

INVENTING MOTION PICTURES

PREHISTORY

Virtually all civilizations have depicted people, events, places, and conceptions of spiritual subjects. Stone-age cave dwellers in France adorned the walls of their caves with images of hunting for the woolly mammoth. Some of these scenes even appear to depict the animals in motion. There must be some hard-wired, innate need among humans to record images. For centuries, in both eastern and western civilizations, images have been regarded as treasures, whether they hang in palaces, places of worship, or museums. As the industrial revolution unfolded in the early 1800s humankind's relationship to images began to change. Industrial processes such as mechanized printing and photography made images and image making accessible to the new working and middle classes. The end of the nineteenth century introduced a larger-than-life medium: the motion picture. At first, audiences were astounded by the power and excitement of the projected moving image. Artists and storytellers were inspired by the seemingly limitless possibilities. Likewise, astute businessmen instinctively understood the motion picture's potential to create vast wealth. Today, we also understand the profound role the motion picture plays in the creation of human mythology, style, and attitudes.

PHOTOGRAPHY

The word photography means literally "painting with light." Photographic technology combines optics systems with photo-sensitive chemicals and emulsions that change when exposed to light. Crude optic systems existed long before the Renaissance. Leonardo da Vinci had access to the camera obscura, a device that used pinhole optics to project images on a wall where it could be easily traced.

In 1802 Thomas Wedgwood discovered that images could be created by exposing plates of leather treated with silver nitrate to light. However the image record lasted for only an impracticable few minutes. In 1816 Nicéphore Niépce successfully combined the camera obscura with photosensitive paper to make and capture images. However, not only did this process require up to eight hours of exposure time to make a recognizable image, it began to fade away as soon as it was exposed to light. It would take Niépce an additional eleven years to create images that did not fade.

In 1829 Niépce formed a partnership with Louis Daguerre in the pursuit of practical photography. Four years later Neipce died, leaving Daguerre to continue. During the next ten years Daguerre improved on the technology, finally achieving exposure times of less than half an hour. This made posing for a "daguerreotype" portrait possible and affordable for middle-class Frenchmen. In 1839, the French government bought the rights to the process and publicized them in the public domain for all to use. The popularity of photography swept around the world.

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- 1853— The first commercial photography studios begin operation in Paris.
- 1861— New York photographer, Matthew Brady, and his staff document the American Civil War with photographs.
- 1861—James Clerk-Maxwell creates color photographic lantern slides.
- 1888—George Eastman markets the first “do it yourself” consumer home camera system.

PERSISTENCE OF VISION

The ability to see a series of still images in motion is dependent on the fact that the retina, the light-receiving part of our eyes, retains light information for an instant after the image is gone. When a succeeding image with the next step of a motion progression is exposed to the retina, the two images overlap for an instant. At the same time the images are sent to the viewer’s iconic memory, which stores and compares them. When a series of related still images are shown to the viewer at a sufficient speed, the result is the experience of motion. The iconic memory makes the connections, and the retina’s persistence of vision smoothes out the sense of flicker. The discovery of this principle in the early 1800s led to the development of toys and more serious devices for scientific study such as the zoetrope and the praxinoscope.

SERIES PHOTOGRAPHS, MOTION STUDIES: MUYBRIDGE AND STANFORD

More than any other, the event that sparked the quest for the motion picture was the result of a \$25,000 bet Leland Stanford legendarily made with his horse racing pals, that “a galloping horse could fly,” and leap forward with his four hooves off the ground.

LELAND STANFORD (1824–1893)

Leland Stanford followed his older brothers to the California gold rush of 1849. Stanford didn’t arrive until 1852—and as far as gold was concerned, this was too late to stake a successful mining claim. But Stanford was armed with his upbringing as the son of a prosperous New York farming family replete with a privileged secondary and university education, resulting in his membership in a distinguished Wisconsin law firm in 1848. When Stanford arrived in California, it wasn’t to dig for gold, but to sell supplies to those who did. This turned out to be a vastly more profitable business.

