The invention of scientific authorship is one often overlooked in intellectual property histories. In popular discourse, scientists receive authorial distinction when producing books, scholarly articles, or other narratively-focused material. According to intellectual property law, patents bestow a kind of authorship not often recognized (Hyde, 2010; Wirtén, 2008). The history of the pigeon as a tool of war complicates distinctions of what is and is not patentable science. This paper will explore a key historic juncture in the development of intellectual property law. The purpose of engaging in this inquiry is to reveal tensions inherent to twenty-first century intellectual property law. By contrasting the invention of microfilm with the evolution of the modern homing pigeon, this historiographic research provides evidence for scientists, authors, and the general public to question the invention of individual scientific authorship.

The Invention of Microfilm

It was a triumphant day for guerrilla marketing. A most unusual ring was found on the Champs-Elysées and brought to reporters assigned to the area. Looking into a tiny peephole, the reporters discovered an image. The next day Paris’s pages were filled with prose about a new invention that would let the owner gaze at their beloveds privately. Of the invention, the reporters wrote, “Nothing could be more extraordinary...than to find in the setting of a ring...a portrait...the size of a carte de visit” (Luther, 1959, p. 35).

René Dagron was an unremarkable Parisian portrait artist who left the French countryside at an early age to study chemistry and physics, the science supporting photography. Looking for a product to lift his shop out of a slump, he turned to microphotography. Dancer’s microfilms had traveled to Paris in 1857 via Sir David Brewster. Upon seeing them, the Parisian shopkeepers quickly got to work incorporating microphotographs into opera jewelry, with an
attached magnifying glass to improve viewing. Seeing the potential of the new invention, Dagron filed a patent (Luther, 1950).

France No. 23,115 was the first French patent granted for microfilm on June 21, 1859. Dagron’s design differed from others in its sleekness. The magnifier and film were so compact they could be built into the keys men used to wind their pocket watches. Dagron’s invention, an improvement upon the work of local shopkeepers who kept the magnifying glass on the outside, revolutionized the way Parisian men viewed naughty images of women.

Dagron was a very savvy businessman. It was he who dropped the ring. The very next day Dagron entered the police station to claim it after priming the newshawks for the hunt. Paris was again abuzz with tales about the ring. First the press flocked to the product. Then they flocked to the man. Dagron assured them that the novelties would be available at his Parisian shop for a good price. According to Ross King’s *The Judgment of Paris: The Revolutionary Decade That Gave the World Impressionism* (2006), Dagron created both the device and content for it. *The Surprised Bathers* and *The Joyful Orgy* were a few of his biggest hits. Porn profits and popularity were not enough for Dagron. As his business matured, he began to sue his competition.

In an effort to retain his monopoly, Dagron and Company filed a lawsuit against the Martinache Company, charging invasion of his patent in the summer of 1861. Martinache had successfully filed patents for his own microfilm viewer on April 4th and May 7th of 1861. Dagron lost in his company’s lawsuit against Martinache, but then appealed. When his appeal failed, he offered to purchase Martinache. On July 23rd Dagron and Company purchased the Martinache Company for roughly $45,504.49 USD (Luther, 1959).
While Dagron and Company’s lawyers were busily involved in patent fights, one of the employees created a new process for the production of microfilm, M. Berthier. Berthier filed for French patent No. 50,469 on July 18, 1861 for a process that improved image viewing by shifting the focus of the eyes. The process was an adaptation of work developed by Sir Brewster of England. A patent was granted nevertheless. Dagron filed a patent for his worker’s invention in England (Luther, 1950).

Fights between Dagron’s company and his competition continued. He brought suit against a group of fifteen opticians in Paris who created similar microfilm viewers. The lower court ruled in the opticians’ favor, but this was not enough. Dagron appealed. Justice M. de Lelain-Chomel did not waste time. After reviewing the decision of the appellate court, he ruled in favor of the opticians thus dismissing Dagron’s patents and breaking his company’s monopoly over microviewers. In the long and bitter fight, the opticians requested both damages and publicity. The opticians wanted the ruling to be published in the press and posted all over Paris. The judge dismissed these pleas. Dagron paid only the costs of the court trial (Luther, 1959).

