

# Wanamaker's Department Store and the Origins of Electronic Media, 1910–1922

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In July 1910, something unexpected appeared in a Philadelphia newspaper advertisement for Wanamaker's department store: among the usual array of women's clothing, parasols, straw hats, and pillow covers was an announcement that wireless telegraph stations were being installed in the New York and Philadelphia stores and should be ready in thirty days. The stations would serve routine communication between the two stores and—for \$2 per ten words—send messages to steamships.<sup>1</sup> The next year, Wanamaker's advertised that ship passengers could order merchandise via wireless telegraphy and have the goods waiting for them when they arrived in port.<sup>2</sup> The announcements reflected John Wanamaker's legendary gift for promotion, the latest in his efforts to attract the attention of the public and his fellow retailers. In addition, working with the Marconi Wireless Telegraph Company of America, he used his stations to test innovations in wireless technology, even broadcasting phonograph records from the New York store in 1914, years before this became one of the primary uses of radio.

Previous radio histories have mentioned the Wanamaker wireless stations, though typically only in connection to the early career of David Sarnoff, who eventually became the director of the Radio Corporation of America (RCA).<sup>3</sup> In 1910, as a wireless telegraph operator for American Marconi, Sarnoff was assigned to the New York Wanamaker station, where he figured

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1. Wanamaker's advertisement, *Philadelphia Inquirer*, 22 July 1910.
2. John Wanamaker, *What to See in Philadelphia* (Philadelphia, 1911), 38.
3. See, for example, Tom Lewis, *Empire of the Air: The Men Who Made Radio* (New York, 1991).

in two prominent legends of early radio. The first, boosted by Gleason Archer, claimed that Sarnoff was the first operator to hear distress signals from the doomed *Titanic*: “For seventy-two hours of unceasing vigil the young operator sat at his instrument board in the Wanamaker store and picked up the heart-rending details of the *Titanic* disaster.”<sup>4</sup> (Kenneth Bilby’s 1986 biography of Sarnoff noted that while the Wanamaker station did receive some messages from ships involved in the rescue effort, Archer’s account was wildly exaggerated.<sup>5</sup>)

The second Sarnoff–Wanamaker legend pertains to his authorship of the famed “Radio Music Box” memo. According to Archer, in May 1914, Sarnoff helped arrange an experimental music broadcast from the New York store’s transmitter. He then outlined a strategy by which American Marconi would operate a series of radio stations offering music at no charge to listeners; the company’s profits would come from selling radio receivers. This was precisely the business strategy that governed some of the first broadcast operations in the following decade. Archer wrote that the Wanamaker experiments and the excitement they inspired “no doubt further stimulated the active brain of David Sarnoff.”<sup>6</sup> While some historians have exaggerated the memo’s significance, the present research suggests that in this instance, at least, Archer’s account may have had some basis in fact.

Drawing on newspaper and trade-press articles, advertisements, Federal Communications Commission (FCC) archives, and the memoirs of wireless operator Thomas Appleby, this essay seeks to clarify some of the conflicting claims about Wanamaker’s wireless stations and, in so doing, to illustrate the involvement of explicitly commercial interests in pre–World War I wireless telegraphy.

A persistent theme in the scholarship on this period is that the early air-wave spectrum was untainted by commercialism. Hugh Slotten documents the number of university stations that broadcast agricultural and weather reports to local farmers before World War I—operations that were non-commercial in nature—and claims that the radio amateurs of this era were similarly devoid of commercial motives.<sup>7</sup> In the definitive book on Charles Herrold, a San Jose inventor who broadcast music over the airwaves as early as 1909, Gordon Greb and Mike Adams state that radio “only later [became] commercial,”<sup>8</sup> while in describing the various inventors who exper-

4. Gleason Archer, *History of Radio to 1926* (New York, 1938), 111.

5. Kenneth Bilby, *The General: David Sarnoff and the Rise of the Communications Industry* (New York, 1986).

6. Archer, 112.

7. Hugh Richard Slotten, *Radio’s Hidden Voice: The Origins of Public Broadcasting in the United States* (Urbana, Ill., 2009); see also Slotten, “Radio’s Hidden Voice: Noncommercial Broadcasting, Extension Education, and State Universities during the 1920s,” *Technology and Culture* 49, no. 1 (2008): 1–20.

8. Gordon Greb and Mike Adams, *Charles Herrold, Inventor of Radio Broadcasting* (Jefferson, N.C., 2003), 16.

imented with early radio, they argue that such schemes were intended to prove the viability of the technology—not to prove that radio broadcasting was a way to generate profits. In one of the best-known works on the history of wireless telegraphy, Susan Douglas attributes great significance to the amateur operators, noting that “the corporate sphere publicly expressed indifference towards the invention.”<sup>9</sup> John Wanamaker’s wireless stations thus stand counter to these observations: their operation was clearly part of a larger retail effort and they were intended to generate revenue, even if Wanamaker himself claimed that they were for the benefit of the public. This essay documents Wanamaker wireless operations and inserts them into the historical record, thus supplementing previous scholarship.

Building on the work of Douglas, Thomas Streeter has argued that the ideology of corporate liberalism began to dominate the early radio industry in 1912 with the passage of the Radio Act.<sup>10</sup> This set of regulations, which updated the Wireless Ship Act of 1910, ceded some of the more desirable frequencies to the Marconi Company and relegated amateurs to the shortwave end of the spectrum, which was considered less efficient for long-range transmission. According to Streeter and those sharing his opinion, the ideological and regulatory framework established by the Radio Act laid the foundation for the eventual commercialization of the airwaves and the subsequent growth of advertising.

The multiple uses of the Wanamaker wireless stations reveal that the prewar era of wireless telegraphy included stations with explicitly commercial interests. The continuity between the early years of wireless and the radio boom of the 1920s is thus stronger and more literal than the connections claimed by Streeter and Douglas. Some of the specific uses of wireless telegraphy in the 1910s foreshadowed the later uses of radio broadcasting, and the Wanamaker stations provide a number of examples. These stations promoted a business, entertained shoppers, facilitated retail sales, and broadcast music; they also add to our knowledge of the well-documented disputes between the government and the American Marconi Company over wavelength allocation, an issue that would continue to plague the broadcast industry in the decade that followed.

