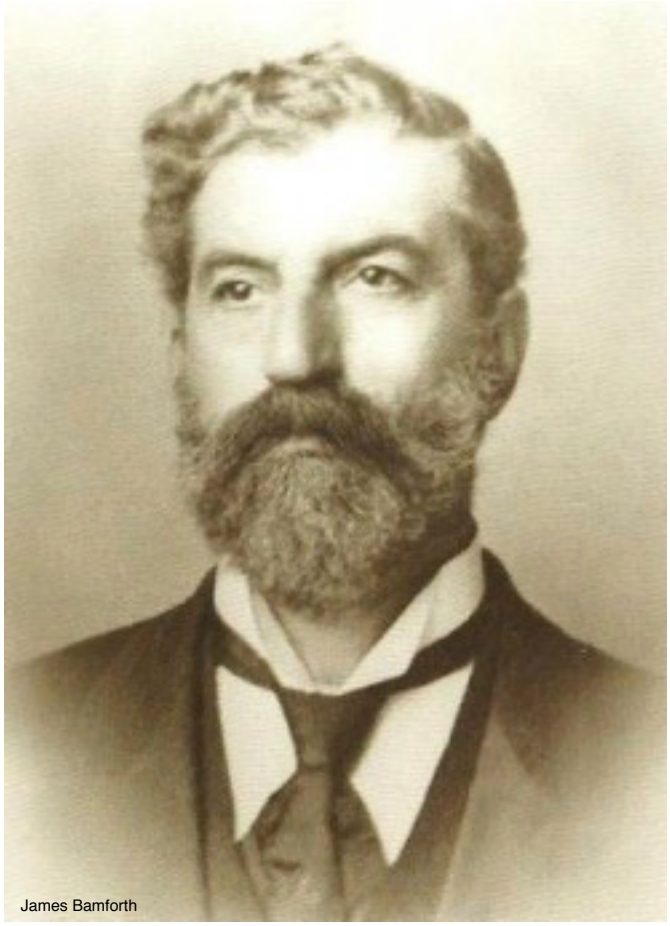
BIRT ACRES (1854–1918)

Born in Richmond, Virginia to English parents, this American-British filmmaker spent most of his life in London, where he became one of the most important moving-image pioneers of the 1890s. He was the first person to build a working 35mm film camera in Britain, he hosted Britain's first public film screening, and he invented the first narrow-gauge film system (the Birtac, which used 17.5mm film).

Acres started experimenting with filmmaking in February 1895, in partnership with R.W. Paul. A few frames survive of what is now thought to be the first British film, *Incident at Clovelly Cottage*, filmed in March. Their first commercial production, Oxford and Cambridge Boat Race, was filmed on 30 March, swiftly followed by *Rough Sea at Dover*, *The Arrest of a Pickpocket, The Carpenter's Shop, Boxing Kangaroo* and a record of the Derby horse race held on 29 May 1895. Acres and Paul had very different personalities, and by July their partnership had broken up.

The films were intended for viewing in machines similar to Edison's Kinetoscopes, but Acres also planned to project them on big screens to large audiences. Private demonstrations of his projector were made towards the end of 1895, before a public screening on 10 January 1896, just weeks after the Lumière Brothers demonstrated something similar in Paris. Acres' achievements could have made him a very rich man, but he believed that moving images should be used for education rather than commercial purposes, and spent the late 1890s lecturing about those possibilities instead.

Birt Acres



James Bamforth

JAMES BAMFORTH (1842–1911)

Although the name Bamforth is now primarily associated with saucy seaside postcards, James Bamforth's family firm (established in Holmfirth, Yorkshire) began in 1870 as a portrait photography business, and then in 1883 began manufacturing magic lantern slides, often with a religious theme. The images for the slides were staged in Bamforth's studio, so when the possibility arose of entering the film-making business, he found he already had the necessary equipment and expertise, as well as a pool of enthusiastic local actors.

In collaboration with Riley Brothers of Bradford, who provided the camera equipment, Bamforth made a number of films between 1898 and 1900. Some were actualities with self-explanatory titles like *Boys Sliding* and *Leap Frog* (both 1900), but Bamforth became an early specialist in dramatic fiction, and made small but definite advances in film editing. The misogynist comedy *Women's Rights* (1899) is thought to be the earliest surviving example of a film cutting from one viewpoint to another, although in this case the camera remained in the same place while the set was turned round 180 degrees. Bamforth was also one of the first filmmakers to depict a fictional character originally created for another medium: cartoonist Tom Browne's tramp *Weary Willie* (1898).

Bamforth abandoned film production in the early 1900s to focus on his other business interests (which by then mainly consisted of postcard production), although the company briefly resumed filmmaking shortly after his death, most notably with a series of comedies starring the popular music-hall comedian Winky (aka Reginald Switz).

WALTER ROBERT BOOTH (1869–1938)

If French film pioneer Georges Méliès is the most famous example of a stage magician turned virtuoso filmmaker (and, often, performer in his own films), W.R. Booth was his closest English equivalent. He spent nearly a decade working as a painter in the Royal Worcester Porcelain factory while honing his skills as an amateur magician, and in the 1890s he joined the company of magicians at London's Egyptian Hall, where he met R.W. Paul, who exhibited his films there.

Paul then hired Booth to supervise his studio's trick films. *Upside Down* or *The Human Flies* (1899) makes use of a very simple but still very effective trick in which actors are filmed against a backdrop representing a typical living room – and then both backdrop and camera are turned upside down, making the actors appear to be walking on the ceiling. By 1901, Booth and Paul were producing more complex films like *The Haunted Curiosity Shop*, almost a single-film showcase for their techniques up to then as an unfortunate shop owner encounters floating heads, two halves of a woman that then rejoin themselves, and even an animated skeleton. The same year's *The Magic Sword* combined similarly advanced special effects with a multi-shot narrative.