René Dagron, credited as the first to invent microfilm, successfully courted the Parisian press through a strategic use of publicity. This publicity boosted the popularity of his product, microfilm viewers that looked like tiny pieces of jewelry. This device was a great conduit for the local porn industry. Dagron’s business produced both the device and the content for viewing. As Dagron grew into Dagron and Company, the company began to file lawsuits against competition. The failed lawsuit against the Martinache Company resulted in a merger of Martinache with Dagron. Dagron lost in a bitter patent battle between his company and a group of opticians who sold a similar micro-viewing device. The loosing side attempted to seek damages that included embarrassing publicity. The judge dismissed the pleas. Dagron and Company paid all court costs.
Microfilm at War: The Franco-Prussian War

Dagron and his company met with continued success after the court case. Dancer left the business of microfilm to research respiratory diseases and broader concerns linked to public health in industrial England. Dagron continued to expand the business of microfilm. He won an honorable mention for his microphotographs at the Universal Exposition of Paris in 1867. The scientific press continued to marvel at Dagron’s work. One article wrote, “those astounding ‘microscopic photographs’ invented by M. Dagron, whereby he places a monument on a ring and a portrait on a pinhead” (Luther, 1959, p. 44). His business expanded into America, and Dagron became the court photographer for Emperor Napoleon III.

In Prussia, Otto von Bismarck, General von Moltke, and the Prussian General Staff began the Seven Days War to test out theories developed by Karl von Clausewitz. Clausewitz used historiographical research to examine the Thirty Years War of 1618 – 1648, a war fought primarily in what is now Germany. The Thirty Years War destroyed entire regions and bankrupted most combatant powers. Episodes of famine and disease significantly decreased the population of the German states, Bohemia, the Low Countries and Italy. Clausewitz developed theories of war that merged Hegelian dialectical theory with systematic views of science from Enlightenment thinking. In his writings, he rejected the Enlightenment view of war as chaotic muddle and opted for a multivariate approach involving the complex interplay of the economy, technology of the age, the social characteristics of the troops, and the commanders’ politics and psychology (Clausewitz, 1873).

The war was a swift way for Otto von Bismarck to shift power away from Austria and toward Prussian leadership. It was a move to unite northern German states and exclude Austria. It emboldened Napoleon III, the Emperor of France, who saw Bismarck’s maneuver as an excuse
to flex France’s military muscle. On July 19, 1870, Napoleon III declared war against the Prussians. It was an embarrassing folly for the French empire. Krupp steel artillery, efficient railways, and a series of swift victories in eastern France culminated in the Battle of Sédan, where Napoleon III was captured with his whole army on the second of September. The war continued as out of the rubble emerged one man who would proclaim the dissolution of the Empire and the birth of the Third Republic. He called for continued resistance against the Prussians. Léon Gambetta, a one-eyed, thirty-two year old anti-imperialist sparked a bit of public rhetoric that struck a chord within the hearts of the humiliated French. The war continued. This time, France would fight with their scientists (Wawro, 2003).

The Prussians besieged Paris and left it isolated from the rest of the French world. Under the rhythmic boom of Prussian guns, the Parisians hungered for news no matter how trivial. They wrote letters, but the messengers of these missives faced death at the hands of Prussian forces or at the cause of Krupp artillery (Sheppard, 1871). Desperate in their isolation, they turned to the best scientists Paris had to offer. René Dagron, the photographer and Albert Fernique, professor of engineering, were a few of the men who would leave in a balloon named Niepce, for the man noted for producing the world's first known photograph. Another balloon, aptly named the Daguerre for the daguerrotype photographic process, held M. Nobécourt, an expert in the care of messenger pigeons, Jubert, the pilot, Pierron, an engineer, M. Pierron’s dog, and pigeons trained to carry news back to Paris (Luther, 1959).

The Daguerre and Niepce faced perilous conditions. The Daguerre and all those within were the first casualties of modern industrial warfare. Bismarck consulted with Krupp, the armament maker, regarding these ballooned blockade runners. Krupp had a simple answer: use our product. It was a long-range, breach-loading artillery rifle used four years previously in the
Battle of Sadowa, the battle that ended the Seven Weeks’ War of 1866 (Wawro, 2003). The first casualties of industrial warfare fell from the sky with one push of a button.

Dagron and crewmates successfully made it to Tours to meet Gambetta and the rest of the French government. At Tours, Dagron and crew photographed government dispatches, shrunk them to a minute size, printed them on lightweight collodion membranes, and fitted the microfilms into canisters strapped to the legs of carrier pigeons (King, 2006). A forest ranger was able to recover one mailbag from the lost Daguerre.

Not all members of the Daguerre crew passed on. From the wreckage of the Daguerre, six pigeons would again be called to battle. These pigeons were released to convey microfilmed news to Paris. Six identical messages were sent on each bird, “Large blue and yellow balloon fell at Joissigny. Prussians captured balloon, voyagers. Have been able to save a mailbag and six pigeons” (Luther, 1959, p. 57). The redeployed pigeons faced wind, shells, and Prussian fighter falcons along their way. Other pigeons would not redeploy for the French. Captured by the Prussians, they would be used to send false information to a beleaguered Paris.

