



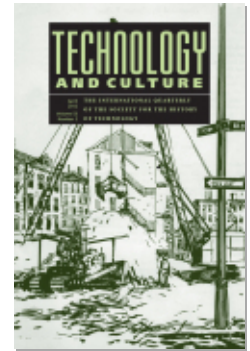
PROJECT MUSE®

Who Invented the Telephone?: Lawyers, Patents, and the Judgments of History

Christopher Beauchamp

Technology and Culture, Volume 51, Number 4, October 2010, pp. 854-878 (Article)

Published by The Johns Hopkins University Press
DOI: [10.1353/tech.2010.0038](https://doi.org/10.1353/tech.2010.0038)



➔ For additional information about this article

<http://muse.jhu.edu/journals/tech/summary/v051/51.4.beauchamp.html>

Who Invented the Telephone?

Lawyers, Patents, and the Judgments of History

CHRISTOPHER BEAUCHAMP

Who invented the telephone? In the United States, this question has a widely known answer. Alexander Graham Bell routinely ranks among the hundred “greatest” or “most influential” Americans, whether chosen by historians or internet polls.¹ His cry of “Mr. Watson—come here—I want to see you,” although often misquoted, is one of the best-known exclamations in American history.² More than one hundred and thirty years after the event, Bell and Watson’s first telephone call remains a classroom staple: a standard device for teaching Americans about the nation’s inventive past, and even for placing technological change at the center of mainstream history.³

Christopher Beauchamp is the Sharswood Fellow in Law and History at the University of Pennsylvania Law School. In an earlier form, this essay received the Levinson Prize of the Society for the History of Technology. The author is grateful for the advice of Anisha Dasgupta, Martin Daunton, Richard John, Robert MacDougall, Christine MacLeod, John Staudenmaier, and four anonymous referees for *T&C*.

©2010 by the Society for the History of Technology. All rights reserved.
0040-165X/10/5104-0005/854-78

1. “The Top 100,” *Atlantic Monthly*, December 2006, 61–78; *The Greatest American*, produced by Jason Raff and Elyse Zaccaro, Discovery Channel and NBC News Productions (June 2005). Polls have also named Bell among the 100 “Great Britons” and a top-ten finalist for “The Greatest Canadian” (*Great Britons*, produced by Mark Harrison and Charlotte Moore and directed by Charlotte Moore, British Broadcasting Corporation [BBC 2, August–November 2002]; *The Greatest Canadian*, produced by Guy O’Sullivan and Rachel Houlihan and directed by Guy O’Sullivan, Canadian Broadcasting Corporation [CBC, October–November 2004]).

2. Original wording from Alexander Graham Bell to his father Alexander Melville Bell, 10 March 1876, in Bell Family Papers (hereafter BFP), folder “Alexander Melville Bell, Family Correspondence, Alexander Graham Bell, 1876,” box 5, Manuscript Division, Library of Congress, Washington, D.C.

3. A number of textbooks and general histories of the United States use Bell and his telephone as shorthand for late-nineteenth-century invention. See, for example, John M. Blum, ed., *The National Experience: A History of the United States* (New York, 1993), 473; Bernard Bailyn et al., *The Great Republic: A History of the American People* (Lexington, Mass., 1992), 2:84, 89; and Pauline Maier et al., *Inventing America: A History of the United States* (New York, 2003), 577–78.

Bell's iconic status requires some explanation. Not every modern technological necessity has a famous origin story; there is no household-name inventor associated with the refrigerator, for example, or the television. Bell's fame, by contrast, rests solidly on two sets of popular historical associations. First, Bell is indelibly identified with a great twentieth-century institution: American Telephone & Telegraph (AT&T, or "Ma Bell") and its nationwide "Bell System"—together, the corporate offspring of the inventor's original telephone enterprise;⁴ and second, the telephone boasts a classic inventive controversy. Many other individuals claimed to have invented the telephone, and some of them protested that Bell had seized the honor fraudulently. These contentions continue to attract attention, most recently in a trio of detective-style historical studies by A. Edward Evenson, Burton Baker, and Seth Shulman.⁵ An enduring frisson of doubt, combined with the telephone's rich technological and corporate history, ensures continuing interest in the question, "Who invented the telephone?"

The purpose of this article is not to venture a definitive answer; instead, the following pages will explain the importance of the *question* to the early history of the telephone—and hence ultimately to Bell's place in American memory. At the center of my story is an institution seldom credited with cultural authority: the patent law. During the 1880s, in one of the largest and most controversial litigation campaigns of any kind during the nineteenth century, Bell's attorneys won a string of patent cases that brought the entire telephone industry under a legal monopoly. Courts accepted Bell's claim to have pioneered the technology and responded by granting him broad rights over electrical speech communication. "Who invented the telephone?"—far from being a mere matter of scientific curiosity—became the key to control of the entire telephone industry.

4. See, for example, American Telephone & Telegraph Company, *The Career of Alexander Graham Bell* (New York, 1946); New York Telephone Company, *Alexander Graham Bell, Inventor of the Telephone* (New York, 1952). On the Bell System more generally, see Richard R. John, "Recasting the Information Infrastructure for the Industrial Age," in *A Nation Transformed by Information: How Information Has Shaped the United States from Colonial Times to the Present*, ed. Alfred D. Chandler and James W. Cortada (New York, 2000), 55–106; and Robert D. MacDougall, "The People's Telephone: The Politics of Telephony in the United States and Canada, 1876–1926" (Ph.D. diss., Harvard University, 2004).

5. A. Edward Evenson, *The Telephone Patent Conspiracy of 1876: The Elisha Gray–Alexander Bell Controversy and Its Many Players* (Jefferson, N.C., 2000); Burton H. Baker, *The Gray Matter: The Forgotten Story of the Telephone* (St. Joseph, Mich., 2000); Seth Shulman, *The Telephone Gambit: Chasing Alexander Graham Bell's Secret* (New York, 2008). An important assessment of Evenson's, Baker's, and Shulman's claims is Bernard S. Finn, "Bell and Gray: Just a Coincidence?" *Technology and Culture* 50 (2009): 193–201. See also Frederick Leland Rhodes, *Beginnings of Telephony* (New York, 1929); William Aitken, *Who Invented the Telephone?* (London, 1939); Lewis Coe, *The Telephone and Its Several Inventors* (Jefferson, N.C., 1995); and Basilio Catania, *Antonio Meucci: L'Inventore e il suo Tempo*, 2 vols. (Turin, 1994).

Why this should have happened is a matter of wider historical interest. The telephone cases provide a classic instance—albeit an exceptionally high-profile one—of an important legal and economic phenomenon. Patent struggles consumed many of America’s most valuable new technologies during the nineteenth and early twentieth centuries. A short list of highlights would include the cotton gin, sewing machine, mechanical reaper, barbed wire, telegraph, telephone, electric light, automobile, and airplane.⁶ “The importance of any new technique in transforming American life,” Daniel Boorstin has half-seriously observed, “could roughly be measured by the quantity of lawyerly energies which it called forth.”⁷

This article reflects on how those “lawyerly energies” were spent. In doing so, it seeks to close a historical gap. Despite the range of inventions and industries that ventured into the lawyers’ world, the tools of legal history have rarely been brought to bear on the history of technology. To be sure, the history of nineteenth-century patenting has lately come into much clearer focus. Recent work includes studies of “Great Inventors,” employee-inventors, and intermediaries in the market for invention; examinations of the political debates surrounding America’s patent laws; and comparative work on national statutory regimes.⁸ In addition, patents have long been recognized as influential factors in the “social construction” of technological change: as one historian has put it, the patent system “conditioned men’s views of invention” while simultaneously responding to prevailing views of how the inventive process worked.⁹ If there is a blind spot to the patent lit-

6. A comprehensive list, ranging from railroad brakes to rubber dentures, would fill many pages. See, for example, Edwin J. Prindle, *Patents as a Factor in Manufacturing* (New York, 1908), 14–15; and Frank Keiper, *Pioneer Inventions and Pioneer Patents* (Rochester, N.Y., 1924).