This research does not suggest that the Wanamaker stations were solely or even primarily responsible for these later developments within radio broadcasting. Given the significant discrepancies discovered in the archival record from this period, it is possible that many established businesses (including newspapers and other department stores) operated stations that are now forgotten. We do know, however, of the numerous amateurs, inventors, entrepreneurs, and universities that experimented with broadcast-

9. Susan J. Douglas, *Inventing American Broadcasting, 1899–1922* (Baltimore, 1987), 194–95.

10. Thomas Streeter, *Selling the Air: A Critique of the Policy of Commercial Broadcasting in the United States* (Chicago, 1996).

ing prior to the boom period of the early 1920s. To use the parlance of the social construction of technology, wireless telegraphy possessed a great deal of interpretive flexibility between 1910 and 1919 as different groups put the technology to a variety of uses. No single individual or institution can thus lay claim to “inventing” broadcasting, since all of these methods for utilizing wireless contributed to this social and technological practice.

Radio retained this interpretive flexibility well into the 1920s, with some claiming it was an ideal tool for social uplift, others promoting its use for education, and some seeing it as a new method of advertising. By the end of the decade, a particular form of broadcasting came to dominate the American radio industry: privately owned stations, linked in a network-affiliate model that sold airtime to sponsors. Critics argued then (and continue to do so today) that the medium should not be so reliant upon advertising. Often overlooked in this argument is that explicitly commercial interests existed almost from the beginning of radio broadcasting. We should not, then, resort to a classic declensionist narrative, which would have the utopian technology of radio suddenly corrupted by commercial interests in the late 1920s—some individuals had always tried to exploit the technology for advertising and retailing. Historians of 1920s radio have similarly downplayed the commercial uses of radio before August 1922, when American Telephone & Telegraph (AT&T) formalized the practice of selling airtime. When this method of generating revenue became the industry standard by decade’s end, it was less the dramatic paradigm shift implied by Robert McChesney and Susan Smulyan than a continuation and professionalization of established practice.<sup>11</sup> One of the few works that does challenge this prevailing opinion on early radio history is Clifford Doerksen’s examination of independent radio stations, which seeks to refute that “commercialization of the American airwaves [was] engineered from above by corporate interests.”<sup>12</sup> The Wanamaker stations are vivid evidence of the commercial use of radio prior to 1920, even if they did not themselves instill a permanent change within the structure of the technology.

In the following sections, this essay will trace the origins of the Wanamaker wireless stations and how they were used to facilitate remote shopping and entertain shoppers; detail the musical experiments of May 1914 that preceded Sarnoff’s Radio Music Box memo; and step back to consider how the creation of these wireless stations was consistent with larger retail practices pioneered by department stores—a retail institution arising at the end of the nineteenth century. This will be followed by a review of the licensing and government regulation of the Wanamaker stations that high-

11. Robert McChesney, *Telecommunications, Mass Media, and Democracy: The Battle for the Control of U.S. Broadcasting, 1928–1935* (New York, 1993); Susan Smulyan, *Selling Radio: The Commercialization of American Broadcasting* (Washington, D.C., 1994).

12. Clifford J. Doerksen, *American Babel: Rogue Radio Broadcasters of the Jazz Age* (Philadelphia, 2005), ix.

lights the methodological difficulties facing any archival research into this period, while an examination of the role played by department stores during the radio boom of the 1920s will indicate how Wanamaker's adapted its use of wireless to the changing media environment. The essay will conclude with reflections on this research that include a few comparisons to changes in electronic media today.

### The Wanamaker Wireless Stations

The historical record offers contradictory information about the founding of the Wanamaker stations. A promotional book published by John Wanamaker in 1911 claimed this to have been in October 1907, a date also cited in notes made by Wanamaker's biographer Henry Adams Gibbons.<sup>13</sup> Another promotional book, published in 1926, advanced the date to 1911.<sup>14</sup> Articles in contemporary newspapers and trade journals support this later date, indicating that the original newspaper advertisement with its promise of an imminent opening was approximately a year premature.<sup>15</sup>

Still, the date of the original advertisement, July 1910, is instructive, appearing as it did only one month after the first significant federal legislation of wireless technology. In June, Congress had passed the Wireless Ship Act mandating the use of wireless equipment on all ships carrying fifty or more passengers.<sup>16</sup> Perhaps John Wanamaker saw a business opportunity in the new legislation: if more ships were to be equipped with wireless telegraphs, might not there be profit in letting shoppers communicate with seafaring passengers? Seen in this light, the adoption of wireless communication presented not only an opportunity to publicize Wanamaker's stores, but an opportunity to extend the sales floor beyond its physical boundaries as well.

An article in *Marconigraph*, a publication of the British Marconi Company, reveals the Wanamaker installations to have been atypical units within that company's network of commercial stations. Even though they were

13. John Wanamaker, *The Golden Book of the Wanamaker Stores* (Philadelphia, 1911), 113. Gibbons's notes are held by the Historical Society of Pennsylvania as part of their collection of the Wanamaker Papers; references to the Wanamaker station in 1907 are in Wanamaker Papers (no. 2188), Gibbons Card Files, drawer 17.

14. John Wanamaker, *A Friendly Guide to Philadelphia and the Wanamaker Store* (Philadelphia, 1926), 46.

15. The 1910 date for initial construction of the stations is affirmed by a three-sentence announcement in the *New York Times* ("Wireless for the Wanamaker Stores," 29 September 1910). Evidence points to 1911 as the year in which the stations began operation; see "Modern Invention and Some New Socks," *Christian Science Monitor*, 14 August 1911, where they are described as "just installed," and "Wireless as an Adjunct to a Great Stores [*sic*]: The Wanamaker Stations," *Marconigraph*, August 1911, 22–23, where they are described as "recently completed."

16. Christopher H. Sterling and John Michael Kittross, *Stay Tuned: A History of American Broadcasting*, 3rd ed. (Mahwah, N.J., 2002), 43.

“official Marconi stations,” technically their operators were Wanamaker’s employees: the “American Marconi Company do not [*sic*] undertake intra-state business,” it stated. Further, the other stations focused primarily on maritime communications, while Wanamaker’s was proving that the technology was also effective for communicating over land, a use that could have occurred only in the United States, “where postal regulations do not interfere with telegraphic communication to the extent they do in this country.” The article went on to note that in addition to the stations’ “large advertising value,” they saved the two stores several thousand dollars in telephone charges. Transmitting on wavelengths of 1,800 meters, the stations allowed communication between the New York and Philadelphia stores, and in addition, the article claimed, shoppers could pay to transmit personal messages over distances of up to 800 miles.<sup>17</sup>

