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**Competition and the Legal Environment: Intellectual Property
Rights in the Early American Film Industry**

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Introduction

The story of the American film industry during its first decade is one that confirms the critical role property rights play in promoting economic progress. The absence of appropriate, well-defined, and enforced sets of intellectual property rights hampered the development of the young industry. Specifically, the process of obtaining and defending patent rights combined with the lack of copyright protection for films greatly encouraged unproductive forms of competition. Thomas Edison and other pioneers of motion picture technology used the Patent Office and the courts to their best advantage in securing broad interpretations of their patent claims. As a consequence, they initiated countless infringement suits, siphoning scarce resources away from productive and innovative activities. In the absence of copyright protection, there was rampant duplication of prints and the production of blatantly derivative remakes. The attending uncertainty poisoned the business climate to the degree that, by 1907, “two-thirds of the films shown in the United States were imported” (Robinson, 1996, 96). It took the formation of the patent pool, the Motion Picture Patent Company, and the evolution of copyright protection through the common law to bring the destructive behavior to an end.

The poor performance of the early industry raises something of a paradox. How is it that *both* the existence of intellectual property rights for innovation and the complete absence of protection for films created incentives for negative-sum forms of rivalry? This paper attempts to answer this question by examining the dynamic relationship between the behavior of early film companies and the legal process. The first section focuses on how the patent process shaped the competitive efforts of film entrepreneurs. The second

section looks at the effects of copying and plagiarism and the subsequent development of copyright protection through the creation of precedent in the courts. The historical record very much supports the evolutionary perspective advocated by Robert Merges and Richard Nelson (1992; 1994). These authors have argued that the efficacy of an intellectual property right system greatly depends upon the attributes of the intellectual property in question. This paper argues that the highly interdependent and decentralized nature of technical advance that characterized film technology called for patent rights to be narrowly defined. Broad patent claims held by several patentees covering different components of film's technological system resulted in the proliferation of litigious actions. In addition to the prohibitive court expenses, the diminution of competition that comes with strong patent rights clearly reduced incentives for innovation. By contrast, the relatively discrete nature of film as a commodity and the low cost of duplication required strong copyright protection to deter excessive free-riding efforts. The large scale piracy that was occurring at the time effectively dissuaded film companies from producing longer, more expensive films. The distinct intellectual property characteristics of technology and film suggest the need for different property right regimes. In fact, film as intellectual property possesses qualities similar to chemicals and pharmaceuticals, product lines that greatly benefit from strong patent protection. Richard Levin, Alvin Klevorick, Richard Nelson, and Sidney Winter have recognized that the "uniqueness of a single molecule is more easily demonstrated than the novelty of, for example, a new component of a mechanical system. Similarly it is easy to determine whether an allegedly infringing molecule is physically identical to a patented molecule; it is more difficult to determine whether comparable components of two complex systems 'do the same work in

substantially the same way” (Levin, et. al., 257, 1987). By the same token, assessing the originality of an individual film is relatively easy compared to the often difficult task of determining if a technological component (like a projector) infringes prior patent claims.

The Legal Battles Over Patent Rights

Much of the debate in the economics of intellectual property rights has focused on questions of the optimal length and breadth of patent protection. While there is little ambiguity about the tenure of patents, the process of obtaining and defending patent rights is such that the likely breadth of protection is contingent on the actions of the Patent Office, the courts, the patentees, and potential competitors. The transaction costs associated with this process ultimately cause the legal delineation of rights to be incomplete. Yoram Barzel acknowledges that the “rights people have over assets (including themselves and other people) are not constant; they are a function of their own direct efforts at protection, of other people’s capture attempts, and of governmental protection” (Barzel, 1989). The institutional characteristics of the patent system have given participants a great deal of discretion in influencing the substance of governmental protection. Janet Staiger aptly described the propensity for strategic behavior within the legal environment of the time. The “laws are not just used by businesses for appeal in the last resort nor are they static, but rather . . . businesses constantly use the process of law as part of their operating tactics for greater control of an industrial market. For example, at stake might be the definition or extent of a law. Or the current interpretation of the law might be changed, allowing companies to use the period of adjudication to their advantage. In this case, ownership and the legal use of patents were at issue” (Staiger,

1983, 41). Inconsistent rulings, the leaden pace of court proceedings, and the ability to obtain patent reissues meant that questions concerning legal rights over assets were often never fully settled. The allowable scope of patents could change quickly with new decisions made by the Patent Office and new court rulings.

Robert Merges and Richard Nelson (1994) have analyzed the relationship between patent scope and technological progress from an evolutionary perspective. They argue that the breadth of patent claims can have dramatic effects on technological progress. “So called pioneer patents may be defined broadly enough to control large portions of the sequence which traverses much more than a well-defined neighborhood” (Merges and Nelson, 1994, 127). It is particularly problematic for those industries characterized by ‘cumulative system’ technologies. A cumulative systems technology is one “in which today’s advances lay the basis for tomorrow’s, which in turn lay the basis for a next round, and so on...” and “in which a useful product is made out of many different components, each of which might be invented independently” (Merges and Nelson, 1994, 126-27). The historical record clearly demonstrates that film technology qualifies as a “cumulative system” technology. The Edison Company’s success in inventing the motion picture camera was very much a synthesis of the contributions of predecessors like Eadward Muybridge’s serial photography, Jules Etienne Marey’s chronophotographic gun, and George Eastman’s celluloid filmstrips. Entrepreneurs like Thomas Armat, Francis Jenkins, Woodville Latham, and the Lumiere Brothers were responsible for the development of motion picture projection. A handful of others played small but important roles in making many incremental improvements to these pioneer inventions. Broad control over the prospect of technological development by early patentees potentially can discourage the

many independent efforts that contribute to technical advance (Merges and Nelson, 1992, 199). Edison's strong patent position caused firms to exit the industry while its own operation suffered from the complacency that often accompanies monopoly power.

