The Origins of the Cinema

by *Alan Fisher*

It has become popular to refer to 1939 as a peak year for the movies with the premiere of *Gone With the Wind* as its central event. The movies had had only a short history, but it had already come far from its primitive beginnings. In fact, there existed in cinema a capacity to film a narrative as extended and complex as *Gone With the Wind* as early as 1914.

The rapid development of cinema came as part of the technological explosion of the 19 th and early 20th century with advances linked to steady technological improvements. Yet it would be a mistake to view the role of technology as pre-eminent, as does Donald Cook in his otherwise exemplary *A History of Narrative Film*. According to Cook, ". . . the cinema at its material base is a technological form —— one in which technological innovation necessarily precedes the artistic impulse."

Any study of the early years of film history must consider technology, but to assign aesthetics a secondary place is to ignore the role that human curiosity, imagination and creativity have played in invention. Human flight does not date so much from the successful Wright Brothers experiment at Kitty Hawk in 1907 as from the first time a human being looked at a bird and imagined himself in flight. The human ability to will life into the inanimate and to imagine that what is not present is possible is at the basis of all invention. The Cro-Magnon painters working by firelight in their caves in Spain believed the animals they drew could bring them luck in the hunt and spare them the vengeance of the spirits of the animals they slew (Joseph Campbell, *The Power of Myth*). Could not these figures seen in the flickering torchlight sometimes seem to move?

Ultimately the real source of cinema is neither technological nor creative but biological. Images are retained on the retina for a fraction of a second, making possible the illusion of movement when film is projected at the proper speed.

It was interest in this phenomena that led to the experimentation which led to the development of the first movie cameeras and projectors. Optical devices such as the magic lantern had been used to entertain audiences as early as the 17th century. The early 19th

century had spawned a series of optical toys, most of which operated on a similar principal. A series of figures in various stages of motion were inscribed on the inner surface of a cylinder or later on a paper roll inside the cylinder. The cylinder was rotated and the image projected through slots onto a mirror or viewed through a series of prisms to produce the illusion of continuous motion. (*Movies of the Silent Years*, ed. by Ann Lloyd, 1984) .

In 1840 following the introduction of still photography in Paris by Louis Dauguerre, photographs were substituted for drawings.

The next step forward was accomplished by men whose interest in photographed motion was as a tool for studying animal physiology. Edward Mybridge, a British photographer, taking advantage of new photographic plates which drastically reduced exposure time, photographed horses in motion. He sequentially recorded the forward motion of race horses with a battery of twelve cameras triggered by a wire. Mybridge then transferred those photographs onto glass and projected them with a magic lantern. (Cook, p.3)

Mybridge inspired a French doctor, Ettiene-Jules Morey, to place a glass cylinder inside a gun-like object and to imprint photos on it. The following year he substituted a paper roll for the cylinder, thereby inventing the first film strip.

Then in 1887 celluloid roll film was used as a base for light-safe emulsions. The next year George Eastman purchased the patent from its inventor Hannibal Goodwin. He began to market the film on a mass basis. Eastman was interested only in still photography, but his product was the final link needed to create the motion picture camera.

The Birth of the Movies

Like the New World whose discoverer Christopher Columbus mistook for the East Indies, the movies began in misconception. Thomas Edison, who had revolutionized life with his inventions, was interested in developing motion pictures not for its own sake but in hopes of finding a visual companion to his phonograph. Edison himself was not even really the inventor of the motion picture camera. He commissioned the job to one of his technicians, William Dickson. Edison valued the invention so little that he declined to pay the extra $150 to obtain an international patent. He did typically claim credit for Dickson's work and would subsequently style himself the father of the motion picture.

Dickson's camera, the Kintograph, was similar to the early photographic gun with the addition of a stop-motion device to move the film through the camera at the rate of forty

frames per second (today twenty-four frames) using a perforated celluloid strip pulled through the machine by clawed gears. After the film was developed, it was pulled through the machine in reverse with each frame projected by light from a shutter.