Thomas Appleby, a wireless operator in the Philadelphia store, provides further details on the unusual nature of these stations.<sup>18</sup> According to him, the stations were among the most powerful and well equipped of their time. At the Philadelphia store, two roof-mounted, 125-foot towers supported a 1,000-foot antenna that stretched from Market to Chestnut streets. A five-kilowatt rotary-gap transmitter sent the messages, while the receiver used a Fleming valve detector to filter out unnecessary signals, including those from the nearby naval station. The stations were the only ones employing a novel “break-in” system of communication: while other operators could not respond to a message until the incoming transmission was complete, Wanamaker operators could interrupt a message to ask for repetition of a letter or word. “Here was one of the choicest jobs on the Atlantic seaboard,” recalled Appleby, “and every wireless operator in the country would have given his right eye to land such a berth.”<sup>19</sup>

Appleby and his fellow operators developed a condensed version of telegraph code that utilized abbreviations and, along with the break-in innovation, allowed for transmissions of over thirty words a minute—a dramatic improvement on the standard speed of the time. (For example, the word “the” became simply the letter “T,” while “that” was “TT.”) The chief operator of the Philadelphia naval wireless station was so surprised by these lightning-fast transmissions that he reportedly visited the store to view the operation firsthand.<sup>20</sup> While autobiographical memoirs can contain inaccuracies, evidence from the FCC archives supports Appleby’s claim that the Wanamaker stations were more advanced than others. After the passage of the Radio Act of 1912, all wireless operators had to secure government li-

17. “Wireless as an Adjunct.”

18. In 1912, his reputation established by co-founding the Philadelphia School of Wireless Telegraphy, Appleby was asked to assume control of the Wanamaker station in that city (unpublished Appleby memoirs, held by private collector Thomas White).

19. *Ibid.*

20. *Ibid.*

censes from the Department of Commerce. The agency had no facilities for implementing this provision, however, and it fell to the navy to conduct the necessary examinations. Using the Wanamaker wireless equipment, Appleby began to train would-be operators. Complaining to the secretary of commerce in August 1912 after one of his pupils failed the exam, Appleby wrote that he had “instructed and sent to this navy yard over 75 students who have successfully passed and secured a license.”<sup>21</sup> His letter suggests a close collaboration between Wanamaker's and government regulators, with the department store functioning as a school for wireless operators.

In the late 1930s, Appleby recalled an unusual transmission from the Philadelphia station, originally told to George Clark, a noted collector of material pertaining to wireless telegraphy and early radio. Clark filed this anecdote with other material relating to the transmission of photos via radio waves, and while this event only conforms to this category in the loosest sense of the term, it does reveal something about how the Wanamaker stores utilized wireless telegraphy.<sup>22</sup> According to this anecdote, every evening the Philadelphia station would send an editorial written by John Wanamaker to New York. The editorial would appear the following day in newspaper advertisements in both cities. One evening in 1914, Appleby received an editorial from Wanamaker's secretary that was adorned with emblems and flags. As there was no time to physically send the image to New York, Appleby instructed David Sarnoff where to insert the appropriate images. Years later, when RCA experimented with a visual broadcasting system known as “photograms,” the Wanamaker stores used the technology to distribute an advertisement that was published the same day in London, Paris, New York, and Philadelphia.<sup>23</sup> The store claimed this to be the “first photo-radio-advergram,” and while such claims are tenuous, this later event does indicate the store's continued involvement with exploiting new methods of communication.

The original Wanamaker stations served functions other than intra-store communication and the distribution of advertisements. By touting the promise of “remote shopping,” as he did in 1911, Wanamaker positioned his store as a leader in the use of new technologies. Utilizing electronic media to transact sales with distant shoppers might seem a relatively recent development whose genesis lies in home-shopping television channels, but the history of wireless telegraphy reveals the concept to be at least

21. Letter from Thomas Appleby to the Secretary of Commerce and Labor, 14 August 1912, in the National Archives, FCC General Records, 1910–1934 (hereafter NA-FCC), box 200, file 63457, College Park, Maryland.

22. Typed anecdote found in Series 133, “Photo Radio, 1899–1947,” box 379, folder 1A, George C. Clark Radioana Collection, Smithsonian National Museum of American History.

23. Advertisement in Series 82, “Firsts in Radio,” box 268, folder 3, George C. Clark Radioana Collection.

a hundred years old. In 1910, a handful of newspapers were already predicting that wireless would eventually be used for shipboard shopping,<sup>24</sup> among them the *Washington Post*, which prophesied (wrongly, as it turned out) that “every department store” along the East Coast would soon install a transmitter for such a purpose.<sup>25</sup>

In August 1911, shortly after the Wanamaker stations began operating, an apocryphal story suggested that at least one passenger did use the technology for remote shopping. According to a contemporary account, seed magnate W. A. Burpee, while aboard the *Olympic*, “planned a little joke on the New York Wanamaker station” and ordered socks via the wireless telegraph. Off the coast of Long Island, a biplane swooped down over the deck, dropping a packet of letters and a package of socks. The account concluded with the insightful observation that “the wireless telegraph, the aeroplane, the 45,000 ton vessel, each in its own way a marvel of the present decade,” were brought together by a “joking order for dry goods.”<sup>26</sup> Despite its humorous tone, the article easily conveyed the intimate connection between new forms of communication and new forms of retailing.

News coverage and trade-journal articles from this era do not mention other instances in which the Wanamaker stations were used for remote shopping, although it is possible that others did indeed occur. In 1916, *Wireless Age* (the official journal of American Marconi) reported that the wife of a Colombian politician ordered a hat via wireless telegraphy as she sailed to New York, though it did not identify the store that sold the hat.<sup>27</sup> Across the Atlantic, London’s Savoy Hotel advertised that shipboard passengers could use wireless technology to book hotel rooms while still in transit.<sup>28</sup> These instances, along with the previously cited newspaper articles about “department store–ship shopping services,” indicate that Wanamaker was not alone in promoting wireless technology as a means to conduct commercial transactions with remote consumers, though he was perhaps its best-known proponent.

As another way to maximize the publicity value of the wireless stations, Wanamaker placed his operators behind large glass windows inside the stores. Shoppers could thus readily observe the procedure, while specially constructed walls silenced the noise of the rotary-spark generator. Sarnoff is said to have demonstrated the equipment to curious shoppers at the New York store,<sup>29</sup> and Appleby would later recall that

24. “Voyager on Ocean May Soon Shop by Means of Wireless,” *Christian Science Monitor*, 23 July 1910; “Dressmaking by Wireless,” *Washington Post*, 18 May 1910.

25. “Shopping in Midocean,” *Washington Post*, 15 August 1910.

26. “Modern Invention and Some New Socks” (n. 15 above).

27. “Shopping by Wireless,” *Wireless Age*, November 1916, 115.

