

CHAPTER

1



A Trip to the Moon

THE INVENTION AND EARLY YEARS OF THE CINEMA, 1880s–1904



The Big Swallow

The nineteenth century saw a vast proliferation of visual forms of popular culture. The industrial era offered ways of mass-producing lantern slides, books of photographs, and illustrated fiction. The middle and working classes of many countries could visit elaborate **dioramas—painted backdrops with three-dimensional figures depicting famous historical events.** Circuses, “freak shows,” amusement parks, and music halls provided other forms of inexpensive entertainment. In the United States, numerous dramatic troupes toured, performing in the theaters and opera houses that existed even in small towns.

Hauling **entire theater** productions from town to town, **however, was expensive.** Similarly, **most people had to travel long distances to visit major dioramas or amusement parks. In the days before airplane travel,** few could hope to see firsthand the exotic lands they glimpsed in static view in books of travel photographs or in their **stereoscopes, handheld viewers that created three-dimensional effects by using oblong cards with two photographs printed side by side.**

The **cinema was to offer a cheaper, simpler way of providing entertainment to the masses.** Filmmakers could record actors’ performances, which then could be shown to audiences around the world. **Travelogues** would bring moving images of far-flung places directly to spectators’ hometowns. **Movies would become the most popular visual art form of the late Victorian age.**

The **cinema was invented during the 1890s.** It appeared in the wake of the industrial revolution, as did the telephone (invented in 1876), the phonograph (invented in 1877), and the automobile (developed during the 1880s and 1890s). Like them, it was a technological device that became the basis of a large industry. It was also a new form of entertainment and a new artistic medium. During the first decade of the cinema’s existence, inventors worked to improve the machines for making and showing films. Filmmakers

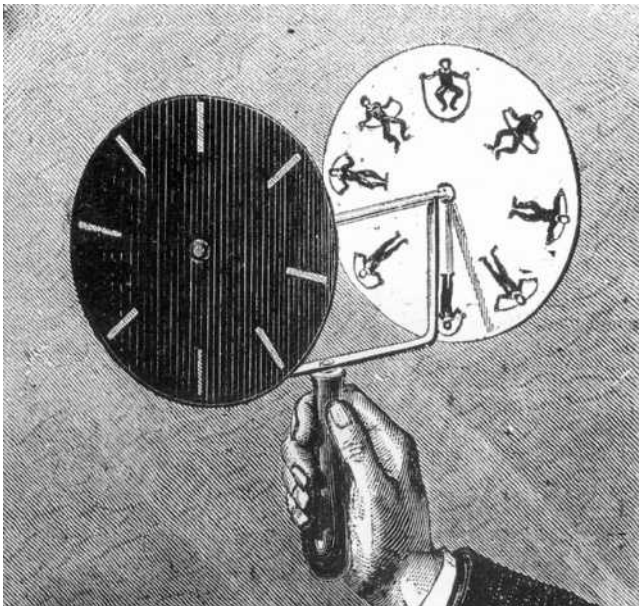
also had to explore what sorts of images they could record, and exhibitors had to figure out how to present those images to audiences.

THE INVENTION OF THE CINEMA

The cinema is a complicated medium, and before it could be invented, several technological requirements had to be met.

Preconditions for Motion Pictures

First, scientists had to realize that the human eye will perceive motion if a series of slightly different images is placed before it in rapid succession—minimally, around sixteen per second. During the nineteenth century, scientists explored this property of vision. Several optical toys were marketed that gave an illusion of movement by using a small number of drawings, each altered somewhat. In 1832, Belgian physicist Joseph Plateau and Austrian geometry professor Simon Stampfer independently created an optical device called the Phenakistoscope (1.1). The Zoetrope, invented in 1833, contained a series of drawings on a narrow strip of paper inside a revolving drum (1.2). The Zoetrope was widely sold after 1867, along with other optical toys. In these toys, the same action was repeated over and over.



1.1 A Phenakistoscope's spinning disc of figures gives the illusion of movement when the viewer looks through a slot in the stationary disc. (Source: George Eastman International Museum of Photography)

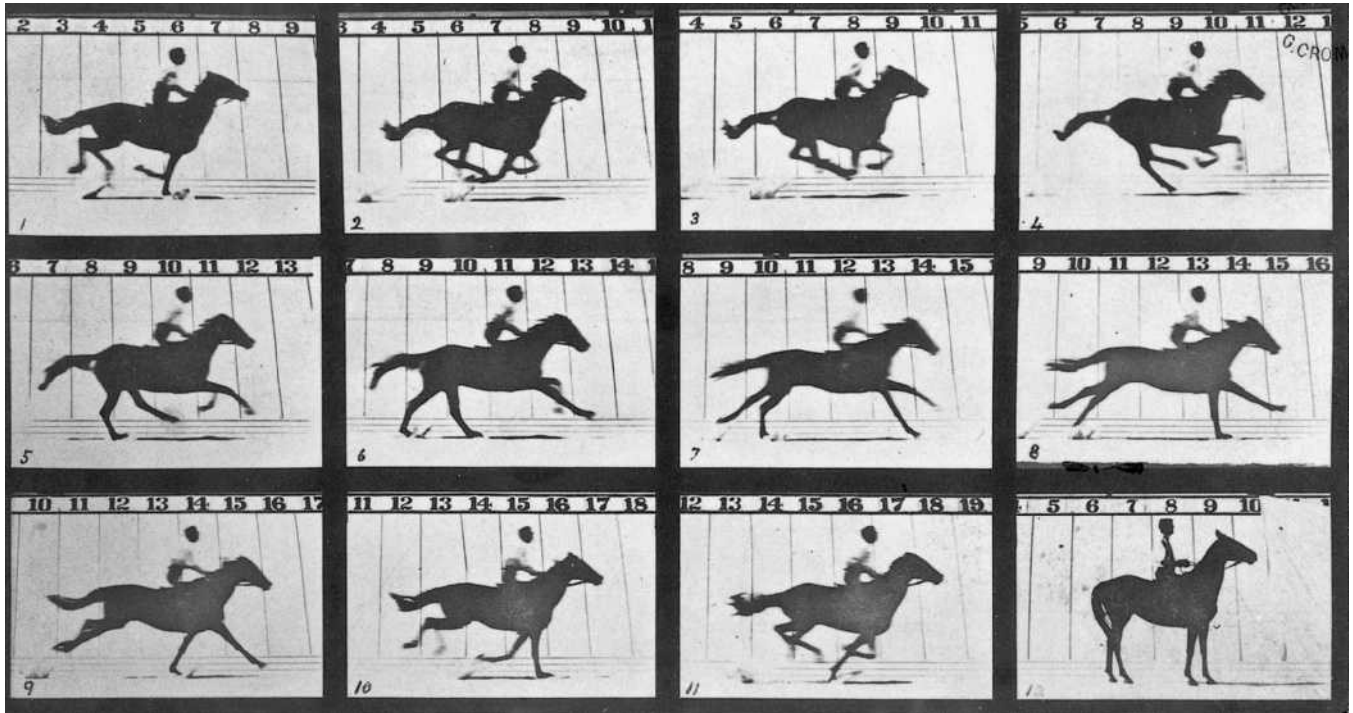
A second technological requirement for the cinema was the capacity to project a rapid series of images on a surface. Since the seventeenth century, entertainers and educators had been using “magic lanterns” to project glass lantern slides, and some could rapidly flash two or three changes of a figure's position. But there had been no way to show large number of images fast enough to create a sustained illusion of movement.

If it had been easy to make a long series of drawings on some support, cinema would not have needed photography. Photography, however, was the simplest way to produce many lifelike images. The problem was that the illusion of movement needed at least sixteen photographs exposed per second. It took inventors several years to achieve such a short exposure time. The first still photograph was made on a glass plate in 1826 by Claude Niépce, but it required an exposure time of eight hours. For years, photographs were made on glass or metal, without the use of negatives, so only one copy of each image was possible; exposures took several minutes each. In 1839, Henry Fox Talbot introduced negatives made on paper. At about this same time, it became possible to print photographic images on glass lantern slides and project them. Not until 1878, however, did split-second exposure times become feasible. Rapid photography became the third precondition for cinema as we know it.

