachey’s fake assault on the heart of Washington may be apocryphal. But there’s no doubt that the event took place and that he created a stir that day with his demonstration of how deadly the plane could be as a weapon of war. As news of his antics quickly spread, crowds spilled out onto the streets, including many lawmakers who had adjourned from Congress to see what was going on. After the flight, Beachey hammered home his message: ‘If I had had a bomb, you would be dead. You were defenceless. It is time to put a force in the air.’

The demonstration had its effect and Congress voted shortly after to boost spending to build up a fledgling air force. Beachey was lauded for giving his dramatic wake-up call and was offered a top post in the government’s new aviation set-up. But although he turned this down because of other commitments, he carried on with his military propaganda shows.

In 1915, ahead of the Panama-Pacific International Exposition, Beachey had a large wooden model made of the USS *Oregon*, an elderly battleship, and anchored it one mile out in San Francisco Bay. The US Navy was in on the stunt and agreed to let 100 sailors man the fake vessel, which was loaded with explosives. A crowd of 80,000 on the shore, not realizing that the ship was just a mock-up, gazed in horror as Beachey flew over it in his new, bird-like Taube monoplane and dropped what appeared to be a live bomb, trailing smoke as it sped towards its target. Explosions ripped through the ship – the crew having already secretly departed aboard a tugboat – and many onlookers thought for a while that they were witnessing a horrible accident, or possibly an act of mass murder.

GRAND FINALE

A few days later, on 14 March 1915, Beachey took off on what would be his last flight. With the Exposition now in full swing, a quarter of a million people thronged the fairgrounds and surrounding hills. The

watched as Beachey rolled his powerful new plane onto its back and began a breathtaking inverted run barely 2,000 feet above the waters of San Francisco Bay. Perhaps he was flying lower than he thought. At any rate, it was clear that the aircraft was losing height and, in an attempt to flip through 180 degrees and gain some altitude, Beachey pulled hard on the controls. So great was the strain on the wings that both of them sheared clean off and the fuselage – with Beachey still aboard – plunged into the Bay and sank. An agonizing hour and three-quarters later, US naval divers were able to drag the airman from his submerged cockpit and, even though it was hopeless, attempts were made for several hours to try and revive him. An autopsy revealed that he had survived the impact but died from drowning.

News of Beachey's death raced around the world and San Francisco's phone system was jammed for twenty-four hours. The city's mayor took personal charge of arrangements for the funeral and tens of thousands turned out to pay their respects to one of the greatest names in aerobatics. Preparations were made for a string of grand memorials and ceremonies, which ought to have helped immortalize Lincoln Beachey's name. Yet few have even heard of him today. The simple fact is that his life and death were largely forgotten because of a string of other events that gripped the public's attention. He died just at the start of the First World War and most plans to honour him were delayed by years, by which time the memories of his exploits had faded. New heroes emerged out of daredevil exploits during the European conflict. Then there followed the record-breaking exploits of the likes of Charles Lindbergh, and yet another major public concern – the Great Depression – which helped push the extraordinary adventures of Beachey into obscurity.

Beachey was unique to his time, just as the exhibition era was unique to its time and place. The barnstorming of the 1920s and the great air races and air shows of the 1930s were different in many respects from the great aviation meets and exhibitions of the pre-First World War period. The exhibition era was a time of much experimentation and purposeful risk, and it has become a time almost lost to memory.

BLACK ACE



Few things sharpen your reactions and ingenuity like being involved in aerial shoot-outs, day after day. Even if it takes some extreme manoeuvre to get out of the line of fire, or turn the tables on your opponent, you're going to try it, despite the risk, rather than end up in a heap of burning wreckage on the ground.

Dogfighting started during the First World War as planes became faster and nimbler and began to carry weapons. At the same time, a few pilots proved to be unusually adept at shooting down their enemy.

These aces represented only about one in twenty of all pilots, yet accounted for the majority of kills. Among the most successful of them was the Canadian, Raymond Collishaw, of the Royal Naval Air Service (RNAS), and who later served in the Royal Air Force (RAF).

IN AT THE DEEP END

Collishaw was born in Nanaimo, British Columbia, in 1893, and started work aged fifteen as a cabin boy on a Canadian Fisheries Protection Service ship. Gradually he worked his way up the ranks and at the start of the First World War tried to enlist in the Royal Canadian Navy. When he got no reply he applied instead to the Royal Naval Air Service (RNAS) and eventually ended up at Redcar, in England, to do what in those days passed as flight training. Aircraft simply hadn't been around that long in 1916, and learning how to fly was a pretty haphazard and perfunctory affair.



7 Raymond Collishaw in RAF uniform (1919).

Part of Collishaw's training was in a French-made Caudron G.3, which was so primitive that it used the old Wright brothers' patented method of wing warping to control the plane's roll (rotation about the nose-to-tail axis). Wing warping involved a system of levers and pulleys to twist the trailing edges of the wings in opposite directions, in the same way that the flight of a paper plane can be adjusted by curling the back edges of its wings. In most aircraft – biplanes and monoplanes – after 1915, ailerons had taken the place of wing warping to control banking and rolling.

Despite some trouble with his landings, Collishaw flew solo after only eight and a half hours of flying time. That was about par for the course on both sides during the First World War. Flight instructors showed a novice pilot how to get in the air, turn the plane around, and land again, and much more. Ground instruction consisted of learning how to load and unjam a machine gun and basic

map reading. Everything else of use to a pilot in battle had to be learned on the job, more often than not with an enemy plane trying to perforate your fuselage. No wonder so many young military pilots at the time were lost in training and operations, and why those who survived and became skilled were able to notch up so many kills.

Collishaw was luckier than most. Having been posted to the front with hardly any flying experience, he was mentored by none other than John Alcock, who, in 1919, along with Arthur Brown, would make the first non-stop flight across the Atlantic in a converted Vickers Vimy bomber. Thanks to Alcock's expert coaching, Collishaw soon became a better pilot than most of his contemporaries. Even so, he made his fair share of mistakes. On one occasion, while on an unauthorized detour trying to deliver a message from a friend to a local girl, he crashed into a row of outhouses, covering himself in a variety of unappealing materials and wrecking the plane. Needless to say, the object of adoration was less than impressed.

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