

# The Medical Battery in The United States (1870–1920): Electrotherapy at Home and in the Clinic

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## ABSTRACT

This paper focuses on the history of a portable shock-producing electrotherapeutic device known as the medical battery (1870–1920), which provided both direct and alternating current and was thought to cure a wide variety of ailments. The product occupied a unique space at the nexus of medicine, consumerism and quackery: it was simultaneously considered a legitimate device by medical professionals who practiced electrotherapeutics, yet identical versions were sold directly to consumers, often via newspaper advertisements and with cure-all marketing language. Indeed, as I show in this paper, the line between what was considered a medical device and a consumer product was often blurred. Even though medical textbooks and journals never mentioned (much less promoted) the home use of electricity, every reputable electrotherapy instrument manufacturer sold a “family battery” for patients to use on themselves at home. While a handful of physicians spoke out against the use of electricity by the laity—as they felt it undermined the image of electrotherapy as a skilled medical procedure—existing evidence suggests that many physicians were likely recommending the home use of medical electricity to their patients. Taken together, this paper shows how the professional ideals of electrotherapeutics were not always aligned with physicians’ actual practices.

**KEYWORDS:** electrotherapy, electrical medicine, medical battery, quackery, faradic Batteries

## INTRODUCTION

In 1892, A. D. Rockwell, a New York-based physician and one of the leaders in the field of electrical medicine, spoke at the American Electrotherapeutic Association about the threats to the credibility of the field, or as he put it, “hindrance[s] to the right

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appreciation and the right use of electricity.”<sup>1</sup> Although Rockwell noted that both “self-confessed charlatans” and dubious medical colleagues presented challenges for electrotherapeutics, he felt that more pernicious threats were posed by two other groups: “members of the regular profession who freely use electricity” presumably without sufficient training, and the general public, “who either with or without advice make use of this agent as commonly and as confidently as they take their morning bath or daily friction.”<sup>2</sup>

Expounding upon the public’s use of electrotherapeutics, Rockwell lamented that “anyone can buy a battery of some sort, for the market is glutted with machines of the most inexpensive and worthless construction.”<sup>3</sup> Indeed, Rockwell was correct: in the late nineteenth and early twentieth century, the advent of mail-order catalogues meant that a plethora of electrotherapy products—such as electric belts, socks, and hairbrushes—were widely available for direct purchase by consumers; many of these products were marketed with the promise of curing everything from cancer to headaches.<sup>4</sup> But it was not these products that were the target of Rockwell’s frustration; rather, his ire was directed toward an item he refers to as a “battery.”

The battery—more commonly known as a “medical battery”—was a simple shock-producing device, consisting of a battery and an iron core encased in a wooden box (Figure 1).<sup>5</sup> Most medical batteries were approximately the size of a shoebox, though “pocket” medical batteries could be as small as a paperback book and high-end medical batteries with extra features could be as large as a carry-on suitcase. They usually provided both direct and alternating current and were used to administer low levels of electrical stimulation to the body to treat a variety of diseases. For physicians interested in electrotherapeutics, the medical battery was often the entry-level device offered in an electromedical instrument catalogue. But medical batteries were also sold directly to the public by electric novelty and supply companies, individual instrument makers, and even companies that manufactured medical instruments for physicians. For Rockwell, the public’s use of the medical battery undermined the notion of electricity as a serious scientific and medical technique that required years of training and expertise.

In some ways, the issues raised by the medical battery were not unique to electrotherapeutics: the increase in direct-to-consumer health products in the nineteenth century (sometimes referred to as the rise of the medical marketplace) challenged physicians’ authority over healthcare. Historians Anne Digby, Takahiro Ueyama,

1 A. D. Rockwell, “The Uses and Abuses of Electricity in Medicine,” *Journal of the American Medical Association* 20, no. 3 (January 21, 1893), 72.

2 Ibid.

3 Ibid., 73.

4 Carolyn Thomas de la Peña, *The Body Electric: How Strange Machines Built the Modern American* (New York: New York University Press, 2003), 105–121.

5 Dean P. Currier, *Guide to Electrotherapy Instruments and History of Their American Makers*, (West Conshohocken, PA: Infinity Publishing, 2013). This book, which is a 500-page guide for antique collectors, is the most comprehensive work to-date on the medical battery.

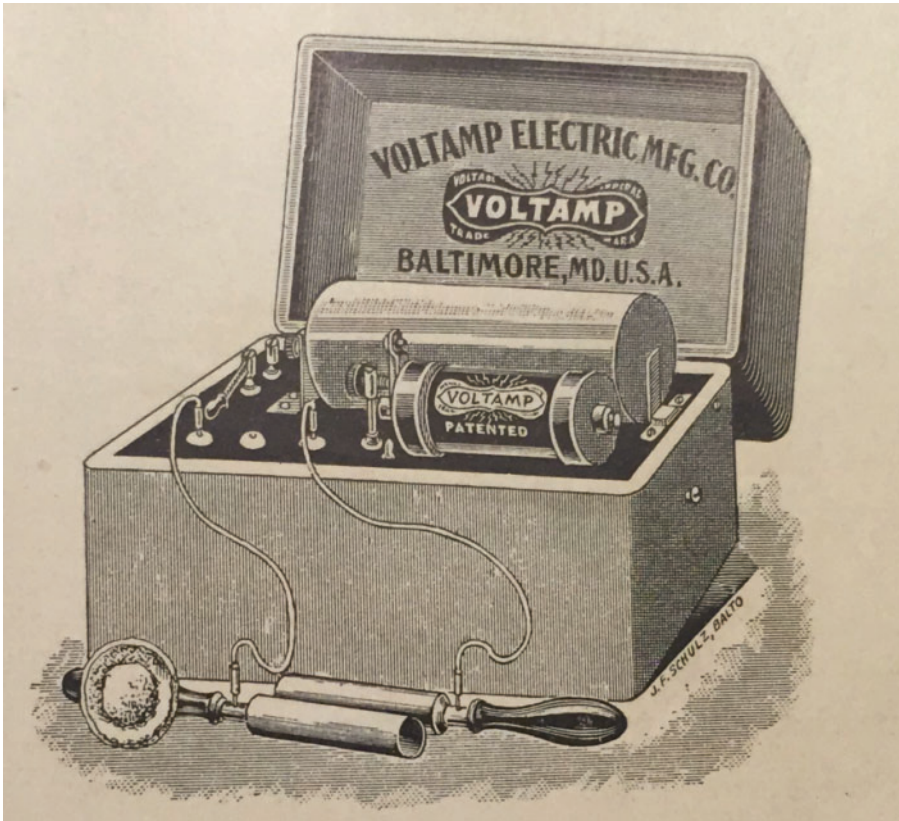


Fig. 1. Medical battery No. 4 from the Voltamp Electric Manufacturing Co, as advertised in the company's 1904 catalogue. Bakken Library Collection.

Joseph Gabriel and others have chronicled how physicians in Britain and the United States (US) attempted to position the medical profession in opposition to entrepreneurialism.<sup>6</sup> Any doctor who advertised his or her practices, held a patent on a medicine, or who was involved in profit making was liable to be labeled as a quack.<sup>7</sup> Another defining feature of quackery was the sale (or recommendation) of so-called patent medicines<sup>8</sup> whose ingredients were kept secret by their manufacturers. When the American Medical Association (AMA) was founded in 1847, it adopted a Code of Ethics that framed an “ethical” medical profession in opposition to the practices of

6 Anne Digby, *Making a Medical Living: Doctors and Patients in the English Market for Medicine, 1720-1911* (Cambridge University Press, 2002); Takahiro Ueyama, *Health in the Marketplace: Professionalism, Therapeutic Desires, and Medical Commodification in Late-Victorian London* (Society for the Promotion of Science and Scholarship, 2010); and Joseph M. Gabriel, *Medical Monopoly: Intellectual Property Rights and the Origins of the Modern Pharmaceutical Industry* (University of Chicago Press, 2014).

7 Digby, *Making a Medical Living*, 61; Gabriel, *Medical Monopoly*, 57-63.

8 Despite the name, such medicines were rarely patented. See Gabriel, *Medical Monopoly*, 17-18.

quackery; any “concealment” regarding medicines was considered “inconsistent with beneficence and professional liberty.”<sup>9</sup>

But whereas one of the defining features of quackery with regard to medicines was secrecy of ingredients, the same criterion did not hold true for electrotherapeutic devices: anyone who purchased a consumer electrotherapy device could open up the product and see how it worked, and magazines and books offered step-by-step instructions for constructing a medical battery.<sup>10</sup> For electrical medicine, then, overt commercialism (i.e., public advertising and sales) and exaggerated claims were other indicators of quackery.<sup>11</sup> Another marker was the sale of electrotherapy products that were not used by the medical profession: no regular physician would imagine writing about electric socks or brushes in a medical journal—indeed, it was unclear whether the devices even provided an electric current—and such products were written off as nostrums.<sup>12</sup>

But the medical battery occupied a more complex space at the nexus of medicine, consumerism, and quackery. Because electrical treatment via the medical battery was considered a legitimate electrotherapeutic technique—as evidenced by numerous mentions of it in books and articles written by the physicians who practiced electrotherapeutics—the product itself, even when sold directly to consumers, could not be dismissed as quackery. While there were indeed those who sold the medical battery directly to consumers with cure-all claims—and such companies were therefore likely to be labeled as quacks—there were many retailers selling medical batteries to consumers *without* cure-all claims and with minimal advertising. Thus in many ways the sale of the medical battery to the laity (and its subsequent use in home settings) represented a separate issue than that of quackery; indeed, in Rockwell’s speech, he distinguished the threats presented by charlatans from those posed by the public’s use of the medical battery.