Stanford grew his wealth through acquiring land and staking out a role for himself in the developmental politics of early California. He ran unsuccessfully for State Treasurer in 1857 and for Governor in 1859. He won the Governor’s office on the Republican, Pro-Union ticket of 1861, effectively keeping California out of the American Civil War.

While in office, Stanford also took advantage of the business opportunities that came his way. When his term ended in 1863, he left office to join Mark Hopkins, Collis Huntington, and Charles Crocker in a daring business venture. These four men combined forces to build the eastbound section of the transcontinental railway. Stanford served as president of the Central Pacific Railway and as co-owner of the Southern Pacific Railway. The railroads

received enormous land grants along their rights of way, making the owners some of the wealthiest men on earth.

Stanford was an avid horseman, preferring to live on his estate in Palo Alto, south of San Francisco. When his 15-year-old son died in 1884, Stanford created a lasting memorial with the establishment of Stanford University, today one of the preeminent universities in the world.

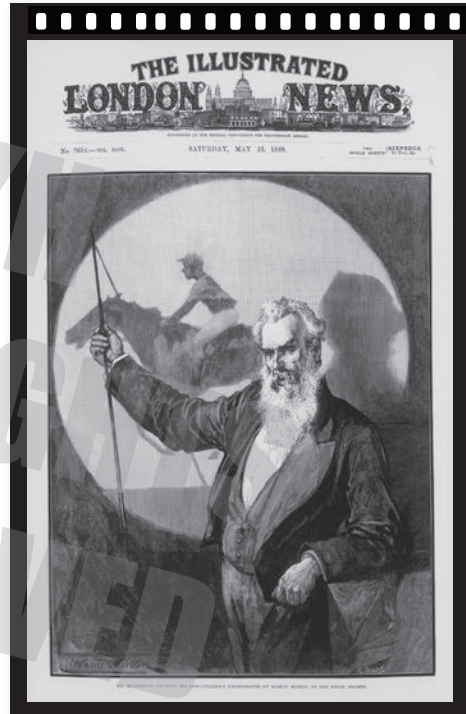
EADWEARD MUYBRIDGE (1830–1904)

Born in Kingston upon Thames, England, Muybridge first came to America in 1851. After moving to San Francisco in 1855 he developed an interest in photography, an interest he furthered upon returning to England in 1860. By 1867 Muybridge was back in America with his reputation growing as he photographed the western frontier from his mobile darkroom dubbed “The Flying Studio.”

In 1872, Leland Stanford first approached Muybridge to photograph Stanford’s horse, Occident, in an attempt to prove that galloping horses would literally fly by lifting all four hooves off the ground midstride. Muybridge’s early attempts were unsuccessful, prompting him to return to his photo expeditions. During one of these trips, Muybridge’s wife became pregnant as the result of an affair with Major Harry Larkins. Upon learning of the affair, Muybridge shot Larkins to death. Muybridge was tried for the murder in 1875 and acquitted on the basis that the homicide was justifiable.

Undaunted by his notoriety or aided by it, Muybridge perfected a camera shutter by 1877 that could make action freezing exposures in as little as one-one-thousandth of a second. Excited about the potential of his new technology, Muybridge returned to Palo Alto, this time to prove that a galloping horse could fly. The preparations were elaborate. A fifty-foot-long shelter was built to house up to twenty-four cameras. Magnetic camera-shutter triggers were devised, and a carefully scaled background structure was created to produce precise measurements of the horse’s movements.

In June 1878, a crowd of racing fans and journalists assembled to witness the photographic feat. Horse trainer Charles Marvin, one of Stanford’s prize trotters, sped through the camera trap at the whip. Twenty minutes later, Muybridge emerged from the darkroom with the proof Stanford had sought.