Booth continued making films up to the early years of WWI, including several elaborate science fiction fantasies that owed much to the inspiration of Jules Verne. Perhaps his most famous image is a car driving around the rings of Saturn in the oddly-titled *The ? Motorist* (1906).

ALFRED CLAUDE BROMHEAD (1876–1963)

One of the most successful early film companies (not least because it exists to this day) was Gaumont, founded by engineer Léon Gaumont in 1895. Originally founded merely to sell filmmaking and photographic equipment, Gaumont began producing its own films in 1897, and in 1898 they opened a British branch, initially run by the company's agent John Le Couteur but his assistant A.C. Bromhead (who, unlike his boss, spoke French) quickly took over.

Under Bromhead, British Gaumont became a distinctive film production company in its own right, specialising in actuality and topical films to such an extent that it was logical that the company would release its own newsreel, Gaumont Graphic (1910 –32), which took increasing advantage of the firm's many international outlets – by 1910 Bromhead had opened branches in New York, Canada and Australia. In 1906, against the advice of Léon Gaumont, Bromhead opened the first Gaumont cinema (and the world's first specialist news cinema), The Daily Bioscope, opposite Liverpool Street Station. Within four years, Gaumont cinemas were opened in France as well. In 1912, Bromhead opened a studio and laboratory in Shepherd's Bush, the latter eventually producing the majority of prints of non-British titles for British cinemas.

When Gaumont's French parent company struggled financially after WWI, British Gaumont bought out its shareholding, and the Gaumont-British Picture Corporation (whose first chairman was Bromhead) would remain a major player in the British film industry for the next three decades, before it was in turn taken over by the Rank Organisation.

ESMÉ COLLINGS (1859–1936)

Born Arthur Albert Collings in Weston-super-Mare, Esmé Collings started working in his father's bootmaking business but his interest in photography eventually took over. In the late 1880s, he formed a very successful business in London and Brighton with film pioneer William Friese-Greene.

In 1896, Collings became one of the first professional photographers to take an interest in the new moving-image medium. There is evidence that he made at least nineteen films that year, although only two are known for certain to have survived. *Boys Scrambling for Pennies Under the West Pier* is a single-shot film featuring a group of boys trying to catch pennies being tossed from Brighton Pier into the tidal shallows, while *Children Paddling* captures similar material. Thanks to the perforations on the negative matching those of his own equipment, Collings is also believed to have made a film variously known as *Woman Undressing* and *A Victorian Lady in Her Boudoir* (also 1896), which is believed to be Britain's oldest surviving erotic film, although the undressing merely involves the woman in question removing an outer layer of clothing, her petticoat remaining firmly on throughout. The unusually high quality of the lighting for an early film suggests that this was most likely staged in one of Collings' photographic studios.

The last public record of Collings exhibiting his films was in early 1897, and he is believed to have abandoned film-making shortly afterwards. He devoted the rest of his life to his photography business while increasingly becoming absorbed in painting.

GEORGE HOWARD CRICKS (1861–1936)

Like many pioneering filmmakers, G.H. Cricks started out as a keen photographer, moving into filmmaking in the late 1890s. He then worked for R.W. Paul, running his High Holborn office, before forming Cricks and Sharp in 1904 with Henry Martin Sharp. The firm was renamed Cricks and Martin in 1908, when Sharp was replaced by John Howard Martin, a former colleague of Cricks at Paul's Animatograph Works.

Like many turn of the 20th century production companies, Cricks's outfits tackled a wide range of topics, although they became best known for comedies, melodramas and industrial films. It's the latter group that gives their output lasting historical interest, with many of their films qualifying as documentaries proper rather than mere actualities. For instance, A Visit to Peek Frean and Co's Biscuit Works (1906) sought to illustrate every stage in the biscuit manufacturing process from the delivery of raw materials to final distribution, and it does so in a clearly structured and highly informative way, enhanced by excellent photography whose wide depth of field (images in sharp focus regardless of their distance to the camera) suggests the use of powerful lights. This means that the factory workers would have been well aware that they were being filmed, however "realistic" the finished film may seem.


George Howard Cricks

Cricks and Martin also produced numerous fiction films, which led to the demise of the company after the partners disagreed about whether or not to move into feature-length films, resulting in Martin's departure in 1913. Cricks retired from film production in 1918.

ALFRED DARLING (1862–1931)

Born in London, Alfred Darling became involved with the film industry after he opened an engineering shop in Brighton, which he ran from 1894 –1926. After carrying out repairs for photographer-turned-filmmaker Esmé Collings, Darling came into contact with the so-called "Brighton School" of early film pioneers, which also included G.A. Smith and James Williamson. As a result, Darling increasingly specialised in film equipment and offering technical support to filmmakers, eventually including the much larger Warwick Trading Company.

In 1897, in collaboration with fellow engineer Alfred Wrench (of optical firm J. Wrench and Son), Darling took out a patent for a camera with a variable shutter and a claw pull-down mechanism that more efficiently advanced the film from an exposed frame to the next unexposed frame. In 1899, Darling and Wrench invented the Biokam, which used 17.5mm film perforated down the middle instead of the sides, to increase the amount of film available for the image. Aimed at amateur and semi-professional filmmakers, the Biokam could be used as either a still or moving-image camera, and also, once additional parts were bolted on, a projector, printer and enlarger. Darling continued to design and manufacturer film equipment of numerous kinds until well into the 20th century.


Alfred Darling

WILLIAM KENNEDY-LAURIE DICKSON (1860–1935)

Born in France of British ancestry, W.K-L. Dickson trained as an electrical engineer, emigrated to the United States when still a teenager and from 1883 he worked for the inventor Thomas Edison, where he played a major role in the development of numerous moving-image prototypes, culminating in the Kinetoscope (demonstrated 1893, publicly launched 1894).