Given the plasticity of intellectual property rights, decentralized technical advance set the stage for an era of patent warfare. The "nuts and bolts" of the patent process provided an incentive for all the major innovators of motion picture technology to engage in legal means to stake out broad areas of protection for their inventions. Benjamin Hampton described the business climate of the time. "Every minor appliance and improvement became the subject of bitter controversy and litigation. The studios were turning out at least as many damage suits as movies. For a dozen years the industry was a battleground filled with intense hatreds and constant guerrilla warfare, and the mass of movie litigation grew to be so great that a regiment of lawyers was needed to follow the intricacies through the courts" (Hampton, 1931, 65). The thicket of suits and countersuits could be likened to a Nash equilibrium outcome of a "prisoner's dilemma" game. Sue before you are sued became the dominant business strategy of the day. As such, the formation of the Motion Picture Patent Company (MPPC) in 1908 represented a "cooperative solution" that temporarily ended the industry's internal legal conflicts.

From the beginning, Thomas Edison aggressively pursued broad patent protection for his inventions. "Edison did not wait for refinements before beginning the process of patenting this work. In June 1891 Dickson and Edison's lawyers started preparing two patent applications for a motion-picture camera or kinetograph, and one for a peephole-viewing device or kinetoscope" (Musser, 1990, 71). The initial rejections of Edison's patent application for his camera in many ways reflected the similarity of Edison's work

with the contributions of others. On January 2, 1892 the Patent Examiner rejected all claims for application #403534, arguing that they had been anticipated by the patents of other innovators. On December 29, 1893, Edison's lawyers submitted a new set of claims to the Patent Office. "Being advised that these claims were aggregations and therefore not patentable, they again took no action. Therefore, on October 18, 1895, the claims were finally rejected. After having waited until April 18, 1896, the last day allowed in which to make an appeal, they filed an appeal and a set of substitute specifications" (Hendricks, 1961, 133). The Patent Office accepted the new set of specifications in December of 1896.

The prospect of Edison obtaining patent rights clearly intimidated other players in the young industry. His substantial resources and mythic status made Edison a formidable opponent in the courtroom. Most early competitors were extremely small and lacked the necessary capital to wage lengthy legal battles. The American Mutoscope and Biograph company was the only domestic competitor that possessed the financial backing to stand up to Edison. From the beginning, the anticipation of future infringement suits with Edison shaped many of the company's actions. The radical design of its camera technology which used a friction-feed mechanism and the use of 70mm film were deliberate attempts to avoid areas of conflict. (Most production companies provided "complete motion picture services" in which their employees would bring films to theaters to handle all of the projection duties. Industry-wide compatibility between film and projector was not an important concern for the first several years for these companies.)

Biograph's early legal actions also were defensive; the company sought to protect its proprietary technology from the prior use claims of competitors' patents. Biograph

particularly feared the possibility of Edison securing a patent for his motion picture camera, the Kinetograph. In an attempt to invalidate Edison's application, Harry Marvin of Biograph filed a petition with the Patent Office to institute public-use proceedings. In *Casler et al. v. Edison*, Marvin appealed to the Commissioner of Patents to prevent the issuing of patents on the grounds that the "apparatus described and claimed in the application of Thomas A. Edison, filed August 24, 1891, Serial No. 403,534, was in public use for more than two years prior to the date of making any claim for said apparatus in this application" (Decisions of the Commissioner of Patents, 1897, 38-39). Biograph argued that Edison's revised set of specifications described an invention very different from the one characterized in the original patent application. Thus, the use of the said device for more than two years should be sufficient reason for the rejection of the patent application. Despite depositions that supported the arguments of the plaintiffs, the Commissioner denied the petition, contending that "the question involved is one of new matter relating to the merits of the invention, which should be passed upon in the first instance by the Primary Examiner and the Examiners-in-Chief. . ." (Decisions of the Commissioner of Patents, 1897, 39). One month later, the Patent Office issued patent number 589,168 covering Edison's motion picture camera. Events would soon justify Biograph's fears.

"When Edison's patent application was granted in August 1897, he wasted little time in protecting his rights. Between December 1897 and September 1901, his lawyers filed twenty-three infringement suits" (Staiger, 1983, 45). Edison's vigorous legal attacks targeted equipment manufacturers, producers, distributors, and exhibitors. Those threatened with litigation during the early months of 1898 included the International Film

Company, Maguire and Baucus Limited, Sigmund Lubin, Edward Amet, Eden Musee, Klaw and Erlanger, Walter S. Isaacs, the Veriscope Company, Eberhard Schneider, and the American Vitagraph Company. Unable to shoulder the requisite legal burdens, firms like Vitagraph and Maguire & Baucus capitulated and became Edison licensees. Others like the International Film Company simply shut down their operations, waiting for test cases to define the breadth of Edison's patents. Calling Edison's bluff, Sigmund Lubin of Philadelphia and Edward Amet of Chicago decided to contest Edison. Knowing that he would have to face his opponents on their home turf, Edison chose not bring these suits to a hearing (Musser, 1990, 240).

In May of 1898, Edison filed suit against the American Mutoscope and Biograph Company for infringement of his camera patent no. 589,168. Biograph's legal defense tactics effectively postponed a court decision until 1901. A ruling clearly defining and limiting Edison's claim was crucial to Biograph's future success. In the first few years of the new century, Biograph began to suffer from the constraints of its 70mm complete motion picture service. "Whereas exhibitors such as Vitagraph and George Spoor's Chicago-based Kinodrome service could show European imports like Melies' *Cinderella* on their 35mm projectors, Biograph could not do so. Biograph's logical move was to switch to the 35mm format, but its executives dared not to this, as their special sized film could have provided a decisive distinction between Edison and Biograph from a legal standpoint" (Musser, 1991, 178). Despite the company's best efforts, the Circuit Court of the Southern District of New York ruled in favor of Edison, broadly interpreting his claims. The court argued that Biograph infringed four of Edison's patent claims. The first three claims essentially described the functioning of the camera, emphasizing the novelty

of a single camera capable of intermittently moving tape-like film across the lens to record objects in motion for exhibition purposes. Writing for the court, Judge Wheeler characterized the novelty of Edison's contribution.