Yet Rockwell was one of the very few to speak out about the issue; on the whole there was no outcry among physicians regarding the use of electricity at home. In fact, every reputable electrotherapy instrument manufacturer sold at least one model of the

- 9 American Medical Association, *Code of Ethics of the American Medical Association, Adopted May 1847* (Philadelphia: T.K. and P.G. Collins, printers, 1848), 16 (Chapter 2, Article 1, Section 4). See also Robert Baker, “The Historical Context of the American Medical Association’s 1847 Code of Ethics,” in *The Codification of Medical Morality*, ed. Robert Baker, Philosophy and Medicine, Volume 49 (Springer Netherlands, 1995).
- 10 “Amateur Mechanics,” *Popular Mechanics* 11, no. 10 (1909), 36; Selimo Romeo Bottone, *Electrical Instrument Making for Amateurs, a Practical Handbook* (London, Whittaker & Co.; New York, D. Van Nostrand, 1888); Norman Hugh Schneider, *Induction Coils: How to Make, Use, and Repair Them Including Ruhmkorff . . .*, 2nd ed. (Spon & Chamberlain, 1901); and Frederick Charles Allsop, *Induction Coils and Coil-Making; a Treatise on the Construction and Working of Shock, Medical and Spark Coils* (New York: E. & F N. Spon; Spon & Chamberlain, 1894).
- 11 As Dr. Samuel Monell, a founder and chief instructor at the New York School of Special Electro-Therapeutics, put it: “no medical writer who has won recognition as a competent authority in the field of electro-therapeutics has ever *over-stated* the value of electric currents in medicine. . . Experienced medical men in this branch of practice seek ultra-conservatism, and shun exaggeration as science itself shuns quackery.” Samuel Howard Monell, *High Frequency Electric Currents in Medicine and Dentistry* (New York: W. R. Jenkins Company, 1910), 128-129.
- 12 *Ibid.*, 129-130.

medical battery for “family” use, and physicians could recommend or even purchase such products on behalf of their patients. That the “family battery” remained in the catalogues of reputable electrotherapy instrument manufacturers in the United States for approximately fifty years (between 1870 and 1920) suggests that there was a significant demand for the product for this period of time. Thus, while physicians did not publicly promote or even write about the home use of electricity, I will suggest here that they were likely more involved in the practice than they appeared in print.

This paper explores how the medical battery blurred the lines between medicine, consumerism, and quackery in the United States in the late nineteenth and early twentieth century. In many ways it follows the work of Lori Loeb and Peter Bartrip, who have shown that the presumed gulf between the medical profession on the one hand, and quackery (and consumerism) on the other, was often not as large as regular physicians professed it to be. Loeb, for example, has argued that many British physicians were quietly involved in recommending patent medicines to their patients, despite the medical profession’s official stance against them.<sup>13</sup> She has also shown how many individuals who were derided as “quacks” by the medical profession were in fact upstanding citizens who embraced the rising commodification of healthcare.<sup>14</sup> Along similar lines, Bartrip has demonstrated how the *British Medical Journal* (BMJ) financially benefitted from running advertisements for patent medicines even as it was actively campaigning against them.<sup>15</sup> Thus, as Bartrip notes, “ethical rhetoric was not always in step with marketplace reality.”<sup>16</sup> In a similar vein, this paper highlights discrepancies between the professional ideals of electrotherapeutics and physicians’ actual practices.

While much scholarship has focused on irregular medical practitioners and consumer electrotherapy products that were dismissed by the regular profession as quackery, this paper centers on the sale and use of a direct-to-consumer electrotherapeutic product, the medical battery, that was viewed as legitimate by physicians practicing electrical medicine in the US in the late nineteenth and early twentieth century. It should be emphasized, however, that electrotherapy was not uniformly accepted by the medical profession; physicians who practiced electrical medicine were liable to find themselves facing “sarcastic remarks and sneers” from their medical colleagues.<sup>17</sup> Yet

13 Lori Loeb, “Doctors and Patent Medicines in Modern Britain: Professionalism and Consumerism,” *Albion* 33, no. 3 (October 2001): 404–25.

14 Lori Loeb, “George Fulford and Victorian Patent Medicine Men: Quack Mercenaries or Smilesian Entrepreneurs?” *Canadian Bulletin of Medical History/Bulletin canadien d’histoire de la médecine* 16, no. 1 (1999): 125–45.

15 Peter Bartrip, “Secret Remedies, Medical Ethics, and the Finances of the British Medical Journal,” in *The Codification of Medical Morality*, ed. Robert Baker, Philosophy and Medicine, Volume 49 (Springer Netherlands, 1995).

16 *Ibid.*, 192.

17 William Harvey King, “Some of the Causes Which Retard the More Rapid Progress of Electro-Therapeutics,” *Journal of Electrotherapeutics* 10 (1892): 66. See also Lisa Rosner, “The Professional Context of Electrotherapeutics,” *Journal of the History of Medicine and Allied Sciences* 43, no. 1 (January 1, 1988), 68.

the practice did achieve a certain measure of professional acceptance: by the 1890s electrotherapy had become part of the curriculum in some medical schools,<sup>18</sup> and the proceedings of the annual conference of the American Electrotherapeutic Association (AEA) were published in the pages of the esteemed *Journal of the American Medical Association* (JAMA). Thus, when I refer to the medical profession and regular physicians in the context of electrotherapeutics, I am referring to those medical professionals—usually possessing medical degrees from established institutions—who both practiced electrotherapy and would have been welcome at American Medical Association (AMA) meetings.

Despite the apparent historical popularity of the medical battery, little scholarship has been devoted to its manufacture and use, particularly in the United States. Indeed, the term “medical battery” in historical literature is perhaps most strongly associated with the case of C. B. Harness, whose London-based Medical Battery Company was successfully sued for fraud in 1892 by a customer who had purchased an electric belt.<sup>19</sup> Here, however, I use the term “medical battery” as it was commonly used in the U.S. in the late nineteenth and early twentieth century, in reference to simple electrotherapy apparatuses designed to provide low levels of current for electric treatment. As sales records from companies and reports from consumers are largely nonexistent, I have relied upon trade catalogues and newspaper advertisements, as well as surviving medical batteries, to reveal how different actors marketed and utilized the medical battery in multiple ways.

I begin by providing background on the rise of consumer electrotherapy products in the United States, situating the medical battery in the context of other consumer electrotherapy products. Next, I explore the medical battery market, characterizing how the wide variety of consumer- and physician-oriented companies differentially marketed the device. After considering the “family battery” and the (lack of) debate over the acceptability of self-treatment with electricity, I discuss the decline of the medical battery in the 1910s and note its contemporary revival in antique markets.

18 Timothy Kneeland and Carol Warren, *Pushbutton Psychiatry: A Cultural History of Electric Shock Therapy in America* (Walnut Creek, CA: Left Coast Press, 2008), 29. Indeed, in 1892, W. F. Osbourne, the manager of the eastern office of the *Western Electrician*, reflected on the rise of electrotherapy in the mainstream medical profession: “Twenty years ago work in this line was considered a disreputable thing for a regular physician, and the subject was never mentioned in any of the medical colleges or journals. To-day all the medical colleges deal with it more or less, and you can seldom find an issue of a medical journal that does not contain something in reference to it.” W. F. Osbourne, “Correspondence: New York Notes,” *Western Electrician*, Vol. 11, (17 September 1892), 153.

19 For discussions of the case, see Lori Loeb, “Consumerism and Commercial Electrotherapy: The Medical Battery Company in Nineteenth-Century London,” *Journal of Victorian Culture*, 4, 2 (1999); and Takahiro Ueyama, “Capital, Profession and Medical Technology: The Electro-Therapeutic Institutes and the Royal College of Physicians, 1888–1922,” *Medical History* 41, no. 02 (April 1997): 150–81, doi:10.1017/S0025727300062360.

## THE RISE OF CONSUMER ELECTROTHERAPY IN THE UNITED STATES

In the first half of the nineteenth century, electricity in the United States was characterized by performance and spectacle.<sup>20</sup> According to historians, “the electrification of the human body became a source of public entertainment.”<sup>21</sup> Entertainers would travel from city to city, performing one-night shows that combined short lectures about electricity with sensational displays of sparks and shocks. By the late nineteenth century, electricity was no longer merely a novelty relegated to traveling showmen; it began to creep into homes and the fabric of daily life.

When the town of Wabash, Indiana set up the state’s first public lighting display in 1880, approximately 10,000 visitors travelled to witness the spectacle.<sup>22</sup> According to the local newspaper, “People stood overwhelmed with awe, as if in the presence of the supernatural.”<sup>23</sup>

But electricity brought more than just lighting: at the turn of the century, the advent of elevators, trolleys, and telephones rapidly revolutionized public infrastructure, transportation, and communication. Inside the home, electricity brought major changes to domestic routines. Homes connected to the electrical grid could make use of newly invented household appliances such as washing machines, hot water heaters, vacuum cleaners, and electric stoves.<sup>24</sup> However, the adoption of domestic electricity was gradual; though electricity appeared in public places and well-off homes in the 1890s, most houses were not wired until the late 1920s.<sup>25</sup>

Electricity also dramatically transformed methods of production: automatic machines running on newly invented electric motors and sensors increasingly replaced skilled labor. Given the constant availability of power (and electric light), factories no longer had to shut down at night and could produce goods twenty-four hours a day. Mass production methods allowed companies to manufacture a huge variety of consumer goods at relatively cheap prices.<sup>26</sup> In the 1880s and 1890s, mail order companies like

- 20 Stanley Finger and Marco Piccolino, *The Shocking History of Electric Fishes: From Ancient Epochs to the Birth of Modern Neurophysiology* (Oxford: Oxford University Press, 2011), 167; Paola Bertucci, “Therapeutic Attractions: Early Applications of Electricity to the Art of Healing,” in *Brain, Mind and Medicine: Essays in Eighteenth-Century Neuroscience*, ed. Harry Whitaker, C. U. M. Smith, and Stanley Finger (Springer US, 2007), 271-272.
- 21 Kneeland and Warren, *Pushbutton Psychiatry*, 10-11.
- 22 David Nye, *Electrifying America: Social Meanings of a New Technology* (Cambridge: MIT Press, 1990), 3.
- 23 *Wabash Plain Dealer*, 1880, as quoted in Nye, *Electrifying America*, 3.
- 24 Nye, *Electrifying America*, 18-20.
- 25 Ben Wattenberg, *Statistical History of the United States* (New York: Basic Books, 1977), as quoted in Nye, *Electrifying America*, 16, and footnote 50, 395.
- 26 Nye, *Electrifying America*, 13-14. For more on the effects of mass production on big business, see Alfred D. Chandler, *The Visible Hand* (Harvard University Press, 1993) and David Hounshell, *From the American System to Mass Production, 1800-1932: The Development of Manufacturing Technology in the United States* (Baltimore: John Hopkins University Press, 1985). For works on the rise of the consumer society (albeit in Britain) see, e.g., Neil McKendrick, John Brewer, and J. H. Plumb, *The Birth of a Consumer Society: Commercialization of Eighteenth Century England* (London: HarperCollins Publishers Ltd, 1984); and John Benson, *The Rise of Consumer Society in Britain, 1880-1980* (London: Longman Group United Kingdom, 1994).