After falling out with Edison in 1895, Dickson became one of the founders of the American Mutoscope and Biograph Company, for which he became a travelling cameraman, filming across the United States and Europe, eventually settling in Britain in 1897 where he became technical manager for the then-new British Mutoscope and Biograph Company. He continued travelling with his camera, notably to South Africa, where his footage of the Boer War was augmented by a diary that he later published as *The Biograph in Battle: Its Story in the South African War* (1901), the first autobiographical account of a film cameraman in action.

Dickson's film output also includes the earliest known Shakespeare film, *King John* (1899), which originally consisted of four scenes from a then current stage production starring Sir Herbert Beerbohm Tree, although only one survives. *Panorama of Ealing from a Moving Tram* (1901) was one of many "phantom rides", although this one is of particular interest because it has been preserved in such good condition. He left British Biograph in 1903, and seems to have spent the rest of his career working in London as an electrical engineer, his original vocation.

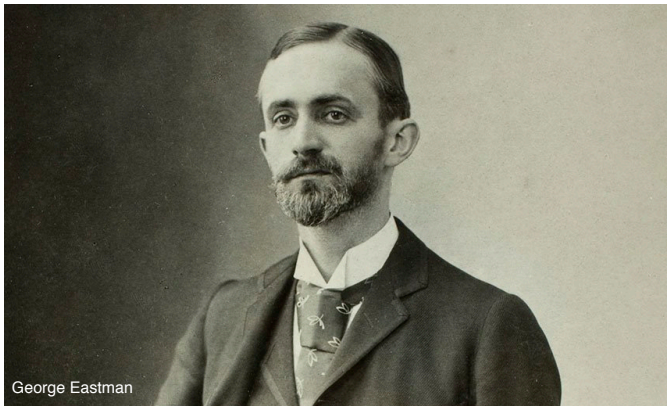

William Kennedy-Laurie Dickson

GEORGE EASTMAN (1854–1932)

One of the most important figures in the development of both still photography and moving images, New York native George Eastman took the concept of recording photographic images onto coated glass plates and applied it to rolls of more flexible material, initially paper and then celluloid film. Since a single roll could store multiple images, not only was this more practical for still photographers, but it proved crucial to the development of moving images.

Eastman became interested in photography in 1877 and initially sought to improve glass photographic plates. His success with The Eastman Dry Plate Company (formed in 1880) funded experiments with rolls of paper, which were much cheaper to coat and manufacture. He patented his first coated paper roll in 1884, and in 1888 Eastman founded the Eastman Kodak Company with fellow photography businessman Henry A. Strong. Their first product was the Kodak Black camera, which came pre-loaded with 100 exposures, the entire camera then being returned to Eastman's factory for developing and printing. This led to a revolution in amateur photography, helped by the famous slogan "You press the button, we do the rest".

The following year, 1889, Eastman began manufacturing film on celluloid, and by 1896 Kodak was the world's leading supplier of film stock, a position that it held until the digital revolution of the 1990s. Although Eastman himself made no specific contributions towards the development of moving images, all the successful 1890s film pioneers used film stock on rolls as the basis for their experiments.


George Eastman

THOMAS ALVA EDISON (1847–1931)

Although it is not true, as has often been claimed, that the inventor Thomas Edison invented moving images outright, he was nonetheless a major pioneer in this and many other fields, including audio recording, electric lighting and batteries, and the entire research and development process whereby ideas are transformed into commercially viable products.

Edison invented the phonograph in 1877, as an accidental by-product of trying to improve a hearing aid design. The principle, in which a stylus reproduced sound vibrations preserved in grooves, underpins the vinyl record player to this day. When Edison saw a demonstration of Eadweard Muybridge's Zoopraxiscope in 1888, he vowed to create "an instrument which does for the Eye what the phonograph does for the Ear", which ultimately led to the introduction of the Kinetoscope in 1894, a peephole viewing machine that was the first commercially manufactured moving image device. To create things for the Kinetoscopes to show, he opened the world's first film production studio (popularly known as the Black Maria) in New Jersey, which would eventually make nearly 1,200 films.

However, Edison's own moving-image innovations largely stopped then. Recognising that projected films were more profitable than single-viewer peepshows, he licensed an existing design and renamed it the Edison Vitascope, but then spent the next few years aggressively suing other US firms for patent infringement rather than building on his discoveries. This litigation is a significant reason why British and French companies grew faster than American ones at the turn of the 20th century.

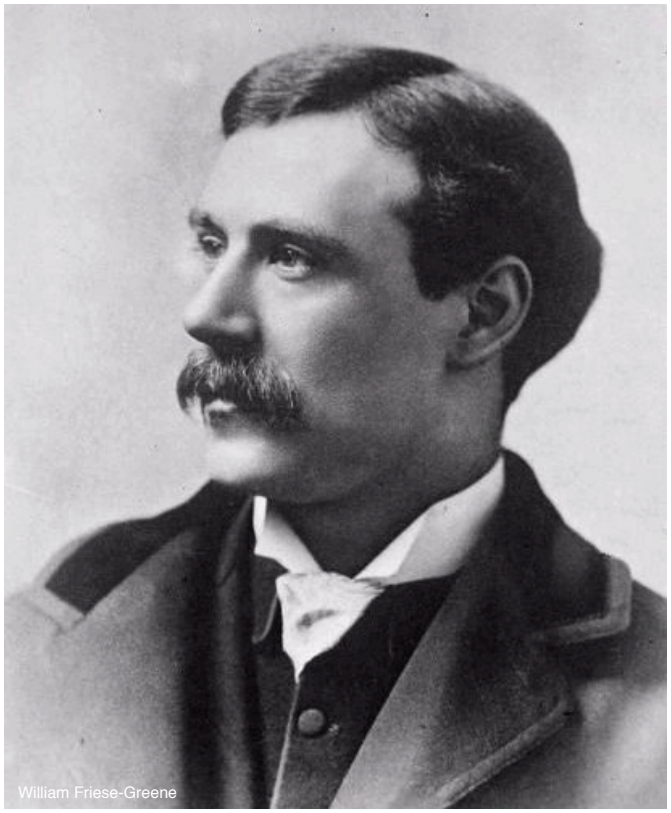

Thomas Alva Edison

WILLIAM FRIESE-GREENE (1855–1921)

