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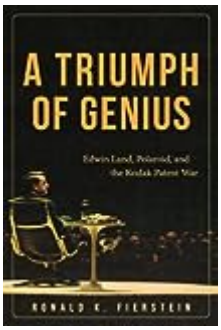

Ronald K. Fierstein. *A Triumph of Genius: Edwin Land, Polaroid, and the Kodak Patent War.* Chicago: Ankerwycke, 2015. 644 pp. $35.00 (cloth), ISBN 978-1-62722-769-8.

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A patent is a powerful–yet fragile–thing. A patent-holder has a legal monopoly to use the product or process covered by the patent, as well as the right to deploy the coercive machinery of the state to enforce this monopoly. But patents are also extremely vulnerable to attack; a patent holder, intending to use a patent as a sword against another, risks invalidation with every instance of judicial scrutiny. As recounted in intricate detail in Ronald Fiersteinâs *A Triumph of Genius*, patent infringement suits often become long, grueling, and astronomically expensive ordeals, with high stakes for inventors, businesses, and the public at large. Narratives of these contests can do more than just chronicle the strategic choices of the lawyers on each side; rather, they can offer revealing snapshots of the constantly negotiated tension between the facilitation of invention and the value of competition in American intellectual property law.

Fierstein positions his work as a biography of Edwin H. Land, the imminently talented scientist and founder of the Polaroid Corporation. Landâs life was consumed by his obsession with vision and light, measured out in patents. His first patent application, filed a few weeks before his twentieth birthday, described a plastic âsheet polarizerâ to eliminate glare. By the time of his death in 1991, he claimed a total of 535 patents, making him âthird on the list of Americaâs most prolific inventorsâ as defined by number of patents, behind only Thomas Edison and Elihu Thompson (pp. 244, 523). The first chapters of Fiersteinâs book describe Landâs relentless pursuit of a commercially viable sheet polarizer, a quest that led him to quit his PhD program at Harvard University and open a business with a fellow graduate student. Once settled in his own laboratory, Land developed an efficient technique to produce polarized sheet plastic. Land hoped that his sheet polarizer would be adopted by automobile companies and used to prevent the blinding glare of oncoming headlights at night, which at that time was a significant cause of traffic fatalities. When automobile companies proved slow to adopt his product, Land developed a variety of other uses for polarized plastics, including the now familiar use of polarized lens for sunglasses and in â3D glassesâ for comics and films. World War II generated a steady stream of government orders for polarized instruments and tools, which bolstered the company financially through its early years. In fact, the crew of the *Enola Gay* wore âspecial Polaroid adjustable glassesâ when they dropped the first atomic bomb on Hiroshima (p. 36).

In 1943, Land turned his attention to a new challenge:

producing instant photography. Fierstein presents Polaroidâs development of this new technology in microscopic detail over the course of seven chapters. Scholars of the history of science and technology might find these chapters particular interesting because they detail the trial-and-error process of invention from the ground level, with an emphasis not only on successful lines of inquiry, but also on roads not taken. *A Triumph of Genius* presents each bump in the inventive road and its concomitant resolution in turn–from differences in permeability of supporting materials that caused photographs to curl, to image stabilization problems, the decision to use positive dye developers instead of negative dye developers, experimentation with light-proof flaps on the camera body to prevent overexposure, and so on.

If *A Triumph of Genius* were, in fact, a biography of Edwin Land, the level of detail devoted to the technological hurdles to creating an instant photography system would begin to antagonize readers who lack a fascination with the travails of cutting-edge scientific research and development. As the author begins to delve ever more deeply into the technical constraints of instant photography, Land slowly ceases to be the protagonist of the work. A series of increasingly sophisticated instant cameras starts to drive the narrative, and at points Fierstein seems just about to pivot into a business history that traces Polaroidâs strategy as a market maker in the instant photography field. But then, about halfway through the book, the storyline shifts again. The plot builds to the moment that Polaroid sues the Eastman Kodak Company for patent infringement. As the Polaroid-Kodak lawsuit begins to take shape, it becomes clear that both Landâs biography and the tale of the invention of instant photography actually serve as a lengthy prologue to the lawsuit, the substantive heart of Fiersteinâs work. Fierstein dubs this epic lawsuit for patent infringement against the Kodak, âone of the most important battles over intellectual property of all timeâ (p. 202).