Montgomery Ward & Company printed massive catalogues that offered tens of thousands of products, such as clothing and accessories, household appliances, toys and games, machine tools, building materials, home decor, furniture, and farming equipment.<sup>27</sup> Moreover, one did not need to live in a city to purchase such products. The rapid expansion of railroads in the 1850s and 1860s meant that these items were available even to those living in remote, rural areas.<sup>28</sup> According to one historian, with the advent of mail order catalogues, “it needn’t really matter whether one lived in city or country, for the good life could be purchased by mail wherever one made one’s home.”<sup>29</sup>

One class of products offered for sale in mail order catalogues (and advertised in newspapers and magazines) were so-called patent medicines, which were often marketed as “cure-alls.” The 1902 Sears catalog offered products such as obesity powders (“a boon to fat people”), “sure cures” for the “tobacco habit” and opium habits, wonder heart cures, a “Mexican Headache and Neuralgia Cure,” and Siberian catarrh snuff.<sup>30</sup> One page of the catalogue was devoted entirely to pills: blood pills, nerve and brain pills, “wonderful little liver pills,” cathartic pills, and even “Dr. Worden’s Female Pills,” for curing every kind of “female trouble.”<sup>31</sup> Tonics, tinctures, syrups, bitters, wines and teas were advertised for the remedy of everything from consumption to rheumatism to scrofula.<sup>32</sup>

Against this mid-to-late nineteenth century backdrop—with the gradual rise of electrification and the surge in availability of cheap consumer goods—electrical devices for medical purposes entered the consumer market. Device manufacturers capitalized on both the excitement about electricity and the lack of knowledge on the part of the public: “Brewster’s Medicated Electricity,” for example, purportedly consisted of a battery in a glass bottle, “combined with vegetable compounds” that generated “a vapor which is a safe, convenient, and speedy method of obtaining relief from Nervous Headache, Catarrh, Hay Fever, Neuralgia.”<sup>33</sup>

Electric combs and hairbrushes were sold to cure baldness, nervous headaches, and other diseases; an “electric flesh brush” was marketed as a cure-all.<sup>34</sup> Electric insoles were touted as a treatment for rheumatism, gout, cold feet, and all kinds of pains and aches.<sup>35</sup> There was an electric garter for women that would “subdue all cramps and

27 William Cronon, *Nature’s Metropolis: Chicago and the Great West* (New York: W. W. Norton & Company, 1991), 336–337.

28 *Ibid.*, 68.

29 *Ibid.*, 338.

30 Catalogue No. 112, Sears, Roebuck & Co, 1902, 440, digital archive accessed on December 14, 2015, <https://archive.org/stream/catalogueno11200sear#page/438/mode/2up>

31 *Ibid.*, 440.

32 *Ibid.*, 441–451.

33 “Brewster’s Medicated Electricity,” undated pamphlet, Bakken Ephemera Collection, The Bakken Muesum, Minneapolis, Minnesota, hereafter BEC.

34 “Improved Electro-Magnetic Hair Brush and Comb,” New York and London Electric Association, undated, and “Riley’s Electric Comb Battery,” 1899, BEC.

35 “Illustrated Catalogue of the Leading Electric Novelties and Appliances,” Ohio Electric Works, 5, undated, and “Dr. Bridgeman’s Electro-Magnetic Belts, Corsets, Supporters, Braces, Insoles, and Appliances,” *Harper’s Magazine*, ca. 1891, BEC.



stiffness of joints” and electric corsets to “ward off disease.”<sup>36</sup> Various companies sold ladies’ electric “spinal appliances” and unisex “lung appliances.”<sup>37</sup> Voltaic-electric porous plasters were marketed as remedies for dyspepsia, bilious colic, cramps and pains. “Electric-magnetic” rings and pendants,<sup>38</sup> often consisting of nothing more than alternating metals—supposedly activated when in direct contact with skin—were sold to a willing public, as were electro-massage machines.<sup>39</sup>

Electric belts (Figure 2) were one of the most popular consumer electrotherapeutic products.<sup>40</sup> The J. L. Pulvermacher Company advertised its belts as being “self-applicable, for the cure of nervous and chronic diseases without medicine.”<sup>41</sup> Other companies, too, marketed their belts as cure-alls, though some belts, particularly those marketed to men, insinuated that the products were effective at treating sexual dysfunction (many belts came with a “suspensory” attachment). Low-end electric belts sold for a few dollars, but deluxe models, which provided more current, could cost as much as seventy-five dollars (nearly \$2,000 in 2016 dollars).<sup>42</sup> More common was the price range of ten to twenty dollars.<sup>43</sup>

Although electric belts were briefly used by a handful of regular physicians in the US in the late 1870s and early 1880s,<sup>44</sup> by the 1890s they had come to symbolize quackery, and regular physicians and electromedical device manufacturers frequently cautioned against them. For example, in *The Electro-Therapeutic Guide*, Dr. Homer Clark Bennett wrote that the “ordinary so-called electric belt is a fake pure and simple, made to sell,

36 Dr. Scott’s Electric Corset, ca. 1879, periodical unknown, reprinted in Robert K. Waits, *The Medical Electricians: George A. Scott and His Victorian Cohorts in Quackery* (Sunnyvale, California: CreateSpace Independent Publishing Platform, 2013), 253.

37 “German Electric Belts and Appliances,” (German Electrical Agency, 1893); and “Catalogue of Owen Electric Belt and Appliances,” (Dr. A Owen Electric Belt and Appliance Company, 1892) Bakken Library Collection, The Bakken Museum, Minneapolis, Minnesota, hereafter BLC.

38 Dr. Bridgman’s Electro-Magnetic Ring, *Scribner’s*, December 1892, reprinted in Waits, *Medical Electricians*, 288; also see advertisement for Electro-Chemical Ring (Toledo, Ohio), undated, BEC. For pendants, see, e.g., advertisement for the London Galvanic Generator, *Harper’s Weekly*, October 30, 1880, reprinted and discussed in *Medical Electricians*, 65.

39 See, e.g., “Dr. John Butler’s Electro-Massage Machine (or Electric Manipulator) for Curing Disease at Home,” ca. 1889, BLC.

40 For more on electric belts, see de la Peña, *Body Electric*, 108-121; Waits, *Medical Electricians*; Kneeland and Warren, *Pushbutton Psychiatry*, 39-40; Carolyn Thomas de la Peña, “Designing the Electric Body: Sexuality, Masculinity and the Electric Belt in America, 1880-1920,” *Journal of Design History* (2001), 275-289.

41 “Electricity - Nature’s Chief Restorer,” Pulvermacher Galvanic Co, 1882, BEC.

42 Dollar values estimated according to the “Consumer Price Index (Estimate) 1800-,” Federal Reserve Bank of Minneapolis, accessed January 8, 2016, <https://www.minneapolisfed.org/community/teaching-aids/cpi-calculator-information/consumer-price-index-1800>. The \$75 belt was Dr. McLaughlin’s Invigorator, Bakken Artifact Collection.

43 Catalogue No. 112, Sears, Roebuck & Co, 1902, 471-472, accessed January 8, 2016, <https://archive.org/stream/catalogueno11200sear#page/470/mode/2up>

44 For example, in *A System of Physiologic Therapeutics: Electrotherapy*, Dr. George W. Jacoby discussed the belt’s possible usefulness, though he was careful to distinguish the McIntosh belt he recommend from “the majority of belts” which had “merely a suggestive value.” George W. Jacoby, *A System of Physiologic Therapeutics: Electrotherapy*, ed. Solomon Solis Cohen (Philadelphia: P. Blakistan’s Son & Co, 1901), 146-147.

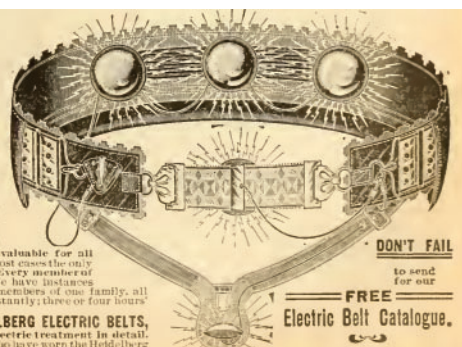
**OUR \$12.00 HEIDELBERG BELT.**

**\$12.00 IS OUR PRICE** for this powerful 60-gauge genuine Heidelberg Belt. Electric Belts equal to our \$12.00 15-cell, 60-gauge current Heidelberg, are being sold by widely advertised doctors at \$40.00 and upwards, and yet all of these high priced Electric Belts lack the peculiar strengthening curative properties of the Heidelberg Alternating Current Belts. The Heidelberg Belt seeks the weak, diseased parts at once. It produces an invigorating current of magnetic and galvanic electricity, wonderful cure for neural or vital weakness, nervous debility or impotence, stops almost immediately the onatural waste or loss of vitality. The \$12.00 Belt has just the power required for cases that are not too aggravated; will help any man or woman suffering from any organic disease no matter of how long standing.

**OUR SPECIAL \$12.00 HEIDELBERG BELT** is one of the simplest Electric Belts made. Has no complicated parts to get out of order. It is easily adjusted, perfect in its most comfortable Electric Belt made. Self adjusting, no discomfort while worn, easily put on or off, perfectly sanitary; made of high grade materials throughout; will last forever. Our \$12.00 Belt is a result of years of scientific study and experiment. It is a belt that combines the latest features, comfort and health giving points not to be found in any other make.

**GOOD FOR EITHER SEX.** our \$12.00 Belt can be worn without the suspensory attachment, by women and is invaluable for all cases of female weakness. The electric current is a great strengthener. In most cases the only treatment required by women suffering from weakness peculiar to their sex. Every member of the family can be benefited by the use of a Genuine Heidelberg Belt. We have instances where one of our Heidelberg Belts has been worn, successively by five or six members of one family, all of whom experienced good results. Remember, the belt need not be worn constantly three or four hours wear at a time is sufficient.

**IF YOU HAVE ANY DOUBTS AS TO THE EFFICACY OF OUR HEIDELBERG ELECTRIC BELTS,** let us send you our complete book describing them and explaining the electric treatment in detail. Our Free Electric Belt Catalogue contains numberless letters from people who have worn the Heidelberg Electric Belt and realized wonderful benefit from its use. Perhaps among these letters you will find a case similar to your own and may be induced to give the belt a trial, and thus secure the relief you have heretofore looked for in vain.