28. Advertisement for the Savoy Hotel, *New York Times*, 23 March 1914.

29. Lewis (n. 3 above), 104–5.



We would generally wait until the crowd got nicely settled around the window. The guide would nod his head and then we would cut loose with a message, sometimes faked, just to give the crowd a thrill. At a touch of the key a pistol like shot and the brilliant blue white flash of the spark would cause the crowd to jump, clasp their hands over their ears and then slyly glance at us with a sheepish grin.<sup>30</sup>

David Nye and James Carey have described the revolutionary qualities associated with early electrical technologies as a vision of the “electrical sublime.”<sup>31</sup> Wanamaker tapped into these feelings when he provided such dramatic visual entertainment to his clientele. Certainly, placing wireless operators behind glass was a logical development in the visual display techniques necessary to successful retailing. Moreover, those operators must have seemed like magicians to shoppers in 1911, most of whom had little knowledge of a technology employing dangerous apparatus capable of shooting out brilliant blue sparks.

## Experiments

The American Marconi Company used Wanamaker stations to test other innovations besides the break-in transmission system. Among these were the experiments with “commercial wireless telephone service,” conducted at the New York store, and the musical broadcasts of 13 May 1914, with further tests performed the following February.<sup>32</sup>

In the May 1914 experiments, the New York station broadcast the sound of the human voice and recorded music.<sup>33</sup> Although a number of

30. Appleby memoirs (n. 18 above).

31. David Nye, *American Technological Sublime* (Cambridge, Mass., 1994); James W. Carey, with John J. Quirk, “The Mythos of the Electronic Revolution,” in *Communication as Culture: Essays on Media and Society* (Boston, 1989), 113–41.

32. “Talk by Wireless with Philadelphia,” *New York Times*, 14 May 1914; letter from W. D. Terrell, New York Radio Inspector, to Commissioner of the Bureau of Navigation, 17 February 1915, NA-FCC, box 240, file 70390.

33. In one of the more detailed works on this period of early radio, Hugh G. Aitken doubted that these musical broadcasts took place, noting that the spark telegraphy equipment of the Wanamaker station was not capable of musical transmissions (Aitken, *The Continuous Wave: Technology and American Radio, 1900–1932* [Princeton, N.J., 1985], 465n100); however, Alexander Magoun wrote that American Marconi had installed an experimental arc transmitter capable of musical broadcasts in the department store in spring 1914 (Magoun, “Pushing Technology: David Sarnoff and Wireless Technology, 1911–1921,” paper presented at the annual IEEE Conference on the History of Telecommunications, St. John’s, Newfoundland, July 2001). Elliot N. Sivowitch may be incorrect in claiming that the station instead installed low-powered vacuum tubes early in 1914 (Sivowitch, “A Technological Survey of Broadcasting’s Pre-History, 1876–1920,” in *American Broadcasting: A Source Book on the History of Radio and Television*, ed. Lawrence Lichty and Malachi Topping [New York, 1975], 17–31).

inventors and amateur enthusiasts—notably Charles Herrold and Lee de Forest—had successfully transmitted music over the airwaves before 1914, the *New York Times* found the Wanamaker broadcast worthy of its front page.<sup>34</sup> None of the earlier inventors had presented a concrete plan for how a broadcast operation might be funded; Sarnoff's Radio Music Box memo, mentioned earlier, was thus remarkably prescient, in that it outlined the initial business plan for radio broadcasting followed in ensuing years. Archer reprinted the text of this legendary memo in his *History of Radio*, although his version was most likely penned well after 1916, the date first put forth by Sarnoff. Louise Benjamin has found evidence that Sarnoff did in fact author some version of this memo in 1916, however,<sup>35</sup> so, while Archer's account of Wanamaker's connection to the *Titanic* may be dubious, his claim that the Wanamaker's experiment inspired the memo is plausible. Just as Wanamaker's had long used complimentary concerts to lure shoppers to its sales floor, Sarnoff's business plan relied on free entertainment as an inducement to buy a new product.

The day after the broadcast, advertisements in two Philadelphia newspapers announced the successful experiment—further evidence that the stations were as much promotional vehicles as facilities for routine business communication.<sup>36</sup> Details provided by articles in these newspapers highlight how innovations in communications technology are often driven by commercial imperatives. According to the *Philadelphia Inquirer*, the stores exchanged “the first commercial message by wireless telephone” on 13 May 1914 at 3:45 P.M.<sup>37</sup> The message was nothing so portentous as “What hath God wrought!” or “Come here Watson, I need you”; rather, it was the entirely ordinary request that the Philadelphia store send stationery to New York. Appleby, the operator receiving the message, telegraphed New York that the experiment had succeeded. This account, and that in the Philadelphia *Public Ledger*, stated that the Wanamaker stores had offered the use of their stations to American Marconi in order to test this advance in wireless technology.<sup>38</sup>

As part of the experiment on 13 May, operators in the New York store also broadcast recordings by opera singer Enrico Caruso. Sarnoff, who had by now climbed the ranks of American Marconi, was sixty miles off the coast of New York aboard the S.S. *Antilles*. His traveling companions were no strangers to wireless; indeed, they were headed to a convention on railway telegraphy. Still, they were surprised when the ship's receiver picked up the

34. “Talk by Wireless with Philadelphia.”

35. Louise Benjamin, “In Search of the Sarnoff ‘Radio Music Box’ Memo: Nally’s Reply,” *Journal of Radio Studies* 9 (2002): 97–106; Archer (n. 4 above), 112–13.

36. See Wanamaker's advertisements in the *Philadelphia Inquirer*, 14 May 1914, and the Philadelphia *Public Ledger*, 14 May 1914.

37. “Wireless Phone Covers 90 Miles,” *Philadelphia Inquirer*, 14 May 1914.