He did not invent the lens, nor the camera, nor the sensitized tape-like film, nor instantaneous exposure, nor discover the persistence of the eye; but he appears to have invented means for taking the film before the lens at the right speed, and for making rapid exposure at the right times for projecting the images upon the film at proper intervals for producing a line of successive images upon the film, ready for use by well known means, by persistence of the eye, in exploiting the illusion. This compact machine, containing the new combinations of the mechanical means and parts of the first three claims, working together for the production of the images in their line and order upon the film, seems to be what his invention in this respect was (110 Federal Reporter, 663, 1901).

Though acknowledging the substantial differences between the Edison and Biograph technology, the court defended its ruling, insisting that the "means are not the same as those of the patent but they are equivalents in the combinations of the first three claims" (110 Federal Reporter 663, 1901). In addition, the court found that the defendants infringed the fifth claim which covered the motion picture film itself. Again, the defendant's efforts in emphasizing the uniqueness of the Biograph camera and film failed to impress the courts.

Despite the loss, Biograph obtained a stay of injunction pending appeal. The decision certainly had a chilling effect on the industry as a whole. If Biograph's radically different technology was found to be guilty of infringement, other models (which were much closer to the Edison system) did not stand a chance in court. In the interim before the appeal, Biograph suspended all studio productions, concentrating on producing less expensive actualities and news events (Musser, 1990, 306). The rest of the industry eagerly awaited the appeal. During this time, Edison failed to use his dominant position

within the industry to advance the “state of the art.” Charles Musser recounted Edison’s conservative business.

From mid July 1901 to mid March 1902, a period of eight months, the Edison Manufacturing Company had a virtual monopoly in film production and sales within the United States. Rather than anticipating a possible reversal in the higher courts and parlaying this potentially short-term legal windfall into a long-term business advantage, Gilmore and White pursued a conservative, shortsighted business policy. Rather than investing in expensive productions that might yield lasting benefits, they produced inexpensive actualities and duped European spectacles to avoid high negative costs (Musser, 1991, 190).

In March of 1902, the Second Circuit Court of Appeals dramatically overturned the lower court’s verdict, effectively invalidating Edison’s claims on the basis that they were far broader than the actual invention. Judge Wallace contended that it “will be observed that neither the means for moving the film across the lens of the camera, nor for exposing successive portions of it to the operation of the lens, nor for giving it a continuous or intermittent motion, nor for doing these things at a high rate of speed, are specified in the claims otherwise than functionally. Any combination of means that will do these things at a high enough rate of speed to secure the result of persistence of vision, and which includes a stationary lens and tape-like film, is covered by the claims” (114 Federal Reporter, 934, 1902). The court argued that earlier patentees had anticipated key components of Edison’s camera and film. “Undoubtedly Mr. Edison, by utilizing this film and perfecting the first apparatus for using it, met all the conditions for commercial success. This, however, did not entitle him, under the patent laws, to a monopoly of all camera apparatus capable of utilizing the film. Nor did it entitle him to a monopoly of all apparatus employing a single camera” (114 Federal Reporter, 934, 1902). The

invalidation of all of the major patent claims by the court effectively nullified all of the infringement suits filed by Edison.

The abrogation of Edison's patent temporarily improved the business climate. "The dismissal of Thomas Edison's patent suit in March 1902 dramatically altered his company's commercial standing. As Biograph and other producers resumed business, the inventor's firm was compelled to undertake more ambitious projects" (Musser, 1990, 325). By this time Edwin Porter had joined Edison and started to produce his famous and influential story films. The end of its short-lived, quasi-monopoly status forced the Edison company to be innovative. Biograph, at this time, began the transition to 35mm film production; initially producing films for its own exhibition service and then later selling prints to distributors and other exhibitors. The Vitagraph company expanded production for its exhibition circuit. Sigmund Lubin also returns to America from Germany to resume production (Musser, 1991, 197). These events seem to justify concerns about the negative effects of broad patent claims on economic progress. Robert Merges and Richard Nelson explain that "if a single organization controls future developments in a field, one loses the energy that active competition generates. One also loses the variety of approaches provided by competition among many minds and talents" (Merges and Nelson, 1992, 204).

The loss, however, did not discourage Edison from again seeking intellectual property protection for his innovations. After revising his claims, Edison applied for two patent reissues which were approved on September 30, 1902. (Patent reissue no. 12,037 covered his camera claims and reissue no. 12,038 was for his film.) In November of the same year, he sued American Mutoscope (along with other top producers) for

infringement of these reissues. For the next three years, the industry struggled under the cloud of Edison's legal threats. In March of 1906, the Circuit Court finally ruled in the case of *Edison v. American Mutoscope and Biograph Co.* Its decision closely mirrored the decision of the appeal's court in 1902 by again finding the claims to be too broad. In the court's decision, Judge Ray argued "it must be conceded that the complainant's invention, if there be one, is very narrow. If 'but a moderate amount of mechanical ingenuity was required to perfect the details of apparatus already designed and made public properly by publication, and otherwise, it is pertinent to inquire whether Edison had done anything that amounts to invention'" (144 Federal Reporter, 125, 1906). Though the court acknowledged the technical advances of the Edison camera, it argued that the "claims, in view of the prior art, must be narrowly construed, however, when we consider the question of infringement" (144 Federal Reporter, 126, 1906). As such, the court found the technological differences between Edison's sprocket-driven camera and Biograph's friction feed apparatus to be significant. The court also held that the rake-driven Warwick camera, which Biograph used in its 35mm productions, was "different in principle and mode of operation from the complainant's, and as the complainant must be confined to the specific feeding devices specified, described and set forth, the defendant does not infringe" (144 Federal Reporter, 128, 1906).