**DON'T FAIL**  
to send  
for our  
**FREE**  
Electric Belt Catalogue.

No. 423015 Our  
60-gauge Electric  
Belt. Price ..... **\$12.00**

Fig. 2. A \$12 electric belt in the 1902 Sears, Roebuck & Co catalogue.

and then to disintegrate.<sup>45</sup> The Jerome Kidder Manufacturing Company, a respected electromedical instrument manufacturer, devoted the first page of its catalogue to distinguishing itself from the “obvious humbugs and swindles,” warning readers to “beware of all the so-called electric pads, belts, bands, brushes, armadillos and garments, as they are made to deceive the public, and not for any Electrical effect.”<sup>46</sup> Even the editors of the magazine *Electricity* wrote that “electric belts, electric hair-brushes, electric headache cures, electric light baths etc., etc., are unqualified frauds upon the public. . . . They are frauds, or else the therapeutical and electrical authorities are all wrong.”<sup>47</sup>

### THE MEDICAL BATTERY (1870–1920)

In contrast to electric belts and brushes, which were shunned by the medical profession, the medical battery was regularly used by physicians who practiced electrotherapy. Early versions of the medical battery were hand-constructed by individual instrument makers in the 1850s and 1860s, largely in Boston and New York.<sup>48</sup> Unlike the colorful electric belts, the medical battery—which came encased in a variety of nondescript oak, mahogany, walnut, and cherry wood boxes—was rather understated in appearance. Inside the wooden box, a battery was connected to a wire that was wrapped around an iron core, and a second wire—not connected to the battery or the first wire—was also wrapped around the iron core. When the battery was turned on, a direct current was produced in the first wire, thereby magnetizing the iron core. A variety of methods were used to pulse the direct current—causing rapid changes in the magnetic

45 Dr. Homer Clark Bennett, *The Electro-Therapeutic Guide: Or, A Thousand Questions Asked and Answered*, 8th ed. (Lima, Ohio: Literary Department of the National College of Electro-therapeutics, 1907), 66.

46 *Illustrated and Descriptive Catalogue of their Superior Electro-Medical Apparatus* (New York: Jerome Kidder Mfg Co, ca. 1890). BLC.

47 “The Electrical Exhibit at the Fair Disgraced by Their Admission,” *Electricity*, 5 (16 August 1893), 52. See Waits, *Medical Electricians*, 207–208, for further discussion.

48 Currier, *Guide to Electrotherapy Instruments*, 30–63.

flux of the iron core, thereby inducing an alternating current in the second wire.<sup>49</sup> Most medical batteries—which it should be emphasized, refer not just to the physical battery itself but the entire apparatus—provided the primary, direct current (which was referred to as “galvanic” current and came in pulses), the secondary, alternating current (often referred to as “faradic” current), or a combination of both. Even though most batteries provided both direct and alternating current, they were sometimes referred to as “faradic batteries.”

The medical literature published at the time referenced two main techniques of applying current. In general faradization, one electrode was placed beneath the patient’s feet (although sometimes both the patients’ feet and the electrode were submerged in water) while the second electrode was rubbed over the body, either by the patient or physician. Central galvanization was a variation in which the stable electrode was placed above the stomach instead of beneath the feet.<sup>50</sup> General faradization or galvanization was thought to target the body as a whole, and was often recommended as a treatment when an illness was systemic in nature. By contrast, local faradization or galvanization was advised when a pain or illness was situated in a particular part of the body. Current was generally not recommended for more than ten to twenty minutes for general applications, and several minutes for local applications. Treatment was prescribed several times a week, or even daily. Overall, electrical treatments were deeply rooted in somaticism—that is, current was applied to the part of the body that was ailing—and it was believed that electricity could “loosen” any unhealthy blockages and promote circulation.<sup>51</sup>

A number of developments catapulted the medical battery into popularity in the 1880s and 1890s. First, methods of mass production allowed for the product to be cheaply produced en masse instead of being hand-built by instrument makers. Second, the advent of mail order catalogues facilitated the sale of medical batteries to consumers and physicians living in both urban and rural areas. Third, technological innovations helped make the medical battery a more appealing product: up until the 1890s, most medical batteries were of the wet-cell variety, which required the user to add a conductive fluid. By the early 1890s, medical battery manufacturers began to use dry cells that consisted of a paste rather than a wet solution—making the product more attractive, as there was less of a possibility of spilling or corrosion.<sup>52</sup>

Although the medical battery came to prominence concomitantly with electric belts and other consumer electrotherapy products, it seems to have dwarfed them in at least some measures of popularity. While sales figures are largely nonexistent, in the course of my research on trade catalogues at the Bakken Museum in Minneapolis, Minnesota, digitized versions of the magazine *Electrical World* and *American Electrician*, and secondary literature on electrotherapeutics, I counted roughly two dozen electric belt

49 These automatic current interrupters were known as rheotomes; see *ibid.*, 20-21.

50 A.D. Rockwell, *The Medical and Surgical Uses of Electricity*. (New York: William Wood and Company, 1896), 236-237.

51 John Greenway, “Nervous Disease’ and Electric Medicine.” In *Pseudo-Science and Society in Nineteenth-Century America*, edited by Arthur Wrobel, (Lexington, KY: University Press of Kentucky, 1987), 52-55.

52 Rosner, “The Professional Context of Electrotherapeutics,” 77.

manufacturers in the US in the late nineteenth and early twentieth century.<sup>53</sup> By comparison, using the same measures, I counted over 150 companies that sold their own brand of medical battery in the United States between 1870 and 1920, as well as over a hundred additional retailers that distributed these brands. Although these measures are skewed towards museum collecting and journal digitization practices—and absent sales records it is impossible to reach definitive conclusions—they suggest a greater demand for the medical battery than for the electric belt. Indeed, this is not surprising, as the medical battery effectively had two markets—physicians and consumers—whereas electric belts were purchased almost exclusively by consumers.

### MEDICAL BATTERIES FOR PHYSICIANS

From 1870 to 1920, there were approximately a dozen companies that sold their own brand of high-end medical batteries for physicians, primarily located in New York, Chicago, Philadelphia, and Baltimore. These companies sold electromedical products through secondary retailers for surgical and medical supplies, as well as directly to physicians via illustrated catalogues.<sup>54</sup> The catalogues became a source of reference for physicians, as they often contained a brief history of the use of electricity in medicine, an overview of its present uses, and a glossary of terms.<sup>55</sup> From the catalogues, physicians could learn about the different tools available for treatment, and details such as which electrode was most appropriate for use on which part of the body.<sup>56</sup>

The names of prominent electromedical instrument manufacturers appeared frequently in medical journals and in electrotherapy guides written by regular physicians. For example, in *Practical Electro-Therapeutics* (1888), Dr. William Hutchinson noted that the “best American instruments” were made by companies such as Flemming and McIntosh.<sup>57</sup> In *Clinical Therapeutics* (1885), Dr. C. L. Dana wrote that “good faradic batteries are now made by a great many firms,” such as Kidder, the Galvano-Faradic company, Waite & Bartlett, Stammers, Flemming, and McIntosh.<sup>58</sup> Physicians also

53 This figure is my own conservative estimate, based on both primary sources (Bakken Library, Ephemera, and Artifact Collections; American Medical Association’s Historical Health Fraud Archives) and digital archival research, as well as secondary sources (de la Peña, *Body Electric*, 108-120; Waits, *Medical Electricians*, 203-21; Dean P. Currier, “Components of the Electrical Belt,” Quackatorium, accessed December 26, 2015, <https://web.archive.org/web/20030819021239/http://www.radiantslab.com/quackmed/deanbelco mp.html>); and Currier, *Guide to Electrotherapy Instruments*.

54 “General catalogue - Noyes Brothers & Cutler, Importers and wholesaler dealers in drugs” (St Paul: Noyes Brothers & Cutler, 1891), BLC.

55 See, e.g., *Illustrated Catalogue of McIntosh Combined Galvanic and Faradic Battery*. (McIntosh Galvanic and Faradic Battery Co., 1881), BLC; also see Currier, *Guide to Electrotherapy Instruments*, 213.

56 For more on how physicians (albeit in Britain) utilized medical trade catalogues in the late nineteenth and early twentieth century, see Claire L. Jones, “(Re-)Reading Medical Trade Catalogs: The Uses of Professional Advertising in British Medical Practice, 1870–1914,” *Bulletin of the History of Medicine* 86, no. 3 (2012): 361–93, doi:10.1353/bhm.2012.0056.

57 See e.g., William Francis Hutchinson, *Practical Electro-Therapeutics* (Philadelphia: Records, McMullin & Co, 1888), 26.

58 Dujardin-Beaumez, *Clinical Therapeutics*, trans. E. P. Hurd (Detroit: G.S. Davis, 1885), 46. Note that this is an English translation of a French work, with certain parts replaced to suit American physicians. See p. 42, noting that the ensuing section is written by Dr. C. L. Dana.

recommended specific parts made by the companies, for example, by mentioning that they liked a certain brand of neck electrode<sup>59</sup> or voltmeter.<sup>60</sup>

The medical battery was just one of the items offered for sale in electrotherapeutic catalogues. The Waite and Bartlett catalogue from 1895, for example, featured a handful of static electricity machines, as well as several “wall cabinet” batteries (Figure 3) for physician’s offices, which cost \$200 to \$260 (approximately \$5,000 to \$7,000 in 2016 dollars) and could be ordered in oak or mahogany.<sup>61</sup> The catalogue offered eight different medical batteries, ranging in price from ten dollars to sixty-six dollars. In addition, Waite and Bartlett sold approximately one hundred different electrode attachments for their devices, including many that were specially shaped for different parts of the body (e.g., nasal, ear, rectal, and intra-uterine electrodes).

Prominent electromedical instrument manufacturers such as Waite and Bartlett interacted closely with regular physicians as well as with professional organizations such as the American Electrotherapeutic Association (AEA).<sup>62</sup> They frequently attended the AEA’s annual conferences, where they set up booths to display their latest wares.<sup>63</sup> In turn, the AEA created committees to test and review electrotherapeutic devices (such as medical batteries) and their components. Prior to each “test,” companies with credibility in the eyes of the committees were invited to submit their products for review. For example, at the AEA’s seventh annual meeting in 1897, the Committee on Meters reported on its recent test of several voltmeters (from Weston, Edison, Vetter, Chloride of Silver, Kidder, McIntosh, and Keystone).<sup>64</sup> Members from each company traveled to New York to be physically present for the test—presumably placing enough value on the outcome to make the trip.<sup>65</sup>

The relationship between the major electromedical instrument manufacturers and regular physicians was characterized by mutual dependence, similar to the symbiotic relationships Claire Jones has described between physicians and medical instrument manufacturers in the British context in the late nineteenth century.<sup>66</sup> Manufacturers relied on physicians for sales, and would sometimes appeal to the AEA, for example, by

59 Hutchinson, *Practical Electro-Therapeutics*, 197.

60 George W. Jacoby, *A System of Physiologic Therapeutics: Electrotherapy*, ed. Solomon Solis Cohen (Philadelphia: P. Blakistan’s Son & Co, 1901), 162.