38. Ibid.; “Talk by Wireless Phone to New York,” *Public Ledger*, 14 May 1914.

musical broadcast. At 4:00 P.M., the Marconi operator aboard the *Antilles* responded via wireless telegraph that this portion of the experiment had likewise succeeded. Operators in the New Jersey and New York area also heard the strains of Caruso.<sup>39</sup> At least one of them was not entirely enthusiastic; a message was reportedly received that read: "Am hearing music clearly but that's a rotten phonograph. Get a new one and some new records."<sup>40</sup>

## The Science of Selling

To us, for whom a department store is simply a large retailer at a local mall, such a business might seem an unlikely candidate for "wireless pioneer." Department stores were important retail operations in the early twentieth century, however, and Wanamaker's wireless telegraph stations were extensions of existing practices. Such stores were known for innovative approaches to retailing, vigorous advertising, public entertainment sponsorship, and early adoption of new technologies. Historians have documented the significance of department stores during the late nineteenth and early twentieth centuries, linking their growth to the emergence of a consumer culture within American society and changes within the retail industry.<sup>41</sup> Functioning rather like miniature world's fairs, these stores offered urban shoppers aspirational visions of upper-class life, displaying all the accou-

39. "New York to Philadelphia by Wireless Telephone," *Wireless Age*, June 1914, 725. Sarnoff's role in this experiment is unclear; Archer stated (p. 112) that Sarnoff was directly involved, but his account of the *Titanic's* distress call makes it unwise to trust him completely (cf. Bilby [n. 5 above]). That the experiment began shortly after the *Antilles* embarked, and thus before it was out of range, suggests that the musical transmission was no accident, but instead part of the plan. Given Sarnoff's documented role in pushing earlier technical innovations for the Marconi Company, Alexander Magoun agreed that Sarnoff was likely to have been involved in coordinating, if not conceiving, the experiment (Magoun, personal communication with author, 13 December 2005).

40. "Talk by Wireless with Philadelphia."

41. Ralph M. Hower, *History of Macy's of New York, 1858–1919: Chapters in the Evolution of the Department Store* (Cambridge, Mass., 1943); Frank Mayfield, *The Department Store Story* (New York, 1949); H. Pasdermadjian, *The Department Store: Its Origins, Evolution, and Economics* (London, 1954); John William Ferry, *A History of the Department Store* (New York, 1960); Robert Hendrickson, *The Grand Emporiums: The Illustrated History of America's Great Department Stores* (New York, 1979); Michael Miller, *The Bon Marché: Bourgeois Culture and the Department Store, 1869–1920* (Princeton, N.J., 1981); Russell Lewis, "Everything under One Roof: World's Fairs and Department Stores in Paris and Chicago," *Chicago History* 12 (1983): 28–47; Susan Porter Benson, *Counter Cultures: Saleswomen, Managers, and Customers in American Department Stores, 1890–1940* (Urbana, Ill., 1986); Elaine S. Abelson, *When Ladies Go A-Thieving: Middle-Class Shoplifters in the Victorian Department Store* (New York, 1989); William Leach, *Land of Desire: Merchants, Power, and the Rise of a New American Culture* (New York, 1993); Bill Lancaster, *The Department Store: A Social History* (London, 1995); Geoffrey Crossick and Serge Jaumain, eds., *Cathedrals of Consumption: The European Department Store, 1850–1939* (Aldershot, UK, 1999).

trements necessary to modern living (complete with price tags). John Wanamaker was a leader in this area, and his approaches—emulated by fellow merchants—were particularly influential. For these reasons, a thorough discussion of the Wanamaker wireless operations must situate them within the broader history of department stores and established retail practices.

This sales format arose in the middle of the nineteenth century, as merchants realized that a single large establishment divided into various “departments” could offer the same amount of merchandise as several smaller ones. By the end of the century, most major North American cities featured department stores, their growth fueled by rising industrial productivity, urbanization, and improved methods of transportation. These stores, which were often the most impressive buildings in town, introduced merchandising practices now so commonplace as to seem almost mandatory, among them fixed prices (with no haggling), free return of goods, and home delivery.

Alexander Turney Stewart pioneered this form of retailing in the United States in New York City, first with his Marble Palace and then the even larger Cast Iron Palace.<sup>42</sup> In 1876, building on Stewart’s approach, Wanamaker converted a Philadelphia train depot into a lavish store with a three-acre sales floor.<sup>43</sup> The building, which was continually improved upon and expanded, even saw the 1911 installation of an immense pipe organ that became a Philadelphia institution and tourist attraction in itself. Not content to limit himself to one city, in 1896 Wanamaker took over Stewart’s Cast Iron Palace, then built an even larger store next door and linked the two buildings by a pedestrian bridge.<sup>44</sup>

Wanamaker’s knack for self-promotion and his prolific advertising set the standard for other merchants. In the late nineteenth century, department stores, among the first industries to recognize the value of persistent advertising, introduced illustrated newspaper ads that spanned more than one column.<sup>45</sup> Wanamaker pushed this technique to its obvious limit and placed the first ads that spanned an entire page.<sup>46</sup> Writing in 1929, one historian claimed that Wanamaker’s success led to “the great era of national advertising by manufacturers.”<sup>47</sup> Newspapers across the country benefited from the steady stream of revenue from department stores ads, a factor that Gerald Baldasty has identified as contributing to the commercialization of journalism in the nineteenth century.<sup>48</sup>

42. Hendrickson, 35–36.

43. *Ibid.*, 78–79; Ferry, 103–8.

44. Hendrickson, 79.

45. Porter Benson, 17.

46. *Ibid.*

47. Frank Presbrey, *The History and Development of Advertising* (Garden City, N.Y., 1929), 248.

48. Gerald Baldasty, *The Commercialization of News in the Nineteenth Century* (Madison, Wisc., 1992).

Stores also used window displays to showcase consumer goods. Their development was enhanced by the increasing availability of plate glass, an architectural material that department stores adopted more rapidly than other businesses.<sup>49</sup> Merchants also attracted shoppers with theatrical performances, entertainment spectacles, and concerts, many stores going so far as to construct special theaters.<sup>50</sup> Classical music and operatic selections were the preferred fare for department stores, thereby reinforcing the aura of upscale gentility they sought to promote. As with other endeavors, Wanamaker was a leader in this area, sponsoring more prestigious concerts than any other merchant.<sup>51</sup>

In addition to enticing customers into their stores with advertisements and displays, merchants found they could use various forms of communication to sell goods to shoppers who might never set foot on the sales floor. In the late 1860s, many dry goods stores issued catalogs so that customers could order products through the mail, a practice that was greatly boosted after the introduction of rural free delivery (RFD) in 1896, and it was Wanamaker himself who proposed the system when he served as postmaster general for President Benjamin Harrison.<sup>52</sup> The store's 1926 promotional book also claimed that the Philadelphia store was the first in the country to offer free delivery by mail, and it even boasted of its early adoption of telephones.<sup>53</sup> By the start of the twentieth century, this latter form of communication had become standard for large retailers, and a 1927 overview of department stores claimed that "the use of the telephone by the store's customers" was one of the principal factors behind the institution's growth.<sup>54</sup>

Other examples of Wanamaker's enthusiastic adoption of new technologies include his installation of pneumatic tubes for moving cash within the store, and during the first decade of the twentieth century, advertisements for airplanes and automobiles (although the prices were probably out of reach for the vast majority of shoppers).<sup>55</sup> His adoption of electrical lighting was particularly influential. In 1878, he installed twenty-eight arc lights in his Philadelphia store, a feat that Hugh Aitken has described as the "first commercial installation" of electrical lighting.<sup>56</sup> Stores across the

49. Pasdermajian (n. 41 above), 26; see also Thomas Leslie, "As Large as the Situation of the Columns Would Allow": Building Cladding and Plate Glass in the Chicago Skyscraper, 1885–1905," *Technology and Culture* 49, no. 2 (2008): 399–419.