EADWEARD MUYBRIDGE

Journalists spread news of the event around the world with the speed of the telegraph. Muybridge became a celebrity, and Stanford made his point. Unintentionally, the two men had also managed to create a technology capable of capturing moving images. By 1880 Muybridge developed a projector, the Zoopraxiscope, which he used to show his motion series photographs to enthusiastic audiences throughout the country. His moving pictures were one of the most popular attractions at the Chicago Exhibition of 1893.

THE BET?

Probably as a result of journalistic invention, a legend grew that Stanford had made a \$25,000 bet that “horses could fly.” Most historians agree the bet never happened and that Stanford’s real motivation was his passionate interest in horses. However, more dramatically, he had spent more than \$50,000 to prove his point. Adjusted for inflation, the expense comes to as much as seven million dollars, a sum worthy of the attention the event received. One side effect of Stanford and Muybridge’s notoriety was to inspire photographers and inventors worldwide to pursue the development of the moving picture.

EDISON, DICKSON, AND THE ADVENT OF THE AMERICAN COMMERCIAL FILM INDUSTRY

In 1888 Eadweard Muybridge accepted an invitation to visit Thomas Edison’s laboratory where the great photographer discussed the future of the moving image with the wizard of invention and his talented young assistant, W. K. L. Dickson. The hosts were inspired to pursue the development of a new medium. Over the next twenty years, Edison would proceed to completely dominate the early motion picture industry. His passion for invention was exceeded only by his desire to control industries through retaining the patent rights to important technologies.

THOMAS ALVA EDISON (1847–1931)

Born in Milan, Ohio and raised in Port Huron, Michigan, Edison was already showing signs of his restless intellect in his first grade of elementary school. After only twelve weeks, Edison’s teacher declared him too ill-behaved for the classroom. His parents decided on home schooling. Edison’s mother taught the basics: reading, writing, and arithmetic. His father guided him in history and literature. By the time he was eleven, Edison discovered the local library, where he began to teach himself the principles of phys-

ics and other sciences. One of the keys to his incredible powers of concentration was his severe hearing impairment, which made it possible for him to shut out the outside world almost completely.

At age twelve, Edison started his working life selling newspapers and refreshments on the local railroad trains. Within the next two years he began intercepting news dispatches over the railroad station telegraphs and published a small newspaper that netted him a substantial income. When he was fifteen Edison mastered Morse code and telegraph operation and then left home to seek his fortune. By 1868, he had moved to Boston where he worked as an operator for Western Union. At night, he tinkered with inventions, leading to his first patent for a vote-counting machine. Edison also attended lectures at what would become the Massachusetts Institute of Technology on the theory of transmitting the human voice by wire. Coincidentally, Alexander Graham Bell, inventor of the telephone, was in Boston at the same time and might have attended some of the same lectures.

In search of entrepreneurial opportunities, Edison next moved to New York City where he quickly landed a well-paying job fixing stock tickers (a teletype device designed to transmit stock prices from the exchanges to the brokerages) for a large brokerage. He continued to spend his spare time working on inventions. In 1871, at age twenty-four, Edison sold the rights to an improved stock ticker he had developed for \$40,000. He was rich.

Over the next three years, Edison continued to work on an array of inventions (including his own version of the telephone) and proceeded to build a laboratory for developing and testing them. It was at his invention factory in Menlo Park, New Jersey, that he created the first phonograph in 1877. Two years later, Edison created the first commercially practical light bulb. By 1884, he had developed and patented an entire system for generating and distributing electricity. His laboratory, with its first-rate staff of technicians and craftsmen and state-of-the-art equipment, was quickly becoming recognized as the greatest research and development center in the world. In 1892, Edison formed the General Electric Company, today one of the largest corporations in the world, and became its major stock holder.

WILLIAM KENNEDY LAURIE (W. K. L.) DICKSON (1860–1935)

By 1879 Edison was becoming an international celebrity, especially among young aspiring inventors such as Dickson. Born in France, Dickson moved to England with the remainder of his family after the death of his father. He wrote Edison that year to apply for a job at Menlo Park. Dickson received a brief rejection. Three months later his family moved to the United States. Undaunted, Dickson became an accomplished amateur photographer and was accepted when he re-applied to work for Edison in 1883.

