

Taking to the Air: Early Film and Early Flight

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On 17 December 1903, at Kitty Hawk, North Carolina, at 10.30 am, Orville Wright piloted the Flyer aircraft designed by himself and his brother Wilbur. The flight lasted twelve seconds. Three further flights took place that day, the longest covering 852 feet. It was the world's first powered flight, and with it the whole world was to change.

No one filmed that first flight. In a century where we come to demand that everything be presented before us in motion pictures, as the most unanswerable evidence, it is a curious fact that the epoch-making first flight was only recorded by a single photograph, and through the eyes of those few who were there to witness it. Motion pictures existed, but they were in their infancy, and the Wright brothers were obsessively secret about their work. Given nothing to see, people doubted the Wrights' claims, and it was not until 1907, when the Wright Flyer was exhibited in Europe (and filmed on frequent occasions) that the world came to believe that the dream of centuries, human flight, was now a reality.

Powered flight and motion pictures have a rich and complex history that goes far beyond the absence of a record in motion of that first flight. To the casual observer, there is the intriguing coincidence of two sets of brothers, Orville and Wilbur Wright and Auguste and Louis Lumière being responsible for the invention of powered flight and the cinema respectively. The associations go far more deeply than that, however, and can be broken down into three categories: Discovery, Realisation, and Exploitation.

Discovery

Powered flight and motion pictures were each a product of a passion in the nineteenth century for extensions to human experience that new technologies promised. In several cases the same people were involved in the development of both, and the linking theme is the capturing of motion. This shared quest may be traced back as far as Leonardo da Vinci, but its crucial nineteenth century exponent was the French physiologist Etienne-Jules Marey (1830-1904).

Marey became fascinated with the analysis of human and animal motion through various graphic devices. His diagrammatic illustrations of motion, published in *La Machine Animale* (1873), aroused considerable interest, awakening people to a new sense of how to look upon the world. Marey's work inspired Eadweard Muybridge to begin his studies of human and animal locomotion in California. Between them, Marey and Muybridge profoundly influenced the development of motion pictures, emerging from a tool of scientific discovery to an entertainment business as soon as entrepreneurs realised that film held a still greater power to capture the imagination than it did in capturing the illusion of reality.

Marey was particularly interested in the analysis of bird flight. In this his work came to complement and inspire the work of those tackling the problem of powered flight. Specifically, he supplied information to the twin camps advocating fixed wings or flapping wings (ornithopters) as the necessary solution to achieve powered flight. Victor Tatin (1843-1913), one of Marey's collaborators, built a flap-wing model in 1876 which for Marey could be used to test the results of his studies and for Tatin demonstrated the ultimate impracticality of ornithopters. In 1879 he built a fixed-wing monoplane model with a compressed air motor which flew around fifty feet. Marey and Tatin's experiment demonstrated that a fixed wing aircraft with an engine powering a propeller or propellers was the solution to man conquering the air. Tatin did not pursue the ideas further at this time, but he would go on to assist the aviators Santos-Dumont, Blériot and Paulhan in their work in the new century.

Alphonse Penaud (1850-1880) built the first ever practical model of a helicopter in 1870, and designed an effective rubber-powered model aeroplane the following year. In 1872 Penaud worked with Marey on the construction of a mechanical bird. Penaud went on to design a twin-propellered monoplane of strikingly advanced ideas in 1876, before sadly committing suicide aged just twenty-nine. For motion pictures, Penaud's most significant contribution was arguing with Marey that photography was a superior method of recording motion than the graphic methods Marey had used up to that date. It was through Penaud's influence that Marey took up the idea adopted by astronomer Jules Janssen (1824-1907). Janssen had created a 'photographic revolver' to capture the transit of the planet Venus in 1874, and argued that the device could be used for the study of bird flight. Marey built his own 'photographic gun' in 1882, capable of taking twelve exposures a second. From this Marey moved quickly to a chronophotographic fixed plate camera, with a timed shutter, capable of capturing several successive images of an action on a single plate. Capturing motion in such a fashion would now logically be followed by the recreation of that motion, as celluloid roll film became available. Marey's assistant Georges Demenÿ (1850-1917) would in particular take the concept from

scientific experiment to commercial opportunity, causing a split with Marey and a partnership for Demeny with Léon Gaumont, who in turn who become one of the leading motion picture industrialists of the early twentieth century.