7. Daniel J. Boorstin, *The Americans: The Democratic Experience* (New York, 1973), 58.

8. Catherine Fisk, “Removing the ‘Fuel of Interest’ from the ‘Fire of Genius’: Law and the Employee Inventor, 1830–1930,” *University of Chicago Law Review* 65 (1998): 1127–98; B. Zorina Khan and Kenneth Sokoloff, “‘Schemes of Practical Utility’: Entrepreneurship and Innovation among ‘Great Inventors’ in the United States, 1790–1865,” *Journal of Economic History* 53 (1993): 289–307; Naomi Lamoreaux and Kenneth Sokoloff, “Inventors, Firms, and the Market for Technology: U.S. Manufacturing in the Late Nineteenth and Early Twentieth Centuries,” in *Learning by Doing in Firms, Markets, and Countries*, ed. Naomi Lamoreaux, Daniel M. G. Raff, and Peter Temin (Chicago, 1999), 19–60; Naomi Lamoreaux and Kenneth Sokoloff, “Intermediaries in the U.S. Market for Technology, 1870–1920,” in *Finance, Intermediaries, and Economic Development*, ed. Stanley L. Engerman et al. (Cambridge, 2003), 209–46; Kara Swanson, “The Emergence of the Professional Patent Practitioner,” *Technology and Culture* 50 (2009): 519–48; Steven W. Usselman, *Regulating Railroad Innovation: Business, Technology, and Politics in America, 1840–1920* (Cambridge, 2002); Steven W. Usselman and Richard R. John, “Patent Politics: Intellectual Property, the Railroad Industry, and the Problem of Monopoly,” *Journal of Policy History* 18 (2006): 96–125; Josh Lerner, “150 years of Patent Protection,” National Bureau of Economic Research (NBER) Working Paper Series, Working Paper 7478 (2000); Johann Peter Murmann, *Knowledge and Competitive Advantage: The Coevolution of Firms, Technology, and National Institutions* (Cambridge, 2003).

9. Brooke Hindle, *Emulation and Invention* (New York, 1983), 128. See also Carolyn C.

erature, though, it falls on the courts. With a few notable exceptions, the fate of patents in the courts remains a “black box”—the technologists’ term for a process whose inputs and outputs are observed, but whose inner workings are not.¹⁰

The sheer wealth of material relating to the telephone cases, ranging from the private papers of litigants and judges to the thousands of pages of evidence and argument, provides a prime entry point into the opaque world of patent litigation. The Bell patent question featured in the public life of the country—in journalism, finance, even politics. For the historian, this trove of argument and commentary is an inviting source, but one that should be approached with caution. The apparently factual question of just *who* had invented the telephone became a repository for unspoken normative questions, including “Who should control telephone service?” and “Whom should the patent law benefit?”

Equally notable, from the point of view of Alexander Graham Bell’s reputation, is that these ancient legal maneuverings continue to resonate. Patent monopoly propelled the American Bell Telephone Company to the commanding heights of American business—a position that the firm and its successor, AT&T, would occupy until the late twentieth century—and to a permanent position as the keeper of Bell’s legacy.¹¹ More fundamentally, “Who invented the telephone?” became a question defined by law. Legal rules shaped the types of claim that a would-be Great Inventor needed to assert; lawyers argued bitterly about the nature of the telephone itself. Today we may take for granted that the telephone originated with a single man, that it consisted essentially of a single invention, and that it represented a sharp technological break; yet for Bell and his legal representatives these were bold arguments, made in pursuit of a patent that would control

Cooper, *Shaping Invention: Thomas Blanchard’s Machinery and Patent Management in Nineteenth-Century America* (New York, 1991), 29–56; Christine MacLeod, “Concepts of Invention and the Patent Controversy in Victorian Britain,” in *Technological Change: Methods and Themes in the History of Technology*, ed. Robert Fox (Amsterdam, 1996), 137–53; Cai Guise-Richardson, “Redefining Vulcanization: Charles Goodyear, Patents, and Industrial Control, 1834–1865,” *Technology and Culture* 51 (2010): 357–87.

10. The leading work in this field is B. Zorina Khan, “Property Rights and Patent Litigation in Early Nineteenth-Century America,” *Journal of Economic History* 55 (1995): 58–97. On patent doctrine, see Oren Bracha, “Owning Ideas: A History of Anglo-American Intellectual Property” (S.J.D. diss., Harvard Law School, 2005), chap. 4. A perceptive discussion of patent law during the 1870s and 1880s appears in Usselman, *Regulating Railroad Innovation*, chap. 4. Numerous single-industry studies discuss patent lawsuits in detail, albeit with little reflection on the broader legal context. See, for example, Harold C. Passer, *The Electrical Manufacturers, 1875–1900: A Study in Competition, Entrepreneurship, Technical Change, and Economic Growth* (Cambridge, Mass., 1953); William Greenleaf, *Monopoly on Wheels: Henry Ford and the Selden Automobile Patent* (Detroit, 1961); Richard Korman, *The Goodyear Story: An Inventor’s Obsession and the Struggle for a Rubber Monopoly* (San Francisco, 2002).

11. The Bell parent company operated after 1900 as the American Telephone & Telegraph Company, eventually shortened to AT&T.

the telephone business. In the courts of the day—and in the judgment of posterity—those arguments succeeded in spectacular fashion. In that sense, the invention of the telephone belongs to the lawyers.

A Pioneer Patent

OCTOBER
2010
VOL. 51

A basic telephone converts the physical vibration of sound into an electrical signal, which then causes an electromagnet at the receiver's end to vibrate a diaphragm identically. Early attempts to transmit sound electrically in the 1860s and 1870s used telegraph-like methods: a vibrating membrane made and broke a battery-powered circuit, transmitting discrete electrical pulses to a distant sounder. This approach replicated pitch but not amplitude or timbre, carrying "galvanic music" but falling short of speech. Bell's key insight was that reproducing complex sounds required a constant and fluctuating current rather than an intermittent one. This "undulatory current," as Bell called it, became the basis of his working telephone and the central feature of his first telephone patent. Until the patent reached court, however, neither Bell nor anyone else could tell what kind of legal protection his invention would obtain (fig. 1).

On the eve of the first telephone trial, in January 1879, Bell engaged in a "regular pitched battle" with his own lawyer.¹² Nearly three years after Bell had received his patent, the two men disagreed vehemently on how to present it in court. Bell insisted on emphasizing the first four "claims" (formal statements of invention, intended to demarcate the scope of the patent), which outlined methods for generating and transmitting the undulatory current. His attorney, the experienced Boston patent-lawyer Chauncey Smith, had eyes only for the fifth claim, which applied Bell's method specifically to "transmitting vocal or other sounds."¹³ Bell became physically ill with worry over "Mr. Smith's seeming lack of appreciation of . . . the fundamental underlying feature of the speaking Telephone."¹⁴ But Smith would not be moved. By focusing on the claim to speech transmission, the lawyer believed, he could emphasize Bell's concrete achievement while avoiding an interminable debate about electrical theory.

When the trial began, Smith's strategy reaped immediate rewards. Bell's adversaries, having prepared to wreck the patent by proving that the undulatory current itself was previously known, found that they had misplaced their defenses. Relenting on his earlier protests, Bell crowed that "[t]hey have stated in their Bill of Objections that my invention was old. . . . Now it

12. Alexander Graham Bell to Mabel Hubbard Bell, 26 January 1879, in BFP, folder "Mabel Hubbard Bell, Family Correspondence, Alexander Graham Bell, January–February 1879," box 39.

13. Alexander Graham Bell, U.S. Patent 174,465, dated 7 March 1876, for "Improvement in Telegraphy."

14. Alexander Graham Bell to Mabel Hubbard Bell, 26 January 1879.

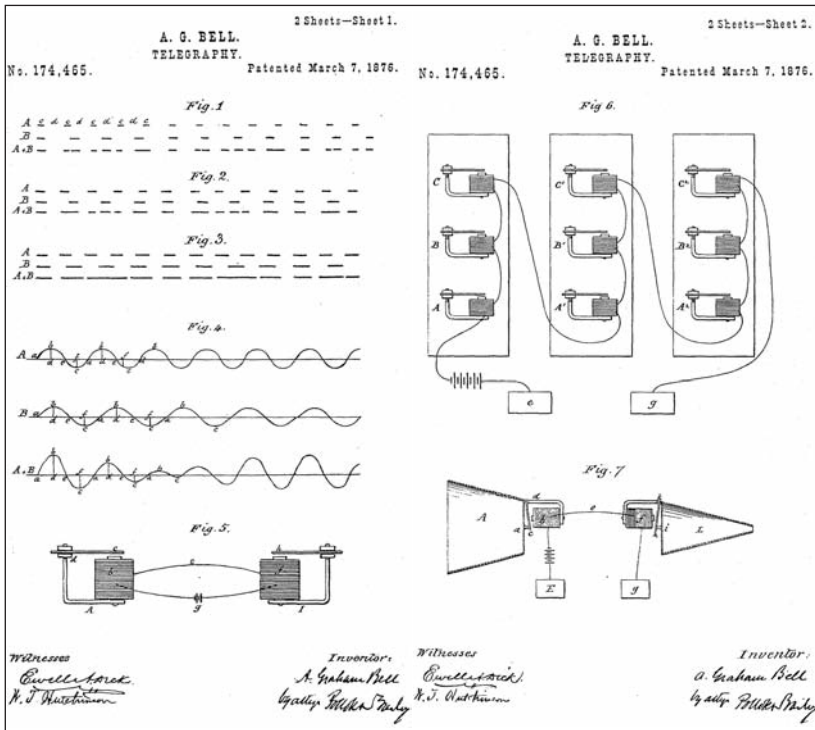


FIG. 1 Illustrations from U.S. Patent 174,465, dated 7 March 1876, issued to Alexander Graham Bell for "Improvement in Telegraphy."

turns out to their astonishment that the invention they have stated to be old is not the invention we claim they have infringed and they don't know what to do."¹⁵ In a way unexpected to both his adversaries and to the inventor himself, Bell's lawyers had staked his patent on the practical fact of speech transmission, broadly encompassed in the fifth claim. The first day of trial ended with opposing counsel fleeing the Boston court for consultations in New York. The lasting result of Smith's approach was the installation of the fifth claim at the center of Bell's legal strategy.