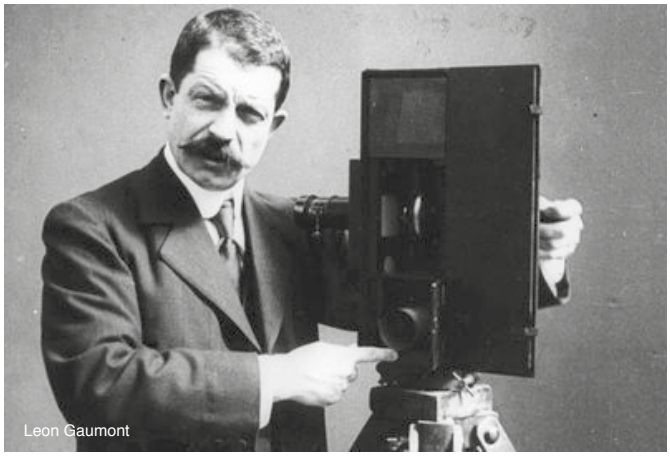
William Friese-Greene was a complex and controversial figure in the history of early cinema, thanks partly to him being inaccurately celebrated (not least via the star-studded 1951 film *The Music Box*) as the true inventor of cinema. This led to a backlash from historians, with the result that his genuine achievements were undervalued for many years.

Born in Bristol, he started out as a successful photographer, and became involved in the magic lantern business at the turn of the 1880s. Friese-Greene was fascinated by the way that the magic lantern could produce a primitive illusion of movement, and sought to refine this by developing a process in 1889 that would allow lantern slides to be projected at a rate of four or five per second. This might have given him a head start on other inventors experimenting with moving image projection, but he failed to turn this into a workable device.

He spent the 1890s trying to develop similar moving-image equipment, but lagged behind other pioneers. He also experimented with stereoscopy and, increasingly, colour, taking out a patent in 1905 for a process that was ultimately judged similar enough to the later, more successful Kinemacolor for the latter to lose its exclusivity after Friese-Greene sued the Charles Urban Trading Company in 1914, although the outbreak of war meant that he was unable to take advantage of this victory. After his death, his son Claude Friese-Greene (1898 –1943) continued his colour experiments, notably with the epic British travelogue film *The Open Road* (1924 –6).



William Friese-Greene



Leon Gaumont

LÉON GAUMONT (1864–1946)

An inventor and engineer who co-founded the world's oldest surviving film company (which bears his name to this day), Léon Gaumont was born in Paris and showed an early interest in photography, although he was initially employed as a manufacturer of precision instruments. By 1893, he was combining those two skills professionally when he joined camera manufacturing company Le Comptoir General de la Photographie, taking over the business two years later after his former boss sold it to him following legal difficulties. This became the basis of L. Gaumont et Cie, formed in association with, amongst others, engineer Gustave Eiffel, who had constructed the famous Parisian tower a few years earlier.

Despite initial commercial setbacks caused by backing the wrong technologies (glass discs, non-perforated film), the company swiftly recovered to manufacture successful camera/projectors using 60mm film (1896) and then 35mm (1897). 1897 also saw Gaumont move into film production, at first specialising in short actualities, but under the supervision of Gaumont's former secretary Alice Guy (the world's first female professional filmmaker) the company began making narrative films.

Gaumont spent much of the 1900s trying to develop a synchronised sound system, patenting the Chronophonographe in 1903, and he also explored the possibility of colour films. By 1914, the European film industry was dominated by Gaumont and Pathé-Frères, although Gaumont was hit hard by the WWI draft (which removed 300 of its staff), and the company suffered mixed fortunes over the next few decades before recovering after WWII.

CECIL HEPWORTH (1874–1953)

One of the most successful British film pioneers, Cecil Hepworth developed an early interest in projected images thanks to being the son of magic lanternist T.C. Hepworth (1844 –1905), and in moving images after seeing R.W. Paul's Kinetoscope demonstration in 1895. Within months, he would be working as assistant to Paul's former partner Birt Acres, and from 1898 he joined Maguire and Baucus (later the Warwick Trading Company). He also wrote about the new technology for various photography journals and in 1897 published *The ABC of the Cinematograph,* the first British book specifically about the cinema.

In 1899, Hepworth established Hepworth and Co, and made a wide range of films: actualities, news items (including the funeral of Queen Victoria), trick films and increasingly complex fiction narratives, including the cinema's first adaptation of *Alice in Wonderland* (1903) and the groundbreaking *Rescued by Rover* (1905), which made huge advances in the development of narrative continuity via multiple shots within the same scene (partly necessary to turn a dog's antics into a coherent lead "performance"). Directed by Lewin Fitzhamon for Hepworth's company (renamed the Hepworth Manufacturing Co in 1904), it was so successful that it was remade twice to compensate for the negatives wearing out through overprinting.

Hepworth himself began directing again in 1911, specialising in literary adaptations. Given earlier cinematic advances, these films were surprisingly stolid and stagebound, although successful enough to keep the company in business into the 1920s, before eventually declaring bankruptcy after a financially disastrous attempt at creating a large film studio.

Cecil Hepworth

LOUIS AIMÉ AUGUSTIN LE PRINCE (1841–1890?)