50. Abelson (n. 41 above), 47; Linda L. Tyler, "Commerce and Poetry Hand in Hand: Music in American Department Stores, 1880–1930," *Journal of the American Musicological Society* 45 (1992): 83.

51. Tyler.

52. Leach (n. 41 above), 44, 182–84.

53. Wanamaker, *A Friendly Guide* (n. 14 above), 7.

54. J. Russel Doubman and John R. Whitaker, *The Organization and Operation of Department Stores* (New York, 1927), 14; Leach (p. 133) mentions a number of stores that implemented telephone-order systems in the early 1900s.

55. Hendrickson (n. 41 above), 80.

56. Nye (n. 31 above), 176; Aitken (n. 33 above), 111.

country quickly followed suit, wanting to—quite literally—display their goods in the best possible light; in fact, they were often the first public buildings in their respective towns to feature this staple of modern life.

The installation of Marconi wireless stations in the Philadelphia and New York Wanamaker stores appears as an aberration within the strict confines of media history, but is not so unusual within the context of department store history. Wanamaker's stores were two of the largest in the country and had already established patterns of quickly adopting new technologies, attracting publicity by a variety of means and reaching consumers in far-flung locations. While there is evidence of other department stores having wireless receivers in their establishments prior to World War I or having wireless transmitters on the roofs of their large buildings, there is no record of any store other than Wanamaker's that actually owned and operated such stations prior to the great broadcasting boom of the early 1920s.<sup>57</sup>

### Licensing

The unusual nature of the Wanamaker stations mentioned in the *Marconigraph* article is also apparent in correspondence among government regulators and Department of Commerce publications. The material reveals both the difficulties the government faced in regulating this emerging technology and the unreliability of government records from this era.

With the Radio Act of 1912, the Department of Commerce required licenses for anyone who wanted to transmit. The practice of assigning three-letter (later four) call signals, beginning with the letter K or W, was also started at this time. The Philadelphia Wanamaker station, previously known as HE, became WHE, while the New York station changed from HI to WHI (presumably the one-letter abbreviations to which Appleby referred would have still functioned).

The act's most significant aspect was its initiation of spectrum allocation. The navy was granted exclusive use of wavelengths between 600 and 1,600 meters; amateur operators were allocated wavelengths of 200 meters

57. Although specifying that it had only receiving equipment and no transmitting capability, Bamberger's, located in Newark, New Jersey, offered the services of its wireless apparatus to the government just before the United States entered World War I and all wireless activity fell under the navy's control (letter from Bamberger's to the New York Radio Inspector, 10 March 1917, NA-FCC, box 39, file 484). Chicago's Fair Store featured a wireless transmitter on its roof, but government records do not indicate any wireless station belonging to the store; its building may have been selected as suitable for a transmitter because of its size. Judith Waller mentions the original transmitter in a 6 March 1948 interview (Reel Orig 0966, Audio Collection, Library of American Broadcasting). There was also a Marconi wireless station on the roof of Filene's in Boston. While telegraphic news reports were posted on display boards for shoppers, the station appears to have been run as a separate enterprise; see "Electrical Equipment of a Department Store," *Electrical World*, 20 September 1913, 579–85.

and below (then considered unsuitable for long-distance communication); and all other users were assigned to wavelengths of between 200 to 600 meters (the most frequent allocation for general broadcasting and thus particularly crowded) or longer than 1,600 meters.<sup>58</sup> Non-navy wireless stations were grouped into categories—including public, commercial, experimental, and different stages of “amateur stations”—but the distinctions were ambiguous and confusing to both regulators and operators.

Following the passage of the Radio Act, the government issued annual lists of wireless stations and their designations. The Philadelphia station was classified as “general public” in the 1913 edition,<sup>59</sup> meaning that it accepted paid messages from the public, while the New York station remained unclassified. (In subsequent years, both were designated as general public.)<sup>60</sup> Both were said to transmit at 300 and 600 meters, although Philadelphia’s was also listed as broadcasting at 1,650 meters, and their ownership was attributed to American Marconi.

These documents appear inaccurate, however, and do not correspond to other material in the government archives. The New York and Philadelphia stations repeatedly transmitted on wavelengths above 1,600 meters, and numerous letters make it clear that although the stations were part of the American Marconi network, John Wanamaker was their actual owner. In January 1913, a radio inspector asked the commissioner of the Bureau of Navigation about the appropriate license for the New York station, which would carry messages from the public as well as those concerning store operations. The response, repeated in a 1916 letter from the commissioner, stressed that Wanamaker’s should receive two licenses: a commercial one for use by the store, and a public license for use by American Marconi.<sup>61</sup> The annual list of wireless stations does not indicate such dual licensing. Adding to the confusion, Wanamaker’s and American Marconi may have received temporary, experimental licenses over the years, especially as they worked together to test the use of wireless as a “radio telephone.”<sup>62</sup>

The ambiguous nature of the Wanamaker stations inspired an irate letter to the commissioner of the Bureau of Navigation from W. H. Bullard, superintendent of the U.S. Naval Radio Service. Bullard sought clarification of the difference between commercial and public stations, believing that the current

58. Douglas (n. 9 above), 234.

59. Department of Commerce, Bureau of Navigation, *Radio Stations of the United States* (Washington, D.C., 1913).

60. See Department of Commerce, Bureau of Navigation annual lists of stations (*Radio Stations of the United States*) for the years 1914–1916.

61. Letter, Commissioner of the Bureau of Navigation to the New York Radio Inspector, 7 January 1913, NA-FCC, box 213, file 64438.