This episode reveals the importance of legal decision making. What, after all, had Bell invented? On a narrow reading of his patent, one might conclude that he had devised a specific machine for converting sound into electrical impulses and back again. Indeed, his patent described "one form of apparatus for producing the effect": a simple transmitter and receiver using electromagnets to vibrate one diaphragm in sympathy with another.¹⁶ Alternatively, one could argue that Bell had pioneered a new field

15. Ibid.

16. Bell, U.S. Patent 174,465, 4.

OCTOBER
2010
VOL. 51

by outlining the basic method for transmitting speech by electricity. American courts would adopt the latter position, reading Bell's fifth claim broadly to grant a legal monopoly over every form of telephone. The words of the patent need not have been read so expansively; in other countries, they were not. Britain's leading electrical journal called the broad fifth claim "a preposterous proposition" entertained only by Americans.¹⁷ Years later, Bell was honored in his native Britain for "his share in the invention of the Telephone and more especially the construction of the Telephone Receiver."¹⁸ Legal decisions had fostered a different view of Bell's contribution.

In the United States, Bell's strategy was shaped by the way the courts understood "invention." American jurists of the nineteenth century sought to distinguish between "breakthroughs" and "incremental improvements," and to employ the distinction in determining the proper scope of a patent right. As one legal authority put it, "[t]he first inquiry is whether the patent is a primary one; that is, for a pioneer invention. . . . In the case of a primary patent greater liberality is shown in construing its claims so as to protect it against equivalents."¹⁹ Conversely, "if the advance towards the thing desired is gradual, and proceeds step by step, so that no one can claim the complete whole, then each is entitled only to the specific form of device which he produces."²⁰

Powerful practical reasons argued for this kind of differentiation. Courts faced a massive expansion in patenting: the number of patents in force rose from approximately 7,000 in 1850 to over 20,000 in 1860, 80,000 in 1870, and 180,000 in 1880.²¹ Given rising litigation, judges had strong incentives to separate patents of greater and lesser worth. Moreover, the notion of a "pioneer patent" was, inevitably, a cultural as well as a legal construct. In the mid-to-late-nineteenth century, romantic attitudes toward creativity, the lived experience of rapid industrialization, and publicity campaigns by patent-holding entrepreneurs combined to support a robust popular image of the heroic inventor, embodied during the 1860s by a canon of "Men of Progress" that included Elias Howe (hailed as the inventor of the

17. "Telephone Litigation in America," *Telegraphic Journal and Electrical Review*, 20 June 1885, 558.

18. Cited inscription on Royal Society's Hughes Medal, awarded 1913, quoted in J. E. Kingsbury, *The Telephone and Telephone Exchanges* (London, 1915), 191.

19. William K. Townsend, "Patents," in *Two Centuries' Growth of American Law, 1701–1901*, ed. Members of the Faculty of the Yale Law School (New York, 1901), 391–421, quote on 406. On the doctrine of primary and secondary patents, see *McCormick v. Talcott*, 61 U.S. 402 (1857); Albert H. Walker, *Text-Book of the Patent Laws of the United States of America* (New York, 1883), 262–65; and Simon G. Crosswell, "Infringement Cases in Patent Law," *Harvard Law Review* 3 (1889): 206–12.

20. *Chicago & N.W. Railway Co. v. Sayles*, 97 U.S. 554, 556–57 (1878).

21. Figures calculated from U.S. Patent Office, *Annual Report of the Commissioner of Patents for the Year 1892*, 52nd Cong., 2nd sess., Senate Miscellaneous Document 53 (Washington, D.C., 1893), xii.

sewing machine), Cyrus McCormick (the mechanical reaper), Charles Goodyear (vulcanized rubber), and Samuel Morse (the telegraph).²²

These developments were in constant dialogue with the patent system and the law. Patent litigation had a powerful publicity-generating role: it was no coincidence that Howe, McCormick, Goodyear, and Morse had all launched large-scale attempts during the 1840s and 1850s to gain patent control of national markets for their technologies. On a conceptual level, courts struggled to fashion a legal framework that recognized both heroic invention and cumulative improvement. By the 1870s, their efforts led them toward an increasingly clear acceptance of broad patents in cases of pioneering invention. As Justice Joseph Bradley of the U.S. Supreme Court noted, almost all inventions “being sought by many minds . . . developed in different and independent forms”; yet “if one inventor precedes all the rest and strikes out something which includes and underlies all that they produce, he acquires a monopoly and subjects them to tribute.”²³ Pioneer patents provided a legal framework to match a cultural trope—a basis, in other words, for asking who invented *the* telephone.

The mere existence of rules favorable to pioneer inventors cannot, however, explain why the courts applied that designation to Bell. As legal scholars have long recognized, court decisions emerge as much from judicial preference and prejudice as from formal doctrine, however rule-bound they may appear on paper.²⁴ Just as importantly, the adversarial nature of litigation determined which issues came before the courts and how the parties’ arguments were presented. Who sued whom, when, and where mattered a great deal.

Bell’s New Art

The Bell Telephone Company began its legal campaign in its home city of Boston against a particularly dangerous opponent: Western Union, the country’s dominant telegraph company. Western Union’s telephone arm had grown rapidly since its formation in 1878, just a year after the creation of the Bell Telephone Company, and had already overtaken Bell-licensed operations in key cities like New York and Chicago. Bell executives anx-

22. Thomas P. Hughes, *American Genesis: A Century of Invention and Technological Enthusiasm, 1870–1970* (New York, 1989), 15–16; Merritt Roe Smith, “Technological Determinism in American Culture,” in *Does Technology Drive History? The Dilemma of Technological Determinism*, ed. Merritt Roe Smith and Leo Marx (Cambridge, Mass., 1994), 5–8. The most in-depth analysis of heroic invention as a cultural construct, albeit in the somewhat different British context, is Christine MacLeod, *Heroes of Invention: Technology, Liberalism and British Identity, 1750–1914* (Cambridge, 2007).

23. *Chicago & N.W. Railway Co. v. Sayles*, 97 U.S. at 556.

24. William W. Fisher, Morton Horwitz, and Thomas A. Reed, eds., *American Legal Realism* (New York, 1993).

iously debated the wisdom of suing such a powerful adversary and several times came close to a compromise with Western Union. Litigation finally began in the fall of 1878.²⁵ The “Dowd case” (named for the nominal defendant, Western Union agent Peter Dowd), saw the debut of many arguments that the telephone trials of the 1880s would repeatedly traverse.

As was typical in patent cases, Western Union offered multiple defenses. These ranged from assertions that Bell’s invention lacked novelty, to allegations that the machine described in his patent would not work.²⁶ The most important arguments, from the telegraph company’s point of view, involved Western Union’s own telephone-related patents. Several of these originated with the engineer Elisha Gray, who, like Bell, had entered the field of sound transmission hoping to develop a form of high-capacity telegraph. Unlike Bell though, Gray had focused on his telegraph schemes and did not immediately reduce his voice-transmission ideas to practice, instead filing a provisional notice called a “caveat,” which reached the Patent Office on the very same day that Bell filed his own application.²⁷ Whether this striking coincidence represented simultaneous invention by the two men or suspicious practice on Bell’s part would become a controversial subject in later litigation. Other Western Union properties included patents assigned by Amos Dolbear, a physicist at Tufts University who claimed to have preempted Bell’s work, and Thomas Edison, who had developed an improved form of transmitter.²⁸ Finally, Western Union’s briefs cited many other researchers in electrical acoustics, including Philipp Reis, a German scientist who had constructed and publicized versions of a “Telephone” between 1861 and 1864.

These arguments never reached a judicial decision. Late in 1879, Western Union abruptly withdrew from telephone service in order to focus on competitive threats elsewhere in the telegraph business, and the Dowd case was settled.²⁹ The Bell Company received exclusive rights to Western Union’s telephone patents and in return ceded its erstwhile competitor a minority stake in telephone operations. Settlement drew a line under some patent questions, while leaving others open. A consent decree renounced the claims of Gray, Dolbear, and Edison to priority over Bell, removing at a stroke some of the leading threats to Bell’s patent. However, many of the counterclaims raised by

25. Rosario J. Tosiello, *The Birth and Early Years of the Bell Telephone System, 1876–1880* (New York, 1979), 235, 239–40, 249.

26. In the U.S. Circuit Court for the District of Massachusetts, *Bell Telephone Company et al. v. Peter A. Dowd. Pleadings, Evidence and Exhibits*, 2 vols. (Boston, 1880).