Pigeons as Data Transmitters

Paris was not the first to employ pigeons as data messengers. The history of the pigeon as a data transmission medium dates back to Noah. Out of the Ark flew a pigeon. Julius Caesar used pigeons in the conquest of Gaul. Greeks used them to convey the names of victors of Olympic Games. In ancient Baghdad, merchants used a pigeon postal service. In the early years of telegraphy, pigeons were used to fill in the gaps when there was a lack of wires. Paul Julius Reuters, the founder of Reuters wire service, flew pigeons bearing news and stock prices between Brussels, Belgium and Aachen, Germany in 1860 (Humphries, 2008). Telegraph
communications systems had not achieved perfect efficiency and pigeon communication networks were an excellent alternative system.

Harold Innis (1951), James Carey (1989), and James R. Beniger (1986) have written of the telegraph’s importance in reshaping human life. Electronic communication, once harnessed through the telegraph wires, increased the speed and efficiency of commerce. Carey wrote that thought could travel by the “singing wire” (1989). From the human imagination flew new visions for the transmission of knowledge, commerce, and scientific information. For Innis, the telegraph destroyed the monopolies of the press, post, and political power. Beniger wrote of a history of crisis and control as steam power and electricity reformulated the daily habits and practices of bureaucracy. Innis, Carey, and Beniger wrote of the telegraph, but missed the importance of the pigeon.

The pigeon remained a vital form of communication for Northern powers even until World War II. As a source of data transmission, the pigeon was superior on many accounts. Pigeons bested railroad communication by two hours for the transmission of financial data (Humphries, 2008). Pigeon messengry was a trusted source of data transmission because it developed throughout centuries as a practice of artists and experts. Pigeons did not depend upon coal, oil, rubber, copper, steel, or industrially processed goods to function. Pigeons needed only the organic substances of food and expert care. Before Dagron’s microfilms, the pigeon-human communication network could not transport massive amounts of information, with mass representing both amount and weight. A pigeon could only carry so much without hindering its flight. Reducing the size of government information meant reducing the weight of heavy communications. The pigeon, once harnessed with canisters full of microfilm, became an
effective answer to retain communication between Tours and Paris under the bombardment of Krupp artillery.

The robustness of the pigeon network was upheld by the pigeon’s natural ability to find home. This ability was exploited by animal trainers seeking to develop swifter birds. Competitions showcased breeders that developed the swiftest breed. These competitions resulted in the modern Homing Pigeon, a breed that continues to be flown in races throughout the world (Humphries, 2008).

The pigeon as a tool of communication in wartime flies between the realms of common practice and patentable science (Hyde, 2010). By filing a patent, Dagron were given a temporary monopoly on the knowledge and process of photographic image reduction. The practice of animal husbandry, reliant upon the apprenticeship model, is a product of education from expert trainers. Fellows like M. Nobécourt were either autodidacts who followed the work of others, were trained by an expert pigeon fancier, or a combination of both methods. The line between patentable and not patentable is not distinct when tracking the development of microfilm as a medium for entertainment and communication in a time of war. For example, M. Berthier’s invention that received him French patent No. 50,469 was only a minor improvement upon Sir Brewster’s work.

Each inventor relied upon open sharing of scientific knowledge to create patentable works. Animal husbandry, the practice that created the swift homing pigeon, existed since the domestication of animals. Pigeon fanciers do not rely upon patents for their work. It would be an absurd thing to do. Yet, the practice of pigeon fanciery significantly altered the genetic expressions of the species. For ten thousand years humans bred pigeons for amusement, art, commerce, and war. A patent was not filed for the process.
Animal husbandry brings to question tensions inherent in the historical invention of the scientist as individual author. It would be easy to distinguish pigeon breeding as a common practice, as noted in Lewis Hyde’s *Common As Air* (2010). However, as Eva Hemmungs Wirtén notes in *Terms of Use: Negotiating the Jungle of the Intellectual Commons* (2008), the mere idea of a public domain or a commons is only understood through dynamic power relations shaping everyday life.

One author does not exist for the production of the homing pigeon. It was a product of multiple authors working over a large wingspan of time. This form of collaborative authorship complicates neat distinctions of scientific authorship cemented into intellectual property law in the early industrial era. At this point in history, only the concept of “God” would be granted a patent for the evolution of the pigeon.
Works Cited