61 “Illustrated Price List, Electro-Medical and Electro-Surgical Instruments,” (New York: Waite & Bartlett Mfg Co, 1895-1896). <http://archive.org/details/illustratedprice00wait>.

62 The American Electrotherapeutic Association (AEA) was created in 1891 with the aim of separating regular uses of electricity from that of quackery. As later AEA president Dr. Charles Rea Dickson put it, “[i]t was felt, and felt strongly, that electricity had been left too long to the charlatan, the incompetent, and the unscrupulous.” “Eighth Annual Meeting of the American Electro-Therapeutic Association,” *Electrical Engineer* 26, no. 54 (October 6, 1898): 347.

63 For the record of presenters at the fourth annual meeting of the AEA, see Samuel Howard Monell, “An Electrical Exhibit,” *The Medical Times and Register*, October 13, 1894, 237.

64 American Electrotherapeutic Association, *Transactions of the American Electro-Therapeutic Association*, 10-27. <http://babel.hathitrust.org/cgi/pt?id=mdp.39015062239382>

65 *Ibid.*

66 Claire L. Jones, *The Medical Trade Catalogue in Britain, 1870–1914* (Routledge, 2015).

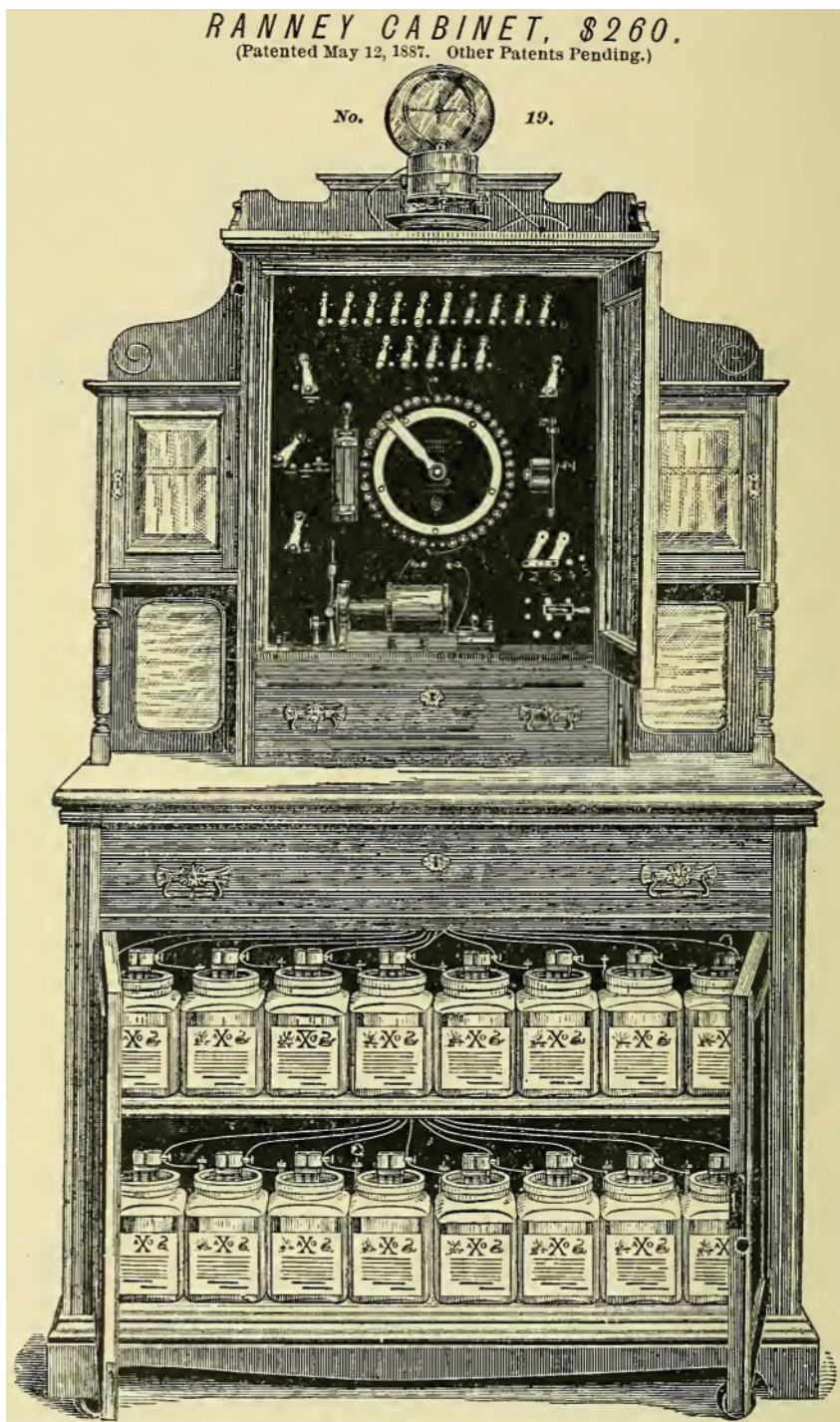


Fig. 3. Physician's wall cabinet battery from the 1895-1896 Waite & Bartlett catalogue.

requesting that it select a standardized measurement for a particular component.<sup>67</sup> In turn, physicians depended on the manufacturers to make high quality products and sometimes called on manufacturers to incorporate specific design features. Though I found no records of physicians being compensated for recommending specific brands, there are occasional mentions of physicians being sent components by manufacturers, presumably without cost.<sup>68</sup>

To a large extent, physician-oriented companies adhered to the ethics of the medical profession; they did not advertise their wares in popular outlets, relying instead on illustrated catalogues that were distributed to the medical profession. Descriptions of the medical battery and other electromedical products in these catalogues were dry, and focused on the technical aspects of the product: dimensions, weight, number of battery cells, and price. Whereas advertisements for consumer electrotherapy products were often accompanied by an illustration of an individual using the device, illustrations in medical device catalogues consisted of simple depictions of the products themselves.

### MEDICAL BATTERIES FOR CONSUMERS

In contrast to electromedical instrument manufacturers, consumer-oriented companies frequently advertised their medical batteries in general interest magazines like *McBrides's* and *Popular Mechanics* as well as in local newspapers. The majority of consumer-oriented medical battery retailers were electrical supply and novelty companies that sold medical batteries alongside products such as motors, fans, burglar alarms, bells, electric neckties, and telegraph supplies. Unlike electromedical instrument manufacturers, who sold medical batteries with names like “No. 4 Office Battery” or the “No. 2 Battery,” consumer-oriented companies often gave their batteries enticing names, such as “Home Comfort,” “Solace,” or “Relief.”<sup>69</sup> Consumers could buy these medical batteries in their local general stores and drugstores, and many were available through mail order catalogues. The names of companies who sold medical batteries primarily to consumers do not appear in the pages of electrotherapeutic texts or records of the AEA’s annual meetings.

The medical batteries sold by consumer-oriented companies were often similar in price, or slightly cheaper, than the low-end models sold by electromedical instrument manufacturers. Many fell in the range of four to eight dollars, although top-of-the-line models could sell for as much as twelve dollars,<sup>70</sup> and rock-bottom medical induction coils—such as the Dunn-Martin Electric Company’s “shocko”—sold for just a dollar. Some electrical companies, like the Manhattan Electrical Supply Co, sold a variety of models of medical batteries for many years, whereas for others, the medical battery was a short-lived endeavor en route to a larger business in automobile or telephone

67 American Electrotherapeutic Association, *Transactions of the American Electro-Therapeutic Association* (Toronto: William Briggs, Wesley Buildings, 1897), 28. <http://babel.hathitrust.org/cgi/pt?id=mdp.39015062239382>

68 Hutchinson, *Practical Electro-Therapeutics*, 201.

69 “Faradic Hints: The Faradic Current in the Treatment of Disease,” Voltamp Electric Mfg Co. (Baltimore, 1904), 18, BLC.

70 Currier, *Guide to Electrotherapy Instruments*, 458.

# CURE YOURSELF BY ELECTRICITY

## IF YOU SUFFER

from Rheumatism, Neuralgia, Constipation, Nervousness, Headache, Stomach Trouble or any other disease, I will send you a battery on ten days' trial.

MY VALUABLE NEW BOOK FREE

to all who write. Explains how my wonderful inexpensive batteries cure you in your own home. Tells how Electricity treats disease by striking the root. How it removes the cause, then cures the disease to stay cured. How it builds up and nourishes wasted tissue. It tells how I send a battery without a cent in advance and allow ten days free trial. Write today for this valuable book, I will send it free.

DETROIT MEDICAL BATTERY CO.,  
578 Majestic Building



E. C. Harkness, Gen'l Manager  
Detroit, Michigan

Fig. 4. Advertisement for the Detroit Medical Battery in the May 1907 issue of *Popular Mechanics*.

products. The *Electrical World*, an electricity-related trade magazine, kept tabs on commercial activity in the electrical industry, reporting on the formations and closures of companies, product innovations, patents, and electrical fairs and exhibitions.

Outside of electrical supply and novelty companies, another class of consumer-oriented companies—often those who also sold electric belts and garments—sold medical batteries that were frequently billed as “cure-alls.”<sup>71</sup> For example, in an advertisement in 1907 in *Popular Mechanics*, the Detroit Medical Battery Company claimed that its medical battery cured “Rheumatism, Neuralgia, Constipation, Nervousness, Headache, Stomach Trouble or any other disease” (Figure 4).<sup>72</sup> The price range of these medical batteries was similar to those sold by electric companies (approximately one to twelve dollars). Free trials and money-back guarantees were just some of the gimmicks used to hook potential customers.

Some consumer-oriented companies explicitly positioned themselves in opposition to the medical profession, portraying the medical battery as an effective alternative to a

71 “Electricity, when applied by an Automatic Medical Battery, will cure rheumatism,” *The Automatic Battery Co., McBride’s Magazine* 42, (1888), 54.

72 This same advertisement for Detroit Medical Battery ran for several years (1906–1908) in *Popular Mechanics*. For sample see “Cure Yourself by Electricity,” *Popular Mechanics* 9, no. 5 (1907), 591.



pricey, time-consuming visit to the doctor. A catalogue from the German Electric Agency, which briefly sold a brand of P. G. Williams batteries, stated that it was their “aim to place in the hands of the public a battery with which they can cure themselves with little expense and without loss of time.”<sup>73</sup> The Manhattan Electrical Supply Co. even incorporated an anti-medical theme into the name of one its batteries, the “Anti-Doc Medical Apparatus.” The company advertised the product heavily for at least seven years, noting that it cost “less than one application [of electricity] by your doctor.”<sup>74</sup>

Although companies who sold medical batteries with cure-all claims and money-back guarantees might be dismissed as quacks, the medical battery itself, which was considered a legitimate therapeutic tool, seemed largely immune to such criticism. Rather than assailing the legitimacy of consumer medical batteries or their underlying therapeutic potential, medical practitioners criticized their *quality*. Dr. William Hutchinson wrote that the “numerous small induction machines in the market” were “valuable only as toys,” and cautioned physicians to “let such playthings alone.”<sup>75</sup> In the speech quoted at the start of this paper, A. D. Rockwell criticized the plethora of batteries as being “of the most inexpensive and worthless construction.”<sup>76</sup> Thus, in contrast to electric belts and brushes, which were considered to be quackery, the medical battery sold to consumers was instead portrayed as a cheap imitation of a legitimate product.