27. On Gray, see David Hounshell, “Elisha Gray and the Telephone: On the Disadvantages of Being an Expert,” *Technology and Culture* 16 (1975): 133–61.

28. Tosiello, 225–28.

29. David Hochfelder, “Constructing an Industrial Divide: Western Union, A.T.&T., and the Federal Government, 1876–1971,” *Business History Review* 76 (2002): 713–15; Kenneth Lipartito, *The Bell System and Regional Business: The Telephone in the South, 1877–1920* (Baltimore, 1989), 49–50.

Western Union remained available to other defendants. In addition, the Bell Company had still received no ruling on the broad scope of its patent.

Consummation of the strategy launched against Western Union was swiftly arranged through a second suit in the same court. *American Bell Telephone Company v. Spencer*, filed in July 1880, concerned charges of infringement against Albert Spencer, Massachusetts agent of the small Eaton Telephone Company.³⁰ Judge John Lowell presided, as he had done in the Dowd case, and the complete record of testimony from the earlier trial was entered as evidence. Although the defendants conceded Bell's priority of invention, the Bell Company pressed for a ruling on the fifth claim of his patent.³¹

Judge Lowell's reading of the fifth claim, handed down in June 1881, made *Spencer* a foundation stone of monopoly. Bell had, in the judge's words, "discovered a new art—that of transmitting speech by electricity—and has a right to hold the broadest claim for it which can be permitted in any case."³² In ruling Bell's invention a "new art," Lowell set the patent firmly in the pioneer category. Bell had discovered the application of the undulatory current to speech transmission; as such, his rights were not confined to any particular machinery used. This position was crucial, because telephone technology had already moved well beyond Bell's original invention. New instruments, especially the improved transmitters pioneered by Edison, Emile Berliner, and Francis Blake, proved indispensable in making the telephone commercially viable; yet under the *Spencer* decision, such advances were controlled by Bell's rights. As *Scientific American* informed its readers, the judgment "virtually confirms to the American Bell Telephone Company the exclusive right of talking over a wire by electricity."³³

The Pretenders

With the Boston court ruling out any route around Bell's rights, attempts to invalidate the patent came to the fore. Again, activity was channeled by the peculiar configuration of American law. Whereas most countries recognized the first claimant to file a patent, U.S. patents issued only to the "first and true" inventor—a standing invitation, gratefully accepted by Bell's growing number of opponents, to put forward prior inventors "discovered" after the technology had become a going concern.³⁴

30. *American Bell Telephone Company v. Spencer*, 8 F. 509 (C.C.D.Mass. 1881); Rhodes (n. 5 above), 208–9.

31. *American Bell Telephone Company v. Spencer*, 8 F. at 509–10.

32. *Ibid.*, 8 F. at 511.

33. "Important Telephone Decision," *Scientific American*, 16 July 1881, 32 (emphasis in original).

34. Arthur P. Greeley, *Foreign Patent and Trademark Laws: A Comparative Study* (Washington, D.C., 1899).

The telephone litigation is justly remembered for this colorful cast of characters: men such as the mechanic Daniel Drawbaugh of Eberly's Mills, Pennsylvania, self-described as "one of the greatest inventive geniuses of this age," who alleged that he had built telephones in the 1860s and early 1870s.³⁵ Another claimant, Dr. Sylvanus Cushman, maintained that he had done so in Racine, Wisconsin, in 1851, when his electrical experiments had suddenly enabled him to hear the croaking of frogs in a nearby swamp.³⁶ A third, the Italian-born machinist Antonio Meucci, claimed to have invented a speaking telegraph while employed as a theater decorator in Havana in 1849 or 1850. Meucci had filed a caveat (notice of invention) with the U.S. Patent Office in 1871 but had not pursued a full application, he explained, because an explosion on the Staten Island ferry had rendered him an invalid.³⁷ These men and others like them could point to extensive personal histories of electrical experimentation. But their central qualification was prior obscurity, accompanied by pleas of poverty to explain why they had not publicized their discoveries sooner. The Bell Company, anxious to rebut the pretenders' claims, responded by hiring the Pinkerton National Detective Agency to ferret out discrediting details.³⁸

Not all rival telephone companies uncovered their own claimant. Many invoked the work of the German Reis, whose scientific reputation enjoyed a remarkable posthumous resurgence in the mid-1880s.³⁹ Using a device that, like a telegraph, alternately made and broke an electric current, Reis had transmitted musical tones in the early 1860s. It did not take much—only the weighting of an armature, or the tighter stretching of a diaphragm—for Reis's *Telephon* to operate with the constant and fluctuating current employed by Bell. When thus configured and very carefully handled, the Reis telephone could talk.⁴⁰ On this basis, Bell's opponents argued that Reis had invented the telephone (some claiming that he had transmitted actual speech during the 1860s), or, at the very least, that the

35. *American Bell Telephone Company v. People's Telephone Company*, 22 F. 309, 326 (C.C.S.D.N.Y. 1884).

36. *American Bell Telephone Company v. American Cushman Telephone Company*, 35 F. 734 (C.C.N.D.Ill. 1888).

37. *American Bell Telephone Company v. Globe Telephone Company*, 31 F. 729, 733–34 (C.C.S.D.N.Y. 1887). See also Basilio Catania, "Antonio Meucci: Telephone Pioneer," *Bulletin of Science, Technology & Society* 21 (2001): 55–76; and Catania, "Antonio Meucci, Inventor of the Telephone: Unearthing the Legal and Scientific Proofs," *Bulletin of Science, Technology & Society* 24 (2004): 115–37.

38. Basilio Catania, "The U.S. Government versus Alexander Graham Bell: An Important Acknowledgment for Antonio Meucci," *Bulletin of Science, Technology & Society* 22 (2002): 426–42n4.

39. Silvanus P. Thompson, *Philipp Reis: Inventor of the Telephone* (London, 1883); see also the collection of articles by pro-Reis American scientists reprinted in the *Telegraphic Journal and Electrical Review*, 22 and 29 January 1886.

40. Thompson, 47–48; *American Bell Telephone Company v. Molecular Telephone Company*, 32 F. 214, 217–18 (C.C.S.D.N.Y. 1885); Evenson (n. 5 above), 158.

Boston court's rigid distinction between undulatory-current telephones and make-and-break devices ran ahead of scientific understanding of electricity.

Although popularly remembered as bids for inventive credit, challenges to Bell's priority were ultimately driven by financial considerations. The number of claimants was, as *Scientific American* remarked, "a faithful index of the value of the prize."⁴¹ Meucci remained obscure until brought to the attention of a Philadelphia syndicate, whose members organized a company backed by the Baltimore & Ohio Telegraph interests. Cushman attracted support from Chicago city councilors and drugstore owners.⁴² Perhaps the most important connection occurred in 1879, when a Washington patent lawyer named Lysander Hill represented Drawbaugh and his partner Edgar Chellis in a patent dispute over a faucet. Shortly afterwards, these men formed a partnership to promote Drawbaugh's telephone claims, joining forces with businessmen from New York, Washington, and Cincinnati to incorporate the People's Telephone Company at an authorized capitalization of \$5 million.⁴³

The People's Company joined a diverse band of telephone enterprises established in defiance of Bell's patent. It is impossible to account for all of them; even the 600 infringement suits initiated by Bell did not uncover every backwoods exchange and workshop-built telephone. However, the most determined infringers—those who led the legal fight against Bell—adopted a characteristic speculative model. After incorporating with a collection of minor telephone patents and a large paper valuation, these ventures promoted operating companies in multiple states, aiming to profit from the sale of licenses and stock. Thus the New York-based Molecular Telephone Company licensed an offshoot in Cleveland, while the Overland Telephone Company promoted subsidiaries in Pennsylvania, New Jersey, and Kentucky.⁴⁴ The Pan-Electric Telephone Company, formed in Tennessee, marketed its patents to parties in Missouri, Illinois, Alabama, Texas,

41. "The Problem of the Telephone," *Scientific American*, 17 February 1883, 96.

42. "The Course of Telephone Litigation," *Electrical World*, 2 February 1884, 36; "The Directorate of the Globe Company," *Electrical World*, 5 April 1884, 115; "The Telephone Cases in America," *Telegraphic Journal and Electrical Review*, 24 January 1885, 82; "The Telephone," *Western Electrician*, 21 January 1888, 35; Catania, "The U.S. Government versus Alexander Graham Bell," 428.

43. In the U.S. Circuit Court for the Southern District of New York, *American Bell Telephone Company v. The People's Telephone Company et al.*, *Evidence for Complainants* (Boston, 1882), 1:85–104; In the U.S. Circuit Court for the Southern District of New York, *American Bell Telephone Company v. The People's Telephone Company et al.*, *Appendix to Complainants' Briefs* (Boston, 1882), 162–65; *The Telephone Cases*, 126 U.S. 1, 547–52, 561 (1888).