The Polaroid-Kodak lawsuit began with Kodakâs illfated entry into the instant photography marketplace in 1976. For decades Kodak had been the unquestioned leader in the field of print photography, with significant market dominance that dwarfed its competitors and attracted periodic scrutiny from antitrust regulators. However, within the narrower field of instant photography, Polaroid was king. From the beginning, Polaroid exhibited an aggressive patent strategy, meticulously recording and filing patent applications for each incremental discovery on the road to a commercial product. By the early 1970s, Polaroidâs patent-based dominance within the field of instant photography was so complete that Kodakâs announcement of a directly competing product spurred Polaroidâs legal department to begin drafting its patent-infringement claim even before examining Kodakâs product. In April 1976, less than a week after first obtaining and inspecting the allegedly infringing Kodak camera, Polaroid sued Kodak for infringement of ten key patents from Polaroidâs patent portfolio, including several patents held by Land himself. In response, Kodak pursued a twofold response. First, the photographic giant claimed that Polaroidâs patents were merely ânominal advances that did not rise to the level of patentable inventionsâ (p. 251). Second, the company argued more broadly that Polaroid had sought to create and protect a âmonopoly by abusing the patent system to create a wall of patents impenetrable to anyone interested in entering the instant photography fieldâ (p. 225). On this second claim for misuse of the patent system, Kodak asked the court to invalidate Polaroidâs entire portfolio of patents.

The stakes associated with this case were high. First, conditions of global stagflation, combined with slowing sales in consumer markets saturated with photographic equipment and the rise of European and Japanese competitors, threatened the financial viability of both Kodak and Polaroid. A long and costly lawsuit only exacerbated these existing financial pressures. Perhaps even more significantly, contested patents had a âsurvivability rateâ of only about 35 percent in the 1970s–that is, patent suits more often than not resulted in the *invalidation* of a patent rather than a finding of infringement (p. 313). (This validity rate was actually an improvement over a validity rate of around 10 percent in the 1930s, but it was still low compared to a more pro-patent moment coming just on the horizon. In the 1980s and 1990s, studies estimated that between 55 and 73 percent of patents would be found valid (pp. 313, 504-505).) By claiming infringement, Polaroid put its patents in the line of fire. Over the course of the lawsuit, Kodak set a strategic course predicated on the assumption that the courts would not uphold Polaroidâs patents. By the end of the lawsuit, Kodak had âmore than $200 million worth of plant and equipmentâ and eight hundred workers engaged in making the allegedly infringing film (p. 477). In addition, sixteen million allegedly infringing cameras had been sold to consumers, which could be loaded and used exclusively with compatible, allegedly infringing Kodak film. Both Polaroid and Kodak had a lot to lose.

Fiersteinâs interest in the lawsuit emerged out his own experience with the case. As a young attorney Fierstein worked at Fish and Neaves, a boutique law firm with

a specialty in intellectual property law that represented Polaroid, with Fierstein serving on its Polaroid team. The authorâs background proves to be both a weakness and a strength of the book. Fiersteinâs role as an advocate in the litigation compromises his credibility as a neutral storyteller. Yet his access to the firmâs litigation file allows the story of the case to be told in full color and high resolution. Fierstein weaves together information gained through internal law firm memoranda, interviews with key staff and attorneys, and source material such as transcripts of trial testimony or newspaper reports of the trial available in the public domain. By doing so, Fierstein allows his reader a rare glimpse into the firmâs litigation strategy at each stage of the lawsuit, including the delicate balance of power between law firm and client. For example, after waiting almost two years for a decision from the judge after the close of trial, Polaroid pressured the lead attorney in the case âto do somethingâ (p. 460). Fierstein uses internal documents to show the scramble to draft a letter to the judge to communicate the âsubstantial importanceâ of the case, though the effort was finally abandoned as a âstupid thing to doâ (p. 460). The letter was never sent, but the firm did send a young attorney to the courthouse to listen for âscuttlebuttâ and to see if anything could be learned from the judgeâs âapparently tight-lippedâ clerk (p. 460). (In fact, one wonders if Fierstein himself might have been the unnamed young attorney.) These details come through only because of Fiersteinâs uncommon insider access to materials and knowledge about the suit.

In the most literal sense, Land plays the heroic role of âgeniusâ within *A Triumph of Genius*, and the legal vindication of his patent rights represents his final âtriumph.â But less directly, the genius motif signals Fiersteinâs personal preference for a robust system of patent protection instead of a system that constrains patent monopolies and exhibits a preference for a robust public domain of knowledge. Attitudes towards the appropriate level of patent protection have varied wildly throughout modern history, shifting between eras in which strong patent protections have elicited widespread suspicion as tools for creating industrial monopolies to the detriment of the public at large, to those in which legal and policy elites have viewed durable patent rights as essential incentives for entrepreneurship and invention. More in-depth analysis of such evolving approaches to intellectual property rights can be found in recent works such as Adrian Johnsâs *Piracy: The Intellectual Property Wars from Gutenberg to Gates* (2009) and Peter Baldwinâs *The Copyright Wars: Three Centuries of Trans-Atlantic Battle* (2014). In contrast, Fierstein traces only a single arc in this long-term swing in public sentiment regarding patent protections, pinning 1938 as a particularly âanti-patentâ moment in US history and noting the rise of pro-patent protection attitudes in the second half of the twentieth century, with something of a âpeakâ in the 1990s and 2000s (pp. 313, 506). Fierstein lauds Land as an indefatigable âChampion of Patentsâ (p. 76), so his victory is also a symbolic victory for pro-patent advocates broadly.