"Yet, Edison's lawyers promptly appealed the case to a higher court, and intense uncertainty still reigned within the industry. There was little incentive for substantial investment in a studio and plant that might easily prove to be worthless" (Musser, 450-1, 1990). In March of 1907, the Circuit Court of Appeals partially overturned the circuit court's decision. Judge Gilbert contended that the lower court undervalued the novelty of

Edison's claims for his camera. "The meritorious feature of the device is that they seize hold of the film firmly, move it positively, regularly, evenly, and very rapidly without jarring, jerking, or slipping, producing a negative, which can be printed from and reproduced as a whole without arrangement to correct imperfect spacing of the successive pictures" (151 Federal Reporter, 771, 1907). Edison's patentable contribution consisted of the use of sprocket wheels to engage the perforations of the film to achieve the results described above. The friction feed device of the Biograph camera escaped patent infringement. However, the court ruled that "the bifurcated fork with studs is the fair equivalent of the wheel with sprockets and the combination shown in the Warwick camera is an infringement of claims 1, 2, and 3 of the reissued patent" (151 Federal Reporter, 774, 1907). Biograph's ability to use 35mm versions of its 70mm camera minimized the potential damage of the decision for their operation. However the same could not be said for other major producers. "In March 1907, the demand for films was rapidly expanding: nickelodeon exhibitions sought film product, and the boom was on. Rather than being able to supply films and compete in the growing marketplace, the manufacturing firms found themselves facing Edison's possession of the design of most practical cameras in use. On the basis of the camera patent reissue, the Edison company proceeded to take advantage of its legal victory. In February 1908 Edison licensed Lubin, Selig, Vitagraph, George Melies, Pathe Freres, Kalem, and Essanay to use the patent" (Staiger, 46-47, 1983).

Edison's patent claims for his camera represented only one area of conflict. Patent litigation over projector technology greatly added to uncertainty. Much of the conflict concerned the patent claims of the Jenkins-Armat's Phantoscope and Armat's subsequent

Vitascope technologies. In July 1897, the Patent Office issued patent no. 586,953 for the Phantoscope. Shortly after, Armat filed a suit against American Mutoscope and Biograph. However, several patent interference cases seriously slowed the prosecution of such cases as well as delaying Armat's subsequent improvements in projection technology.

In *Casler v. Armat*, Patent Interference No. 18,460 Casler successfully argued that certain fundamental aspects of the Jenkins-Armat patents had been anticipated by Etienne-Jules Marey, who had intended to use his camera as a projector. Projection of motion-picture film was not something Jenkins and Armat could claim to have invented *per se*. Patent Interference No. 18,461, *Edward H. Armet, Woodville Latham, and Herman Casler v. Thomas Armat* was undertaken as Casler and Latham unsuccessfully- and from different perspectives -tried to have the Jenkins-Armat patent thrown out (Musser, 240, 1990).

Acting on his own, Woodville Latham decided to appeal the decision of the Commissioner of Patents, challenging the Phantoscope patent on a question of priority. Latham argued that his own camera technology anticipated the intermittent mechanism and the slack forming device of the projector and thus represented a "reduction to practice." A "reduction to practice occurs when it is established that the invention will perform its intended function beyond a possibility of failure, so that whatever minor adjustments are thereafter required maybe considered mere perfecting modifications" (Harmon, 583, 1994). The intermittent mechanism and the Latham loop were key features of the Latham camera which predated the development of the Jenkins-Armat projector. In *Latham v. Armat*, the complainant argued that "a picture-taking camera, like many of these heretofore referred to as patented could undoubtedly be utilized as an apparatus for exhibiting pictures also, by substituting a picture-film in the carrying case and then applying the apparatus of the magic lantern" (Decisions of US Courts in Patent Cases,

342, 1901). Thus the claim of novelty for these devices in projectors was a reduction to practice and therefore they were not eligible for patent protection.

Ruling in favor of the defendant, the Court of Appeals of the District of Columbia challenged the “reduction to practice” claim arguing that a patentable distinction existed between cameras and projectors. The court contended that the failure of Latham to apply the superior intermittent device to his own continuous motion-picture projector, the eidoloscope, suggested that Armat’s appropriation of the said device was not obvious. In addition, the functioning of an intermittent mechanism for a camera substantially differed from one used in a projector. To maintain clarity in taking pictures, the intermittent of a camera needs to ensure that exposures are taken very quickly. For projection, the intermittent has to maximize the amount of time individual exposures can receive illumination while simultaneously achieving persistence of vision. The court concluded that the patent claim of a “means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement so that the interval of pause and illumination shall exceed the interval of motion” was not a reduction to practice” (Decisions of US Courts in Patent Cases, 340, 1901).

In May of 1901, the Patent Office granted Armat patent no. 673,992 for his Vitascope projector with claims for an improved intermittent mechanism and loop forming device. With the interference cases behind him, Armat was anxious to take legal action against infringers. Unlike the proprietary strategies of companies that provided complete motion picture services, Armat contracted with the Edison company to manufacture his projector and hired the marketing firm, Raff and Gammon to lease his projectors to franchisees on a territorial rights basis. Edison also produced films to sell to these

franchisees. In an article that described his early business relationship with the Edison company, Thomas Armat recalled his motivations for filing cases.

No patent protection could be given until patents were actually issued. Piratical machines began to appear, and, in absence of patents, could not be stopped. Later on the Edison company began to be slow in supplying films. Friction, for that reason among others, developed between Edison and Raff and Gammon. Still later the Edison company began to market a machine that infringed my pending patents. As soon as my patents were issued, I organized a company, to which I transferred my patents. Warnings were sent out to infringers, and suits were filed (Armat, 1935, 20).