In 1888 Edison assigned Dickson to begin work on a motion picture system. Edison wanted Dickson to utilize the company's existing cylinder phonograph technology to devise a single-viewer exhibition device that could be coin operated and, of course, to create a system that ran on electricity. Dickson began by exploring a variety of new photographic developments and by forming strategic relationships with George Eastman and other innovators experimenting with early versions of film roll technology. By this time Eastman was enjoying great success

with his amateur camera system. His factory in Rochester, New York was producing miles of film rolls for his customers. By 1990 the cylinder approach had proved to be completely impracticable. Dickson changed his focus to concentrate solely on the film roll approach. George Eastman supplied Dickson with 35-millimeter sprocketed film rolls cut from the 70 millimeter film rolls Eastman had developed for his amateur camera system.

The first prototype Kinetograph camera and Kinetoscope viewing device were completed by May 1991. By August the patent applications were done. The system operated at over 40 frames per second (modern systems standardized on 24 frames per second), producing smooth, unflickering moving pictures. In December 1892 Dickson began construction on a studio that was covered with black tar paper and mounted on railroad tracks so that it could be moved to follow the sunlight. It didn't take long for the studio Dickson built for Edison to be compared to the police wagons of the day and acquire the corresponding nickname "Black Maria." A sense of urgency grew around the project when Edison announced that he would introduce his Kinetoscopes at the 1893 Chicago Exposition. Dickson used the drawing power of the Edison reputation to convince some of the most famous entertainers in the world, such as Sandlow the Strong Man and Buffalo Bill's Wild West Show, to come New Jersey to appear in his films. And so Dickson became history's first film director.

In 1893 Dickson was becoming convinced that film projection in an audience setting was superior to the peep-show approach commanded by Edison. He was also aware that time was of the essence because the Lumière brothers in Paris were already close to having a working system of their own. Dickson was increasingly unhappy with his role in the company. In 1894 Edison appointed William E. Gilmore as general manager of the laboratory. One of his first acts was to demand that Dickson sign over his copyrights and patents to Edison. Dickson's relationship with Edison further deteriorated when Edison contradicted himself by deciding to proceed with the development of a projection system and appointing Charles Kayser to take over Dickson's work. Dickson began to work on his own with other inventors on rival projection systems.

Fed up with Gilmore's accusations of disloyalty, Dickson left the Edison Company in April 1895. By June he formed a partnership with other inventors and entrepreneurs to market their new creations, the Mutoscope viewing system and the Biograph camera. In 1896 Dickson produced the fledgling Biograph studio's first film, "The Empire State Express." The next year he returned to London to manage the company's foreign office and remained in England for the rest of his life.

AUGUST LUMIÈRE (1862–1954) AND LOUIS LUMIÈRE (1864–1948)

The Lumière brothers' father, Antoine, was a successful portrait painter in Lyon, France who recognized the potential of photography to put him out of business. He defected from the world of fine art to begin selling and, later, manufacturing photographic supplies and cameras. August and Louis were encouraged to become involved in the family business and attended a technical trade school to prepare. At age seventeen, Louis dropped out of school to work on a new dry plate photo process. A new factory was built to manufacture the plates,

and by 1894 it was producing 15 million plates a year. That same year Antoine was invited to Paris to see a demonstration of Edison's Kinetoscope. He returned to Lyon with a strip of Edison film and convinced his sons to manufacture their own version of the product.

The Lumière brothers had two advantages in designing their system. They were able to build upon what Edison had already created, and they were free from the directive to build a camera that operated on electricity. At the outset the brothers decided that their viewing system would be based on projection and not the peep-show design of the Kinetoscope. Instead of electricity the Lumière camera would be powered by a mechanism similar to a clockwork mainspring. What the brothers came up with was ingenious. It was a combination camera, film processor, and, when fitted with a light source, a projector. In February 1895, the Lumières patented their Cinématographe. It weighed eleven pounds, operated at 16 frames per second, incorporated an intermittent movement like a sewing machine and, most important, it was completely portable.