Edison exhibited his films in small floor machines developed by Dickson called Kintographs. The machines were first placed in shopping arcades where customers could watch twenty seconds of film shot on a continuous film loop on which sound and image were initially coordinated. However, sound was to be quickly dropped.

The Dickson/Edison invention of the camera has been challenged by claims of William Friese-Greene, a British inventor said to have invented a combined camera-projector in 1887. This claim, though unsubstantiated, is supported by the British film industry. In a 1953 biography-film about Friese-Greene called *The Magic Box* almost every major British film star appeared in cameo roles.

It was soon clear, Edison's interest in mixing image and sound aside, that it was public fascination with the moving image that made his movies profitable. Through a magnified peep show viewer customers could marvel at the sight of a man sneezing (*Fred Ott's Sneeze*, a simple shot of an Edison technician sneezing was the first film made by Dickson in the new West Orange studio called the Black Maria), a couple kissing, Chinese working in a laundry, trained bears, a dentist pulling teeth, Scottish dancers, acrobats, etc. Dickson had become the world's first director and Edison the first producer.

The development of the projector came quickly. The invention of a double set of loops by the Latham Brothers, which were placed above and below the projection lens and maintained with an extra set of sprockets, reduced stress on the film strip. This solved the problem of frequent film breakage that had plagued early projectors. Simultaneously, numerous projection devices were developed. The most important of these were in Paris by the Lumiere brothers. The younger Lumiere, Louis, constructed a machine similar to Edison's which was camera, projector and printer. Set to run at 16 frames per second, it set the standard for the silent era.

The Lumieres quickly began to produce films. On December 28, 1895, in the basement of a Paris cafe, they exhibited movies on a screen to a paying audience. After a slow first month, their films played to packed houses. Their machine, the Cinamatographe, was lighter than Edison's and made outdoor shooting easier. Many of the first films were shot in the Lumieres' front and backyards and in the surrounding countryside. One popular film showed a boy squirting a gardener with the gardener's hose. Another, a shot of a train pulling into Paris station, terrified audiences, some of whom fled the theater in terror of what

seemed to them to be a real approaching train.

The success of the Lumiere film shows set cinema on the course of large audience exhibition. Edison acknowledged this in 1896 when he purchased a projector developed by a Baptist minister (which he then claimed as usual as his own invention). While not abandoning the Kintograph immediately, Edison threw his studio into producing films for theatrical presentation. (*The Illustrated History of the Cinema*, ed. by David Robinson and Ann Lloyd, p. 12, 1986)

With theatrical projection came the shelving of further attempts of recording sound on film for the next thirty years. No advances had been made in sound amplification. Accompaniment of film by live music quickly became the norm. Further experiments with sound would wait until the 1920's.

A movie boom swept the world, although once the original novelty had passed, film became primarily a lower and lower-middle class phenomena. The lack of sound would in some way prove advantageous in America in that it made the silent film accessible to immigrant groups who had not yet mastered English.

In America theaters were set up in storefronts and halls. Theater operators purchased films directly from the distributors and charged admissions as low as a nickel for three admissions. Eventually permanent theaters called nickelodeons were established, sometimes complete with permanent orchestra pits. By 1907 there were 3,000 in America. (*The Hollywood Story*, Joel W. Findler, 1988)

Initially film production remained in the hands of the men who had built the machines. However, in 1898 genuine artistic expression appeared. George Melies, a French magician who had used the magic lantern of stage began to experiment with the camera. Soon he was directing films which introduced optical illusions and lighting tricks. These included the dissolve, where the camera is stopped and then restarted causing one image to disappear to be immediately replaced by another. He also introduced the fade-in and fade-out by controlling the amount of light at the beginning and end of scenes.

More important, Melies introduced narrative to cinema. For the first time audiences watched stories, not simple photographs of motion or action. These stories were often fantastic. Melies' most popular film, a 1903 version of Jules Verne's *A Trip to the Moon*, was a tremendous success in both Europe and America.