In all, Armat filed ten suits against supposed infringers. In *Armat v. American Mutoscope Co.* the Circuit Court of the Southern District of New York in October of 1902 ruled that the defendants were guilty of infringing the claims of the Jenkins-Armat Phantoscope patent. The operation of the Biograph projector relied on principles substantially equivalent to the claims covered by the Phantoscope patent. “The length of the period of illumination and exposure of the film, as compared with the interval of movement or substitution of pictures, is in excess of the period of non-illumination or change, and therefore comes within the scope of disputed claims” (118 Federal Reporter, 250, 1902).

“With Biograph prepared to appeal, both sides acknowledged the uncertainties continued litigation would involve for them and thus reached an agreement whereby, in exchange for accepting the lower court ruling, Biograph did not have to pay a penalty and would not have to pay licensing fees until the Edison company did so” (Musser, 1990, 333). After failing to convince Edison that they should consolidate their patents, Thomas Armat challenged him in court. Armat recounted his legal strategy. “The Edison company was making and selling large numbers of machines they called *projectorscopes* which infringed no less than three of my patents. We notified users of the machines that

they must promptly arrange to pay us royalties for their use or they would be sued for infringement and damages. The Edison company notified users of projectorscopes they had sold that they would be protected against any suits we might bring” (Armat, 1935, 20). In November of 1902, Armat sued Edison for patent infringement. Despite a favorable ruling for Armat, the Circuit Court of Appeals suspended the injunction against Edison over disputed rights of possession of the patent between Thomas Armat and Charles Jenkins. Armat’s lack of capital at the time prevented him from settling the dispute and seeking further restitution in the courts. Though financially constrained, Armat held a strong patent position with regard to projector technology.

Concurrently, Woodville Latham finally received legal recognition for his contribution to motion picture technology. “By a special hearing before an examiner in the patent office, Major Latham won a patent issued in 1902, on the strength of a contention of improvement of the Armat machine by the elimination of a tension device at the film gate of the projector” (Ramsaye, 1927, 293). Nearly all successful camera and projection systems had adopted the famous “Latham loop.” Latham’s possession of a patent further complicated the legal landscape.

By the beginning of 1908, the nickelodeon market for films was firmly established with a clear division of labor between producers, distributors, and exhibitors. An exclusive group of producers and distributors formed the Film Service Association, a trade association designed to improve quality of service, end cut-throat price competition, and standardize business practices. The group sought to improve the reputation of the industry by marginilizing exchanges and exhibitors that consistently showed poor quality prints and engaged in duplication. Concurrently, Edison and his licensees established the

aply named Association of Edison Licensees which also attempted to rationalize business practices with the release of uniform price schedules and the institution of internal regulations. In an attempt to squeeze out competition, Edison brokered an agreement with the Film Service Association under which each group did business exclusively with the other (Musser, 1991, 377).

Edison's attempts to get Biograph to join the association failed as negotiations over the terms of the agreement stalled. "Following the decisions of the courts that the Biograph camera was the only one not to infringe Edison patents, the Biograph Company was unwilling to join as anything less than equal partners with Edison, sharing fifty-fifty in royalties" (Bowser, 1990, 27). Biograph's intransigence put the firm in a very precarious position. Its outsider status precluded Biograph from working with member exchanges of the Film Service Association. In response, Biograph, on the strength of its patents, formed the Association of Biograph Licensees with a number of large, well-established distributors that specialized in importing foreign films. Foreign films, at this time, dominated the American market. Edison purposefully excluded these importers from his association, believing that French producers like Pathe Freres and Georges Melies could satisfy much of the demand for foreign product.

With battle lines clearly demarcated, litigation between these rival groups resumed in 1908. In March, the Edison association sued Biograph and its licensee, Kleine Optical, for infringement of an untested, second patent reissue of its kinetoscopic film (Musser, 1991, 379). Biograph strategically improved its patent position by acquiring the Latham loop patent. In addition, Biograph formed an alliance with the Armat Moving Picture Company to gain legal access to its projector patents. It also owned the indispensable

Pross patent of a three bladed shutter which greatly reduced “flicker” in projection systems. With these patents in hand, Biograph retaliated by filing countersuits against Edison and a number of his licensees. “By mid-1908, the US film industry’s production structure boiled down to two equipment and film manufacturing combinations that split the sector and several patents -Edison’s which were important for the camera and film stock, and Biograph’s which were essential in the projector and useful in the camera” (Staiger, 1983, 47). All of the patent maneuverings finally culminated in stalemate. “Biograph could sue Edison and Edison could sue Biograph and nobody would win, especially not exhibitors nor exchanges” (Bowser, 1990, 27).

In late 1908, Biograph, Edison and their respective licensees agreed to a truce with the formation of the Motion Pictures Patent Company. Ralph Cassady broadly outlined the stipulations of the agreement. “Stock in the company was to be wholly owned by Edison and Biograph, except for four shares qualifying the directors. Authorization was given under the company’s charter to acquire motion picture patents and inventions and to license others to use the devices so acquired. Thus, in effect, the Patents Company was a patent-pooling and licensing organization” (Cassady, 1959, 329). Janet Staiger described the workings of the patent-pool.

In December 1908, the company formally started by accepting the assignment of sixteen patents from Edison, Biograph, Armat, and Vitagraph. Under a specified system, royalties from manufacturers of equipment, from producers making films, and from theaters using projectors were to be collected and distributed to the four companies. The Patents Company also organized the licensing and contracting of various other segments of the industry. It signed a three-year, exclusive contract with the principal domestic raw film producer, Eastman-Kodak, and licensed all significant film manufacturers and importers, fixing rental prices at a minimum level. Licenses ran until June 1910, with yearly

renewals thereafter until the expiration of one of the patents in August 1919 (Staiger, 1983, 48).