One of film history's more mysterious figures, Louis Le Prince is now widely recognised as the first person to film moving images with a single camera. Born in France, he studied chemistry and photography before moving to Leeds in his mid-twenties, where he became a renowned specialist in printing photographs onto metal and pottery. He became interested in creating moving images in the 1880s, and in 1886 he patented an elaborate camera with sixteen lenses, although the one that he eventually built had just one.

On 14 October 1888, in the garden at Oakwood Grange, Leeds, Le Prince captured what are generally regarded as the first authentic moving images to be taken with a single camera. Other surviving footage includes a man walking around a corner, traffic crossing Leeds Bridge and an accordion player. The poor image quality is thanks to them being recorded on paper negatives rather than celluloid film. Attempts to create a viable projector with the engineer James Longley apparently got as far as a private demonstration.

With a slight head start on rivals such as Thomas Edison and William Friese-Greene, Le Prince could have become widely recognised as one of film history's major pioneers during his lifetime. However, he never demonstrated his work, either in public or to any influential organisations, and on 16 September 1890, when visiting family and friends in France, he disappeared in circumstances that remain unclear to this day, although numerous theories from suicide to murder by rivals have been put forward.

Louis Aimé Augustin Le Prince

THE LUMIÈRE BROTHERS

It's one of history's more delightful coincidences that "lumière" means "light", because the Lumière brothers Auguste (1862 –1954) and Louis (1864 –1948) were the first to stage a film screening in a form that we would recognise today: a big screen, a darkened room, and a beam of light projecting a moving image.

Both brothers worked in their father Antoine's photographic plate factory, which they saved from bankruptcy by devising a method of automated production. When Antoine Lumière retired in 1892 the brothers began experimenting with moving images, and realised that a similar mechanism to that which advances cloth in a sewing machine could be used to advance a film step by step, if the film was perforated down the sides to allow a mechanism to start and stop it. The Lumière Cinematographe, a combined camera and projector was first demonstrated in private on 22 March 1895, projecting just one moving film (of workers leaving the Lumière factory, shot on 19 March) and some colour stills. The first public demonstration, on 22 December 1895, featured ten short films and had a colossal impact, not least in moving the technology away from single-user peepshows to a communal experience with a crowd.

Although the Lumières spent the next few years sending cameramen all over the world to make films for them, they considered moving images to be a fleeting novelty and the Cinematographe was quickly superseded by superior technology. By 1905, they had abandoned moving images altogether in favour of experimenting with colour photography.

The Lumière Brothers

ETIENNE-JULES MAREY (1830–1904)

A major pioneer in the early development of moving images, the physiologist Étienne-Jules Marey first became interested in recording movement when working as a doctor in Paris from 1859 and sought to devise reliable methods of charting the flow of blood circulation. This developed into a more detailed interest in how various species (including humans) physically moved, which he would chart using various diverse measuring methods before writing up his findings as *La Machine Animale* (1873).

Marey's work inspired Eadweard Muybridge to attempt to capture movement in still images, and Muybridge's work in turn encouraged Marey to conduct his own photographic experiments. In 1882 he produced a "chronophotographic gun" capable of taking twelve exposures in a single second (albeit onto the same coated glass surface, so the resulting images appeared on top of each other). He refined his invention in 1888 by using a strip of coated paper that allowed successive images to be recorded at a rate of 20 per second, and two years later he began using strips of celluloid film measuring 90mm by 1.2 metres.

Despite the beauty of many of his images (his 1894 study of a falling cat being particularly celebrated), Marey's own priorities were always primarily scientific. However, his various technical innovations directly inspired all the important moving-image pioneers of the 1890s, while his movement studies would have a deep influence on such 20th century artists as Marcel Duchamp (whose 1912 *Nude Descending a Staircase* was a direct tribute) and even on 21st-century motion-capture CGI imagery.

Etienne-Jules Marey

GEORGES MÉLIÈS (1861–1938)

While there is endless debate about who invented moving images, there's much less doubt about who was the first great creative filmmaker. Although the Lumière Brothers and R.W. Paul had already produced short fiction films, Méliès pushed the new medium much further than anybody else, and in a startlingly short time.

His background as a stage illusionist (shared with W.R. Booth and G.A. Smith in Britain) meant that by the time he made his first film in May 1896, he had spent years developing and perfecting on-stage special effects at his own Théâtre Robert-Houdin in Paris. These were ported across to his films, together with newly-devised effects unique to the new medium, such as superimpositions, accelerated or reverse motion, and jump-cuts. He famously discovered the latter by accident, after his camera briefly jammed when he was filming a street scene (the resulting film showing a bus appearing to transform into a hearse), and his background helped him immediately grasp the creative possibilities. Méliès's effects remain impressive today: if it's clearer to 21st-century eyes how they were achieved, the imaginative energy behind them is still dazzling.

In 1897, Méliès constructed his own studio and his films became increasingly elaborate: the world-famous *A Trip to the Moon* from 1902 is an excellent example. He produced around 500 films prior to WWI, after which he was nearly forgotten, although he lived to see a revival of interest in his work just before his death. Martin Scorsese's *Hugo* (2011) is partly a tribute to Méliès (played by Ben Kingsley).


Georges Méliès

EADWEARD MUYBRIDGE (1830–1904)

Born Edward James Muggeridge in Kingston-upon-Thames (he changed the spelling of his name several times before settling on its final Old English form in 1882), Eadweard Muybridge represents the most historically significant link between photography and the development of moving images.

He spent the 1850s to the 1870s between the UK and the US, gaining an increasing reputation for the quality of his photography (which also included stereoscopic images). His interest in moving images began when Leland Stanford, President of the Central Pacific Railroad, asked him to help settle a longstanding argument about whether a horse ever had all four of its hooves off the ground at any one point. At that time, photographic exposure times were too long, but Muybridge developed a new type of shutter that, in bright sunlight, could take images in a thousandth of a second. His interest in capturing motion led to him constructing an elaborate apparatus in which twelve cameras placed side by side took photographs in quick succession, initially of horses, and then other animals including human beings. Muybridge also developed the Zoopraxiscope projector, a more elaborate variation on the popular magic lantern that could turn his action sequences into viable moving images.