44. *American Bell Telephone Company v. Molecular Telephone Company*, 32 F. 214; Thomas Lockwood, "Memorandum Relating to the Litigation of the Bell Patents," undated typescript, 37, 40, box 1056, AT&T archives, Warren, N.J.; Rhodes (n. 5 above), 211–13.

and the area around Washington, D.C.⁴⁵ Some of these ventures resulted in the construction of actual telephone lines, while others remained on paper. All shared a common aim, however: to stave off the inevitable infringement suit from Bell.

The campaign launched in Daniel Drawbaugh's name demonstrates the scale of this effort. In response to a suit filed by Bell in New York, Drawbaugh's lawyers deposed dozens of witnesses to his invention of the telephone, collecting an unprecedented 8,000 pages of testimony evidence over three and a half years.⁴⁶ Fortunately for Drawbaugh, financial stamina and eminent legal representation were hallmarks of the People's Telephone Company. The first attorney to argue Drawbaugh's case was George Harding, leader of the Philadelphia patent bar. Later, the company retained Senator George Edmunds, the ablest constitutional lawyer in Congress, who had declined President Arthur's offer of a Supreme Court seat and was himself a credible presidential contender in 1884.⁴⁷

By the time the Drawbaugh case came to a hearing in New York, lawsuits across the country waited on the result. Observers eagerly anticipated a clash of legal heavyweights. To counter the prestige that Senator Edmunds brought to Drawbaugh's representation, the Bell Company had retained another powerful Republican, former senator Roscoe Conkling of New York, who had declined the same Supreme Court seat offered to Edmunds.⁴⁸ To the disappointment of the newspapers, however, neither man played much part during two weeks of dense and often technical argument,⁴⁹ nor did the result disturb Bell's monopoly. Judge William Wallace concluded the trial by rejecting Drawbaugh's claims and casting aspersions on his inventive ability. Drawbaugh's own words, noted the judge, revealed "without the aid of extrinsic evidence, the ignorance and vanity of the man, and . . . suggest[ed] also the character of a charlatan."⁵⁰

45. U.S. Congress, House, Select Committee on Pan-Electric Telephone Stock, *Report of the Minority*, 49th Cong., 1st sess., H. Rpt. no. 3,142 (Washington, D.C., 1886), 73, 84; U.S. Congress, House, Committee on Pan-Electric Telephone Company, *Testimony Taken by Committee on Pan-Electric Telephone Company*, 49th Cong., 1st sess. (Washington, D.C., 1886), 45–51; Rhodes, 217–18.

46. "The Great Telephone Suit," *Scientific American*, 4 October 1884, 208–9.

47. In the U.S. Circuit Court for the District of New Jersey, *American Bell Telephone Company v. John J. Heghan. Complainants' Moving Papers on Motion for Preliminary Injunction* (Boston, 1882), 9. Harding's career is described in Albert H. Walker, "George Harding," in *Great American Lawyers*, ed. William Draper Lewis (Philadelphia, 1909), 43–87. On Edmunds, see Samuel B. Hand, "Edmunds, George Franklin (1828–1919)," in *American National Biography*, ed. John A. Garraty and Mark C. Carnes, vol. 8 (New York, 1999), 8:320–21.

48. Donald Grier Stephenson, *The Waite Court: Justices, Rulings, and Legacy* (Santa Barbara, Calif., 2003), 133.

49. "Talking about the Telephone: Distinguished Counsel Watching while Another Lawyer Lectures," *New York Times*, 23 September 1884.

50. *American Bell Telephone Company v. People's Telephone Company* (n. 35 above), 22 F. at 327.

After Judge Wallace's ruling for Bell, the other dominoes fell quickly, most of them in the same New York court. Wallace issued injunctions against the McDonough group of telephone companies in February 1885, the Molecular Telephone Company in March, and the Overland firm in December. Judges in Pennsylvania, New Jersey, Ohio, Kentucky, Louisiana, Maryland, and Texas followed suit.⁵¹ As the rain of decisions for Bell came down, companies tried unsuccessfully to shelter themselves by alleging new evidence, by abandoning subsidiaries in mid-trial so as not to be bound by the verdict, and by attacking the legitimacy of earlier decisions, claiming that defendants such as Spencer had secretly colluded with Bell.⁵²

Throughout the process, the federal courts (which had responsibility for patent questions) answered their mandated role as "an indivisible system for ascertaining the rightfulness and limits of a patent."⁵³ As the flourishing interstate trade in patent assignments indicated, judges had long supplied reliable patent enforcement.⁵⁴ And as Americans had begun to discover, the federal courts served as a crucial support for the legal and financial operations of large corporations.⁵⁵ These generalizations held in the telephone cases. Federal circuit judges in Boston, New York, and Philadelphia—the men who held responsibility for the consistent enforcement of patent rights across a whole swathe of industrial America—observed a firm rule of respect for one another's rulings.⁵⁶ Crucially, the impulse for uniformity extended beyond the major patent forums of the Northeast.⁵⁷ Geography, by forcing Bell to bring multiple suits, had provided the telephone patent infringers with some room to maneuver. Even so, it provided no refuge from the nationwide enforcement of Bell's rights.

Scandal

In the mid-1880s, the telephone patent question moved beyond the world of lawyers, financiers, and engineers onto a broader public stage.

51. *American Bell Telephone Company v. Molecular Telephone Company* (n. 40 above), 32 F. 214; *American Bell Telephone Company v. National Improved Telephone Company et al.*, 27 F. 663 (C.C.E.D.La. 1886); Rhodes (n. 5 above), 212–19.

52. "The Legal Effect of the Wallace Decision," *Telegraphic Journal and Electrical Review*, 10 January 1885, 34–35; affidavit of W. Van Benthuyzen, 13 November 1885, in U.S. Department of the Interior, *The Telephone Case: Record* (Washington, D.C., 1885), 178; Lockwood (n. 44 above), 44–45.

53. *Goodyear Dental Vulcanite Company v. Willis*, 10 F. Cas. 754, 756 (C.C.Mich. 1874).

54. Khan (n. 10 above); Lamoreaux and Sokoloff, "Inventors, Firms" (n. 8 above).

55. Edward A. Purcell, *Litigation and Inequality: Federal Diversity Jurisdiction in Industrial America, 1870–1958* (New York, 1992).

56. Opinion of Judge Wallace in *American Bell Telephone Company v. Molecular Telephone Company*, 32 F. at 216; "Another Telephone Decision," *Scientific American*, 18 July 1885, 32.

57. *American Bell Telephone Company v. National Improved Telephone Company et al.* (n. 51 above), 27 F. at 664–65.

There the reputation of the Bell patent became entangled with one of the great preoccupations of the Gilded Age: corruption.⁵⁸ Allegations of dishonesty swirled around Alexander Graham Bell and the Patent Office, culminating in the accusation that Bell had obtained his patent by fraud. This sensational claim became the basis of a federal government lawsuit against the Bell Company—a remarkable intervention that would itself collapse in scandal.

Several recent challenges to Bell's inventive priority, notably A. Edward Evenson's book *The Telephone Patent Conspiracy of 1876*, take up the charge that Bell benefited from fraud or corruption.⁵⁹ These allegations first appeared in 1885 and subsequently took a variety of forms. Some versions had Bell receiving improper assistance from Patent Office officials during his application; others accused Bell of stealing aspects of his patent from his rival Elisha Gray.⁶⁰ Gray's caveat, submitted on the same day as Bell's patent, described a "variable resistance" transmitter employing a conducting liquid. Bell's granted patent included a similar description, though no such feature had appeared in a version notarized by Bell shortly before his application. With illicit Patent Office assistance, the charge went, either Bell or his lawyers had altered his specification to include Gray's idea.⁶¹

Evidence of wrongdoing ranges from the highly tenuous to the fairly plausible. Documents filed in court show, for example, that the patent examiner who handled Gray's and Bell's documents was heavily in debt to one of Bell's lawyers. Many other details of who knew what, when, and how remain obscure. For the purposes of this article, however, the key point is that accusations of "fraud" served a legal purpose, regardless of their truth. The legal attraction of claiming fraud was twofold: it provided Bell's challengers with new defenses once their other arguments were spent, and it drew the federal government—the only entity authorized to sue for the cancellation of fraudulent patents—into the fray.

At the center of this unedifying tale is the Pan-Electric Telephone Company, a political enterprise that had turned hungry eyes to Washington ever since its formation in Tennessee in 1883. While other telephone companies built their power bases in New York, Pennsylvania, and New Jersey,

58. See Richard White, "Information, Markets, and Corruption: Transcontinental Railroads in the Gilded Age," *Journal of American History* 90 (2003): 19–43.

59. Evenson (n. 5 above); Catania, "The U.S. Government versus Alexander Graham Bell" (n. 38 above); Shulman (n. 5 above).

60. Department of the Interior (n. 52 above), 1–2, 7–15; *The Telephone Cases* (n. 43 above), 126 U.S. at 311–53; Evenson, 167–71.