In April the Lumières began showing their system to groups of engineers and tradesmen. They also began to apply for and receive patents outside of France. The first was in England. On December 28, 1895 they conducted the first public demonstration at the Grand Café in Paris. The program of eight short films was an immediate sensation. Due to the portability of their camera, the brothers were able to create films that were much more dynamic than Edison's and Dickson's and the magnification or blowup of the projected image proved to be more dramatic than the diminutive pictures of the Kinetoscope.

Louis Lumière took his camera around the world, documenting scenes that held audiences in awe. By early 1897 the brothers had opened theaters in London, Brussels, and New York. They called their theaters Cinemas. By the end of the year their film catalog contained 358 titles. By the end of 1898 their catalog topped two thousand titles. By 1900 they had constructed a 100-foot-wide screen for the Paris Exposition. By 1904 Louis had developed the first workable process for color motion pictures. In the early 1900s Auguste turned his attention to medical research and became a pioneer in early radiology.

FILM INVENTORS GIVE WAY TO FILM MAKERS

As the twentieth century unfolded, excitement about the new motion picture medium grew exponentially. New studios in Europe, America, Australia, and elsewhere were going into business at a frenetic rate to supply the demand for movies. A new group of entrepreneurs emerged to provide more venues for showing movies. In America these venues took the form of store-front theaters that could seat anywhere from fifty to a few hundred patrons. Theater owners generally charged five cents or one "nickel" for admission to a program that consisted of thirty minutes to an hour of films, lantern slides, and sing-alongs. The theaters were soon referred to as nickleodeons, and they became a favorite haunt of the hoards of young immigrant factory workers pouring into America from Europe.

Edison was rapidly asserting his dominion over the technical side of the industry by acquiring patents and enforcing them. His production company was one of the largest in the country, but others were gaining on him. The audience was hungry for more elaborate films

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and inventor-filmmakers such as Dickson and the Lumières were giving way to showmen and storytellers such as Georges Méliès and Edwin S. Porter.

GEORGES MÉLIÈS (1861–1938)

Méliès was the youngest of three sons born to a wealthy Paris shoe manufacturer. Although he was raised to take a place in the family business, he was much more interested in painting and stagecraft. When he was ten years old Méliès saw his first magic show, a performance by the greatest French magician of the time, Robert-Houdin. He was hooked. In 1884 Méliès was sent to London by his father to learn English. There he became a regular audience member at The Egyptian Hall where Maskelyne and Cooke, a watchmaker and cabinetmaker by trade, respectively, were performing elaborate theatrical magic illusions.

Upon returning from England Méliès was required to manage one of his father's factories but continued to study puppetry and magic. When his father retired in 1888 Méliès sold

his share in the business to his brothers and purchased Theater Robert-Houdin from the owner's heirs and went into business as a magic show impresario. Although Méliès seldom performed himself, devoting his attention to operating the business, he became famous for designing complicated illusions which were performed by other magicians.

Inspired by the Lumière's work, Méliès purchased a movie camera in 1896 and began to experiment. At first he made small film illusions using stop motion in which he would make objects and people seem to magically appear or disappear. These films were incorporated into the programs at the theater he operated. By 1899 Méliès began to make storytelling films. Whereas other filmmakers of the day were satisfied with single-scene films, Méliès began editing together several scenes to tell a story. His 1899 film, *Cinderella*, is seven minutes long and contains twenty separate scenes.

Méliès's most successful film was his 1902 production of *A Trip to the Moon*, history's first science-fiction film based on stories by Jules Verne and H. G. Wells. By this time Méliès had made hundreds of films and was ready to make something more elaborate. The production budget was generous at ten thousand francs. The film's running time is fourteen minutes and contains thirty separate scenes. The film sets are vivid and fanciful, including the workshop where the spacecraft is constructed, the canon that fires it into space, and a mysterious moon grotto containing giant mushrooms. *A Trip to the Moon* also contains several examples of Méliès's trademark film technique. Stop motion is used to depict fight scenes with moon creatures that explode into clouds of smoke upon contact. Talking planets and stars and other heavenly bodies are achieved by using multiple exposures. An early attempt at a dolly shot is used to show the spacecraft's approach to the Moon.