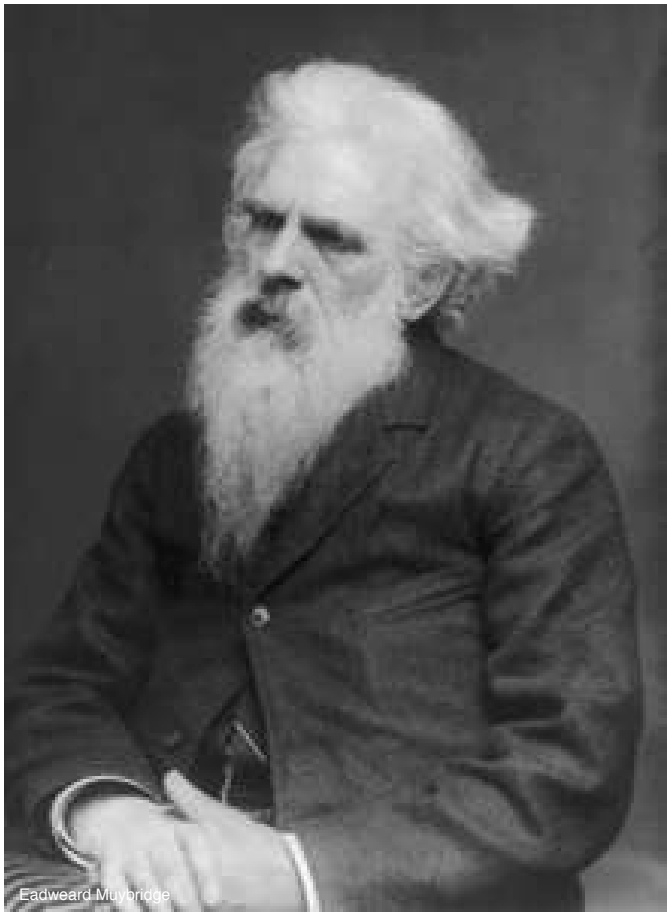
Although Muybridge spent the rest of his career creating thousands of similar photographic sequences without taking his initial discoveries further, his work was a major inspiration for later moving-image pioneers such as Thomas Edison and Étienne-Jules Marey, and also specialists in other fields such as athletics and biomechanics.

SAGAR MITCHELL (1866–1952) AND JAMES KENYON (1850–1925)

Sagar Mitchell, James Kenyon and their company Mitchell & Kenyon (founded in 1897) would be very minor footnotes in British film history were it not for the miraculous preservation and discovery of 800 of the company's nitrate negatives, discovered in 1994 in the basement of a building formerly owned by the company.

Operating from Blackburn, Lancashire, they specialised in "local films for local people", and marketed and shown in fairgrounds on the promise that customers might see themselves on the screen. To this end, they made dozens of "factory gate" films (with the aim of maximising the number of clearly visible people), as well as records of other events taking place across the north of England: sporting fixtures, marches, parades, street scenes, and so on. They also shot dramatised re-enactments of then-current events such as the Boer War and the Boxer Rebellion. *The Arrest of Goudie* (1901) is regarded as the world's first crime reconstruction on film, and was screened only three days after the real Thomas Goudie was arrested for fraud. A typical Mitchell & Kenyon programme would consist of two hours' worth of films, often enhanced by a live-performance element such as a spoken commentary or sound effects.

The number of films produced began to decline from 1907, and the last known example dates from 1913, although the company remained in business until 1922. After Kenyon's death, Mitchell carefully stored the company's negatives in three large metal drums, which helped preserve them in remarkable condition.

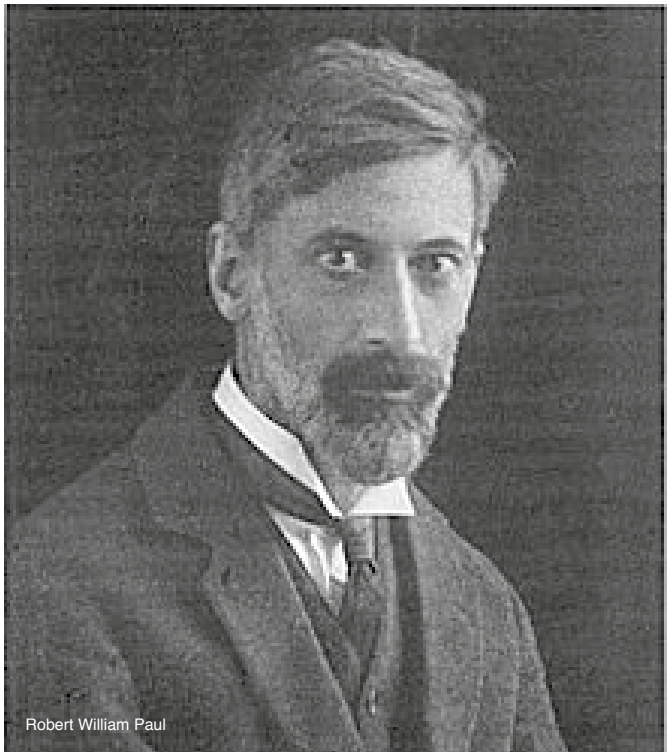

Eadweard Muybridge

ROBERT WILLIAM PAUL (1869–1943)

Born in London, R.W. Paul began as an electrical engineer, and became involved in the film industry entirely by chance, when two Greek businessmen asked him to copy an Edison Kinetoscope, which had not been patented in Europe. Unable to obtain Edison films, Paul realised that he would have to make his own. With professional photographer Birt Acres, Paul produced several films in the first half of 1895 before their partnership dissolved.