Fourth, the cinema would require that photographs be printed on a base flexible enough to be passed through a camera rapidly. Strips or discs of glass could be used, but only a short series of images could be registered on



1.2 Looking through the slots in a revolving Zoetrope, the viewer receives an impression of movement. (Source: George Eastman International Museum of Photography)



1.3 One of Muybridge's earliest motion studies, photographed on June 19, 1878. (Source: George Eastman International Museum of Photography)

them. In 1888, George Eastman devised a still camera that made photographs on rolls of sensitized paper. This camera, which he named the Kodak, simplified photography so that unskilled amateurs could take pictures. The next year Eastman introduced transparent celluloid roll film, creating a breakthrough in the move toward cinema. The film was intended for still cameras, but inventors soon used the same flexible material in designing machines to take and project motion pictures.

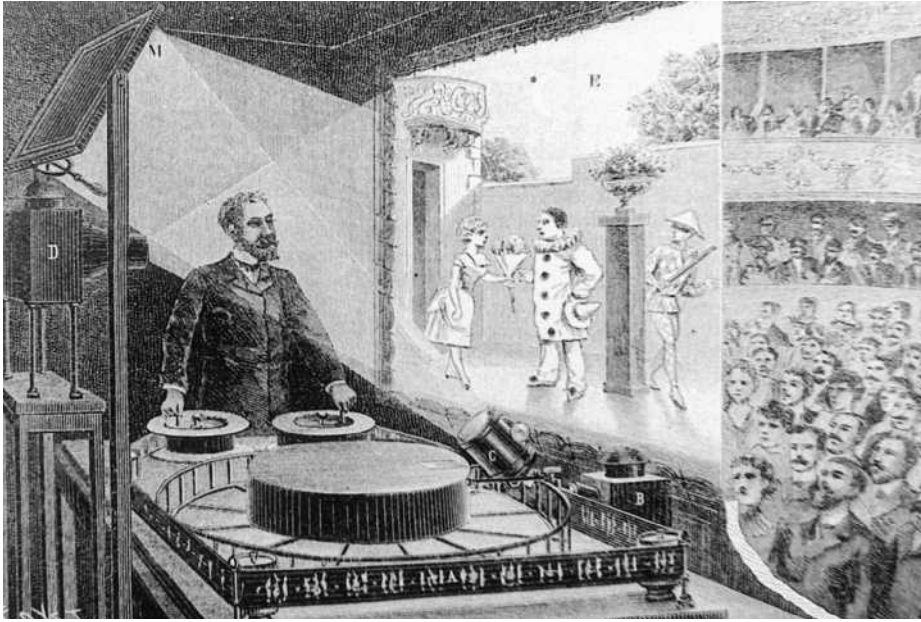
Fifth, and finally, experimenters needed to find a suitable intermittent mechanism for cameras and projectors. In the camera, the strip of film had to stop briefly while light entered through the lens and exposed each frame; a shutter then covered the film as another frame moved into place. Similarly, in the projector, each frame stopped for an instant in the aperture while a beam of light projected it onto a screen; again a shutter passed behind the lens while the filmstrip moved. At least sixteen frames had to slide into place, stop, and move away each second. (A strip of film sliding continuously past the gate would create a blur.) Fortunately, other inventions of the century also needed intermittent mechanisms to stop and start quickly. For example, the sewing machine (invented in 1846) advanced strips of fabric several times per second while a needle pierced them. Intermittent mechanisms usually consisted of a gear with slots or notches spaced around its edge.

By the 1890s, all the technical conditions for the cinema existed. But who would bring the elements together in a way that could be exploited on a wide basis?

Major Precursors of Motion Pictures

Some inventors made important contributions without creating moving photographic images. Several men were simply interested in analyzing motion. In 1878, ex-governor of California Leland Stanford asked photographer Eadweard Muybridge to find a way of photographing running horses to help study their gaits. Muybridge set up a row of twelve cameras, each making an exposure in one-thousandth of a second. The photos recorded one-half-second intervals of movement (1.3). Muybridge later made a lantern to project moving images of horses, but these were drawings copied from his photographs onto a revolving disc. Muybridge did not go on to invent motion pictures, but he made a major contribution to anatomical science through thousands of motion studies using his multiple-camera setup.

In 1882, inspired by Muybridge's work, French physiologist Étienne Jules Marey studied the flight of birds and other rapid animal movements by means of a photographic gun. Shaped like a rifle, it exposed twelve images around the edge of a circular glass plate that made a single revolution in one second. In 1888, Marey built a box-type



1.4 Using long flexible bands of drawings, Reynaud's Praxinoscope rear-projected cartoon figures onto a screen on which the scenery was painted. (Source: The collection of Donald Crafton)

camera that used an intermittent mechanism to expose a series of photographs on a strip of paper film at speeds of up to 120 frames per second. Marey was the first to combine flexible film stock and an intermittent mechanism in photographing motion. He was interested in analyzing movements rather than in reproducing them on a screen, but his work inspired other inventors. During this period, many other scientists used various devices to record and analyze motion.

A fascinating and isolated figure in the history of the invention of the cinema was Frenchman Émile Reynaud. In 1877, he had built an optical toy, the Projecting Praxinoscope. This was a spinning drum, rather like the Zoetrope, but one in which viewers saw the moving images in a series of mirrors rather than through slots. Around 1882, he devised a way of using mirrors and a lantern to project a brief series of drawings on a screen. In 1889, Reynaud exhibited a much larger version of the Praxinoscope. From 1892 on, he regularly gave public performances using long, broad strips of hand-painted frames (1.4). These were the first public exhibitions of moving images, though the effect on the screen was jerky and slow. The labor involved in making the bands meant that Reynaud's films could not easily be reproduced. Strips of photographs were more practical, and in 1895 Reynaud started using a camera to make his Praxinoscope films. By 1900, he was out of business, however, due to competition from other, simpler motion-picture projection systems. In despair, he destroyed his machines, though replicas have been constructed.

Another Frenchman came close to inventing the cinema as early as 1888—six years before the first commercial showings of moving photographs. That year, Louis Le Prince, working in England, was able to make some brief films, shot at about sixteen frames per second, using Kodak's recently introduced paper roll film. To be projected, however, the frames needed to be printed on a transparent strip; lacking flexible celluloid, Le Prince apparently was unable to devise a satisfactory projector. In 1890, while traveling in France, he disappeared, along with his valise of patent applications, creating a mystery that has never been solved. His camera was never exploited commercially and had virtually no influence on the subsequent invention of the cinema.

An International Process of Invention

We cannot attribute the invention of the cinema to a single source. There was no one moment when the cinema emerged. Rather, the technology of the motion picture came about through an accumulation of contributions, primarily from the United States, Germany, England, and France.

Edison, Dickson, and the Kinetoscope In 1888, Thomas Edison, already the successful inventor of the phonograph and the electric light bulb, decided to design machines for making and showing moving photographs. Much of the work was done by his assistant, W. K. L. Dickson. Since Edison's phonograph worked by recording sound on

cylinders, the pair tried fruitlessly to make rows of tiny photographs around similar cylinders. In 1889, Edison went to Paris and saw Marey's camera, which used strips of flexible film. Dickson then obtained some Eastman Kodak film stock