### BLURRED BOUNDARIES

It was not always easy to distinguish between a consumer and physician battery: the products were nearly identical, and some companies marketed *both* to physicians and consumers. For example, Herman C. Tafel, of Louisville, Kentucky, sold electrical instruments to consumers as well as medical and surgical supplies to physicians.<sup>77</sup> Some companies, such as the B. B. Bliss Electric Co., sold a consumer medical battery, yet advertised in medical journals.<sup>78</sup> Even the Jerome Kidder Manufacturing Company, one of the most reputable manufacturers of high-quality batteries for the medical profession, occasionally took out advertisements in consumer publications stating that its product “conquered” disease.<sup>79</sup>

That some companies marketed medical batteries simultaneously to physicians and consumers is somewhat surprising, as it was far more common, both in the US and in

73 “German Electric Belts and Appliances,” (New York: German Electrical Agency, ca. 1901), 25. BLC.

74 “Anti-Doc Medical Apparatus,” Manhattan Electrical Supply Co, *The Railroad Telegrapher* 24 Part 2 (1907), 2154.

75 Hutchinson, *Practical Electro-Therapeutics*, 16-17.

76 A. D. Rockwell, “The Uses and Abuses of Electricity in Medicine,” *Journal of the American Medical Association* 20, no. 3 (January 21, 1893), 73.

77 James M. Edmonson, *American Surgical Instruments: The History of Their Manufacture and a Directory of Instrument Makers to 1900* (San Francisco: Norman Publishing, 1997), 193.

78 “Doctor’s Favorite: The Best Dry Cell Battery in the World,” B. B. Bliss Elec. Co., *New Charlotte Medical Journal* 5 (1894), 98.

79 Dr. Jerome Kidder’s Electro-Medical Apparatuses, Jerome Kidder Manufacturing Co, *Electrical World* 2 (December 1, 1883), 258.

Britain, for companies to align themselves with a single market.<sup>80</sup> Although in the late nineteenth and early twentieth century some British companies published catalogues of health products that were marketed both to physicians and consumers, the catalogues did not contain electromedical devices; instead they featured “sundries” like hot water bottles, belts, and hernia trusses, and were for the most part not marketed to treat disease.<sup>81</sup> In contrast, American companies who sold medical batteries to both physicians and consumers marketed their products with the implication, if not outright specification, of treating disease. The medical battery, then, occupied a distinctive space on the medical marketplace—while other electrotherapy products were sold only to physicians (e.g., wall cabinet batteries) or consumers (e.g., electric belts and brushes), the medical battery flourished for nearly fifty years in both the home and clinic.

In some ways, physicians who dabbled in electrotherapy became the beneficiaries of rising consumerism, as many of the medical batteries sold to consumers were essentially the same as those sold to physicians—only cheaper. For example, the German Electric Agency, a well-known electric belt manufacturer, claimed that its line of P. G. Williams medical batteries were “first-class machines in every respect, equal to machines that formerly sold for \$25 or \$30. We offer them to the public at prices ranging from \$3.50 to \$12.”<sup>82</sup> Such models would have been appealing to physicians who were interested in trying electrotherapeutics without making a sizable financial investment.

Although it is impossible to determine the extent to which physicians purchased consumer medical batteries, the criticism that emerged from some prominent physicians suggests that the practice was not uncommon. For example, Dr. Samuel Monell, a founder and chief instructor at the New York School of Special Electro-Therapeutics,<sup>83</sup> denounced the “honest but untaught” physicians who purchased such batteries and used them in “ignorance,” for they were erroneously “attributing to mere toy devices the efficiency of costly scientific apparatus.”<sup>84</sup> Then, when the medical battery failed to work, physicians (and patients) blamed electricity “instead of the inferior apparatus.”<sup>85</sup> Similarly, Dr. William Hutchinson felt that cheap medical batteries, and the untrained physicians who used them, were one of main reasons why electrotherapeutics had not achieved widespread acceptance amongst the medical profession at-large.<sup>86</sup> Both physicians attempted to draw boundaries between physician and consumer batteries by emphasizing the expense of a “real” medical battery; Hutchinson stated that a basic start-up outfit (comprised of several thirty or thirty-five dollar batteries with

80 Claire L. Jones, *The Medical Trade Catalogue*, 54–57.

81 According to historian Claire Jones, “a small number of catalogues produced in Britain between 1870 and 1914 promoted medical sundries as aids to health aimed at both doctors and their patients. Few of these catalogues contained products to directly treat an ailment or cure a medical condition and no surgical or dental instruments or electro-medical apparatus were included in the product range.” Claire L. Jones, *The Medical Trade Catalogue*, 54.

82 “German Electric Belts and Appliances,” (New York: German Electrical Agency, ca. 1901), 25. BLC.

83 Samuel Howard Monell, *High Frequency Electric Currents*, title page.

84 *Ibid.*, 129.

85 *Ibid.*, 130.

86 Hutchinson, *Practical Electro-Therapeutics*, 17.

accessories) would cost approximately a hundred dollars,<sup>87</sup> while Monell wrote that a “competent faradic apparatus costs from \$50 upwards.”<sup>88</sup>

Interestingly, every major electromedical instrument manufacturer had at least one battery for families in their catalogues. The product was almost always the only item in the entire catalogue that was directed at non-physicians. For example, among the eight batteries listed in the 1895 Waite and Bartlett catalogue, there were six “faradic” medical batteries for physician use, and two ten-dollar medical batteries—the cheapest in the catalogue—one billed simply as a “Family Battery” and the other as an “Electro-Magnetic Machine – for Family Use.”<sup>89</sup> Another major medical manufacturer, McIntosh, carried a similar “family faradic battery” (Figure 5);<sup>90</sup> other manufacturers referred to their version of the same type of product as a “home battery” or a “domestic battery.”<sup>91</sup> Although the name varied, the “family battery” was usually the entry-level medical battery in most catalogues. Electromedical instrument manufacturers emphasized its affordability, quality (“made of good material”), and ease of use (“It is so simple a child can use it”).<sup>92</sup>

The line between what was considered a physicians’ battery and a family battery was often murky. Sometimes the same model of medical battery was marketed *both* for physician and family use, such as Jerome Kidder’s No. 4 “Office and Family Apparatus”<sup>93</sup> or Flemming’s “No. 1 Faradic Battery,” which as the company noted was “intended chiefly for the use of physicians” but for “private family use it will be found especially valuable”<sup>94</sup> due to its simplicity and convenience. In other cases, the intended primary market for a medical battery shifted over time: Jerome Kidder’s No. 3 battery was marketed for both office and family use in 1871, but the same product, in the company’s 1874 and 1875 catalogues, was marketed just for physician use.<sup>95</sup> Electromedical instrument manufacturers also attempted to set their family batteries apart from the

87 Ibid., 197.

88 Samuel Howard Monell, *High Frequency Electric Currents*, 131.

89 “Illustrated Price List, Electro-Medical and Electro-Surgical Instruments,” (New York: Waite & Bartlett Mfg Co, 1895-1896), 18, 46. Accessed June 2, 2016, <http://archive.org/details/illustratedprice00wait>.

90 “Illustrated Catalogue of McIntosh Combined Galvanic and Faradic Battery,” (McIntosh Galvanic and Faradic Battery Co., 1881), 19. BLC.

91 For example, the Victor Electric Company sold a “Home Faradic Battery” and G. P. Pilling had a domestic faradic battery. “Catalogue no. 28 of Victor Electro-Surgical Apparatus,” (Chicago, IL: Victor Electric Company, ca. 1905), 49; “Complete Guide for Domestic Treatment by Electricity” (Philadelphia: G.P. Pilling & Son, 1905), 30-31. BLC.

92 “Illustrated Catalogue of McIntosh Combined Galvanic and Faradic Battery,” (McIntosh Galvanic and Faradic Battery Co., 1881), 19; “A New Family Battery - The Lord Baltimore” by Chloride of Silver Dry Cell Battery Co., in “General catalogue: Noyes Brothers & Cutler,” (St Paul: Noyes Brothers & Cutler, 1891), 438. BLC.

93 “Electro-Allotropo-Physiology: Uses of Different Qualities of Electricity to Cure Disease” (New York: Dr. Kidder’s Electrical Establishment, 1875). BLC.

94 “Illustrated Catalogue of Flemming’s Electro-Therapeutic Apparatus, Electro-Surgical Apparatus, Electrodes, Etc,” (Philadelphia: Press of Wm. H. Bartholomew, 1886), 23.

95 “Dr. Jerome Kidder’s Highest Premium, Vitalizing, Genuine Six and Nine Current Electro-Medical Apparatuses,” (New York: Jerome Kidder’s Electrical Manufactory, 1871), 7; “Electro-Allotropo-Physiology: Uses of Different Qualities of Electricity to Cure Disease” (New York: Jerome Kidder, 1874 and 1875). BLC.