Most of the research on the Motion Pictures Patent Company has examined two aspects of its conduct: monopolistic practices (Cassady, 1959; Staiger, 1983) and standard-setting (J. Allen, 1980; Anderson, 1983). Patent-pooling was not an uncommon arrangement in those industries for which technological change was cumulative and decentralized. The Albany agreement for the sewing machine industry, the Eastern and Western Railroad Associations, and the Association of Licensed Automobile Manufacturers similarly represented cooperative settlements designed to neutralize the threats of patent litigation (Carstensen, 1984; Usselman, 1990; Merges and Nelson, 1992). Innovation in the context of a patent system that failed to define property rights concretely and enforce them consistently led to the adoption of organizational relationships that many considered to be anti-competitive. As Robert Merges and Richard Nelson rightly recognized, the “cross-licensing system greatly reduced transaction costs, but these costs would not have existed absent the broad patents on the various components” (Merges and Nelson, 1994, 135).

The Evolution of Copyright Protection for Films

The ambiguities of the patent process created incentives for firms to compete in the courts rather than in the marketplace. Unproductive rent-seeking through litigation was highly disruptive and wasteful in its effects. However, the patent arena was not the only area in which intellectual property rights affected competitive behavior. The absence of copyright protection for films also had deleterious consequences for the industry. As a

new medium of expression, motion pictures were not protected by copyright law. This lacunae encouraged large-scale “duping” of film prints. William Landes and Richard Posner explain that the prevention of this type of “free-riding” provided the economic justification for copyright law.

A distinguishing characteristic of intellectual property is its ‘public good’ aspect. While the cost of creating a work subject to copyright protection - for example, a book, movie, song, ballet, lithograph, map, business directory, or computer software program is often high, the cost of reproducing the work, whether by the creator or by those to whom he has made it available is often low. And, once copies are available to others, it is often inexpensive for these users to make additional copies. If the copies made by the creator of the work are priced at or close to marginal cost, others may be discouraged from making copies, but the creator’s total revenues may not be sufficient to cover the cost of creating the work. Copyright protection - the right of the copyright owner to prevent others from making copies - trades off the costs of limiting access to a work against the benefits of providing incentives to create the work in the first place (Landes and Posner, 1989, 326).

Initially, the diffusion of film from duping facilitated the creation of a new market while also encouraging innovation. This form of free-riding, however, seriously deterred film companies from the production of the more elaborate and expensive story films after the turn of the century. As in the case of patents, the legal context (or the lack thereof) often influenced the different margins competition would occur in. “The very scale of production practiced in this era argued the urgency of determining the status of a work of art as commercial property. In competition for business success, mass culture industries sought and responded to legal decisions which determined which aspects of their property could be controlled and defended and hence what pursuits might reward the considerable financial investment that national distribution required” (J. Allen, 1977, 180). Though the Federal Copyright Statute would not be amended to include films until 1912, common law

protection did evolve through court precedent in infringement cases. Such evolution, however, was piecemeal, often causing free-riding behavior merely to change form. Yet, the extension of protection emerging from successive precedents eventually did eliminate most of this type of behavior.

Congress enacted the first Federal Copyright law in 1790. Under that copyright law, “the author and authors of any map, chart, book or books already printed within these United States, being a citizen or citizens thereof,... shall have the sole right and liberty of printing, reprinting, publishing and vending such map, chart, book or books for the term of fourteen years from the recording the title thereof in the clerk’s office...” (Library of Congress, 1963, 22). In 1856, Congress amended the Act to protect both dramatic compositions and their performance. In 1870, the law expanded to cover photographs. Congress also gave the Library of Congress’ Copyright Office the responsibility to “perform all acts and duties required by law touching copyrights” (Library of Congress, 1963, 36). The registration and depositing of all works were the primary tasks of the Copyright Office.

Though both institutions are responsible for intellectual property rights, the Copyright Office and the Patent Office function quite differently. Unlike patents, no search is conducted before a copyright is issued.

Because copyright law has no parallel to the patent system’s process of application and definition of claims, the scope of copyright protection is ultimately defined by litigation. Litigation involving the validity of a patent involves a review of the file of prior art and competing claims by the Patent and Trademark Office. By contrast, the Copyright Office makes no independent review of the article or the circumstances of its creation, there is no official file, and the copyright owner must produce the evidence to support the validity of the copyright (Besen and Raskind, 1991, 11).

Beginning in 1897, Thomas Edison registered his films with the Federal Copyright Office by submitting paper prints. Biograph soon followed suit. Though motion pictures were not covered explicitly by law, Edison believed that the courts would consider his prints to be equivalent to photographs which were protected. The large scale duping during the first several years did not lead to the prosecution of many suits for copyright infringement. Targets of Edison's early suits like Vitagraph simply ceased the practice or became licensees (Musser, 1990, 254). Additionally, the low cost of producing actualities and limited distribution opportunities often did not justify the expense of litigation. However, the practice became less tolerable as films became more sophisticated and production costs increased.

In early 1902, Edwin Porter completed production on the expensive and much anticipated *Jack and the Beanstalk*. "No other American production company had the resources and the ambition to make a comparable film. Edison lawyers had to make special efforts to prevent competitors from selling duped copies. This postponed its release, for *Jack and the Beanstalk* as completed and ready for sale in late May" (Musser, 1991, 207). Edison had sought an injunction against Sigmund Lubin, who had been selling duplicated copies of his films. After the injunctions were denied, Edison released the film in July. Though these initial efforts failed, Edison sued Lubin for copyright infringement for selling duped copies of his popular actuality, *Kaiser Wilhelm's Yacht Meteor Entering the Water*.

