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Mind Reading in Stage Magic: The “Second Sight” Illusion, Media, and Mediums

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Abstract

This article analyzes the late-nineteenth-century stage illusion “The Second Sight,” which seemingly demonstrates the performers’ telepathic abilities. The illusion is on the one hand regarded as an expression of contemporary trends in cultural imagination as it seizes upon notions implied by spiritualism as well as utopian and dystopian ideas associated with technical media. On the other hand, the spread of binary code in communication can be traced along with the development of the “Second Sight,” the latter being outlined by means of three examples using different methods to obtain a similar effect. While the first version used a speaking code to transmit information, the other two were performed silently, relying on other ways of communication. The article reveals how stage magic, technical media, spiritualism, and mind reading were interconnected in the late nineteenth century, and drove each other forward.

Keywords

stage magic, media, spiritualism, telepathy, telegraphy, telephony



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Despite stage magic’s continuous presence in popular culture and its historical significance as a form of entertainment, it has received relatively little academic attention. This article deals with a late-nineteenth-century stage illusion called “The Second Sight” which seemingly demonstrates the performers’ ability to read each other’s minds. French magician and modernizer of stage conjuring, Jean Eugène Robert-Houdin (1805–1871) claimed to have invented “La seconde vue,” which he first performed on February 12, 1846 in his magic theatre in Paris. The assistant, his son Émile,¹ sat on a chair onstage, blindfolded, while Robert-Houdin walked around the auditorium and collected random items from spectators. His son was capable of identifying and describing these items in detail without seeing them.² In fact, similar feats have been performed at least since 1781,³ among others by Chevalier Pinetti (Giuseppe Merci, 1750–ca. 1803) who probably got his inspiration from Franz Anton Mesmer’s theory of animal magnetism, an invisible natural force being exerted by living beings.⁴ Throughout the centuries, “mind reading” animals occasionally became famous as well, such as “Lady Wonder” (1924–1957), an allegedly telepathic horse.

¹ While all of Robert-Houdin’s children assisted him onstage, Émile was the only one to become a magician himself. Following in his father’s footsteps, he first took up the profession of a clockmaker, then returned to the magic stage after his father’s death, and performed his most famous illusions in the 1870s (Professeur Dicksonn, “Émile Robert-Houdin fils,” *Passez muscade. Journal des prestidigitateurs (amateurs et professionnels)* 14, no. 49 (1929)).

² On “La seconde vue” see Jean Eugène Robert-Houdin, *Memoirs of Robert-Houdin: Ambassador, Author, and Conjuror*, transl. Lascelles Wraxall (London: Chapman & Hall, s.a.), 192-194.

³ Harry Houdini, *The Unmasking of Robert-Houdin* (New York, NY: The Publishers, 1909), 209-217. Houdini’s historical research is to be treated with caution. While Evans’s history of the “Second Sight” concurs with Houdini’s, it is unclear if he based his publication on other sources or if he relied on Houdini’s account; Henry R. Evans, “Adventures in Magic and the Occult Arts: XI. Recollections of Robert Heller,” *The Linking Ring* XIII, no. 8 (October 1933).

⁴ Cf. Henry R. Evans, “Mental Magic,” in: Albert A. Hopkins, *Magic: Stage Illusions, Special Effects and Trick Photography*, (New York 1990), 184; Jim Steinmeyer, “Devilish Deception: The Origins of Wonder,” in *Magic, 1400s-1950s*, ed. Noel C. Daniel (Köln: Taschen, 2009), 135.



Figure 1 – Jean Eugène Robert-Houdin and his son Emile performing “La seconde vue”.

As part of popular culture, stage illusions—particularly those that have been as ubiquitous, popular and short-lived as the “Second Sight”—can be regarded as expressions of changes or tendencies of the culture producing and consuming them. Magic tricks, which, with the seemingly impossible marvels they present, evoke a childlike amazement and sense of wonder in adults can be viewed as manifestations of a given culture’s romantic longings or aspirations. Particular illusions—specifically those implying violence such as the “Sawing a Woman in Half” illusion (1921)—can function as harmless ways of reliving cultural traumata. In this case, these are the horrors of dismemberment and disfigurement of human bodies by new, technological weapons as employed during the First World War, whose aftermath suffused everyday life after mutilated veterans had returned to their homes.