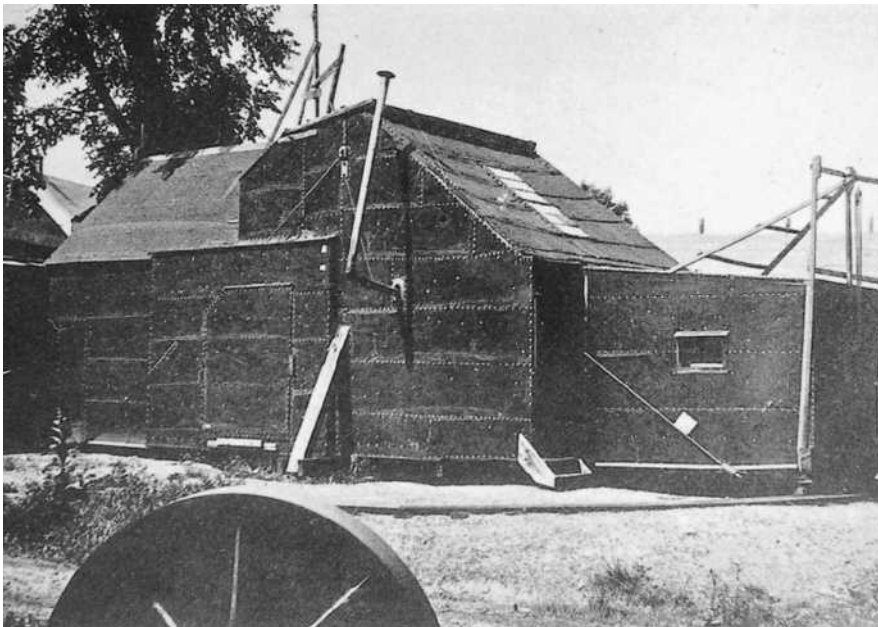


1.5 The Kinetoscope was a peephole device that ran the film around a series of rollers. Viewers activated it by putting a coin in a slot. (Source: George Eastman International Museum of Photography)

and began working on a new type of machine. By 1891, the Kinetograph camera and Kinetoscope viewing box (1.5) were ready to be patented and demonstrated. Dickson sliced sheets of Eastman film into strips 1 inch wide (roughly 35 millimeters), spliced them end to end, and punched four holes on either side of each frame so that toothed gears could pull the film through the camera and Kinetoscope. Dickson's early decisions influenced the entire history of the cinema; 35mm film stock with four perforations per frame remained the norm for over a hundred years. (Amazingly, an original Kinetoscope film can be shown on a modern projector.) Initially, however, the film was exposed at about forty-six frames per second—much faster than the average speed later adopted for silent filmmaking.

Before Edison and Dickson could exploit their machine commercially, they needed films. They built a small studio, called the Black Maria, on the grounds of Edison's New Jersey laboratory and were ready for production by January 1893 (1.6). The films lasted only twenty seconds or so—the longest run of film that the Kinetoscope could hold. Most films featured well-known sports figures, excerpts from noted vaudeville acts, or performances by dancers or acrobats (1.7). Annie Oakley displayed her riflery, and a bodybuilder flexed his muscles. A few Kinetoscope shorts were knockabout comic skits, forerunners of the story film.

Edison had exploited his phonograph by leasing it to special phonograph parlors, where the public paid a nickel



1.6 Edison's studio was named after the police paddy wagons, or Black Marias, that it resembled. The slanted portion of the roof opened to admit sunlight for filming, and the whole building revolved on a track to catch optimal sunlight. (Source: Wisconsin Center for Film and Theater Research, University of Wisconsin-Madison)



1.7 Amy Muller danced in the Black Maria on March 24, 1896. The black background and patch of sunlight from the opening in the roof were standard traits of Kinetoscope films.



1.8 A typical entertainment parlor, with phonographs (note the dangling earphones) at left and center and a row of Kinetoscopes at right.

(Source: George Eastman International Museum of Photography)

to hear sound through earphones. (Only in 1895 did phonographs become available for home use.) He did the same with the Kinetoscope. On April 14, 1894, the first Kinetoscope parlor opened in New York. Soon other parlors, both in the United States and abroad, exhibited the machines (1.8). For about two years the Kinetoscope was highly profitable, but it was eclipsed when other inventors, inspired by Edison's new device, found ways to project films on a screen.

European Contributions Another early system for taking and projecting films was invented by the Germans Max and Emil Skladanowsky. Their Bioscop held two strips of film, each 3½ inches wide, running side by side; frames of each were projected alternately. The Skladanowsky brothers showed a fifteen-minute program at a large vaudeville theater in Berlin on November 1, 1895—nearly two months before the famous Lumière screening at the Grand Café. The Bioscop system was too cumbersome, however, and the Skladanowskys eventually adopted the standard 35mm, single-strip film used by more influential inventors. The brothers toured Europe through 1897, but they did not establish a stable production company.

The Lumière brothers, Louis and Auguste, invented a projection system that helped make the cinema a commercially viable enterprise internationally. Their family company, Lumière Frères, based in Lyon, France, was the biggest European manufacturer of photographic plates. In 1894, a local Kinetoscope exhibitor asked them to

produce short films that would be cheaper than the ones sold by Edison. Soon they had designed an elegant little camera, the Cinématographe, which used 35mm film and an intermittent mechanism modeled on that of the sewing machine (1.9). The camera could serve as a printer when the positive copies were made. Then, mounted in front of



1.9 Unlike many other early cameras, the Lumière Cinématographe was small and portable. This 1930 photo shows Francis Doublier, one of the firm's representatives who toured the world showing and making films during the 1890s, posing with his Cinématographe. (Source: George Eastman International Museum of Photography)



1.10, left The Lumière brothers' first film, *Workers Leaving the Factory*, was a single shot made outside their photographic factory. It embodied the essential appeal of the first films: realistic movement of actual people.

1.11, right Birt Acres's *Rough Sea at Dover*, one of the earliest English films, showed large waves crashing against a seawall.

a magic lantern, it formed part of the projector as well. One important decision the Lumière made was to shoot their films at sixteen frames per second (rather than the forty-six frames per second used by Edison); this rate became the most commonly used international film speed for about twenty years. The first film made with this system was *Workers Leaving the Factory*, apparently shot in March 1895 (1.10). It was shown in public at a meeting of the Société d'Encouragement pour l'Industrie Nationale in Paris on March 22. Six further showings to scientific and commercial groups followed, including additional films shot by Louis.

On December 28, 1895, one of the most famous events in film history took place. The location was a room in the Grand Café in Paris. In those days, cafés were gathering spots where people sipped coffee, read newspapers, and were entertained by singers and other performers. That evening, fashionable patrons paid a franc to see a twenty-five minute program of ten films, about a minute each. Among the films shown were a close view of Auguste Lumière and his wife feeding their baby, a staged comic scene of a boy stepping on a hose to cause a puzzled gardener to squirt himself (later named *L'arroseur arrosé*, or "The Waterer Watered"), and a shot of the sea.

Although the first shows did moderate business, within weeks the Lumières were offering twenty shows a day, with long lines of spectators waiting to get in. They moved quickly to exploit this success, sending representatives all over the world to show films and make more of them.

At the same time that the Lumière brothers were developing their system, a parallel process of invention was going on in England. The Edison Kinetoscope had premiered in London in October 1894, and the parlor that displayed the machines did so well that its owners asked R. W. Paul, a producer of photographic equipment, to make some extra machines for it. For reasons that are still not clear, Edison had not patented the Kinetoscope outside the United States, so Paul was free to sell copies to

anyone who wanted them. Since Edison would supply films only to exhibitors who had leased his own machines, Paul also had to invent a camera and make films to go with his duplicate Kinetoscopes.

By March 1895, Paul and his partner, Birt Acres, had a functional camera, which they based partly on the one Marey had made seven years earlier for analyzing motion. Acres shot thirteen films during the first half of the year, but the partnership broke up. Paul went on improving the camera, aiming to serve the Kinetoscope market, while Acres concentrated on creating a projector. On January 14, 1896, Acres showed some of his films to the Royal Photographic Society. Among those was *Rough Sea at Dover* (1.11), which became one of the most popular first films.

Seeing such one-shot films of simple actions or landscapes today, we can hardly grasp how impressive they were to audiences who had never seen moving photographic images. A contemporary review of Acres's Royal Photographic Society program hints, however, at their appeal:

The most successful effect, and one which called forth rounds of applause from the usually placid members of the "Royal," was a reproduction of a number of breaking waves, which may be seen to roll in from the sea, curl over against a jetty, and break into clouds of snowy spray that seemed to start from the screen.¹

Acres gave other demonstrations, but he did not systematically exploit his projector and films.