In *Edison v. Lubin*, the Circuit Court of the Eastern District of Pennsylvania ruled against Edison. In a classic example of judicial restraint, Judge Dallas argued that copyright protection for photographs did not apply to motion pictures.

Is a series of photographs, arranged for use in a machine for producing them in panoramic effect, entitled to registry and protection as a photograph under section 4952 of the Revised Statute [U.S. Comp. St. 1901, p. 3406]? That section extended the copyright system to “any *** photograph, “but not to an aggregation of photographs; and I think that , to acquire the monopoly it confers, it is requisite that every photograph, no matter how or for what purpose it may be conjoined with others, shall be separately registered, and that the prescribed notice of copyright shall be inscribed upon each of them. It may be true, as has been argued, that this construction of the section renders it unavailable for the protection of such a series of photographs as this; but if, for this reason, the law is defective, it should be altered by Congress, not strained by the courts (119 Federal Reporter, 993, 1903).

Though Edison appealed the case, the court’s decision had a chilling effect on his company’s production plans. “Edison executives, while waiting for a review, drastically curtailed their company’s output of original subjects, anticipating that these would be copied by Lubin and other ‘infringers’” (Musser, 1991, 238).

In April, the Third Circuit Court of Appeals reversed the lower court ruling, granting Edison an injunction against Lubin’s duping. In the court’s opinion, Judge Buffington argued that Edison’s motion picture was a photograph and therefore worthy of copyright protection.

An examination shows that the negative and its positive reproduction represent one act or event, to wit, the launch of the yacht. The launch was portrayed on a single negative film, by one operator and a camera, operated from a single point, and such negative simply photographically reproduces in continuous form the view of the launch presented to the eye of an onlooker at the spot occupied by the camera.... To require each of numerous undistinguishable pictures to be copyrighted, as suggested by the court, would, in effect, be to require copyright of many pictures to protect a single one (122 Federal Reporter 241, 1903).

Motion pictures, from the court’s perspective, represented a progressive development in the art of photography. “While such advance has resulted in a different type of photograph, yet it is none the less a photograph - a picture produced by photographic

process” (122 Federal Reporter 242, 1903). The ruling also implied that each single angle shot of continuous action captured on a negative constituted an individual photograph. A single copyright provided protection for a one shot film. However, a multiple angle narrative would require each shot to be copyrighted separately. Despite the narrowness of the ruling, the decision effectively deterred duping of domestic productions, encouraging producers to make more ambitious films. The duping of foreign productions continued to be a popular and lucrative practice. Free-riding would soon return despite the ruling.

By 1904, Biograph had become the top producer of high quality story films which it exhibited exclusively through its motion picture service. (Biograph’s production for the 35mm market focused on inexpensive actualities and news events.) Instead of producing original story films, the Edison Company countered by “remaking” Biograph’s most popular and lucrative films. Biograph’s strategy of exclusively limiting the exhibition of its premiere films to theaters that rented its motion picture service provided an incentive for Edison to produce derivative remakes to supply rival distributors and exhibitors. Edison’s recreation of the Biograph film *Personal* engendered the greatest amount of legal controversy.

Percival Waters found that the theaters his Kinetograph Company was supplying desperately wanted *Personal*. After he tried to acquire a print but failed, Waters suggested that the Edison Manufacturing Company make an imitation and place it on the market, of course allocating the first prints to himself. Porter’s remake, *How a French Nobleman Got a Wife Through the New York Herald Personal Columns*, sold seventy-one copies over the next six months, making it the most popular Edison subject of that business year. Although Biograph responded by selling prints of its original version, the Edison Company probably enjoyed the bulk of sales” (Musser, 1990, 385-6).

In response, Biograph sued Edison for copyright infringement. Biograph's suit called for an injunction against Edison's remakes on the grounds of plagiarism. As David Levy's recounting of the two films indicate, there was little doubt of Edison's guilt on that count. "A French gentleman in the Biograph version - a nobleman in the Edison remake - places an ad in the *New York Herald* personal columns stating his desire to meet and marry an American woman - handsome in the Biograph version, wealthy in Edison's. When a crowd of 'Gibson girls' show up for the rendezvous at Grant's tomb, the fellow flees, triggering a brief 'chase' through the city and country that culminates in his capture by one of the pursuants" (Levy, 1983, 207-8). Edison's defense worked on several fronts. Their lawyers argued that copyright law only protected against the physical duplication of prints. Referring to the *Edison v Lubin* precedent, they also argued that the Biograph film had not been registered properly with the Copyright Office. *Personal* was a multi-shot film edited together from a number of different negatives. Biograph attempted to register the film as a single photograph when it should have submitted each of its shots individually (Musser, 1991, 281). In addition, Edwin Porter in his deposition rejected the allegation that the Edison film in any way was a copy of Biograph's *Personal*.

My photograph is not a copy but an original. It carries out my own idea of how the French Nobleman should appear, as to costume, appearance, expression, figure, bearing, posing, gestures, postures, and action. Complainant's Frenchman is short, mine is tall; theirs dresses in poor taste, mine dresses in good taste; theirs presents an undignified appearance, mine is of gracious and gentlemanly bearing. Theirs looks and behaves like a monkey - mine like a gentleman. These differences I believe I have made apparent in every picture of the series, by means of the said costume, poses, postures, actions, etc. (Levy, 1983, 208).

The Circuit Court of the District of New Jersey narrowly focused on the question of duplication in its decision to deny Biograph's motion for injunction. It argued that "the

proofs leave it in doubt whether defendant has in fact used or sold any copies of the complainant's photograph, or has merely borrowed complainant's idea, and made other similar, but not identical photographs of its own (137 Fed. 263, 1905). Despite ruling against Biograph, the court's opinion expanded upon the Lubin decision by designating films as a whole to be the legal equivalent of photographs. The court argued that "if a series of pictures of a moving object taken by a pivoted camera may be copyrighted as a photograph, a series of pictures telling a single story like that of the complainant in this case, even though the camera be placed at different points, may also be copyrighted as a photograph. Though taken at different points, the pictures express the author's ideas and conceptions embodied in one story" (137 Fed. 266, 1905).