Despite their popularity, Melies' films remained photographed stage plays. In the same year as *A Trip to the Moon* was released, an American film broke new ground. This advance was the work of Edwin S. Porter. An Edison director, he constructed *The Life of*

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An American Fireman, a film made entirely out of stock footage (previously shot film) combined with rudimentary cross-cutting from scenes of the fire to the racing firetrucks.

In 1903 Porter was to revolutionize filmaking while incidentally creating the Western genre. In this movie Porter introduced the shot. Prior to *The Great Train Robbery* filmakers had simply set up cameras and photographed the action left to right from a single angle. Porter also varied his camera set-ups, shooting from the top of the train, using long shots, close-ups and back projection (superimposition of foreground imagery upon stock footage). Porter did not allow his scenes to run full-length, cutting the scenes before the action was completed.

Porter had somehow stumbled across the basic cinematic premise that film was not divisible as on stage into scenes but by shots. Shots are individual segments of film, beginning with the opening of the shutter and completed with its closing, to be arranged into a film on an editor's cutting table. Porter may have been aware of earlier experiments from 1900 to 1902 in England carried out by the Brighton School of filmaking. Yet, whatever the influence, it was Porter's film which introduced the shot as the basic unit of filmaking.

Of equal importance, *The Great Train Robbery* convinced people everywhere including financiers that movies had a future. Public demand placed such pressure on the "factories" or studios that they could barely produce enough films. Film quality remained low with most films shot in a single day. Porter, for example, produced nothing further exceptional among the hundreds of films he ground out.

Thomas Edison by now changed his mind about the movies. In 1907 he made a bid to monopolize the film industry. He struck a deal with the other major film studios including Biograph, Vitagraph, Essenay, Selig, Lubin, Kalem, Star and Pathe to form the Motion Pictures Patents Company. The goal was to drive competition out of business by refusing to sell equipment and by pressuring distributors and theatre owners not to use competitors' films. It also legally prosecuted independent filmakers and distributors and hired private detectives and thugs to drive them out of business.

Ironically, this attempt at monopoly led to the destruction of the trust companies. Trust strong-arm tactict drove independent filmakers from the east to California where filmakers could flee across the nearby Mexican border. Once in California filmakers found the strong sunlight, year-round good weather and varied topography advantageous. This helped make the films more competitive against the technically superior though duller, more conservative trust films.

The behavior of the trust companies further eroded their position. A trust levy on

distributors of $ 2 per film was bitterly resented. More damning the Trust's insistence on producing only one-reel films cost them the favor of the public. By 1910 Trust resistance against the appearance of the new star system had broken down, but the trusts were unshakable in their opinion that the public attention was too short to tolerate any longer than one reel (approximately 30 minutes) films, even when feature-length imports from Europe provided evidence to the contrary.

The move toward feature-length films had begun in Europe when the Film D'Art began to photograph full-length plays. In 1912, Adolp Zubor, a Jewish immigrant, imported a three-and-a-half hour production of *Queen Elizabeth* starring aging-stage-great Sarah Bernhardt. *Queen Elizabeth* was simply a photographed play minus dialogue, yet it proved audiences would attend longer films. So did Italian historical spectacles which were first produced in 1909. *Quo Vadis*, which reached America in 1912, ran nine-reels and stunned audiences with its three-dimensional sets, a real chariot race and 50,000 extras. It was followed in 1912 by the superior *Cabiria*, which equalled it as a spectacle.

In 1917 U.S. government anti-trust legislation put a final end to the Trust, but the Trust companies had already destroyed themselves. The Independents, now settled in the still-forming community of Hollywood, had won the battle. Disruption of the European film industry during World War I had given the American film an international dominance that it has maintained to this day. Yet the Independants had won something more than had existed before they began their fight. They had won control of an art form. That art form, which had developed during the Trust-Independant War, was primarily the work of one man.