Projected films were soon shown regularly in England, however. The Lumière brothers sent a representative who opened a successful run of the Cinématographe in London on February 20, 1896, about a month after Acres's first screening. Paul went on improving his camera and invented a projector, which he used in several theaters to show copies of the films Acres had shot the year before. Unlike other inventors, Paul sold his machines rather than

leasing them. By doing so, he not only speeded up the spread of the film industry in Great Britain but also supplied filmmakers and exhibitors abroad who were unable to get other machines. Among them was one of the most important early directors, Georges Méliès.

American Developments During this period, projection systems and cameras were also being devised in the United States. Three important rival groups competed to introduce a commercially successful system.

Woodville Latham and his sons Otway and Gray began work on a camera and projector in 1894 and were able to show one film to reporters on April 21, 1895. They even opened a small storefront theater in May, where their program ran for years. The projector did not attract much attention, because it cast only a dim image. The Latham group did make one considerable contribution to film technology, however. Most cameras and projectors could use only a short stretch of film, lasting less than three minutes, since the tension created by a longer, heavier roll would break the film. The Lathams added a simple loop to create slack and thus relieve the tension, allowing much longer films to be made. The Latham loop has been used in most film cameras and projectors ever since. Indeed, so important was the technique that a patent involving it was to shake up the entire American film industry in 1912.

A second group of entrepreneurs, the partnership of C. Francis Jenkins and Thomas Armat, first exhibited their Phantoscope projector at a commercial exposition in Atlanta in October 1895, showing Kinetoscope films. Partly because of competition from the Latham group and a Kinetoscope exhibitor, who also showed films at the exposition, and partly because of dim, unsteady projection, the Phantoscope attracted skimpy audiences. Later that year, Jenkins and Armat split up. Armat improved the projector, renamed it the Vitascope, and obtained backing from the entrepreneurial team of Norman Raff and Frank Gammon. Raff and Gammon were nervous about offending Edison, so in February they demonstrated the machine for him. Since the Kinetoscope's initial popularity was fading, Edison agreed to manufacture Armat's projector and supply films for it. For publicity purposes, it was marketed as "Edison's Vitascope," even though he had no hand in devising it.

The Vitascope's public premiere was at Koster and Bial's Music Hall in New York on April 23, 1896. Six films were shown, five of them originally shot for the Kinetoscope; the sixth was Acres's *Rough Sea at Dover*, which again was singled out for praise. The showing was a triumph. Although it was not the first time films had been projected commercially in the United States, it marked the beginning of projected movies as a viable industry there.



1.12 At the right, a Mutoscope, a penny-in-the-slot machine with a crank that turned a drum containing a series of photographs. The stand at the left shows the circular arrangement of the cards, each of which flipped down and was briefly held still to create the illusion of movement. (Source: George Eastman International Museum of Photography)

The third major early invention in the United States began as another peepshow device. In late 1894, Herman Casler patented the Mutoscope, a flip-card device (1.12). He needed a camera, however, and sought advice from his friend W. K. L. Dickson, who had terminated his working relationship with Edison. With other partners, they formed the American Mutoscope Company. By early 1896, Casler and Dickson had their camera, but the market for peepshow movies had declined, and they decided to concentrate on projection. Using several films made during that year, the American Mutoscope Company soon had programs playing theaters around the country and touring with vaudeville shows.

The camera and projector were unusual, employing 70mm film that yielded larger, sharper images. By 1897, American Mutoscope was the most popular film company in the country. That year the firm also began showing its films in penny arcades and other entertainment spots, using the Mutoscope. The simple card holder of the Mutoscope was less likely to break down than was the

Kinetoscope, and American Mutoscope soon dominated the peepshow side of film exhibition as well. Some Mutoscopes remained in use for decades.

By 1897, the invention of the cinema was largely completed. There were two principal means of exhibition: peepshow devices for individual viewers and projection systems for audiences. Typically, projectors used 35mm film with sprocket holes of similar shape and placement, so most films could be shown on different brands of projectors. But what kinds of films were being made? Who was making them? How and where were people seeing them?

EARLY FILMMAKING AND EXHIBITION

The cinema may have been an astonishing novelty in the 1890s, but it came into being within a varied context of Victorian leisure-time activities. During the late nineteenth century, many households had optical toys like the Zoetrope and stereoscope. Sets of cards depicted exotic locales or staged narratives. Many middle-class families also owned pianos, around which they gathered to sing. Increased literacy led to the spread of cheap popular fiction. The newfound ability to print photographs led to the publication of travel books that took the reader on vicarious tours of distant lands.

A great assortment of public entertainments was also available. All but the tiniest towns had theaters, and traveling shows crisscrossed the country. Dramatic troupes put on plays, lecturers used magic-lantern slides to illustrate their talks, and concerts featuring the newly invented phonograph brought the sounds of big-city orchestras to a wide public. Vaudeville gave middle-class audiences a variety of acts on a single program, ranging from performing animals to plate-spinning jugglers to slapstick comedians. Burlesque offered a similar potpourri of acts, though less family-oriented with their vulgar comedy and occasional nudity. People living in large cities also could go to amusement parks, like Coney Island in New York, which boasted roller coasters and elephant rides.

Scenics, Topicals, and Fiction Films

The new medium of film moved smoothly into this spectrum of popular entertainment. Like the early films that we have already mentioned, most subjects were nonfiction, or actualities. These included scenics, or short travelogues, offering views of distant lands. News events might be depicted in brief topicals.

In many cases, cinematographers covered news events in the locations where they occurred. Often, however,

filmmakers recreated current events in the studio—both to save money and to make up for the fact that cameramen had not been on the scene. In 1898, for example, both American and European producers used model ships in miniature landscapes to recreate the sinking of the battleship *Maine* and other key occurrences relating to the Spanish-American War. Audiences probably did not believe that these faked scenes were actual records of real incidents. Instead, they accepted them as representations of those incidents, comparable to engravings in newsmagazines.

From the beginning, fiction films were also important. Typically these were brief staged scenes. The Lumières' *Arroseur arrosé*, presented in their first program in 1895, showed a boy tricking a gardener by stepping on his hose. Such simple jokes formed a major genre of early filmmaking. Some of these fiction films were shot outdoors, but simple painted backdrops were quickly adopted and remained common for decades.

Creating an Appealing Program

Looking at the earliest films, we may find them so alien that we wonder what sort of appeal they held for audiences. With a little imagination, though, we can see that people then were probably interested in films for much the same reasons that we are. Every type of early film has some equivalent in contemporary media.

The glimpses of news events, for example, may seem crude, yet they are comparable to the short clips shown on television news programs. Early scenics gave viewers glimpses of faraway lands, just as today's video documentaries do. The entertainment mixture available on television and YouTube is comparable to early film programs. Despite the variety of early genres, fiction films gradually became the most popular theatrical attraction—a position they have held ever since.

Most films in this early period consisted of a single shot. The camera was set up in one position, and the action unfolded during a continuous take. In some cases, filmmakers did make a series of shots of the same subject. The resulting shots were then treated as a series of separate films. Exhibitors had the option of buying the whole series of shots and running them together, thus approximating a multishot film, or they might choose to buy only a few of the shots, combining them with other films or lantern slides to create a unique program. During this early period, exhibitors had considerable control over the shape of their programs—a control that would gradually disappear from 1899 onward, as producers began making longer films containing multiple shots.