62. In 1915, E. T. Chamberlain, commissioner of the Bureau of Navigation, instructed the New York Radio Inspector to tell American Marconi to apply for an experimental license as part of the radio-telephone tests to be conducted with the Wanamaker station (letter, 19 February 1915, NA-FCC, box 240, file 70390).

regulations did not place enough restrictions upon commercial operations.<sup>63</sup> The letter was sparked by repeated reports of interference between naval stations and Wanamaker's in New York. Wanamaker's denied that it was transmitting in the navy's portion of the spectrum, and upon receiving the complaint from the government, an engineer for American Marconi attributed the problem to poor equipment: "We can only regret that the receiving apparatus at the Navy Yard is not as selective as would seem to be required by the service conditions."<sup>64</sup> Greater tact would be shown by another American Marconi representative, who stated that the stations would refrain from transmitting from 11:55 A.M. to noon, the period during which the navy sent out a daily time signal from its powerful station in Arlington, Virginia.<sup>65</sup> When more and more radio stations sought space on the crowded airwaves during the 1920s, the government implemented awkward time-sharing policies with multiple stations assigned to the same frequency, a strategy rooted in the policies of the wireless telegraphy era.

In 1916, the director of Naval Communications again complained to the government about interference from Wanamaker's. In this instance, conditions in the waters around New York were said to be "unsatisfactory," and the director questioned the wisdom of licensing these stations, since "obvious and reliable means are available for communication between New York and Philadelphia."<sup>66</sup> This lament evidently fell on deaf ears, for the two stations continued to operate for years, before being forced to close during World War I, when the government invoked a clause in the Radio Act and the navy assumed control of many wireless stations and closed others.<sup>67</sup> At this time, Appleby worked in the U.S. Naval Reserve, compiling a list of wartime radio instructions among his other duties.<sup>68</sup> The navy reluctantly relinquished this control in 1919, and the Wanamaker stations returned to normal operations. When the Department of Commerce resumed publication of its annual list of wireless stations, John Wanamaker was designated as the stations' owner. Both continued to operate even after wireless technology entered its next phase of development, radio broadcasting.<sup>69</sup>

63. Letter, W. H. Bullard, superintendent of the U.S. Naval Radio Service, to Commissioner of the Bureau of Navigation, 4 May 1914, NA-FCC, box 213, file 64438.

64. Letter, F. M. Sammis, chief engineer of the Marconi Company, to W. D. Terrell, New York Radio Inspector, 17 March 1914, NA-FCC, box 240, file 70390.

65. Letter, G. S. DeSousa, traffic manager of Marconi Company, to W. D. Terrell, New York Radio Inspector, 13 April 1914, NA-FCC, box 240, file 70390.

66. Letter, Director of Naval Communications to Commissioner of the Bureau of Navigation, 15 November 1916, NA-FCC, box 19, file 192.

67. Sterling and Kittross (n. 16 above), 48.

68. Thomas Appleby file, series 4, box 7, George C. Clark Radioana Collection.

69. See Department of Commerce, Bureau of Navigation, *Commercial and Government Radio Stations of the United States* (Washington, D.C.) for the years 1923–1925. Stations WHE and WHI continued to operate after Wanamaker had established two formal broadcasting stations, WOO and WWZ; the date that they ceased operation has not been determined.



Inaccuracies in these government documents, as well as the incomplete nature of FCC records from this era, make it difficult ascertain just who was transmitting what over the airwaves before World War I. One notable anomaly in the “owner” column of the annual list, for example, is the *New York Herald*, which began experimenting with wireless telegraphy as early as 1899. This is the only newspaper listed in the early reports, although one source suggests that the *Providence Journal* in Rhode Island operated a station as well.<sup>70</sup> One file in the FCC records also refers to the licensing of a newspaper in Salem, Massachusetts, but neither it nor the *Providence Journal* appears in the annual list.<sup>71</sup> It is possible that, as in the case of the Wanamaker stations, government regulators simply recorded incorrect information, or that the stations serving the newspapers were licensed to individuals as “experimental” or “amateur” installations.

### Department Stores and Early Radio

Between 1920 and the spring of 1922, wireless was increasingly used as a method for broadcasting rather than for point-to-point communication, and the number of radio stations grew exponentially. Department stores were particularly enthusiastic proponents of the new medium, promoting radio receivers in elaborate window displays, establishing their own stations, and sponsoring programs on others. Westinghouse's pioneering station KDKA, which is often cited as the “first” radio station, was directly inspired by a newspaper ad from Horne's department store that promoted the sale of radio receivers.<sup>72</sup> A full exploration of department stores and their patronage of early broadcasting is beyond the scope of the current discussion, although a few observations are relevant.<sup>73</sup>

Department stores embraced the evolving medium of radio as enthusiastically as they had newspaper advertising during the nineteenth century. In October 1921, a few months before the dramatic rise in the number of radio stations, Wanamaker sought licenses to open stations in his Philadel-

70. According to one government document, the *Providence Journal* was operating several stations in 1904 (see *Wireless Telegraphy: Report of the Inter-Departmental Board Appointed by the President to Consider the Entire Question of Wireless Telegraphy in the Service of the National Government* [1904], reprinted in *Documents in American Telecommunications Policy*, vol. 1, ed. John M. Kittross [New York, 1977], 3–24); on a *Providence Journal* station operating years later, see Richard A. Bartlett, *The World of Ham Radio, 1901–1950: A Social History* (Jefferson, N.C., 2007), 48.

71. An index card in the FCC archives lists the licensing of the *Salem Evening News* on 16 September 1912, but the file to which this index card refers could not be located; see National Archives, Records of the FCC, General Subject Index, 1910–1927, box 1, College Park, Maryland.

72. Sterling and Kittross, 65.

73. Noah Arceneaux, “A Sales Floor in the Sky: Philadelphia Department Stores and the Radio Boom of the 1920s,” *Journal of Broadcasting & Electronic Media*, March 2009, 76–89.

phia and New York stores. Unlike the earlier wireless stations, these were devoted to broadcasting music and informative lectures. New York's WWZ began in March 1922, and WOO in Philadelphia followed in April. Government regulators soon reprimanded the company for advertising over the air.<sup>74</sup> Correspondence from FCC archives indicates that one of the stations had been broadcasting information from certain magazines, including *Vogue* and *Vanity Fair*, and informing listeners where to purchase these publications.<sup>75</sup> While the government never officially prohibited radio advertising, regulators frowned upon the practice; in May 1922, the commissioner of the Bureau of Navigation wrote to the New York Radio Inspector that advertising "may grow to such an extent that it might become objectionable," and Wanamaker's should be made aware of this.<sup>76</sup>

It is not clear from these files how Wanamaker's responded to the government's disapproval. Philadelphia's WOO remained on the air for several years, with the store's famous organ a popular feature; WWZ in New York closed before the end of 1922, and Wanamaker's instead aired programs over nearby WJZ, run by RCA. One of the first manuals on radio advertising reprinted a newspaper advertisement from July 1923 that promoted a Wanamaker organ recital on WJZ,<sup>77</sup> its caption claiming that this was the "first advertisement of a goodwill radio program."<sup>78</sup> It is difficult to take this assertion at face value, but the advertisement is itself evidence of Wanamaker's proficiency in self-promotion.