D.W. Grifith and
the Creation of the Narrative Cinema

Before the arrival of D.W. (David Wark) Griffith, the cinema, with a few exceptions, had treated film as an extension of still photography. Porter had pointed the way to real cinematography, but it was Griffith who created a true cinematic language for which the modern cinema is not an advance upon but an elaboration. (Cook, p. 59)

Griffith, a stage actor, entered films as an actor in a 1907 Edwin S. Porter film, *Saved From an Eagle's Nest*. Embarrassed at being associated with a culturally-looked down upon entertainment, Griffith used a pseudonym. However, he accepted a position at Biograph as an actor and writer. Soon he became a director and formed a creative partnership with

cameraman Billy Bitzer.

In the next six years Griffith was to invent, innovate and adopt almost all the basic cinematic techniques known to film today. These include the close-up, cutting from medium to close, flashbacks, alternating shots of different spatial length, multiple camera setups and extreme long shots. He upgraded the intellectual content of films and the writing of titles, introduced credits, and fragmented spatial and temporal relations to suggest parallel action. He also introduced cutting, laying the basis for cinematic montage, as well as beginning the practice of rehearsals before shooting. He introduced expressive use of light, developed elements of camera-movement and placement including tracking (the movement of the camera as a part of the action of the scene) and established once more the primacy of the shot as the basic unit of cinema. He improved older techniques such as the fade-in and fade out and experimented with partial masking of the screen through use of the iris and matting.

Some controversy exists over just how many of these innovations can be credited solely to Griffith. Some historians credit Griffith as their sole author. David Cook points out that it was unlikely that Griffith, due to his prejudice against the medium, had previous knowledge of more than a handful of films. He argues that while Griffith may have borrowed in some cases, he more frequently may have reinvented, rather than directly borrowed (Cook, p. 106 Findler and Lloyd both catalogue precedents in older films for some of the Griffith-claimed inventions). Lloyd even points to the use of tracking in a 1906 film directed by Billy Bitzer, Griffith's camera-man, and points out other early inventions maybe lost due to the low rate of survival of early films. (Lloyd, p. 29)

Yet even Griffith detractors do not challenge his role in film history. Griffith himself was by no means modest, publishing a list of his achievements in an advertisement on leaving Biograph in 1913. Yet in a highly competitive industry at a time when Social Darwinism was still an active social philosophy, he had the full respect of his peers and was regarded by the public as the man who had uplifted films to an art form.

Griffith was in the forefront in the fight for the longer film. While working for Biograph, he began to produce two-reelers, although they were rented out to dealers one by one in serial form.

After shooting the six-reel *Judith of Bethulia* in 1913, Griffith faced disciplinary action at Biograph. He moved to Mutual, an independent studio where he began work on an epic script based on a Civil War novel called *The Clansman*. Griffith, a southerner, had watched *Quo Vadis* and *Cabiria* and planned an epic of the American South which prefigures *Gone*

With the Wind.

Griffith produced *Birth of a Nation,* a three-and-a half hour epic using all the techniques he had developed at Biograph. His story of a Northern and Southern family before, during and after the Civil War parallels the later movie, although told with typical Griffith Victorian sentimentality. In its battle scenes and in the sequence of the burning of Atlanta it compares favorably with the later film.

The two movies share also a deep-seeded racism. Yet this racism is subtle and patronizing in *Gone With the Wind. Birth of a Nation* is so openly racist that it would be almost laughable today if it had not served as inspiration for the modern Ku Klux Klan. The film was so virulently anti-Black that it created race riots in 1914 and 1915 at a time when Blacks were still cowed into acquiescence.

Griffith's racism was so deeply embedded that he could not understand the controversy or the charges of racism. He planned his next film *Intolerance* in answer to the charges.

Birth of a Nation is a true anomaly, a seminal masterpiece that at the same time is, especially in its second half, an ugly racist tract. Yet, it unquestionably signalled the arrival of the motion picture as a major art form in which its camera work and director were the true stars.

Gone With the Wind was not written until the late 30's, but if it had been written twenty-five years earlier the movies would have been ready for it.

Suggested Further Reading

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