This article traces the development of the “Second Sight” from a relatively simple speaking code, as employed by Robert-Houdin and others around 1850, to a binary form of communication. In view of the illusion’s media-historical context, it can be viewed on the one hand as a symptom of the mechanization of information, developing, as Birgit Schneider has shown, since the French Ancien Régime, during which punch card looms as well as the construction of automata advanced.⁵ On the other hand, the “Second Sight” is an effect of the spread of binary codes in communication, which occurred during the second half of the nineteenth century and was brought forward by the development and implementation of modern electronic media.

⁵ On the media history of punch card weaving see Birgit Schneider, *Textiles Prozessieren: Eine Mediengeschichte der Lochkartenweberei* (Zürich, Berlin: diaphanes, 2007).

According to Friedrich Kittler, “gramophones, films, and typewriters—the first technological media—[...] machines capable of storing and therefore separating sounds, sights, and writing ushered in a technologizing of information that, in retrospect, paved the way for today’s self-recursive stream of numbers.”⁶ In addition to storing information, technical media, in Kittler’s terms, can process or transmit it. As this article analyzes a stage illusion that mimics telepathy, it focuses on transmission media, in particular the telephone and the telegraph. Having been invented and implemented in the course of the nineteenth century, these two media generated utopian and dystopian narratives in popular as well as scientific culture and imagination. Like other innovations of the time—most significantly, electricity, they seemed to promise a bright future with fantastic possibilities. For example, the telephone, which allowed one to speak with spatially removed persons in real-time, raised the idea of communicating with the deceased. This article therefore also tries to grasp the interconnections and cross-fertilization of spiritualism, technical media and stage magic—and thus also between religion, technological progress and entertainment.

“What have I here? Are you ready?”

After its revival by Jean Eugène Robert-Houdin, the “Second Sight” was copied and popularized by many of his colleagues until, by the end of the nineteenth century it became a standard item in magic shows throughout Europe and the United States. A magician who performed it with great success was William Henry Palmer (1826–1878), a trained pianist, who decided to start a magical career after having attended Robert-Houdin’s show in London at the age of 21. He named himself Robert Heller after Robert-Houdin and another magician named Stephen Heller and presented his first show “Soirées Mystérieuses” at the Strand Theatre in 1851. Not only was the show, by all accounts, an exact copy of Robert-Houdin’s “Soirées fantastiques,” Heller even imitated a French accent and distributed bilingual programs in French and English.⁷ Not surprisingly, the copy of a show whose originator had just played the same city remained without success. Heller subsequently revised it and then toured the United States of America, Australia and New Zealand—

⁶ Friedrich A. Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford: Stanford University Press, 1999), xl.

⁷ Henry R. Evans, “Adventures in Magic and the Occult Arts: XI. Recollections of Robert Heller,” *The Linking Ring* XIII, no. 9 (November 1933): 594; Thomas Ewing, “The Nielsen Gallery. Heller Portrait and Vignettes,” *M-U-M* 100, no. 12 (May 2011); Charles Joseph Pecor, *The Magician on the American Stage 1752-1874* (Washington D.C.: Emerson & West, 1977), 220–221; David Price, *Magic: A Pictorial History of Conjurers in the Theater* (New York, NY et al.: Cornwall Books, 1985), 76.

places where Robert-Houdin had not been. His new program consisted of sleight-of-hand and other illusions in the first part of the show, a piano concert in the second one and the "Super-Natural Vision," the illusion based on Robert-Houdin's "Seconde vue," in the third part.⁸

Briefly stated, the effect of the second-sight trick is as follows: A lady is introduced to the audience as possessed of clairvoyant powers. She is blind-folded and seated on the stage. The magician, going down among the spectators, receives from them various articles, which the supposed seeress accurately describes; for example, in the case of a coin, not only telling what the object is, but the country in which it was coined, its denomination, and its date. In the case of a watch, she gives the metal, the maker's name, what kind and how many jewels there are in the works, and, lastly, the time to a dot.⁹

Often, the assistant would be "hypnotized," and would fall into a trance—an element popular at the time, trances, were part of all sorts of performances, from spiritualist séances to faith healings to levitations.¹⁰ It is noteworthy that mind reading illusions often stressed or postulated a close family relationship between the allegedly telepathic performers: Robert-Houdin performed with his son; Alexander Herrmann and Harry Kellar, the two most prominent US-American magicians of the late nineteenth century, both performed it with their wives; so did Pinetti. Robert Heller and Charles Morritt, (whose illusion is discussed below) presented it with their "sisters." In the latter cases, the relationships between the magicians and their assistants are not entirely clear. In all probability, the ladies were the magicians' mistresses,¹¹ whose designation as sisters would spare them unpleasant questions about their close relationship and their sharing of hotel rooms.