Paul's next breakthrough was the Theatrograph, Britain's first commercially-made 35mm projector, first demonstrated on 20 February, and then in public on 19 March at London's Egyptian Hall. Of all Victorian film equipment, the Theatrograph was the closest to the modern 35mm projector.

Paul resumed film production in April 1896, and over the next fourteen years he produced dozens of films, starting with actualities but swiftly moving into other areas. He was a pioneer in news filmmaking, with his record of the Derby on 3 June 1896 being screened in London the next day, and by the turn of the century he distributed footage of the Boer War. Of his numerous fiction films, *The Soldier's Courtship* (1897) is regarded as the first British film to tell a story. He also produced numerous trick films, usually in partnership with the former stage illusionist W.R. Booth – and he also opened England's first film studio, complete with its own laboratory. He kept his previous business going throughout all this, and in 1910 he abandoned the film industry and returned to engineering full-time.



Robert William Paul

JOSEPH ROSENTHAL (1864–1946)

Not to be confused with the Joe Rosenthal who took the iconic photograph of American soldiers raising the flag at Iwo Jima, the older Joseph Rosenthal was nonetheless a distinguished war cameraman in his own right, and he also made a major contribution towards the development of the newsreel.

Born in Whitechapel, he trained as a pharmaceutical chemist, an interest that naturally led to him dabbling in photography. Fascinated by the Edison Kinetoscope, he joined the Maguire & Baucus company as a photographic technician, swiftly getting promoted to head of the department. After the company was reorganised under Charles Urban as the Warwick Trading Company, Rosenthal was sent to film in Germany, Holland and South Africa, where he filmed President Kruger. He returned to South Africa in January 1900, where he made his reputation for his coverage of the Boer War. Although some of his films were lost when the ship transporting them to London was sunk after leaving Cape Town, he nonetheless obtained some remarkable footage.

He spent the next few years travelling, filming the aftermath of the Boxer Rebellion in China (1900), the Russo-Japanese War (1904) and more sedate assignments in Canada, Newfoundland, India and elsewhere. He formed his own company, The Rosie Film Company in 1908, and after an unsuccessful flirtation with comedy continued to specialise in documentary throughout WWI. He even attempted to rejoin his old profession when WWII broke out in 1939, but every film company he approached turned him down for being too old.

THE SKLADANOWSKY BROTHERS

Max (1863 –1939) and Emil (1859 –1945) were German film pioneers who have a minor part in film history for being the first people to display projected moving images in public, although the Lumière Brothers had already demonstrated their Cinematographe in private.

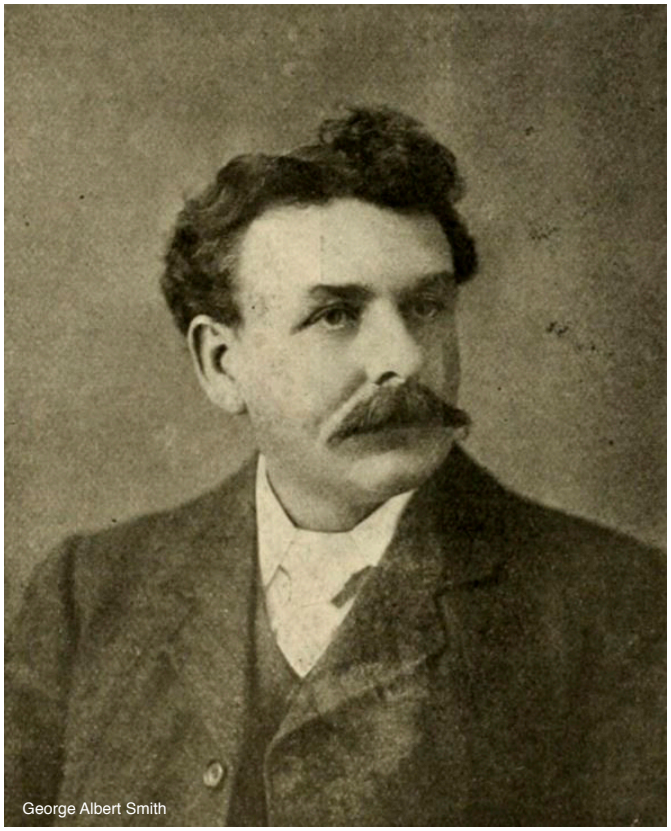
In common with other film pioneers such as James Bamforth in Britain, the Skladanowskys were initially involved in the magic lantern business, and their Bioskop was developed from the same technology, in which two projectors side by side would create an illusion of movement by flipping from one magic lantern slide to another. The Bioskop used two loops of non-perforated 54mm film, similarly switching from one to the other to achieve a speed of sixteen frames per second while the loops themselves travelled at half that speed. It was shown in private in Berlin on July 1895 and in public on 1 November.

Despite the films only being a few seconds long, the Bioskop was an immediate success, and attracted international bookings for Paris and London in January 1896. However, these were cancelled after the famous Lumière screening in Paris on 22 December 1895, as their technology was clearly superior. Although the Skladanowskys tried to refine their methods, they were quickly overtaken by their competitors and 1897 Max Skladanowsky had moved from projected images to flip books, some of which repurposed his film footage. He also became extensively involved in 3-D projection, although as this was based around still photographs it was essentially a return to the magic lantern.

GEORGE ALBERT SMITH (1864–1959)

Born in London, G.A. Smith grew up in Brighton, where he first established himself as a stage hypnotist. After seeing his first films in 1896, he bought a camera at the turn of 1896/7. He quickly became a prolific filmmaker, his films noted not only for their charm and visual wit but also their technical sophistication. For instance, *The X-Rays* (1897) uses jump cuts to transform a courting couple into skeletons when "filmed" by an X-ray camera. *Santa Claus* (1898) uses a superimposed vignette within the frame to show Santa descending the chimney while children sleep (this is the cinema's earliest known example of parallel action). *The Kiss in the Tunnel* (1899) joined three different shots, demonstrating that Victorian audiences could grasp basic film grammar.