In addition to attracting publicity to the parent store (as Wanamaker had originally done with his wireless stations), in the 1920s, department stores also used radio studios to entertain shoppers. An upper floor was the recommended spot, as this location was not only optimal for transmitting radio signals, but it also forced curious shoppers to navigate several floors of merchandise in order to witness the spectacle.<sup>79</sup> The scenario of remote shopping was also maintained: during the late 1920s and early 1930s, department stores sponsored radio shopping shows that typically featured female hosts describing products to listeners at home, who could then order them by telephone.<sup>80</sup>

74. Stations WOO and WWZ appear for the first time in Department of Commerce, Bureau of Navigation, *Radio Service Bulletin*, April 1922.

75. Letter, Charles Kelly, radio editor of the *Detroit News*, 11 May 1922, in the National Archives, Records of the FCC, General Correspondence, 1929–1932 (hereafter NA-FCC, GC), box 291, file 1657, College Park, Maryland.

76. Letter, D. B. Carson, commissioner of the Bureau of Navigation, to the New York Radio Inspector, 16 May 1922, NA-FCC, GC, box 291, file 1657.

77. Edgar Felix, *Using Radio in Sales Promotion: A Book for Advertisers, Station Managers, and Broadcasting Artists* (New York, 1927), 99.

78. *Ibid.*

79. Arthur Wiesenberger, *Radio Merchandising in Department Stores: A Survey Covering the Underlying Principles of Radio—Its Merchandising and Advertising Possibilities in Department Stores* (New York, 1922), 10–11.

80. Frank W. Spaeth, ed., *Radio Broadcasting Manual: The Radio as a Publicity Medium for Retailers, an Appraisal with a Resume of Experiences* (New York, 1935).

But the era of radio shopping arrived only after most department stores had withdrawn from direct participation in the radio industry. By the late 1920s, most stores found it expensive and unnecessary to maintain their own dedicated stations and opted instead to purchase airtime from other stations. Stores that continued to own stations adopted the same commercial model of operation, namely, selling airtime to a variety of sponsors, even rival retailers. Station WOR, which was started by Bamberger's, was by far the most successful of all the original department store stations,<sup>81</sup> and while it promoted its own merchandise, the bulk of its programming was not discernibly different from that of other commercial stations. Station WNAC, established by John Shepard of the Shepard department store chain, was another station that proved particularly successful; in fact, Shepard became such an enthusiastic supporter of radio that he opened a number of stations in the New England area, established regional chains of commercial broadcasters, and eventually left the department store business in the late 1930s to focus on radio.<sup>82</sup>

The radio operations from Bamberger's and Shepard are the best-known examples of station-owning department stores, a phenomenon that was earlier, broader, and longer than most media historians have realized. In the 1940s, when television began to move from the laboratory to the living room, stores became similarly active proponents of the new medium, with the DuMont network opening what was said to be the largest television studio in the world inside Wanamaker's New York store in 1946.<sup>83</sup>

## Conclusion

An analogy can be drawn between the social preparation for a middle-class lifestyle offered by department stores and the technical preparation that Wanamaker's (and its peers) offered those interested in wireless communication. This was a public location where individuals could engage with the technology firsthand, a literal point of consumption where wireless was presented as an element of the wondrous future promised by technology. For the American Marconi company, this image of the "department store as training ground" was more than metaphorical: Wanamaker's became a laboratory for developing and implementing electronic innovations.

81. For an overview of WOR's history, see Bill Jaker, Frank Sulek, and Peter Kanze, *The Airwaves of New York: Illustrated Histories of 156 AM Stations in the Metropolitan Area, 1921–1996* (Jefferson, N.C., 1998), 151–57.

82. There is no concise history of John Shepard's contributions to radio history, although he is referenced in a number of works; see Gerald William Kroeger, "The History of Boston Radio to 1941" (Ph.D. diss., Florida State University, 1968), and Alexander Russo, *Points on the Dial: Golden Age Radio beyond the Networks* (Durham, N.C., 2010).

83. "Story of DuMont's New Wanamaker Studio," *Televiser*, May–June 1946, 19–26; see also "Government, Video Celebrities at DuMont Wanamaker Debut," *Broadcasting*, 22 April 1946, 46.

Although the Wanamaker stations did not broadcast advertisements *per se*, the store was able to leverage its involvement with the new medium to generate favorable publicity and attract shoppers. Furthermore, Wanamaker stations experimented with remote shopping, using wireless to offer listeners a virtual sales floor. In today's media environment, consuming media is frequently conflated with shopping, with viewers continually encouraged to purchase items directly from the screen in front of them. Department stores pioneered this process, explicitly identifying as "shoppers" those who watched or listened to their radio presentations and transmissions.

In at least one way, the Wanamaker stations also point to an alternate trajectory for wireless communication: the New York and Philadelphia stores used wireless as a means of point-to-point communication, finding it less expensive than the telephone. American Marconi attempted to develop radio along this model, although the issue of privacy could never be resolved (since anyone with a receiver could listen in). When radio became a thriving industry in the 1920s, it was not a substitute for the telephone, but a means of broadcasting—an entirely different approach to communication. If experiments had continued toward the realization of a fully functioning wireless telephone, and, more importantly, if technicians, engineers, and members of the public deemed such a system desirable, the later evolutions of both radio broadcasting and the telephone might have been dramatically different.

This research underscores the difficulty in drawing conclusions—or even making generalizations—about this early phase of radio history. Because it is simply not clear regarding just who was on the air and what messages were being transmitted, claims that commercial interests appeared only after the technology had developed are difficult to support. This research was focused on the operations within Wanamaker stores; research into other stations of the period might reveal an even more widespread commercial use of the medium before the explosion of radio broadcasting in the early 1920s.

In the first decade of the twenty-first century, commercial interests exert significant influence on the development of new means of communication. The Wanamaker wireless stations allow us to see that this dynamic has been with us for quite some time. Rather than viewing commercial interests as forces that influence a communications technology after it has matured, it seems more accurate to acknowledge the deep interconnections that exist between social systems and technologies. Here, the newspaper article that joked about a remote shopping experience involving the wireless telegraph, an airplane, and a ship was actually prescient. The developments of mass production and electronic communication, along with dramatic improvements in transportation technology, were not three distinct strands in American history, but part of an interrelated tale of industrialization. That technology and society evolve together is a truism, but rarely is it expressed so clearly as it is in the example offered by the Wanamaker wireless stations.