61. Based on experiments conducted at the Smithsonian Institution in the 1960s, Finn (n. 5 above, 199) has argued that neither man's liquid-transmitter design worked well enough to be of practical value, and he determines on this basis that the liquid-transmitter concept should not be considered "of any consequence in determining who was 'the inventor' of the telephone." The allegation of theft certainly endangered the validity of Bell's patent, however, and is therefore highly consequential here.

Pan-Electric encamped subsidiaries in Maryland and the District of Columbia, lobbied for a contract to install telephones in the U.S. Capitol, and disbursed directorships and shares among southern Democratic officeholders.⁶² The company's prospects brightened with Democratic victory in the presidential election of November 1884, after which several Pan-Electric directors assumed high positions in the new administration. When Bell began to rout its opponents in the summer of 1885, Pan-Electric interests mobilized their political assets, petitioning the U.S. government for a fraud proceeding against Bell. No actual government action would be necessary; instead, the Pan-Electric syndicate would conduct the case in the name of the United States. Attorney General Augustus Garland (a Pan-Electric shareholder) initially refused to authorize a suit. Shortly afterwards, Garland departed on vacation, his acting replacement approved the petition, and Pan-Electric lawyers filed suit against Bell in Memphis. When politically hostile elements of the New York press cried scandal, President Cleveland ordered Garland to halt the case.

The government's entanglement up to this point amounted to thinly veiled assistance for well-connected private interests. Historians have accordingly regarded the entire episode as one of corrupt adventurism, as did contemporaries (fig. 2).⁶³ Yet it would be a mistake to see the telephone fraud suit simply in terms of Gilded Age "influence." The Bell case was only the most visible of a number of attempts at the time to draw the federal government into fiercely contested patent actions.

The catalyst for these efforts was an 1871 case, *Mowry v. Whitney*, in which the Supreme Court held that the federal government—though not private parties—could sue for the cancellation of a fraudulent patent.⁶⁴ The years that followed saw a steady trickle of petitions for government intervention against broad patent monopolies. One of the earliest post-*Mowry* fraud suits concerned an audacious attempt to exert control over wood-planing technology by reviving in 1870 a patent application that had lain dormant since 1849. The patentees demanded royalties from hundreds of lumber companies in the upper Midwest, prompting lumbermen to organize and seek (without success) a revocation proceeding from the government.⁶⁵ Two more episodes in the early 1880s repeated the combination of

62. U.S. Congress, House, Select Committee on Pan-Electric Telephone Stock (n. 45 above), 73–80.

63. John Brooks, *Telephone: The First Hundred Years* (New York, 1976), 88–89; Lipartito (n. 29 above), 82–84.

64. *Mowry v. Whitney*, 81 U.S. 434 (1871).

65. The circumstances of the cases and of the lumbermen's response are described in "The Woodbury Patent," *Scientific American*, 9 January 1875, 16, and "The Woodbury Patent," *Scientific American*, 18 September 1875, 176. Details of the government's involvement appear in the letter of J. Drew (counsel for L. Gould) to Attorney General Edwards Pierrepont, 29 May 1875, in Year File 1885/6921, box 136, "Letters Received, General Records of the Department of Justice, 1849–1989," RG 60.3.2, U.S. National Ar-

OCTOBER
2010
VOL. 51



FIG. 2 "The Telephone Scandal. Hello! Hello!! Hello!!!" (Source: *Harper's Weekly*, 11 February 1886, 107.)

mass litigation and political response. In the oil fields of western Pennsylvania, E. A. L. Roberts filed hundreds of lawsuits under his patent for a well-blasting torpedo, prompting oil producers to petition the attorney general for the cancellation of the patent.⁶⁶ At the same time, another huge patent fight, this time centered on Iowa and Illinois, raged over barbed wire. The Washburn and Moen Company sought to control the manufacture of this essential tool for prairie farming through its Glidden patent, threatening litigation against farmers across the Midwest. Iowa farmers organized and counterattacked: the state's congressional delegation sought reform of the national patent laws, while the state legislature pressed the federal government for a revocation suit.⁶⁷

chives, College Park, Md. (hereafter GR-DOJ-USNA). The Supreme Court struck down the patent on other grounds in *Woodbury Patent Planing-Machine Company v. Keith*, 101 U.S. 479 (1879).

66. "Statement of General Duncan Walker in reference to the 'Roberts Torpedo' and 'Barbed Wire' cases," in Department of the Interior (n. 52 above), 406–20; John J. McLaurin, *Sketches in Crude Oil: Some Accidents and Incidents of the Petroleum Development in All Parts of the Globe* (Harrisburg, Pa., 1898), 386–88.

67. Earl W. Hayter, "An Iowa Farmers' Protective Association: A Barbed Wire Patent

During the 1870s and 1880s, the anti-patent sentiment generated by these cases and others like them spilled over to affect the national politics of intellectual property. Agrarian hostility to patents was a substantial force, aroused by eastern manufacturers' demands for royalties on widely used items and channeled into a series of legislative attempts to weaken or abolish the federal patent law. Anti-patent farmers found unlikely allies in the railroads—heavy consumers of invention that sought to reduce their own exposure to infringement litigation.⁶⁸ The combined influence of these groups made weakening of U.S. patent law a distinct possibility, and participants in high-technology industries well knew it. Bell counsel Smith recalled being assured by a Massachusetts congressman that a large number of federal legislators stood ready to repeal the patent law at any moment.⁶⁹ For a great patent monopoly, then, the 1880s were years during which any branch of government could present an avenue of attack. In addition to the traditional battles fought in the courts, a legal means had appeared for attacking grants through the federal executive, while the security of inventors' rights was only a few votes away from being compromised by Congress. The Pan-Electric suit, for all its reliance on insider connections, was launched against this broader background.

The case would go forward, however, without the direct involvement of Pan-Electric interests. Hitherto an instrument of private litigants, the fraud case became something else: a genuine government case, controlled by the Department of Justice. After President Cleveland's intercession to halt the first suit, the telephone companies repeated their petition before the secretary of the interior, L. C. Q. Lamar. To their dismay, Secretary Lamar's report recommended a suit "in the name of and wholly by the Government, not on the relation or for the benefit of all or any of the petitioners."⁷⁰ Pan-Electric interests thus lost the ability to cut a deal with Bell, which was probably their objective all along. As a minority congressional report later noted, "what they wanted of the Government was a weapon which they could thrust into that [Bell] company to bleed it."⁷¹

Following its new mandate, the Department of Justice assembled what

Protest Movement," *Iowa Journal of History and Politics* 37 (1939): 352; J. M. McFadden, "Monopoly in Barbed Wire: The Formation of the American Steel and Wire Company," *Business History Review* 52 (1978): 466–70.

68. U.S. Congress, Senate, Committee on Patents, *Patent Infringements and Practice in Patent Suits*, 48th Cong., 1st sess., SPat-T.1 (Washington, D.C., 1884); Earl W. Hayter, "The Patent System and Agrarian Discontent, 1875–1888," *Mississippi Valley Historical Review* 34 (1947): 59–82; Usselman, *Regulating Railroad Innovation* (n. 8 above), 146–53.

69. Chauncey Smith, "A Century of Patent Law," *Quarterly Journal of Economics* 5 (1890): 58–59.

70. Department of the Interior (n. 52 above); Secretary of the Interior L. C. Q. Lamar to Solicitor General John Goode, 14 January 1886, box 136, in GR-DOJ-USNA.

71. U.S. Congress, House, Select Committee on Pan-Electric Telephone Stock (n. 45 above), 87, 89.

OCTOBER
2010
VOL. 51

became known as its “Bell Telephone Annex.”⁷² Of five attorneys retained, Senator Allen Thurman of Ohio was the obligatory political heavyweight and Grosvenor Lowrey was the patent specialist. Thurman, a distinguished septuagenarian Democrat, faded from the case as a result of ill health and the effort of running for vice president on President Cleveland’s re-election ticket. Lowrey, meanwhile, simultaneously represented one of Bell’s opponents in its pending case before the Supreme Court, bringing to the government’s cause a keen awareness of the intertwined fortunes of the different telephone suits.

In fact, the arguments of the government lawyers differed little from those of the private litigants. Lowrey personally professed to believe the fraud charge but had little faith that it could be proven.⁷³ Instead, the government case focused on impeaching the Bell patent’s novelty in favor of Philipp Reis. Lowrey sought to avoid the failures of earlier suits by concentrating instead on witness evidence that Reis had transmitted speech, rather than by relying on scientific nuance—or, as other government lawyers put it, the “great quantity of sworn speculative essays on electricity dumped into the telephone litigation.”⁷⁴ At the same time, Lowrey argued for active support of the private litigants’ forthcoming Supreme Court arguments; after all, he reasoned, if the Supreme Court ruled on the validity of Bell’s rights, “we cannot escape being compromised in an equal degree, whether we have endeavored to aid the Appellants or not.”⁷⁵ Even before any judge had ruled on the government case, a decision of sorts beckoned in Washington.