Méliès never received the financial reward he deserved for *A Trip to the Moon* as it became one of the most plagiarized films in movie history. Even the Edison company distributed pirated copies of the film. Part of the problem was that Méliès insisted on being involved in every aspect of the business including starring in, photographing, editing, and distributing them. Other, better-organized film companies such as Pathé were overtaking Méliès in the competition to make more and better films. By 1903 he had ceased making important films, although his filmography lists films he made as late as 1912. By 1923 Méliès was bankrupt and forced to make a living selling toys from a kiosk on the streets of Paris. Many scholars identify Méliès as the first auteur (film author) in motion picture history as well as a pioneer in the art of storytelling. It is indisputable that Méliès is the father of movie magic and of the art of creating worlds on film that could never exist in reality.

EDWIN S. PORTER (1870–1941)

Born in Connellsville, Pennsylvania, Porter developed an early interest in mechanics and left school at age fourteen to work at a variety of odd jobs including a stint as a stagehand. In 1893 he joined the Navy and trained as a mechanic and electrical engineer working on the development of gunnery technology. In 1895 Porter took a job with the Vitascope company which sold Edison film equipment. In 1896 Porter organized the first projected motion picture show in New York. That year he was hired at Edison laboratories to work on the creation of a new film projector. Projectors were becoming his passion and soon Porter left Edison to become a freelance projectionist.

As a projectionist Porter became fascinated with the films of Georges Méliès. He claimed to have shown *A Trip to the Moon* over fifteen hundred times. During this period, Porter tried, unsuccessfully, to develop his own camera and projector system. By 1900 the Edison Company had ceased making short filmstrips for coin-operated Kinetoscopes and began production of longer, projected films. Porter went back to work for Edison as a producer and director. Between 1900 and 1915 he made 165 films. In 1903 Porter made his first great storytelling film, *Life Of An American Fireman*. The film mixed documentary footage of actual fires with staged fictional scenes of a fireman's duties.

Also in 1903 Porter made his most impressive film, *The Great Train Robbery*. Porter was beginning to create a more sophisticated film language than his contemporaries. Méliès, for instance, used scenes as the basic element for his films. He would position the camera relative to the set so that edges of the film frame matched the edges of the set. The action was organized within that frame and the camera's point of view never changed. It was like sitting in the middle of a theater looking at the action on a stage. It was static. Porter instinctively learned that the individual shot, not the whole scene, was the basic film element. He began to use the camera to present a dynamic point of view. In *The Great Train Robbery* Porter positions his camera at oblique angles to create more depth and interest in his photographic compositions. In one scene in which the robbers capture the engineer, the camera views the action from the back of the coal tender car. It is one of history's first moving shots.

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The Great Train Robbery also includes examples of early matte photography in which two separate film shots are put together using a matte device to blank out part of the frame so that that space can be exposed in a subsequent shot. The window of the train station is matted out in one scene. The second time the film is run through the camera, the window area contains a shot of the train arriving. Using this technique, Porter is able to mix the action of a real train with the shot taken on a studio set. The same technique is used in the baggage car scene in which the open door of the set contains footage of the passing countryside. The result brings the set to life.

The Great Train Robbery also introduces a revolutionary approach to editing. While other filmmakers regarded editing as the simple act of splicing fully contained scenes together, Porter uses editing to speed up the narrative and add another dynamic element to the motion picture. In one scene we see the robbers escaping on horseback. That is followed by a scene in which a little girl discovers that the train station master has been knocked out and tied up. She revives the station master and unties him. Then Porter cuts to a scene of a group of men and women at a square dance. The audience intuitively understands that three things are happening at the same time. While the robbers are escaping, the station master is going for help and eventually arrives at the square dance, where the law men are in attendance. The compression of time achieved through this editing approach adds a great deal of excitement to the film.