The Spread of the Cinema around the World: Some Representative Examples

| 1896 | |
|----------------------|---|
| MARCH 1 |• A Lumière program premieres in Brussels, Belgium. |
| MAY 11 |• A magician, Carl Hertz, shows R. W. Paul films at the Empire Theatre in Johannesburg, South Africa, using a projector purchased from Paul. |
| MAY 15 |• A Lumière program begins a run in Madrid, Spain. |
| MAY 17 |• A Lumière operator shows films in St. Petersburg, Russia. |
| JULY 7 |• Lumière operators show films in a rented room in Watson's Hotel, Bombay, India. |
| JULY 8 |• A Lumière program opens in a fashionable district of Rio de Janeiro, Brazil. |
| JULY 15 |• The first Lumière screening in Czechoslovakia takes place in the Casino in Karlovy Vary. |
| AUGUST |• Carl Hertz shows his R. W. Paul program at the Melbourne Opera House, Australia. (The first Lumière program in Australia begins in Sydney on September 28.) |
| AUGUST 11 |• A Lumière operator shows films as part of a Shanghai vaudeville program. |
| AUGUST 15 |• A highly successful run of Lumière films begins at a rented hall in Mexico City. |
| DECEMBER |• A Lumière program shows at a café in Alexandria, Egypt. |
| 1897 | |
| JANUARY 28 |• Lumière films are shown in a fashionable theater in Maracaibo, Venezuela. |
| FEBRUARY 15 |• Under the supervision of a Lumière representative, a Japanese entrepreneur premieres the Cinématographe in a theater in Osaka. (Edison's Vitascope was shown a week later, also in Osaka.) |
| LATE FEBRUARY |• A Lumière program premieres in Ruse, Bulgaria. |
| JULY |• An Edison representative tours Chinese tea houses and amusement parks. |

Quite a few early exhibitors had experience running lantern-slide programs or other forms of public entertainment. They mixed scenics, topical, and fiction films in a single, varied program, usually with musical accompaniment. In the more modest presentations, a pianist might play; in vaudeville theaters, the house orchestra provided music. In some cases, exhibitors had noises synchronized with the actions on the screen. The exhibitor might lecture during part of the program, describing the exotic landscapes, the current events, and the brief stories passing across the screen. At the least, the exhibitor would

announce the titles, since early films had no credits at the beginning or intertitles to explain the action. Some showmen mixed films with lantern slides or provided musical interludes using a phonograph. During these early years, the audience's response depended significantly on the exhibitor's skill in organizing and presenting the program.

During the first decade of cinema, films were shown in many countries around the world. But the making of films was concentrated largely in the three principal countries where the motion-picture camera had originated: France, England, and the United States.

The Growth of the French Film Industry

The Lumière's early screenings were successful, but the brothers believed that film would be a short-lived fad. As a result, they moved quickly to exploit the Cinématographe. They initially avoided selling their machines, instead sending operators to tour abroad, showing films in rented theaters and cafés. These operators also made one-shot scenics of local points of interest. From 1896 on, the Lumière catalogue rapidly expanded to include hundreds of views of Spain, Egypt, Italy, Japan, and other countries. Although the Lumière brothers are usually remembered for their scenics and topical, they also produced many staged films, usually brief comic scenes.

Some of the Lumière operators' films were technically innovative. Eugène Promio, for example, is usually credited with originating the moving camera. The earliest cameras were supported by rigid tripods that did not allow the camera to swivel and make panorama, or panning, shots. In 1896, Promio introduced movement into a view of Venice by placing the tripod and camera in a gondola. Promio and other filmmakers continued this practice, placing their cameras in boats and on trains (1.13). Traveling shots of this type (and soon panning movements as well) were associated mainly with scenics and topical during this era.

Because the Lumières quickly began exhibiting their films abroad, the first showings of projected motion pictures in many countries were put on by their representatives. Thus the history of the cinema in many nations begins with the arrival of the Cinématographe (see box, p. 12).

Of course, the Lumières and their rivals concentrated on the more lucrative markets and avoided some smaller countries. No screenings are known to have taken place in



1.13 Lumière operator Eugène Promio influenced many filmmakers by placing his camera in moving boats to make several of his films, including *Egypte: Panorama des rives du Nil* ("Egypt: Panorama of the Banks of the Nile," 1896).

Bolivia, for example, until 1909, when two Italian entrepreneurs took films there. Ideological pressures kept the cinema out of some markets. In 1900, Iran's royal family obtained a camera and projector in Europe and began making home movies. A theater that opened in Tehran in 1905, however, was soon closed by religious leaders.

On the whole, though, the Lumières and a few other firms made the cinema an international phenomenon. The Lumières further aided the spread of cinema when, in 1897, they began selling their Cinématographes.

The same year saw a setback for their firm, however. On May 4, 1897, during a film screening at the Charity Bazaar in Paris, a curtain was ignited by the ether being used to fuel the lamp of the projector (which was not a Cinématographe). The resulting blaze was one of the worst tragedies in the history of the cinema, killing about 125 people, most of them from the upper class. As a result, the cinema lost some of its attraction for fashionable city dwellers. In France, for several years, films were mainly exhibited in less lucrative traveling fairground shows (*fêtes foraines*). The Lumières continued producing films, but gradually more innovative rivals made their films seem old-fashioned. Their firm ceased production in 1905, though Louis and Auguste remained innovators in the area of still photography.

Following the initial success of the Lumière Cinématographe in 1895, other film production firms appeared in France. Among these was a small company started by a man who was perhaps the single most important filmmaker of the cinema's early years, Georges Méliès (p. 14).

Two other firms that would dominate the French film industry were formed shortly after the invention of the cinema. Charles Pathé was a phonograph seller and exhibitor in the early 1890s. In 1895, he purchased some of R. W. Paul's imitation Kinetoscopes, and the following year formed Pathé Frères, which initially made most of its money on phonographs. From 1901, however, Pathé concentrated more on film production, and profits soared. The firm expanded rapidly. In 1902, it built a glass-sided studio and began selling the Pathé camera, which became the world's most widely used camera until the end of the 1910s.

At first Pathé's production was somewhat derivative, borrowing ideas from Méliès and from American and English films. For example, in 1901, Ferdinand Zecca, the company's most important director, made *Scenes from My Balcony*. It picked up on the vogue, recently started in England, for shots presenting things as if seen through

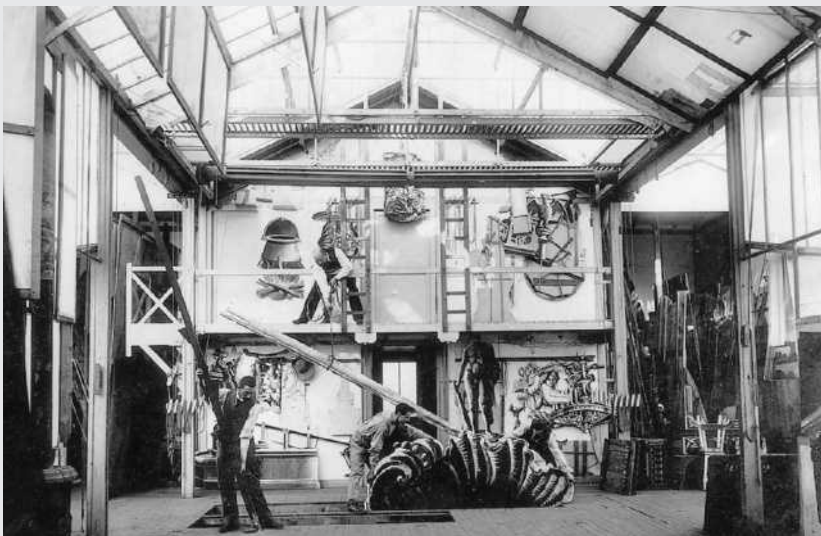
GEORGES MÉLIÈS, MAGICIAN OF THE CINEMA

Méliès was a performing magician who owned his own theater. After seeing the Lumière Cinématographe in 1895, he decided to add films to his program, but the Lumière brothers were not yet selling machines. In early 1896, he obtained a projector from English inventor R. W. Paul and by studying it was able to build his own camera. He was soon showing films at his theater.

Although Méliès is remembered mainly for his delightful fantasy movies, replete with camera tricks and painted scenery, he made films in all the genres of the day. His earliest work, most of which is lost, included many Lumière-style scenics and brief comedies, filmed outdoors. During his first year of production, he made seventy-eight films, including his first trick film, *The Vanishing Lady* (1896). In it, Méliès appears as a magician who transforms a woman into a skeleton. The trick was accomplished by stopping the camera and substituting the skeleton for the woman. Later, Méliès used stop-motion and other special effects to create more complex magic and fantasy scenes. These tricks had to be accomplished in the camera, while filming; prior to the mid-1920s, few laboratory manipulations were possible.

Méliès also acted in many of his films, recognizable as a dapper and spry figure with a bald head, moustache, and pointed beard.