The Telephone in the Supreme Court

The telephone of the late 1880s was an instrument of urban businessmen. Of the 200,000 telephones in the United States, most served large cities; fully a third rang within 300 miles of Boston, in the most industrialized slice of the country.⁷⁶ Nevertheless, thanks to the ascendancy of the Bell Company and its licensed operating companies, the telephone patent question had attained great commercial and political importance. The Bell Company’s own lawyer would later describe his client’s achievement as “a monopoly more profitable and more controlling—and more generally

72. “The Bell Telephone before the Supreme Court,” *Scientific American*, 19 February 1887, 113.

73. Grosvenor P. Lowrey to Allen G. Thurman, 9 April 1886, box 135, in GR-DOJ-USNA.

74. Eppa Hunton and Jeff. Chandler to Solicitor General John Goode, undated (1886), box 136, in GR-DOJ-USNA.

75. Grosvenor P. Lowrey to Solicitor General John Goode, 23 June 1886, box 135, in GR-DOJ-USNA.

76. Milton Mueller, *Universal Service: Competition, Interconnection, and Monopoly in the Making of the American Telephone System* (Cambridge, Mass., 1997), 57.

hated—than any ever given by any patent.”⁷⁷ By the time Bell’s rights came before the Supreme Court in 1887, they sustained a “hundred-million-dollar” corporation, an oozing political scandal, and a nationwide anti-monopoly struggle.⁷⁸

Political agitation against the Bell monopoly first appeared in the Midwest, where the agrarian Granger movement had secured state price control of railroads and other monopoly services a decade earlier. Moves to regulate telephone rates began in Indiana in 1885 and rippled across the state legislatures of Illinois, Ohio, Missouri, Pennsylvania, and New York.⁷⁹ At the same time, urban users began to vent their frustration with the variable quality and high cost of telephone service. The New York City Board of Trade, no enemy of patent rights, condemned Bell’s monopoly on the grounds that “the manner in which the public have been treated in this city by the [Bell-affiliated] combined telephone companies is entirely unjustifiable.”⁸⁰

The most important battle of these years, however, involved an audience of nine men: the justices of the U.S. Supreme Court. When the justices chose to consolidate the various pending appeals into a single hearing, Bell’s lawyers had reason to be confident. Every rival claimant had lost in the lower courts, and several speculative bubbles had been pricked; in one notorious example, the properties of the United States Telephone Manufacturing Company, valued in the company’s books at \$1 million, sold at auction for \$100.⁸¹ During the course of litigation, the Bell patent had already received favorable rulings from Supreme Court justices Matthews and Blatchford while sitting on occasional “circuit duty” in the lower courts. In addition, Justice Horace Gray had written a sweeping endorsement of Bell’s broad claim while sitting with Judge Lowell in a case in Boston.⁸²

Despite these advantages for Bell, his challengers also found causes for comfort, such as the fact that the Drawbaugh claim had kept its wealthy backers,⁸³ and that recent decisions by the Supreme Court against allegedly monopolistic patent holders supported the notion that Bell’s rights would be defeated or narrowed.⁸⁴ Most encouraging of all for Bell’s opponents was the arrival of the company’s scandals at the door of the Supreme Court it-

77. J. J. Storrow to John E. Hudson, 17 November 1891, quoted in N. R. Danielian, *A.T.&T.: A Story of Industrial Conquest* (New York, 1939), 97.

78. “The Bell Telephone Suits,” *Scientific American*, 5 February 1887, 80.

79. R. L. Mahon, “The Telephone in Chicago, Brief based on materials collected by Historical Committee,” typescript ca. 1951, folder 1, box 447 04 02, AT&T archives, Warren, N.J.

80. Resolution of New York Board of Trade and Transportation, 14 October 1885, in Department of the Interior (n. 52 above), 24c–24d.

81. “A Million on Paper for \$100 Cash,” *Electrical World*, 8 August 1885, 59.

82. Lockwood (n. 44 above), 21, 40; *American Bell Telephone Company v. Dolbear*, 15 F. 448 (C.C.D.Mass. 1883).

83. Editorial, *Electrical World*, 14 March 1885, 101.

84. “The Bell Telephone Suits” (n. 78 above), 80; Lockwood, 62.

OCTOBER
2010
VOL. 51

self: in December 1886, the *New York Herald* revealed that relatives of Judge Lowell and Justice Gray had held Bell stock at the time of the crucial Boston telephone cases. Both judges denied having known of these investments when they made their rulings, but Gray, whose family still held the stock, was forced to recuse himself from the Supreme Court's deliberations.⁸⁵

All of this muckraking ensured that fraud accusations took a large role in arguments before the Supreme Court. Lysander Hill of the People's Telephone Company provided the most spectacular moment of the hearings when he advanced a new version of the corruption charge against Bell. Hill claimed that the Bell patent application held on file at the Patent Office was a forgery—a “clean copy” smuggled in to conceal telltale signs that Bell's original application included material stolen from Elisha Gray.⁸⁶ This argument proved disastrous. Bell counsel James Storrow countered that Hill's evidence—a supposedly “original” version of Bell's patent application full of hasty-looking penciled amendments—was in fact a different document entirely: a copy of an earlier specification drawn up for an English patent application. The pencil markings were, Storrow asserted, his own notes on Bell's subsequent changes, somehow mistakenly left among the records of the Dowd case.⁸⁷ Even Bell opponents present at the court agreed that Hill's allegations were “paper-thin” and that Storrow had torn them apart, while reporters noted soberly that the incident “was generally regarded as a point scored by the Bell company.”⁸⁸ The justices had “no hesitation in rejecting” the fraud claim in their eventual decision.⁸⁹

Other than the allegations of corruption, arguments in the Supreme Court revisited—at great length—those made in the lower courts. Lowrey, the veteran litigator of electrical patents, was the leading spokesman for Reis among the attorneys present. His task was to dispose of the technological discontinuity upon which Bell's broad claim depended. To this end, he sought to dispel Bell's “pioneer” status, giving a careful account of electrical-acoustic history and adding summaries, such as a “Resume of Material Facts known to Physicists in 1861,” in order to demonstrate that Bell's discovery was far from a new art in 1876.⁹⁰

If Hill offered the justices corruption and Lowrey gave them science, the lawyer-politicians George Edmunds and Don Dickinson gave the court Daniel Drawbaugh's life story.⁹¹ This part of the case was all about credi-

85. “Bell and the Bench” and “Remarkable Revelations,” *New York Herald*, 2 December 1886; “Hello! Hello!” and “The Bar and the Bell,” *New York Herald*, 3 December 1886.

86. *The Telephone Cases* (n. 43 above), 126 U.S. at 232–42.

87. *Ibid.*, 126 U.S. at 243–57.

88. Letters of W. C. Barney reporting on oral arguments, box 138, in GR-DOJ-USNA; “The Bell Telephone Suits,” 80.

89. Opinion of Chief Justice Morrison R. Waite, in *The Telephone Cases*, 126 U.S. at 570.

90. *The Telephone Cases*, 126 U.S. at 163–212.

91. *Ibid.*, 126 U.S. at 329–89. Dickinson was a prominent party man, a Democrat to

bility. Judge Wallace in New York had used the weaknesses in Drawbaugh's account, especially his dubious pleas of perpetual poverty, to dismiss his claim as "*falsus in uno, falsus in omnibus*" (false in one thing, therefore false in all). In response, Edmunds and Dickinson worked to shore up the trustworthiness of the inventor and his witnesses. Storrow, in response, attacked Drawbaugh's failure to profit from his supposed invention: "If [the courts] cannot read the telephone in the events of his life, they will not accept it from his deposition."⁹² Of all the arguments mounted against Bell during the hearing, Drawbaugh's claim seemed to attract most interest from the bench, a development that translated immediately into movements in the value of Drawbaugh Telephone Company stock; on the other hand, the monopolist's strong share prices showed that the balance of confidence remained in favor of Bell.⁹³

When the Supreme Court issued its verdict over a year later both assessments proved correct: the contest came down to a straight fight between Bell and Drawbaugh, and Bell won. With Justice Gray recused from the case and Justice Woods having since died, the remaining justices divided four to three. The conclusion of *The Telephone Cases* (as the judgment is still known) cemented for posterity the image of a closely fought and closely decided litigation. Without going into great counterfactual detail, it is reasonable to say that the history of the telephone industry, and the Bell-centric history told by that industry, would have been quite different had a single vote on the court gone the other way. What, then, led the justices to rule as they did?

Ostensibly, the outcome hinged on the credibility of the rival inventors' claims to priority. The court's majority opinion, delivered by Chief Justice Waite, hewed closely to the Bell Company's account of Alexander Graham Bell's invention. Meanwhile, the minority, led by Justice Bradley, noted that Drawbaugh's claim seemed "so overwhelming, with regard both to the number and character of the witnesses, that it cannot be overcome."⁹⁴ The difference between the court's two wings, Bradley suggested, lay in their willingness to accept the reputational advantage acquired by Alexander Graham Bell during ten years of relentless legal campaigning. It was, Bradley observed, "perfectly natural for the world to take the part of the man who has already achieved eminence. No patriotic Briton could believe that anybody but Watt could produce an improvement in the steam-engine. This principle of human nature may well explain the relative feeling

partner the Republican Edmunds. A confidant of President Cleveland, he became postmaster general in 1888. See Robert Bolt, "Donald McDonald Dickinson," in *American National Biography* (n. 47 above), vol. 6, 6:561–62.