There were other paths shared by the quests for flight and motion pictures. The French photographer Nadar (1820-1910), real name Gaspard-Félix Tournachon, was a passionate enthusiast for ballooning, and took photographs in flight from 1857. From his privileged viewpoint Nadar became convinced of the emotional necessity as much as the technical possibility of human powered flight, and formed the Société d'Encouragement pour la Locomotion Aérienne au Moyen d'Appareils plus Lourds que L'Air - a society for encouraging heavier-than-air flight. His co-founder of the Society was the author Jules Verne (1828-1905), whose science fiction novels, such as *Five Weeks in a Balloon* and *The Clipper of the Clouds*, inspired the readers of the nineteenth century with what their age of new technologies might achieve. Verne's imaginative vision encouraged many future aviators and the illustrations to his works had a significant influence on subsequent aviation design. Verne's works would go on to influence the cinema's first science-fiction filmmakers, among them Georges Méliès, Walter Booth and Segundo de Chomon. Meanwhile, Nadar would teach photography to Antoine Lumière, father of Auguste and Louis, inventors of the Lumière Cinématographe.

In the year in which motion picture films were first spread around the world, 1896, the German aeronaut Otto Lillenthal (1848-1896) died testing one of his gliders. Lillenthal's work represented the greatest advances made in aeronautics to that date, and his work was a key influence on the Wrights. Lillenthal's flights are marvelously recorded in a series of photographs by the Prussian photographer Ottomar Anschütz (1846-1907), who photographs of storks in flight taken in 1884 had in their turn inspired Lillenthal. And Anschütz himself anticipated film projection with his Tachyscope of 1887, which exhibited brief but vivid moving images from twenty-four glass plates arranged on a disk. It is impossible to consider either the development of powered flight or motion picture technology without an understanding of the other; certainly that was how those working in the twin fields saw it. Simply, they shared the same ideals.

Realisation

The Wright brothers and the Lumière brothers shared one distinctive feature above fraternity, and that was a basis in commercial industry. At a crucial remove from the idealised scientific concerns of Marey and his associates, they brought their experience of the industrial process – with the expectations of a financial return appropriate to the effort expended on developing their invention – to their respective new technologies. The Wrights were bicycle manufacturers; the Lumières

produced photographic plates. Both sets of brothers were nevertheless profoundly aware of the development that preceded them. The Wrights acknowledged the inspiration of Marey's work on animal movement. The man who particularly championed the Wrights and encouraged their work from 1900 onwards was Octave Chanute (1832-1910) who in turn was a keen advocate of Marey's work, and encouraged the brothers to learn from Marey's *Le vol des oiseaux* (1890).

Chanute also introduced Marey's work to Samuel Pierpont Langley (1834-1906), the head of the Smithsonian Institution and a dedicated advocate of heavier-than-air flight, who had been constructing model aeroplanes since 1895. Langley made use of wind tunnel experiments conducted by Marey at his request. The embarrassing failure of Langley's *Aerodrome* in the Potomac River in November and December 1903 drowned a large amount of American government money, and also guaranteed that the Wrights' simultaneous achievement simply was not believed. This, combined with their insistence upon secrecy as they tried to sell their invention to the American military, meant that the world remained in ignorance of their epoch-making achievement.

Meanwhile, the far less reticent Lumières had seen their invention exhibited in nearly every corner of the earth by the end of 1896, with a host of imitators following in their wake. The change from motion picture as an output of scientific analysis to the latest manifestation of the entertainment industry was shockingly sudden. What was important now was not the machinery, but the auditoria in which motion pictures were to be shown. The *Cinématographe* gave its name to cinema, and technology was subsumed by exhibition. The cinema industry matured rapidly, and by the time that the Wrights brought their *Flyer* to Europe in 1908, there was a film industry hungry to record this latest sensation.