In order to be able to control the mise-en-scène and cinematography of his films, Méliès built a small glass-enclosed studio. Finished by early 1897, the studio permitted Méliès to design and construct sets painted on canvas flats (1.14). Even working in this studio, however, Méliès continued to create various kinds of films. In 1898, for example, he filmed some reconstructed topicals, such as *Divers at Work on the Wreck of the “Maine”* (1.15). His 1899 film, *The Dreyfus Affair*, told the story of the Jewish officer convicted of treason in 1894 on the basis of false evidence put forth through anti-Semitic motives. The controversy was still raging when Méliès made his pro-Dreyfus picture. As was customary at the time, he released each of the ten shots as a separate film. When shown together, the shots combined into one of the most complex works of the cinema’s early years. (Modern prints of *The Dreyfus Affair* typically combine all the shots in a single reel.) With his next work, *Cinderella* (1899), Méliès began joining multiple shots and selling them as one film.



1.14 The interior of the Star studio, with Méliès on the balcony lifting a rolled backdrop while assistants arrange a large painted shell and trapdoors. Painted theater-style flats and smaller set elements are stored at the right rear or hang on the back wall. (Source: Museum of Modern Art Film Stills Library, New York)

telescopes or microscopes (1.17, 1.18). Pathé’s films were extremely popular. While it only took a sale of 15 prints of a film to break even, actual sales averaged 350 prints. Pathé expanded abroad, opening sales offices in London, New York, Moscow, Berlin, and St. Petersburg. Selling both projectors and films, Pathé encouraged people to enter the exhibition business, thus creating more demand for Pathé films. Within a few years, Pathé Frères became

the single largest film company in the world, employing director Albert Capellani.

Its main rival in France was a smaller firm formed by inventor Léon Gaumont. Like Lumière Frères, Gaumont initially dealt in still photographic equipment. The firm began producing films in 1897. These were mostly actualities made by Alice Guy, the first female filmmaker. Gaumont’s involvement in film production remained



1.15 One of many reconstructed documentaries relating to the sinking of the American battleship *Maine*, which began the Spanish-American War. Georges Méliès's *Divers at Work on the Wreck of the "Maine"* used a painted set with actors playing the divers. A fish tank in front of the camera suggested an undersea scene.

Méliès's films, and especially his fantasies, were extremely popular in France and abroad, and they were widely imitated. They were also commonly pirated, and Méliès had to open a sales office in the United States in 1903 to protect his interests. Among the most celebrated of his films was *A Trip to the Moon* (1902), a comic science-fiction story of a group of scientists traveling to the moon in a space capsule and escaping after being taken prisoner by a race of subterranean creatures (1.16). Méliès often enhanced the beauty of his elaborately designed mise-en-scène by using hand-applied tinting (Color Plate 1.1).

Except in Méliès's first years of production, many of his films involved sophisticated stop-motion effects. Devils burst out of a cloud of smoke, pretty women vanish, and leaping men change into demons in midair. Some historians have criticized Méliès for depending on static



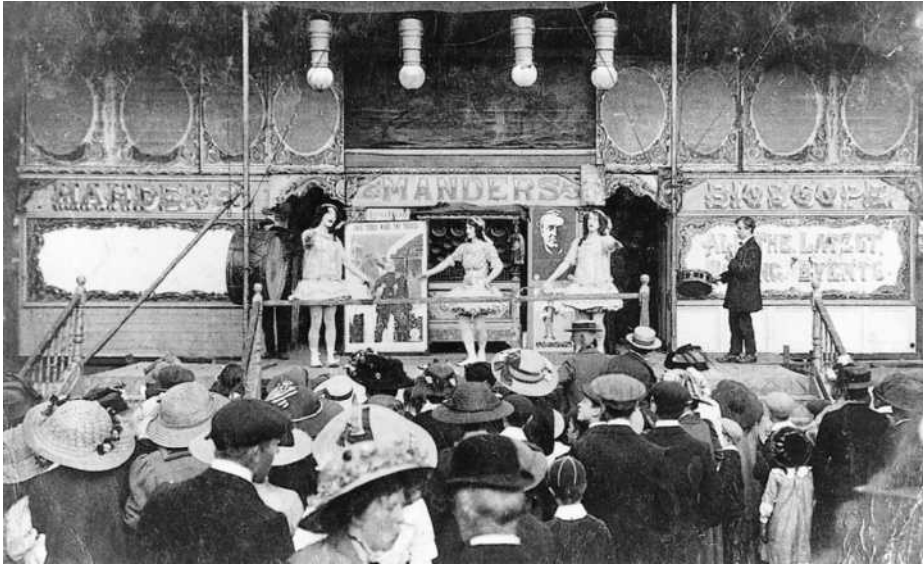
1.16 The space capsule lands in the Man in the Moon's eye in Méliès's fantasy *A Trip to the Moon*.

theatrical sets instead of editing. Yet recent research has shown that in fact his stop-motion effects also utilized editing. He would cut the film in order to match the movement of one object perfectly with that of the thing into which it was transformed. Such cuts were designed to be unnoticeable, but clearly Méliès was a master of this type of editing.

For a time, Méliès's films continued to be widely successful. After 1905, however, his fortunes slowly declined. His tiny firm was hard put to supply the burgeoning demand for films, especially in the face of competition from bigger companies. He continued to produce quality films, including his late masterpiece *Conquest of the Pole* (1912), but eventually these came to seem old-fashioned as filmmaking conventions changed. In 1912, deep in debt, Méliès stopped producing, having made 510 films (about 40 percent of which survive). He died in 1938, after decades of working in his wife's candy and toy shop.



1.17, 1.18 One of many mildly risqué films made in this early period, Zecca's *Scenes from My Balcony* shows a man looking through a telescope, followed by shots of what he sees, including a woman undressing.



1.19 A typical fairground film show in England, about 1900. Behind the elaborate painted façades, the auditoriums were simple tents. Note here the picture of Thomas Edison in the center and the use of a drum to attract spectators. (Source: British Film Institute Stills, Posters and Designs, London)

limited in this era, since Léon was more concerned with technical innovations in film equipment. Building a production studio in 1905 made Gaumont more prominent, largely through the work of director Louis Feuillade.

England and the Brighton School

After the first public screenings in early 1896, film exhibition spread quickly in England, largely because R. W. Paul was willing to sell projectors. At first, most films were grouped together to be shown as a single act on the program of a music hall (the British equivalent of American vaudeville theaters). Beginning in 1897, short, cheap film shows were also widely presented in fairgrounds, appealing to working-class audiences (1.19).

At first, most English filmmakers offered the usual novelty subjects. For example, in 1896, Paul made *Twins' Tea*

Party (1.20). Topicals showing the annual Derby were popular, and both the parade celebrating Queen Victoria's Jubilee in 1897 and events relating to the Boer War in South Africa were widely circulated. Some of these early newsreels consisted of more than one shot. The operator might simply stop and restart the camera to capture only highlights of the action, or he might actually splice bits of film together to hurry the action along. Similarly, some scenics were influenced by the Lumière films' placement of the camera on moving vehicles. *Phantom rides*, designed to give the spectator the illusion of traveling, became popular in England and other countries (1.21). As elsewhere, in England exhibitors gathered many types of films into a varied program.

Early English films became famous for their imaginative special-effects cinematography. For example, Cecil Hepworth began producing on a small scale in 1899. At first he concentrated on actualities, but he soon directed



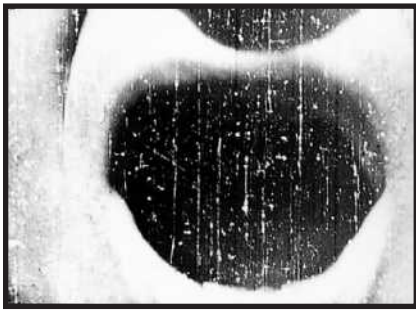
1.20 Paul's *Twins' Tea Party* appealed to audiences by showing two cute toddlers squabbling and then kissing and making up. It was typical of many films of this era: a single shot taken on an open-air stage in direct sunlight, against a neutral backdrop.



1.21 *View from an Engine Front—Barnstaple*, made by the Warwick Trading Company in 1898, was typical of a popular genre, the phantom ride.