The Great Train Robbery represents the peak of Porter's creativity as a director. Although he made more than a hundred films after 1903, nothing surpassed this achievement. In 1912 Porter formed the Famous Players Film Company with partner Adolph Zukor. The company specialized in purchasing the rights to successful Broadway plays and adapting them to film using the original cast members. By 1915 Porter had lost interest in filmmaking. He returned to his original fascination with projectors and spent the rest of his professional life improving on projection technology.

THE EDISON PATENT TRUST

In 1895 the Edison Company acquired the patent rights to the Vitascope projection system that was developed by two electrical engineers, C. Francis Jenkins and Thomas Armat. Over the next two years, Edison obtained two more patents for improvements on the Vitascope technology. Armed with these patents, Edison aggressively launched a series of patent infringement lawsuits against anyone who dared to compete in the manufacture of projectors. By 1908, he had succeeded in intimidating the other companies to the point that they agreed to join forces with Edison. As a result, the Motion Picture Patents Company (MPPC) was created, consisting of the Vitagraph, Selig, Lubin, Pathé, Méliès, Essanay, Kalem and Edison member companies. A rival patent company was organized by Biograph and the Klein Optical Company, among others. Eventually the two patent companies agreed to pool their resources, thereby achieving complete dominance over the movie business.

January 1909 was set as the deadline for all production companies to join the patent trust or suffer the consequences. The companies that didn't join in referred to themselves as "the Independents." They quickly became the targets of the MPPC's patent-enforcement

efforts. Everywhere in America new nickelodeon theaters were established. The demand for new movies was unquenchable, and the incentives for the Independents to work around the MPPC was irresistible. The MPPC established an organization called the General Film Company to quash the Independents. General Film used all manner of coercive tactics ranging from confiscating unlicensed movie equipment and films, to sending out the thuggish Pinkerton Detective Agency to strong-arm and discourage Independents. George Eastman, the major supplier of sprocketed film rolls, joined in with the MPPC and agreed to refuse to sell film stock to the Independents.

At the beginning of the motion picture industry, films were distributed through outright sales. A production company made a film, printed a few hundred copies, and sold them to nickelodeons. But as companies like Edison began to copyright their films, film rental through film-exchange companies proved to be a better business model. This led the General Film Company to extend its stranglehold on the industry through the acquisition of virtually every substantial film exchange in the country. Independent nickelodeon operators were no longer able to acquire films for their theaters. There was no choice but to cooperate.

William Fox, an intrepid Independent, defied the MPPC. He found ways to bypass the trust and demonstrated to others that cooperation was not inevitable. Soon, Fox was joined by Carl Laemmle's Independent Motion Picture Company (later to become Universal Studios) and Adolph Zukor's Famous Players company (later to become part of Paramount). The independents were emboldened enough to launch a public relations attack on the patent trust, and it worked. By 1911, the nickelodeon boom was winding down. The industry was becoming mature and the domination of the trust was becoming indefensible. During this time, the federal government initiated a series of antitrust lawsuits against the MPPC. In 1915, the courts ordered the MPPC to be dissolved, paving the way for an even greater expansion of the motion picture industry than what had already occurred.

THE ERA OF FILM INVENTION COMES TO AN END

One striking fact about the men who created motion pictures is that many of them lived to see their invention mature and become an important entertainment and art form. Edison lived to be eighty-four and witnessed the advent of the studio system and the introduction of sound. Dickson and Méliès lived to the mid-1930s, and the Lumières lived past the end of World War II. August Lumière lived long enough to experience the age of television. What began as a curiosity and diversion in the late nineteenth century was becoming a powerful new medium as the second decade of the twentieth century unfolded. Film inventors, like great explorers, were soon followed by men and women with the pioneering spirit, ready to build something that would be grand and lasting.