Keeping himself aware of new developments in filmmaking (he corresponded with George Méliès in France), Smith made his films increasingly sophisticated. He introduced close-ups into *Grandma's Reading Glass* (1900), reverse motion in *The House That Jack Built* (1900), shot transitions via a primitive dissolve (the image slips in and out of focus) in *Let Me Dream Again* (1900) and cutting from medium shot to close-up and back again (*The Sick Kitten*, 1903). He also made more straightforward comedies, including several examples of the "facial", such as *Old Man Drinking a Glass of Beer* (1898). Smith spent the rest of his film career trying to develop a viable colour process, but his achievements from 1897 to 1903 establish him as a major innovator in film form.



George Albert Smith

FRED STOREY (1861–1917)

A stage performer from his late teens, Fred Storey was well known for his versatility as an actor, dancer and comedian, and he was also an accomplished scenic painter. By the turn of the 1890s, he was appearing regularly at the Gaiety Theatre in Aldwych and the Alhambra Theatre in Regent Street, which is where, in February 1896, R.W. Paul first demonstrated his Theatrograph. Two months later, the Alhambra hosted the premiere of *The Soldier's Courtship*, starring Storey in the title role, with support from fellow stage performer Julie Seale as his love interest and Paul's wife Ellen as a woman who repeatedly interrupts them.

It was claimed for many years that this was the first British fiction film, which would have made Storey British cinema's first genuine leading man. However, a tiny number of fiction films had been made during 1895, and the long lost *Incident at Clovelly Cottage* even had an identifiable leading man in Henry Short, a friend of the filmmakers Birt Acres and R.W. Paul. It does seem likely, though, that Storey was the first professional actor to appear in a British film. He also appeared in the self-explanatory *Speciality Dance by Fred Storey* (1899).

From 1900, Storey would become strongly associated with the character of Rip Van Winkle, starring in and designing a ballet adaptation that opened at the Alhambra in 1900 and would eventually tour the United States prior to being filmed in 1914, three years before his death.

EDWARD RAYMOND TURNER (1873–1903)

Born in Somerset, and based in West London for much of his career, cinematographer and inventor E.R. Turner is now acknowledged to have created the first practical system for filming in colour, although this would not be widely recognised until over a century after his death. Jointly patented with his financial backer, Frederick Marshall Lee, Turner's system was impressively elaborate, drawing on the colour theories of Scottish physicist James Clerk Maxwell that were first published in 1855 but which had as yet not been practically translated into a viable moving-image medium.

The principle behind it was that black and white film would be exposed behind a rotating wheel, each successive frame being filtered through either red, green or blue. Despite early experiments being promising enough for Charles Urban's Warwick Trading Company to take over as backer and increase the research and development budget, Turner never managed to devise a reliable projection system for his colour footage, as the speed of projection and registration of the image demanded precision beyond the technology of the time. His work was cut short by his sudden death from a heart attack in 1903, whereupon Urban and his new partner G.A. Smith simplified the process into what became Kinemacolor (which ultimately only used two filters).


Edward Raymond Turner

CHARLES URBAN (1867–1942)

Cincinnati-born Charles Urban became involved with the British film industry when he was hired by Franck Maguire and Joseph Baucus to manage their London office. They had initially opened the first Edison Kinetoscope parlour in London in 1894, and in 1897 they wanted to break into the British film industry proper. A notably dynamic and imaginative businessman, Urban renamed the company the Warwick Trading Company and rapidly turned it into a major player, handling the British distribution of films by the Lumière Brothers, Georges Méliès and G.A. Smith while achieving a substantial reputation of its own as a producer of news and travel films. Warwick was particularly renowned for its coverage of the Boer War.

Urban left Warwick in 1903 and formed the Charles Urban Trading Company (set up in London's Wardour Street, which would later become the heart of the British film industry), which specialised in non-fiction films, and achieved notable commercial success with scientific and educational films. He also produced fiction films, including W.R. Booth's Jules Verne-style fantasies such as *The Airship Destroyer* (1909). In collaboration with G.A. Smith, Urban unveiled the Kinemacolor process in 1908, which was very successful until a patent lawsuit from William Friese-Greene in 1914 removed its exclusivity. During WWI Urban's activities were mainly in war propaganda, with the main aim of persuading his fellow Americans to enter the war. He stayed in America for the next few years, but enjoyed far less success than he did in Britain, and his business folded in the mid-1920s.


Charles Urban

JAMES WILLIAMSON (1855 –1933)

A native of Kirkcaldy in Scotland, James Williamson trained as a chemist in London, and eventually ended up in Hove, near Brighton, where he sold photographers' supplies and became an agent for the Kodak film manufacturing company. Aware of the work of other film pioneers, he began his own experiments as early as 1894, moving into the industry proper when he built his own camera with the help of engineer Alfred Darling and started making his own films in 1897.

From 1900, Williamson became a major innovator in the development of film grammar, telling stories using multiple shots. Many of them were what we would now call dramatised documentaries reconstructing actual historical events, such as the four-shot *Attack on a China Mission* (1900), which was actually filmed in a Hove garden. *Fire!* (1901) used five shots to describe the work of Hove's real-life fire brigade, including a dramatic rescue. *The Big Swallow* (1901) was a trick film that approached Surrealism in its depiction of a man appearing to swallow both the camera and its operator. When staging drama, he encouraged his actors to be more naturalistic than was the norm at the time, with *A Reservist Before and After the War* (1902) being the ancestor of socially-conscious dramas by much later directors like Ken Loach.

Williamson continued making films throughout the Edwardian era, opening his own studio in 1902, before leaving the film industry in 1909 to focus on making cameras and printers. The famous Williamson 35mm camera was his invention.