Edison continued to produce Biograph imitations after the decision, caused Biograph to reconsider its business strategy. It soon abandoned its exhibition service and started selling prints to distributors shortly after completing film production. Its direct sale of prints effectively undermined Edison's remake strategy, forcing Edison to concentrate on original productions. In response to the court's decision, Biograph began to copyright its films as both photographs and dramatic compositions.

Legal disputes over the film rights to General Lew Wallace's *Ben Hur* culminated in expanding the scope of copyright protection. In 1907, Kalem produced and released a sixteen scene, single reel version of *Ben Hur* without obtaining rights to do so. Harper Brothers, the publisher, owned the copyright to the late author's story. Theatrical producers, Klaw and Erlanger "caused the story to be dramatized, and Harper and Bros. duly copyrighted the dramatization and thereupon granted Klaw and Erlanger, the sole right of producing the same upon the stage" (169 Federal Reporter 61, 1909). Terry

Ramsaye speculated, “Kalem failed to acquire motion picture rights to *Ben Hur* - largely for the rather simple reason that motion picture rights were unknown” (Ramsaye, 1927, 459). Kalem’s sin of omission resulted in the Harper Brothers, Klaw & Erlanger, and the estate of Lew Wallace filing suit for copyright infringement. The case which eventually reached the Supreme Court expanded copyright protection for films. “Despite film’s seeming congruence with the law’s premises about the relation between originals and copies, the case of *Harper and Bros., et. al. v. Kalem Co.*, over Kalem’s film based upon *Ben Hur*, introduced a categorical distinction between film as material artifact and film as performance” (J. Allen, 1983, 186).

The Circuit Court of Appeals ruled that Kalem’s production of the film did not infringe the copyright of the book or drama. “Since pictures of the dramatization of *Ben Hur* only represent the artist’s idea of what the author has expressed in words, they do not, as a photograph, infringe the copyrighted book or drama” (169 Federal Reporter 61, 1909). Copyright law does not protect ideas but the expression of those ideas. Film as a different medium does not infringe the author’s copyright for his writings. However, the court did find Kalem guilty of infringing the copyright protecting dramatic expression. “When the film is put on an exhibiting machine, which reproduces the action of the actors and animals, we think it does become a dramatization, and infringes the exclusive right of the owner of the copyrighted drama, and of Klaw & Erlanger’s right as owners of the performing right publicly to produce it” (169 Federal Reporter 62, 1909). The Supreme Court in 1911 subsequently affirmed the lower court’s verdict.

The court for the first time legally recognized motion pictures as a medium of dramatic expression. The content of motion pictures as expressed during performance

(exhibition) now could be considered property. This advance in the common law was a necessary prerequisite to the large scale investment required for the production of feature films that would begin in the 1910s. In 1912, the evolution of the common law culminated in Congress amending Federal copyright law to include motion pictures explicitly.

Conclusion

Many of the problems associated with the patent process stem from the discretion given to participants in defining and enforcing patent rights. The rules and procedures of the patent system offered many opportunities for rent-seeking efforts. The ability to file infringement suits, revise patent claims, initiate patent interference cases, appeal decisions (in court and the Patent Office), and acquire patent reissues represent the different ways the scope of patent claims can be influenced. Between 1891 and 1907, Edison had made use of all of the above legal procedures in his efforts to secure a broad interpretation for his camera patent claims. Edison's deep pockets allowed him to take full advantage of these avenues.

Film as a cumulative systems technology greatly exacerbated the problems associated with broad patent claims. The fact that several parties held patent rights to different, complementary components greatly multiplied the number of litigious actions. It is perhaps unsurprising that despite prohibitive transaction costs, the legal battles eventually led to a sort of Coasean result with Biograph and Edison buying or contracting with owners of the patents to control key components of film technology. The standoff between the two parties finally led to a truce in the form of a patent-pool arrangement. As Merges and Nelson (1992) have argued in their work, it was the structure of property

rights that encouraged offensive litigation in the first place. Extensive litigation and the resulting cross-licensing agreements could be avoided if the patent process produced narrowly-construed patent claims.

The legal framework at the turn of the century had not anticipated the invention of motion pictures. Free-riding activities thrived in the absence of intellectual property rights for films. In this case, the resolution of private conflicts through the judiciary ultimately produced a common law form of copyright protection. “Common law is precedent based - it provides continuity and essential predictability that are critical to reducing uncertainty among contracting parties. Past decisions become embedded in the structure of law, which changes marginally as new cases arise involving new, or at least in terms of past cases unforeseen, issues; when decided these become, in turn, a part of the legal framework” (North, 1990, 97). Unlike legislation, the common law, by virtue of its incremental nature, can address the unintended consequences that emerge from prior precedent. The case-by-case process of developing copyright protection avoided many of the problems that often occur when legislation fails to anticipate secondary effects. The decision to amend the Federal Copyright Law in 1912 to include motion pictures benefited from the experience that occurred under common law.

Strategic decisions made by businesses before copyright reveal the importance of property rights for innovation and growth. The threat of piracy caused the Edison company to delay the production and release of “story films.” Edison’s remakes of popular Biograph subjects forced the company to abandon its successful motion picture service. It is difficult to imagine the emergence of an industry willing to produce expensive, risky films in the absence of copyright protection. Yet, strong copyright

protection did not create the problems that were endemic with patents. “Copyright law defines its subject matter more specifically than does the patent statute” (Besen and Raskind, 1991, 12). Each film represents a distinct and discrete work of authorship. The granting of property rights is unlikely to produce the external effects that were associated with patents.

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