In the end, Polaroid won seven of its ten claims for patent infringement and settled with Kodak (in lieu of appealing the case) for close to a billion dollars. The district court case ultimately passed through the dockets of four federal judges and took fifteen years to resolve. At times the case turned into a âclass in organic chemistry,â with witnesses explaining Polaroid chemical processes in all their minutiae (p. 413). A theme of the work is the importance of translation and communication between specialists and generalists, one that might find resonance with scholars of the history of science, medicine, and technology. One of Landâs greatest strengths was his ability as a scientist to communicate his ideas and his innovations to a lay audience, particularly to the federal judge overseeing the case. At least for the purpose of achieving a successful outcome in the lawsuit, Landâs ability to serve as both obstinate inventor and patient teacher proved essential. Land passed away shortly after the caseâs conclusion, in 1991, having since retired from Polaroid.

The Polaroid-Kodak lawsuit lasted for such a long time that even a gradual erosion in anti-patent attitudes meant that the landscape had shifted significantly from the time Polaroid filed its complaint in federal court to the time the federal court issued its final judicial opinion. Fierstein acknowledges the view of some commentators (including Kodak representatives) that Polaroidâs patents âmight not have been upheld as worthy of patent protection under the former, tougher standardsâ that Kodakâs legal advisors applied in pre-controversy 1970s opinion letters on whether Kodakâs actions would be found infringing (p. 506). He also cites a *New York Times* article that called the Polaroid-Kodak suit âthe most prominent example of an increasingly pro-patent sentiment in American Courtsâ (pp. 504-505). But Fierstein generally dismisses Kodakâs position that Polaroidâs âwall of patentsâ essentially excluded any competitor from entering the field of instant photography and that this constituted an abuse of the patent system (p. 225). Rather, he insists that shifts in patent law were *not* responsible for the caseâs outcome. Fiersteinâs conviction in the righteousness of Polaroidâs position with respect to its

patents remains unyielding, irrespective of tectonic shifts occurring in the patent law arena.

Instead, Fierstein frames Kodakâs loss as the natural culmination of its hubris: âKodak must have or, at least, should have realized that total victory in a trial was going to be a long shotâ (p. 507). Fierstein sees Polaroidâs victory as a David-and-Goliath tale. Kodak was bigger, stronger, and had comparably vast resources–yet Kodak ultimately proved to be a lazy, lumbering giant. In contrast, Polaroid, with Land at its helm, was the underdog whose inventions had been rudely appropriated by Kodakâs âisolated and arrogantâ senior managers (p. 508). Polaroidâs plucky lawyers assured that Kodak got its just desserts in what was essentially a âgrudge matchâ (p. 508). Fierstein glorifies Land the inventor and denounces Kodak as the pirate riding Landâs coattails.

Fiersteinâs retelling puts the reader squarely in the shoes of a Polaroid insider, so an outcome in Polaroidâs favor really does feel like a triumph. Yet when Polaroid achieved its legal vindication, Kodak lost its two-hundred-million-dollar investment in the production of instant film and cameras, eight hundred workers lost their jobs, and sixteen million consumersâ cameras became junk overnight when Kodak was forced to halt production of the corresponding instant film. These losses may be viewed from Fiersteinâs inventorsâ rights perspective as merely collateral damage, or perhaps a harsh but necessary deterrent to future would-be patent infringers. But the absolute protection of Polaroidâs patent rights in this case arguably was not in the *public* interest, even if it was undoubtedly in Polaroidâs interest. The tragic reality is that Kodakâs employees and customers stand out as the real losers in the Polaroid-Kodak suit, not the Kodak management executives who in 1976 were foolish or brazen enough to enter the instant photography field despite Polaroidâs painstakingly developed patent portfolio. Though these executivesâ calculations of risk and reward drew Kodak into the line of fire, the consequences passed to the next generation. The key decision makers who spurred Kodakâs entry into instant photography (and thus into an embarrassing and costly lawsuit) were likely long retired by the time the case ended in 1990.

A Triumph of Genius, then, does not quite fit into the frame of a biography, a business history, a history of technology, or a legal history–though it combines some features of all of these. At its core, Fiersteinâs work is an anatomical dissection of a tremendously complex patent suit, yoked to a morality tale of ironclad intellectual property rights as an engine of technological improvement. Fierstein takes a firm position on the importance of a strong patent system and declares victory to the side of âgenius,â but by doing so misses an opportunity to analyze his carefully reconstructed narrative in light of the longstanding debate over the optimal level of patent protection–the degree of protection that adjusts the claims of entrepreneurs and inventors in light of broader societal concerns. Fiersteinâs *A Triumph of Genius* offers not only an insiderâs view into a contentious patent infringement lawsuit, but also an extensive articulation of the inventor-centric approach to intellectual property rights that gained legal traction amid an era of reduced concern about the concentration of economic power.

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