92. *The Telephone Cases* (n. 43 above), 126 U.S. at 394.

93. *Electrical World*, 19 February 1887, 87; "Drawbaugh Stock," *Electrical World*, 5 March 1887, 125, quoting the Boston *Evening Transcript*.

94. Dissent of Justice Bradley, in *The Telephone Cases*, 126 U.S. at 573.

towards Bell and Drawbaugh in reference to the invention of the telephone.⁹⁵ Bradley, for his own part, spoke up for the inventiveness of the “plain mechanic” and the possibility of serendipitous, untheorized, and subsequently under-exploited invention.

Questions of invention, then, appear to have decided the case. However, courts—perhaps especially the U.S. Supreme Court during the Reconstruction era—have been known to dispose of cases in a way that minimizes or disguises the real issues at stake.⁹⁶ The great mystery of *The Telephone Cases* is whether the justices responded to other pressures, in particular, to the heated politics of the Bell Company’s monopoly. The composition of the minority suggests that some did. Justice Bradley was both one of the court’s leading authorities on patents and one of its chief skeptics of industrial monopoly.⁹⁷ On several occasions, he had condemned attempts to stretch patents into illegitimate monopolies and warned against perverting the patent laws into “instruments of great injustice and oppression.”⁹⁸ On the other hand, he had done much to fashion the recent law of patent scope, including its emphasis on broad patents for pioneer inventions;⁹⁹ indeed, Bell’s chief legal arguments rested on opinions Bradley had written. If Bradley wished to rein in the Bell monopoly then, his best option was to do so using the factual record. His painstaking trawl through the Drawbaugh evidence, revealed by the notebook he kept during the hearings, may best be viewed in this light;¹⁰⁰ otherwise it was out of character, since Bradley typically applied the skepticism towards obscure claimants that his colleagues brought to bear on Drawbaugh.¹⁰¹

Bradley’s dilemma was, in many ways, that of the patent system more generally. The great project of nineteenth-century patent jurisprudence had been the development of rules for matching the scope of protection to the inventive contribution made by the patentee. In the eyes of treatise writers, the law of the 1880s and 1890s finally formed “a harmonious, symmetrical, scientific system” for translating specified inventions into property rights.¹⁰² Yet this conception of the patent as a reward to individual

95. *Ibid.*, 126 U.S. at 576. Bradley was right to identify James Watt as Britain’s iconic inventor; see MacLeod (n. 22 above), chaps. 4–5.

96. See, for example, Edward Purcell, “The Particularly Dubious Case of *Hans v. Louisiana*: An Essay on Law, Race, History, and ‘Federal Courts,’” *North Carolina Law Review* 81 (2003): 1927–2059.

97. Usselman and John (n. 8 above), 117.

98. *Swain Turbine & Mfg. Co. v. Ladd*, 102 U.S. 408, 411 (1880).

99. *Tilghman v. Proctor*, 102 U.S. 707 (1880); see also *Atlantic Works v. Brady*, 107 U.S. 192 (1883).

100. “Bell Telephone Patent case in Supreme Court,” folder 6, box 13, Joseph Bradley Papers, New Jersey Historical Society, Newark.

101. *Webster Loom Co. v. Higgins*, 105 U.S. 580, 595 (1881); *Atlantic Works v. Brady*, 107 U.S. at 203; *Reiter et al. v. Jones & Laughlin Ltd.*, 32 F. 421, 423 (1888).

102. Townsend (n. 19 above), 418; see also William C. Robinson, *The Law of Patents for Useful Inventions*, 3 vols. (Boston, 1890), 1:v.

genius was at best complicated, and at worst dysfunctional, in the face of patents deployed as instruments of corporate power. The justices who upheld Bell's patent resolved this tension in the predominant mode of the period: they looked strictly to the rights of the inventor and took no notice of the market consequences of the patent. For Justice Bradley, it is fair to surmise, this approach may not have sufficed.

If Bradley's dissent buried tensions of monopoly within questions of invention, it was only fitting: in the telephone cases and in American patent law more generally, the two issues were thoroughly entwined. Under a system that privileged pioneer inventions on the one hand while leaving them vulnerable to unknown prior claimants on the other, any valuable patent could expect to be assailed on priority grounds. So long as the "monopoly question" remained a prominent part of American political economy, patent law had the potential to attract legal and economic conflict.

Conclusion

Who invented the telephone? Despite ongoing efforts to sift the evidence, some aspects of the nineteenth-century controversy may never be fully resolved. Most claimants to the honor can be swiftly rejected as pretenders, products of the scramble for telephone wealth and the legal battle against Bell's patent. Harder to dismiss is the evidence, circumstantial but suggestive, that Bell's patent application included material appropriated from Elisha Gray. These doubts stand quite apart from the question of where, on the continuum of conceptualization, experimentation, "reduction to practice," and commercialization, the invention of the telephone should be rightly marked. On the test of who first transmitted articulate speech—the intuitive historical marker, though not the legal standard—Alexander Graham Bell remains the strongest candidate. To that extent, I come neither to praise nor to bury him; my purpose here has been to argue that without the additional "invention" undertaken by the lawyers, Bell's achievement would likely not have been recognized in the same way.

The courts framed the question of "Who invented the telephone?" in two ways: they asked, and answered, the "who?"; they also established the subsequently unexamined assumption that there was such a thing as "the telephone." Both legally and historically speaking, the most notable aspect of *The Telephone Cases* is not that the courts accepted Bell's priority of invention, but that they granted vast scope to his patent and thus endorsed a unitary theory of telephone technology and its origin. Much of the credit for this phenomenon must go to Chauncey Smith, James Storrow, and the other architects of Bell's legal campaign. These men seized a chance offered by the preexisting legal environment: a strong judicial regard for pioneer patents, which translated into a willingness to grant broad protection in certain cases. Furthermore, Bell's lawyers fought off the hazards that

awaited such a claim in the nineteenth-century courts, ranging from eruptions of obscure prior inventors to the unacknowledged pressures of anti-monopoly sentiment on judges' decisions.

This is not to say that had court decisions favored another inventor, Americans would now hail Elisha Gray, Daniel Drawbaugh, or Philipp Reis in Bell's place. The twentieth-century history of Alexander Graham Bell's reputation is beyond the scope of this essay. Nevertheless, one thing is clear: Bell owes his heroic status not to legal rulings alone, but also to the great corporate enterprise built upon them. American Telephone & Telegraph kept the inventor at the forefront of its publicity, through its "Bell System" nomenclature, its pioneering efforts in corporate public relations, and the benign figure of Bell himself, who was called upon to inaugurate the first lines from New York to Chicago in 1892 and to San Francisco in 1915.¹⁰³ In 1936, when the Patent Office named Bell first on a list of the nation's twelve greatest inventors, the Bell System was the largest business organization in the world.¹⁰⁴ Yet this too was, in a sense, the lawyers' achievement: the Bell patent monopoly of the nineteenth century provided the foundation—in market position, technological leadership, and capital superiority—for AT&T's continued predominance in the twentieth.¹⁰⁵ If Bell's lawyers made history, it was because they made monopoly first.

Patent power changed during the early years of the twentieth century. Large companies, including AT&T, moved away from reliance on powerful-but-vulnerable pioneer patents (and the litigation they inevitably required), and toward a broader base of continuous research, inter-firm patent pools, and "thickets" of overlapping patent rights. Patent protection became more managerial in nature and less dependent on the vagaries of the courts. Yet Bell remains, in the words of two leading legal scholars, "in many ways the icon of the patent system."¹⁰⁶ After more than a century of corporate research and development, it may seem strange that a lone inventor should so epitomize the patent law—less so, however, if we recall the legal struggle conducted in his name and the ways in which the question "Who invented the telephone?" placed the patent system itself on trial.

103. Roland Marchand, *Creating the Corporate Soul: The Rise of Public Relations and Corporate Imagery in American Big Business* (Berkeley, Calif., 1998), chap. 2; Robert MacDougall, "Long Lines: AT&T, Long-Distance Telephony, and Corporate Control," *Business and Economic History* 3 (2005): 1–27.

104. Danielian (n. 77 above), 3–4.

105. Christopher Beauchamp, "The Telephone Patents: Intellectual Property, Business, and the Law in the United States and Britain, 1876–1900" (Ph.D. diss., Cambridge University, 2007), chap. 5.

106. Dan L. Burk and Mark A. Lemley, "Policy Levers in Patent Law," *Virginia Law Review* 89 (2003): 1575–1696, quote on 1583.