Films of the Wright brothers were not the first of human flight, however. Probably the first such film was a brief sequence taken of British aeronaut Percy Pilcher (1867-1899), taken by William J.S. Lockyer in June 1897, a few frames of which survive reproduced in a contemporary magazine. Film exists of the first successful flight in Europe, undertaken by Alberto Santos-Dumont (1873-1932) outside Paris on 22 October 1906. But this film of Santos-Dumont's rickety machine and its brief hop in the air, contrasted with films of the swooping majesty of the *Wright Flyer* at Le Mans in the summer of 1908, demonstrates perfectly how far advanced over the Europeans the Wrights were. In one such film, the *Flyer* takes off from its 'catapult' launch and a man raises his hands to his head in anguish, unable to believe that what he sees will remain in the air. But it did so – the motion picture record proves it.

Exploitation

From 1908, motion picture records of flight were legion. Particularly influential were the newsreel records of the Reims air meeting, held in August 1909. This was the world's first aviation show, and it attracted most of the world's aviators at that time – Paulhan, Bleriot, Lefebvre, Latham, Farman and Curtiss. The Wrights did not attend, but the Wright Flyer did. The Reims air show attracted hundreds of thousands of visitors over its seven days, but millions more saw the event on a cinema screen, and undoubtedly for most in the Western world at this time, the first sight they had of an aeroplane was not in the sky, but projected upon a screen. Aviation became part of the vicarious experience of reality that the motion picture could offer. On 24 April 1909, at Centocelle near Rome, a cameraman with the Pineschi company went up in the air with Wilbur Wright and filmed the experience. The jolting and careering results gave cinema audiences a thrilling variation on that popular form of early twentieth-century virtual reality, the 'phantom ride'. Phantom rides took audiences on train journeys by placing the camera in front of a locomotive; here they were taken where none of them could expect to follow, aviation reality as science fiction.

A Gaumont film of 1910 exists, known now only by its German-release title of *Ah! ... da Fleigt ein Aeroplan!*, which engagingly captures the common experience of early flight. An aeroplane flies over a French town, and all that people can do is stare up at the sky and forget everything else about them. Vehicles and bicyclists crash, people are robbed in the street and sky-watching police ignore them: to paraphrase a famous utterance of Otto Lilenthal's, to see flight is everything. This was only one of many fiction films of the period with an aviation theme, and from this period onwards the worlds of aviation and cinema move into a new partnership, one based on glamour and modernity. To fly an aeroplane was to be immediately associated with speed, daring and a form of heroism fitting for a modern age. Typical of the genre of aviation fiction films that arose at this period is Vitagraph's *An Aeroplane Elopement* (1911), where the hero and heroine elope by aeroplane while the irate father attempts to chase them by motor car, boat and train, to no avail. The aeroplane cannot be overtaken.

As the cinema industry developed its first stars, around 1910, so the star aviators became names to conjure the imagination. In films of aviation meetings, and races sponsored by newspapers, audiences saw Louis Paulhan, Samuel Cody, Glenn Curtiss, Claude Graham-White, Hubert Latham, Henry Farman, and Louis Blériot. One early aviator in particular crossed the worlds of flight and film. Harriet Quimby (1875-1912), one of a handful of pioneering aviatrixes, wrote film scenarios for D.W. Griffith and the Biograph company, while drawing huge audiences to air shows, until her last such show where she fell from her aeroplane to her death. The possibility of

death hung over all the early aviators, and added a particular frisson to the films. What might the camera be allowed to show? Films exist of the numerous air crashes of this period, and one notorious example exists of the French aviator E. Train crashing into a crowd at Issy-le-Molineaux, killing the French Minister of War, M. Berteaux in May 1911. The film was on view in Paris cinemas that same afternoon.

The histories of flight and film diverge after this pioneering period. There have been countless examples of the aviation-themed film: *Wings*, *Dawn Patrol*, *The Way to the Stars*, *The Dam Busters*, *Airplane!*, *The Right Stuff*, *Top Gun*, *Air Force One*. Such entertainments do not take us to the heart of the symbiosis that exists between flight and film. That lies in a shared facility for having brought the world within everyone's grasp, of having made the far away near. It lies in the belief of the inventors who preceded the Wrights and the Lumières, whose shared endeavours came out of a dynamic idealism that characterised Western exploitation of the new technologies of the late Victorian era. It lies in the capture of movement, in the understanding that that brought of what a human being was, and what that human being could achieve. It is an exultation, a lifting of the spirit, a taking to the air.