1.22 In Hepworth's *Explosion of a Motor Car* (1900), stop-motion changes a real car into a fake one, which promptly blows up. A passing bobby dutifully inventories the body parts that rain in from above, creating a grim but amusing film.



1.23, 1.24 Two stages of Williamson's *The Big Swallow*, as the irritated subject "eats" the cinematographer and camera.



1.25, 1.26 In *Mary Jane's Mishap*, close views alternate with long shots to show such detail as the maid's accidentally smearing a "moustache" on her face while shining some shoes.

trick films as well (1.22). Hepworth went on to become the most important British producer from 1905 to 1914.

There were other producers scattered around England. The most notable were those in the small but influential group later dubbed the Brighton School because they worked in or near that resort town. Chief among them were G. A. Smith and James Williamson, both of whom were still photographers who branched into filmmaking in 1897. They also built small studios that opened at one side to admit sunlight. Both explored special effects and editing in ways that influenced filmmakers in other countries.

Williamson's 1900 film *The Big Swallow* is a good example of the ingenuity of the Brighton filmmakers. It begins with a view of a man, seen against a blank background, gesturing angrily because he does not want his picture taken. He walks forward until his wide-open mouth blots out the view (1.23). An imperceptible cut then substitutes a black backdrop for his mouth, and we see the cinematographer and his camera pitch forward into this void. Another concealed cut returns us to the open mouth, and the man backs away from the camera, laughing and chewing triumphantly (1.24).

Smith's 1903 grotesque comedy *Mary Jane's Mishap* uses editing in a remarkably sophisticated way. One basic distant framing of a slovenly maid in a kitchen is interrupted by several cut-ins to medium shots that show her amusing facial expressions (1.25, 1.26). Although the actor's position is usually not matched well at the cuts, there is a general attempt to create a continuous action

while using closer shots to guide our attention. This principle would become one basis for the dominant continuity style of filmmaking that developed over approximately the next fifteen years (see Chapter 2).

The English cinema was innovative and internationally popular for several years early in the history of motion pictures, though it would soon weaken in the face of French, Italian, American, and Danish competition.

The United States: Competition and the Resurgence of Edison

The United States was by far the largest market for motion pictures since it had more theaters per capita than any other country. For over fifteen years, American and foreign firms competed vigorously there. Although American films were sold abroad, US firms concentrated on the domestic market. As a result, France and Italy were soon to move ahead of the United States and control the international film trade until the mid-1910s.

Exhibition Expands After the first New York presentation of Edison's Vitascope in April 1896, film venues spread rapidly across the country. The Vitascope was not for sale, but individual entrepreneurs bought the rights to exploit it in different states. During 1896 and 1897, however, many small companies marketed their own

projectors, all designed to show 35mm prints. Since movies were not yet copyrighted and prints were sold rather than rented, it was difficult to control the circulation of films. Edison's pictures were often duplicated and sold, while Edison profited by duping films imported from France and England. Firms also frequently made direct imitations of each other's movies.

Soon hundreds of projectors were in use, and films were shown at vaudeville houses, amusement parks, small storefront theaters, summer resorts, fairs, even churches and opera houses. The years from 1895 to 1897 were the novelty period of the cinema, because the primary appeal was simply the astonishment of seeing movement and unusual sights reproduced on the screen. By early 1898, however, films' novelty had worn off. As attendance declined, many exhibitors went out of business. One event that helped revive the industry was the Spanish-American War of 1898. Patriotic fervor made audiences eager to see anything relating to the conflict, and companies in the United States and abroad profited by making both authentic and staged films.

Another type of film that helped revive the industry was the Passion Play. Beginning in 1897, filmmakers made a series of single-shot scenes from Jesus's life—views that resembled illustrations in Bibles or magic-lantern slides. One such series of shots was released in February 1898 as *The Passion Play of Oberammergau* (1.27). (The title lent the film respectability, though it in fact had no connection with the traditional German spectacle.) As with many of the more elaborate films of the day, the exhibitor had the option of buying some or all of the shots and combining them, along with lantern slides and other religious material, to make a lengthy program. Prizefight films were also popular, especially since they often could be shown in places where live bouts were prohibited.

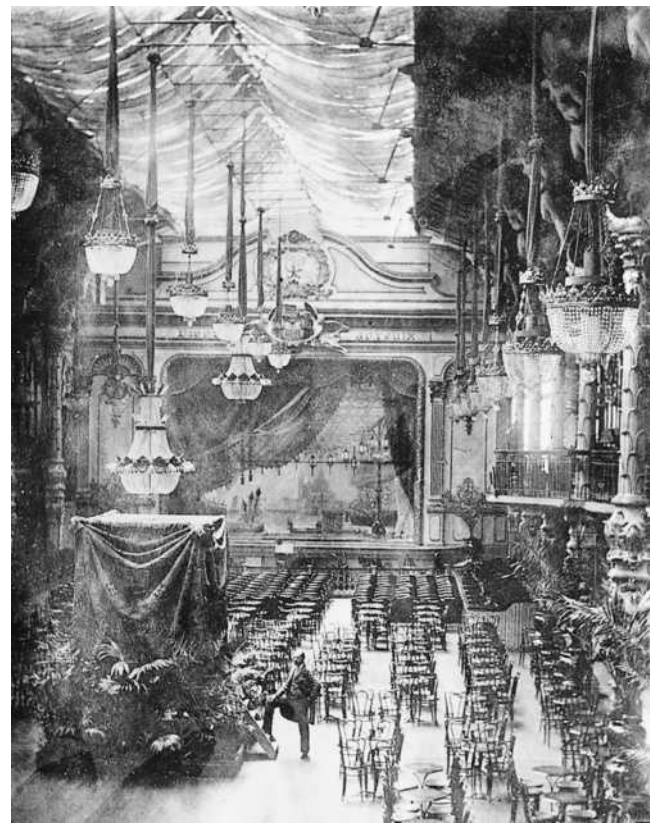
From 1898, then, the American film industry enjoyed a certain stability, with most films being shown in

vaudeville theaters. Production increased during this period to meet the high demand.

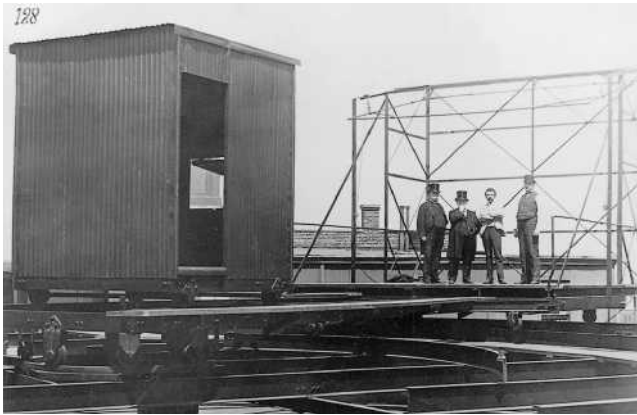
Growing Rivalry The American Mutoscope Company did particularly well during the late 1890s, partly because of its sharp 70mm images, displayed by the company's own touring operators in vaudeville houses. By 1897, American Mutoscope was the most popular film company in America, and it attracted audiences abroad as well (1.28). American Mutoscope began filming in a new rooftop studio (1.29). The firm changed its name in 1899 to American Mutoscope and Biograph (AM&B), reflecting its double specialization in peepshow Mutoscope reels and projected films. Over the next several years, AM&B was hampered by a lawsuit brought against it by Edison, who consistently took competitors to court for infringing patents and copyrights. In 1902, however, AM&B won the suit, because its camera used rollers rather than sprocketed gears to move the film. The company's prosperity grew. In 1903, it began to make and sell films in 35mm rather than 70mm, a change



1.27 “The Messiah’s Entry into Jerusalem,” one of the single-shot tableaux that made up *The Passion Play of Oberammergau*, produced by the Eden Musée, an important New York entertainment establishment.