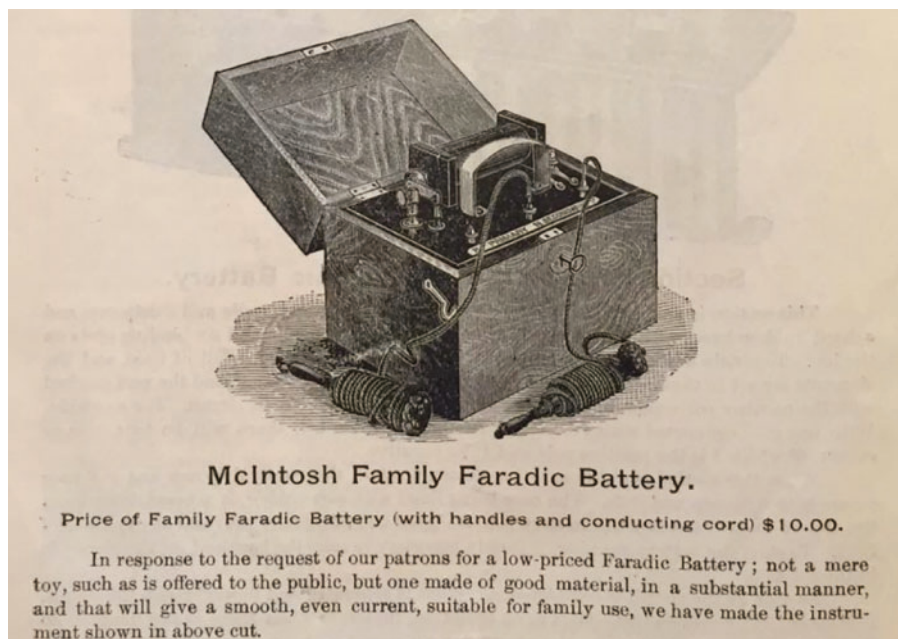


Fig. 5. A “family battery” from the McIntosh Illustrated Catalogue, ca. 1885. Bakken Library Collection.

cheaper consumer batteries on the market. For example, McIntosh, a reputable electro-medical instrument manufacturer, described its family battery as “not merely a toy, such as is offered to the public, but one made of good material in a substantial manner,”<sup>96</sup> and the Victor Electric Company stated that its family battery was “far superior to the small cheap outfits so extensively advertising to the laity, and that are nothing more or less than ‘shocking’ machines.”<sup>97</sup>

To acquire a family battery from an electromedical instrument manufacturer, patients could purchase the medical battery directly via catalogues or physicians could order medical batteries on their patient’s behalf. As electromedical instrument manufacturers sometimes offered a discount of around ten to fifteen percent to medical professionals, it is possible that physicians made a small commission on sales to their patients. However, I did not come across any indication in the medical or popular literature of physicians profiting from the sales of family batteries to patients. Furthermore, in the numerous works of Monell, who was the most outspoken critic of the family battery (and of physicians who recommended it), no mention is made of physicians financially benefitting from sales of the family battery.

96 “Illustrated Catalogue of McIntosh Combined Galvanic and Faradic Battery,” (McIntosh Galvanic and Faradic Battery Co., 1881), 19. BLC.

97 “Catalogue no. 28 of Victor Electro-Surgical Apparatus,” (Chicago, IL: Victor Electric Company, ca. 1905), 49.

**THE FAMILY BATTERY AND SELF-TREATMENT WITH ELECTRICITY**

It is likely that the family battery was recommended by physicians to patients in much the same way as a medical device is prescribed today.<sup>98</sup> Indeed, the text accompanying family batteries in catalogues implies that physicians recommended that patients self-administer electricity to themselves; for example, the Pocket Faradic Battery No. 7, manufactured by the Chloride of Silver Dry Cell Battery Company, was advertised as being “used among Physicians, and recommended by them to patients for home use.”<sup>99</sup> Those who purchased family batteries from electromedical instrument manufacturers probably received some form of guidance from their physician, as family batteries seldom came with treatment directions. By contrast, consumer medical batteries were often accompanied by an instructional pamphlet, like “the ‘Complete Guide for Domestic Treatment by Electricity’” and “Medical Electricity at Home.”<sup>100</sup> The latter pamphlet, for example, contained an alphabetical list of seventy-five diseases and conditions, and succinct directions on how to use electricity to treat them.<sup>101</sup>

That the family battery remained in the catalogues of major medical manufacturers between 1870 and 1920 suggests a sustained demand for this product for a significant period of time. Put another way, it suggests that many physicians were recommending that patients self-administer electricity at home for treatment. This is somewhat puzzling, because in electrotherapeutic texts, mentions of the self-administration of electricity are almost entirely absent, and the practice is never recommended or advised. Similarly, articles in the *Journal of Electrotherapeutics* are mostly comprised of case studies of physicians applying electricity to a patient for a given indication.

Further evidence seems to indicate that physicians were indeed recommending that their patients use a home medical battery, whether purchased from consumer-oriented outlets or from a reputable electromedical instrument manufacturer. For example, an 1892 editorial in *Western Electrician* lamented that “[m]any physicians will tell a patient to get ‘a battery’ and use it himself,” even though “there is no more reason why a patient should use electric current of various nature without specific advice than that he should use surgical instruments.”<sup>102</sup> A. D. Rockwell denounced physicians who order “the patient to get a battery and try electricity,” even though he acknowledged that “the temptation on the part of the people to use electricity themselves, and on the part of the

98 Though it is common to associate prescriptions with drugs, certain medical devices—such as a nebulizer for asthma treatment—require a prescription.

99 “Keystone Electric Company Illustrated Catalogue and Price List,” (Philadelphia: Keystone Electric Company, ca. 1903), BLC.

100 “Complete Guide for Domestic Treatment by Electricity” (Philadelphia: G.P. Pilling & Son, 1905); O.G. Tradewell, “Medical Electricity at Home,” (Signal Electric Mfg Co., undated) Bakken Artifact Collection.

101 For example, for the treatment of a nervous cough: “Apply the positive pole with the sponge electrode attached, to the back of the neck; apply the negative electrode against the front of the neck. This treatment should be ten or fifteen minutes in duration and should be given once or twice a day using the primary current.” O.G. Tradewell, “Medical Electricity at Home,” (Signal Electric Mfg Co., undated) 15.

102 “Editorial,” *Western Electrician* 11, no. 12 (September 17, 1892), 150.

profession to allow them to do so, is very strong.”<sup>103</sup> Monell was by far the most prolific crusader against the home use of electricity. In a variety of books and magazine articles from the late 1890s to 1910, he denounced physicians who recommended medical batteries to their patients.<sup>104</sup> He took issue specifically with family batteries, which he alternately called “worthless toy[s],” “delusions,” “buzzing offenders,” and “the worst enemy the cause of medical electricity has ever known,” because they “deceive the public and retard progress.”<sup>105</sup>

Why might physicians have been tempted to recommend the home use of electricity to their patients? In the late nineteenth century, many of their patients would likely have heard about the promising new technique of electrical medicine, both via the popular press as well as through the myriad consumer electrotherapy products on the market. Indeed, one of Monell’s articles implies that patients would come to the physician to discuss whether electricity would be a suitable treatment.<sup>106</sup> Physicians would likely have wanted to be viewed as knowledgeable and up-to-date on the latest medical cures. While physicians who were interested in learning more about electrotherapeutics could enroll in a training course, doing so required a significant investment of both time and money, and courses were not readily available in rural areas.

Another option was for physicians to purchase a cheap battery and administer treatment without formal training; as noted earlier, these “untrained” physicians were the target of criticism by Rockwell, Hutchinson, and Monell. An additional possibility was for physicians to recommend that patients apply electricity to themselves using a family battery. Given that physicians likely knew little more about electricity than their patients, this option would have certainly been appealing to a number of physicians.

Not surprisingly, the handful of physicians who did speak out against the home use of electricity were located in urban areas like New York and Providence, and held positions in the upper echelons of electrical medicine—Rockwell was one of fathers of electrotherapeutics, Monell ran a reputable electrotherapeutics training school in New York, and Hutchinson served as the vice president of the AEA.<sup>107</sup> Their opposition to the self-administration of electricity reflected an underlying battle over the nature of electrical medicine. Was electrotherapy akin to a drug, something that could be readily “taken” by consumers, or was it more like surgery, a specialized technique to be

103 A. D. Rockwell, *The Medical and Surgical Uses of Electricity*. (New York: William Wood and Company, 1896), 228-229.

104 Monell, *High Frequency Electric Currents*; Samuel Howard Monell, “Electro-therapeutics: The Present Faradic Muddle,” *The Medical Times and Register*, July 21, 1894, 45-46 and “Electro-therapeutics: Electricity vs. Suggestion,” *The Medical Times and Register*, June 23, 1894, 403-404; and Samuel Howard Monell, *Elements of Correct Technique: Clinics from the New York School of Special Electro-Therapeutics* (New York: Edward R. Pelton, 1900), 282-293; Samuel Howard Monell, *Electricity in Health and Disease: A Treatise of Authentic Facts for General Readers* (New York: McGraw Publishing Company, 1907), 81.

105 Monell, *High Frequency Electric Currents*, 130.

106 Samuel Howard Monell, “Electro-therapeutics: A Question of Enterprise,” *The Medical Times and Register*, January 19, 1895, 54.

107 “A Memorial Sketch. William F. Hutchinson, M.A., M.D.,” *The Boston Medical and Surgical Journal* 130 (February 22, 1894), 198-99.

administered only by experienced professionals? The widespread accessibility of the medical battery to the public—both via consumer outlets and electromedical instrument manufacturers—represented a tacit endorsement of the former characterization; it advanced the image of the medical battery as a *product* to be purchased and used, rather than electrotherapy as a *technique* to be administered by experienced medical professionals. Indeed, Monell fought on behalf of the latter characterization, writing that “in a true sense there can be no family battery; there can only be a proper use of electrical remedies when trained physicians administer them.”<sup>108</sup>

But Monell, who was the most vocal critic of the home use of the electricity, seemed to have been waging a solitary and ultimately rather fruitless battle against the family battery. On the whole, physicians were silent on the topic; indeed, there is a striking absence of debate or discussion on the topic. While physicians were easily united in their fight against quackery, there was no comparable public outcry against the home use of electricity. Given the cozy relationship that many physicians enjoyed with electromedical instrument manufacturers, it is telling that no pressure was exerted on these companies to halt sales of the family battery, and the product continued to be sold by electromedical instrument manufacturers into the 1910s. Thus, taken together, existing evidence—both from the long life of the family battery and criticism that emerged from physicians like Monell—suggests that while the self-administration of electricity was not written about in medical books or journals, it was a practice that physicians likely recommended to their patients.

#### DECLINE OF THE MEDICAL BATTERY

By 1905, mentions of the medical battery in medical journals and textbooks had largely been replaced by references to newer electrotherapeutic technologies, such as sinusoidal-wave producing devices (which produced a smoother type of alternating current via an electric motor)<sup>109</sup> and high frequency devices. Although some electromedical instrument manufacturers continued to carry older galvanic and faradic models of their medical batteries, by the 1910s, as on-the-grid electricity made its way into the home, using a battery—instead of plugging into the wall—seemed like an outdated approach, and the medical battery began to slowly fade from medical catalogues.