⁸ A playbill of the show "Heller's Wonders" as presented in New Zealand on November 2, 1870 is reproduced in J. V. Reilly, "Stories of the Past: Robert Heller," *Magiana. New Zealand's Magic Magazine* 44, no. 259 (June/July 1996): 25.

⁹ Henry R. Evans, "Adventures in Magic and the Occult Arts" (October 1933): 522.

¹⁰ On trance performances in the nineteenth century see Simone Natale, "The Medium on the Stage: Trance and Performance in Nineteenth-Century Spiritualism." *Early Popular Visual Culture* 9, no. 3 (August 2011).

¹¹ According to Pecor, Heller was married at the time he performed with Haidee Heller (Charles J. Pecor, "Robert Heller: 'The Prince of Wizards'," *The Linking Ring* 83, no. 4 (April 2003): 59). On Charles and Lilian Morritt see Victoria Moore, "The Yorkshire Man Who Taught Houdini to Make an Elephant Disappear," *Daily Mail online*, July 7, 2007, accessed February 6, 2015, <http://www.dailymail.co.uk/news/article-471954/The-Yorkshire-man-taught-Houdini-make-elephant-disappear.html#ixzz2sMEgd19T>.

After Heller’s death in 1878, Frederick Hunt Jr., who had been Heller’s assistant since the age of twelve, published an exposé of his method, which has been reproduced in a series of articles in *Magic: An Independent Magazine for Magicians*, starting in May 1907 and cited in several books on magic.¹² Hunt reported that the Hellers’ illusion was based on a speaking code, memorized by the two performers. It involved a list of numbered items, covering everything a spectator was likely to have on her, as well as possible attributes like color, material etc. Within the code used by the Hellers, there were several subcategories: one for the alphabet, one for the numbers from 0 to 10, and many others with approximately ten items in each subgroup. After having received an item by a spectator, the magician asked the clairvoyante a question, which indicated the respective category. Selected in accordance with the secret code, each possible question referred to a group of items on the list. For instance, “What article is this?” identified a different set of items than “Do you know what this is?” or “What have I here?” The latter referred to a list of optical instruments (plus a corkscrew), encompassing the following objects:

- | | |
|-------------------|---------------------|
| 1. Spectacles | 6. Opera glass case |
| 2. Spectacle case | 7. Magnifying glass |
| 3. Eyeglass | 8. Telescope |
| 4. Eyeglass case | 9. Compass |
| 5. Opera glass | 10. Corkscrew |

After having identified the set of items, the magician proceeded to further specify the object in question by indicating a certain number within this set in the first word of the second phrase he speaks to his assistant. For example, the word “say” or “speak” referred to the number “one,” “do” or “don’t” to number “four,” and so on:

- | | |
|--------------------|------------------------|
| 1. Say or Speak | 7. Please or Pray |
| 2. Be, Look or Let | 8. Are or Ain’t [sic!] |
| 3. Can or Can’t | 9. Now |
| 4. Do or Don’t | 10. Tell |
| 5. Will or Won’t | 0. Hurry or Come |
| 6. What | |

¹² For this article, I used the exposés cited in: Hardin Jasper Burlingame, *Leaves from Conjurers' Scrap Books: or, Modern Magicians and Their Works* (Chicago, IL: Donahue, Henneberry & Co., 1891), 232-259 and Evans, “Mental Magic.” All lists of items are taken from these sources and are allegedly the ones used by the Hellers.

Thus, if the magician said “What have I here? Please tell us.” he actually told the assistant that the item he was holding in his hand was the seventh object in the list of optical instruments, i.e. a magnifying glass. The two bits of information could also be combined in one sentence. For instance, the magician may have said “Let us know what country it was manufactured in, will you?” thus referring to a set of probable countries (by asking for a country) and to number “two” (encoded by the word “let”). As we can see in the following list, this is England:

- | | |
|------------|------------|
| 1. America | 6. Italy |
| 2. England | 7. Spain |
| 3. France | 8. Canada |
| 4. Germany | 9. Foreign |
| 5. Russia | 10. Mexico |

Next, the question “Can you tell us, which metal it is made of?” may have followed, containing the information “brass”—number 3 (“can”) in the list of metals; and so on.