1.28 Eugène Lauste, an American Mutoscope Company employee who had helped invent the Biograph camera, by the camera booth in the Casino de Paris, where he showed films in 1897 and 1898. The hall, with its potted palms and chandeliers, indicates the sort of elegant venue in which some early film screenings were held. (Source: George Eastman International Museum of Photography)



1.29 Officials of the American Mutoscope Company (including W. K. L. Dickson, second from right) in the firm's new rooftop studio. Like the Black Maria, the studio rotated on rails to catch the sun. The camera was sheltered in the metal booth, and simple painted sets were built against the framework. (Source: George Eastman International Museum of Photography)

that boosted sales. Beginning in 1908, it employed one of the most important silent-era directors, D. W. Griffith.

Another important company was American Vitagraph, founded in 1897 by J. Stuart Blackton and Albert E. Smith as an advertising firm. Vitagraph began producing popular films relating to the Spanish-American War. Like other production companies of this period, Vitagraph was threatened with patent- and copyright-infringement lawsuits by Edison, who hoped to control the American market. Vitagraph survived by agreeing to cooperate with Edison, making films for the Edison firm and in turn dealing in Edison films itself. AM&B's 1902 legal triumph over Edison briefly reduced the risk of lawsuits throughout the industry by establishing that Edison's patents did not cover all types of motion-picture equipment (see Chapter 2). As a result, Vitagraph expanded production. Within a few years, it would emerge as an important firm making artistically innovative films. Blackton would also make some of the earliest animated films.

Edwin S. Porter, Edison's Mainstay The rise in production at AM&B and Vitagraph in the wake of Edison's failed lawsuit obliged Edison's company to make more films to counter their competition. One successful tactic was to make longer films shot in the studio. In this endeavor, it had the assistance of the most important American filmmaker of this early period, Edwin S. Porter.

Porter was a film projectionist and an expert at building photographic equipment. In the late 1900s, he went to work for Edison, whom he greatly admired. He was assigned to improve the firm's cameras and projectors. That year the Edison Company built a new glass-enclosed

rooftop studio in New York, where films could be shot using the typical painted stage-style scenery of the era. In early 1901, Porter began operating a camera there. At this point in cinema history, the cameraman was also the film's director, and soon Porter was responsible for many of the company's most popular films.

Porter has often been credited with virtually all the innovations of the pre-1908 period, including making the first story film (*Life of an American Fireman*) and inventing editing as we know it. In fact, he often drew on techniques already used by Méliès, Smith, and Williamson. He imaginatively developed his models, however, and he undoubtedly introduced some original techniques. His position as the foremost filmmaker of the preeminent American production company gave his works wide exposure and made them popular and influential.

There had been many, indeed hundreds, of staged fictional films made before *Life of an American Fireman* (1903). Porter himself had done several, including a version of *Jack and the Beanstalk* in 1902. He had access to all the foreign films that the Edison Company was duping, so he could study the latest innovations. He examined Méliès's *A Trip to the Moon* closely and decided to copy its manner of telling a story in a series of shots. From 1902 on, many of his films contained several shots, with significant efforts to match time and space across cuts.

Porter's *Life of an American Fireman* is a notable attempt at such storytelling. It begins with a long shot of a dozing fireman dreaming of a woman and child threatened by fire; the dream is rendered as a sort of thought balloon, a circular vignette superimposed in the upper part of the screen. A cut to a close-up shows a hand pulling a public fire alarm. Several shots, mixing studio and location filming, show the firemen racing to the scene. The film ends with two lengthy shots that show the same action from two vantage points: in the first, a fireman comes in a bedroom window to rescue a mother and then returns to save her baby; in the second, we see both rescues again, from a camera position outside the house. To a modern audience, this repetition of events seems strange, but such displays of the same event from different viewpoints were not uncommon in the early cinema. (In Méliès's *A Trip to the Moon*, we see the explorers' capsule land in the Man in the Moon's eye [see 1.16] and then see the landing again from a camera position on the moon's surface.) *Life of an American Fireman* was based on earlier films and lantern slides depicting fire-fighting techniques. Brighton School director James Williamson had made a similar film, *Fire!*, in 1901.

Porter made several significant films in 1903, among them an adaptation of the popular stage version of the



1.30, 1.31 Porter's *Uncle Tom's Cabin* used an intertitle to introduce each shot. Here "The Escape of Eliza" leads to a single shot of the famous episode in the novel in which Eliza flees across the ice floes on a river.

novel *Uncle Tom's Cabin*. Porter's film was a series of one-shot scenes of famous episodes in the novel, linked by printed intertitles—the first known to have been used in an American film (1.30, 1.31). (Porter derived this technique from a G. A. Smith film, and Pathé's *Victimes de l'alcoolisme* [1902] had used intertitles.)

Porter's most important film, *The Great Train Robbery*, also made in 1903, used eleven shots to tell the story of a gang of bandits who hold up a train. A telegraph operator, whom they tie up at the beginning, alerts authorities, and a posse ambushes the thieves as they divide the loot. After the lengthy robbery scene, the action returns to the telegraph office seen earlier, then moves to a dance hall as the telegraph operator runs in to alert the local townspeople, and finally switches back to the robbers in a forest. Although Porter never cuts repeatedly among these locales, a few years later filmmakers would begin to do so, thus creating a technique called *crosscutting* (see pp. 36–37). Porter's film was, nonetheless, gripping in its depiction of violent action (1.32). Indeed, a novel extra shot, showing one of the robbers in a close view firing a gun toward the camera, was included; exhibitors had the option of placing it at the beginning or end of the film. Perhaps no film of the pre-1905 period was as popular as *The Great Train Robbery*.

Porter worked for Edison for several more years. In 1905, he directed *The Kleptomaniac*, a social critique that contrasted the situations of two women who commit theft. The first part shows a rich kleptomaniac stealing goods at a department store; we then see shots of a poor woman impulsively taking a loaf of bread. The final courtroom scene shows the poor woman being sentenced, while the rich one is let off. In Porter's 1906 film *The Dream of a Rarebit Fiend*, superimposition and a rocking camera depict a drunkard's dizziness while Méliès-style special effects show his dream of flying above a city. In 1909, Porter left Edison to become an independent producer, but he was soon outshone by others just entering the field.

From 1902 to 1905, Porter was one of many filmmakers who contributed to an industrywide concentration on



1.32 To make this shot for *The Great Train Robbery*, Porter exposed the film twice, showing most of the action of the holdup staged in the studio, with the view of the train as seen through the window filmed separately.

fiction filmmaking. Unlike topicals, which were dependent on unpredictable news events, fiction films could be carefully planned in advance. While scenics involved expensive travel to distant locales, fiction films allowed their makers to stay at or near the studio. Both of these factors enabled companies to create films steadily and on schedule. Moreover, audiences seemed to prefer films with stories. Some of these were still one-shot views, but filmmakers increasingly used a series of shots to depict comic chases, extravagant fantasies, and melodramatic situations.

By 1904, major changes were taking place in the new medium and art form of the cinema. Fiction films were becoming the industry's main product. Increasingly, movies were rented to exhibitors, a practice that established the division among production, distribution, and exhibition that was to shape the expansion of the film industry. Exhibition was spreading internationally, so films would soon be seen in most countries.

Although the leading industries were in France, England, and the United States, small-scale production also occurred in other parts of the world from an early date. Enterprising exhibitors made scenics and topicals of local interest to mix into their programs of imported films. In Spain, for instance, the first films were taken by Eugène

Promio when he brought the Lumière Cinématographe to Madrid in June 1896. By October of the same year, Eduardo Jimeno shot the first Spanish-made film, *Worshippers Leaving the Noon Mass at Pilar de Zaragoza*; similar imitations of Lumière actualities and even fiction films were produced in 1897. In India, exhibitor Harishchandra Sakharam Bhatwadekar ordered a European camera and filmed wrestling matches, circus monkeys, and local events, showing these actualities alongside imported films beginning in 1899. Entrepreneurs in other countries made similar films, but since only one or a few prints were made, hardly any survive.

During the first ten years of the commercial exploitation of the cinema, conditions were established for international growth of the industry. Moreover, filmmakers had begun to explore the creative possibilities of the new medium. These explorations were to intensify over the next decade.

REFERENCE

1. From *The Photogram*, quoted in John Barnes, *The Beginnings of the Cinema in England* (New York: Barnes & Noble, 1976), p. 64.