The disappearance of the medical battery also tracked that of electrotherapeutics as a whole. During World War I and after, medical schools removed electrotherapy courses from their curriculums, and journals began to reject articles about electrical medicine.<sup>110</sup> The *American Journal of Electrotherapeutics*, which had become the *Journal of Advanced Therapeutics* in 1902, changed its name to the *American Journal of Electrotherapeutics and Radiology* in 1916, reflecting interest in the applications of the newly discovered Roentgen rays.<sup>111</sup> In 1927, the journal changed its name once again,

108 Monell, *Electricity in Health and Disease*, 81.

109 Currier, *Guide to Electrotherapy Instruments*, 485.

110 Kneeland and Warren, *Pushbutton Psychiatry*, 38.

111 See record for “The Journal of Advanced Therapeutics,” Hathitrust Digital Library records, <http://catalog.hathitrust.org/Record/000638395>

to *Physical Therapeutics*.<sup>112</sup> Membership in the AEA declined to a new low by 1915, and by 1929 the organization been subsumed under the American Physical Therapy Association.<sup>113</sup> While some physicians continued to practice electrotherapy, by the 1920s the practice had become increasingly marginalized. Physicians and electromedical instrument manufacturers whose names had once appeared in the pages of the *Journal of Electrotherapeutics* were liable to be investigated by the AMA for quackery in the 1920s.<sup>114</sup> In Europe, too, interest in electrotherapy had declined; according to one scholar, the field was largely “defunct” in Britain by the early 1920s.<sup>115</sup>

Some historians have attributed the decline of electrotherapeutics to the concurrent shift to psychology and psychoanalysis, which located “nervous” diseases in the mind rather than the body itself.<sup>116</sup> Electrical treatments, which were based on restoring depleted bodily energy, did not mesh with new theories of disease that centered on the subconscious mind.<sup>117</sup> Indeed, as Sigmund Freud’s theories began to grow in popularity, the field of psychology staked its claim on mental diseases, and somatic diseases were incorporated under “physical therapy.” Other historians, however, have suggested that the decline is partly attributable to the fact that a mechanism of action for electrical treatment was never clearly elucidated—and that the results of electrical treatment were often mixed.<sup>118</sup>

112 See record for “Physical Therapeutics,” Hathitrust Digital Library records, <http://catalog.hathitrust.org/Record/000638388>

113 Kneeland and Warren, *Pushbutton Psychiatry*, 37–38.

114 McIntosh, once a well-respected electromedical instrument manufacturer, became the target of an AMA investigation in 1924 for employing an individual who allegedly faked a medical degree. AMA Health Fraud Archives, American Medical Association Archives, Chicago, Illinois, Box 0229-23, hereafter AMA Health Fraud Archives. The AMA also maintained a small file on the Jerome Kidder Manufacturing Company, another electro-medical instrument manufacturer that was once considered one of the most reputable in the industry. By 1915 the company was selling electric “ozone” devices with claims that the AMA felt were false. AMA Health Fraud Archives, Box 0231-20. In addition, Homer Clark Bennett, a former contributor to the *Journal of Electrotherapeutics*, was investigated by the AMA for selling a mail-order training course in electrotherapeutics. AMA Health Fraud Archives, Box 0232-05.

115 James Stark, in his work on Overbeck’s Rejuvenator’s, notes that: “John Senior has examined the context of neurology, concluding that by the start of the 1920s electrotherapy was largely defunct as an amateur, marginal practice.” See James F. Stark, “Recharge My Exhausted Batteries’: Overbeck’s Rejuvenator, Patenting, and Public Medical Consumers, 1924–37,” *Medical History* 58, no. 4 (October 2014): 500. Stark references Senior’s unpublished thesis: John Senior, ‘Rationalising Electrotherapy in Neurology, 1860–1920’ (unpublished PhD thesis: Oxford University, 1994).

116 Kneeland and Warren, *Pushbutton Psychiatry*, 37.

117 Greenway, “Nervous Disease,” 53.

118 Greenway, “Nervous Disease,” 60–66. Electrical medicine has been plagued by questions of efficacy since its advent in the mid-eighteenth century. To some degree, the history of electrical medicine can be viewed as a continuous struggle for credibility and acceptance. See Paola Bertucci and Giuliano Pancaldi, eds., *Electric Bodies: Episodes in the History of Medical Electricity* (Bologna: Università di Bologna, 2001). Electroconvulsive therapy, which was developed in 1938, has undergone various waves of rejection and acceptance (for a social history of electroshock in the United States see Kneeland and Warren, *Pushbutton Psychiatry*). More recently, a variety of electromagnetic stimulation techniques (i.e., deep brain stimulation, vagal nerve stimulation, transcranial magnetic stimulation, neuromuscular stimulation, etc) have been approved by the FDA to treat a variety of disorders. See Food and Drug Administration, “Neurostimulation Devices (21 C.F.R. 882),” accessed November 20, 2016, <https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?CFRPart=882>



While it is unclear whether the use of the medical battery by consumers contributed to the decline of the electrotherapeutics, the fact that both “quack” electrotherapy products and consumer medical batteries continued to be sold (and used) by the public well into the 1910s certainly did not help the professional reputation of the field. Indeed, as late as October 1917, the *Electrical Record* recommended that its readers purchase a consumer medical battery as a “holiday gift.”<sup>119</sup> Gradually, however, the consumer medical battery waned in popularity, and was replaced by new versions of home electrotherapy products, such as vibrating machines,<sup>120</sup> high-frequency devices like the Violet Ray,<sup>121</sup> and so-called oxygen delivery systems like the Electropoise.<sup>122</sup>

One major factor in the decline of the consumer medical batteries—which were often marketed with cure-all claims—was the AMA’s anti-quackery campaign and related actions taken by regulatory authorities against companies that made unsubstantiated claims for their products. Though the crackdown on “quack” food and drugs had begun in earnest after the passage of the 1906 Pure Food and Drug Act, the law provided for the regulation of only food and drugs, not devices. To combat the “nostrums” that were still on the market, the AMA created a Propaganda Department (later renamed the Bureau of Investigation) in 1913 to investigate fraudulent medical products.<sup>123</sup> The Department worked closely with regulators such as the Department of Agriculture’s Bureau of Chemistry (which enforced food and drug law prior to the establishment of the Food and Drug Administration); the Post Office Department, which had the authority to take action for fraudulent schemes run through the mail, and the Federal Trade Commission (FTC), which took action for “unfair trade practices.”<sup>124</sup> For example, in 1920 the FTC filed a complaint against the Electric Appliance Company of Burlington, Kansas, for circulating “false and misleading” advertisements about its electric belts, electric insoles, and medical batteries.<sup>125</sup> However, it was not until 1938 that the government acquired power to regulate medical devices, when the passage of the Federal Food Drug and Cosmetic Act gave the FDA authority to regulate products that made therapeutic claims.<sup>126</sup>

119 “Electrical Holiday Goods: Suggestions for the Selection of Appropriate Gifts, *Electrical Record and Buyer’s Reference* 22 (October 1917), 82.

120 Shelton Vibrator; “Health and Beauty,” Shelton Electric Co, ca. 1910; and Wappler vibrators in *Wappler: Caution and Light Apparatus and Accessories* (New York: Wappler Electric Mfg Co, 1914), 42-45. BLC.

121 de la Peña, *Body Electric*, 121-126.

122 Ibid.

123 Eric W. Boyle, *Quack Medicine: A History of Combating Health Fraud in Twentieth-Century America* (Santa Barbara, CA: Praeger, 2013), 62.

124 Ibid., 74-77.

125 Federal Trade Commission v. The Electric Appliance Co., of Burlington, Kansas. Docket 340. March 19, 1920. Federal Trade Commission Decisions 2 (1920) 335-340. Evidently, however, the company remained in business for another decade and a half: in 1937 the FTC again ordered the company to “cease and desist” making “unfair representations.” FTC Order for Press Release, November 27, 1937. AMA Health Fraud Archives, Box 0230-04.

126 See Peter Barton Hutt, Richard Merrill, and Lewis Grossman, *Food and Drug Law: Cases and Materials*, 4th ed. (St. Paul, MN: West Academic, 2014), 10-11.

## CONCLUSION

The medical battery was used to provide electrical treatments in the home and clinic for nearly five decades (1870-1920). Though companies marketed medical batteries primarily to either consumers or physicians, this paper has demonstrated that the lines between what was considered a consumer product and a medical device were often muddled. Some physician-oriented companies marketed their products directly to consumers; conversely, consumer-oriented companies advertised their products to physicians.

Most striking, however, was the existence of the “family battery,” a product that was sold by every major electromedical instrument manufacturer, yet aimed at non-physicians for the purposes of self-administering electrical stimulation. Although mentions of patients self-administering electricity are almost entirely absent from medical textbooks and journals, existing evidence—both from the long life of the family battery as well as from criticism that emerged from a handful of physicians—suggests that physicians were indeed recommending that their patients self-administer electricity at home, whether via the family or consumer battery. The handful of physicians who publicly advocated against the home use of the medical battery felt that its use by the laity threatened the image of electrotherapy as a skilled medical procedure. Yet despite their objections, the medical battery remained in the hands of consumers well into the 1910s. The decline of the medical battery can be attributed to a constellation of factors, including shifting interest towards newer technologies, the disappearance of electrotherapeutics as a whole, changing conceptions of nervous disease, and the institution of regulations governing medical devices and advertising claims.

Interestingly, modern books and articles related to the history of electrical medicine rarely mention the use of galvanic or faradic electrotherapy in America in the late nineteenth and early twentieth century, and the little scholarship that exists on the topic is found mostly in cultural and social histories. While there are likely a number of reasons for this—one being that American physicians did not conduct studies of electrophysiology as did their European counterparts<sup>127</sup>—it is also possible that the anti-quackery campaigns of the 1920s retrospectively cast a pall over the legacy of late nineteenth- and early twentieth-century electrotherapeutics.

Indeed, electrotherapeutics of this period seems to be remembered more for quackery than for the work conducted by regular physicians. Furthermore, in antique markets today, medical batteries—which are currently traded and sold on places like eBay.com—are colloquially referred to as “quack devices” or “quack machines.”<sup>128</sup> That the product has become synonymous with quackery in the world of collectors is an ironic final coda, because as I have shown throughout this paper, the medical battery was the one consumer electrotherapy product *not* considered as such by medical professionals who practiced electrotherapy. Indeed, the medical battery occupied a unique position, flourishing for nearly five decades both in the domain of medical practitioners

127 Rosner, “The Professional Context of Electrotherapeutics,” 79.

128 At any given time, there are hundreds of medical batteries for sale on the online auction site eBay.com, ranging in price from \$50-300, depending on condition. There are so many surviving medical batteries that a second market has arisen just in their sale and trade, and a nearly 500-page book, *Currier’s Guide to Electrotherapy Instruments*, serves as a detailed guide for medical battery collectors.

and that of home consumers, blurring the boundaries between medicine and consumerism.

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