- | | |
|-----------|-------------|
| 1. Gold | 6. Iron |
| 2. Silver | 7. Tin |
| 3. Brass | 8. Platinum |
| 4. Copper | 9. Steel |
| 5. Lead | |

In a typical magicians’ manner, in this illusion, the instrument employed—in this case, language—came with a false bottom. Key were the magician’s questions to his assistant, which were several things at once:

1. They were perfectly good sentences, referring to the current situation in which the magician asked his assistant if she could tell what item he was holding in his hand (despite her inability to see it); and
2. They were also the answer to this question.

The magician, as the one seeing the item that needed to be named, actually described it to his assistant, using the underlying, secret encryption. The performers’ communication was thus indeed super-normally successful because the person asking the question was simultaneously providing the correct answer. All the assistant did, was retranslate the encrypted information given to her into everyday language by drawing upon the memorized data. As long as their memory did not fail the performers, the answers given were always correct, no misunderstanding possible. The reason for this is that the assistant was not actually responding but translating commands, taking up the role of a machine that decodes a language and follows a command contained

in it—in the last example given, the command would be: “Say: ‘The item is made of brass’.”

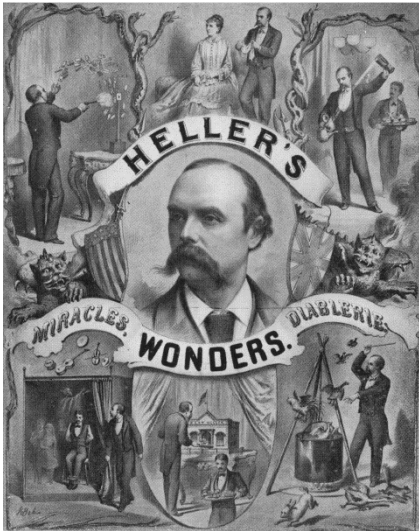


Figure 2 – promotional poster for Robert Heller’s show “Heller’s Wonders“. The “Second Sight” is represented at the top, in the middle.

The Telepathic Sofa

As the “Second Sight” remained popular for decades, attentive spectators would eventually start to see the pattern, and the performance would require alterations. For this reason, Robert Heller adopted a silent version. This he possibly also copied from Robert-Houdin, who (like Heller) presented both the silent and the speaking version interchangeably. One of Heller’s secrets was the couch his “sister” was sitting on. After his death, this piece of stage furniture was acquired by Martinka & Co., America’s oldest manufacturer of magical props and apparatuses, founded in around 1875 by two German immigrants, Francis and Antonio Martinka, in New York City. The sofa was later sold to mentalist and magician Joseph Dunninger (1892–1975) who examined it and described it as follows:

Accompanied by Harry Houdini, I went one day to the warehouse where I had the piece of furniture stored, along with other apparatus, and removed the upholstery of the top, in order to discover what mechanism, if any, had been concealed inside of the couch. I found a rather rudely constructed, but to all appearances an accurately working telephone receiver concealed in the headpiece. There was also a sort of telegraph lever affixed to the side of the sofa, in a manner such as to cause a hammer to either touch the hand or leg of the clairvoyante. I never saw the trick performed by Heller, but it is

my opinion that Miss Heller, apparently hypnotized by the conjurer, would recline on the sofa, with her head resting in such a position that her ear would be in direct contact with the telephone receiver. Communication naturally was possible in a seated position through the operation of the telegraph lever. Four wires led alongside one of the back legs of the couch.¹³

Not mentioned in this description is the second assistant who was positioned in a spot from which he or she was able to overview the audience without being noticed. This person observed the items held by the magician and described them to the blindfolded lady by speaking into the telephone microphone. The reference to “a sort of telegraph lever affixed to the side of the sofa” probably means that the couch was constructed in such a way as to work both systems simultaneously (or rather one after the other, but so that both could be operated during the same performance). The reason for installing both systems may have been either that the telegraph was in place first, and the telephone—which was invented in 1876—was added later; or, as Dunninger implies, that interchanging the communication method would allow for Haidee Heller to change her sitting position. If she lifted her head away from the receiver, the hidden assistant would telegraph the objects’ descriptions to her. This way, the illusion would appear less suspicious because Haidee could move on her chair in a natural manner and still be able to perform the illusion.

The mechanism described by Dunninger requires further comment as the existence of the telephone is something of a puzzle, which is worthy of a closer look. Dunninger said, he “bought the Heller sofa from Mr. Martinka for the sum of \$35, during the last year of the existence of his magic shop.”¹⁴ This was probably around 1918, when the Martinka brothers went into retirement.¹⁵ It is unlikely that someone from Martinka & Co. added the telephone after Heller’s death. Unless Houdini (Erik Weisz, 1874–1926) and Dunninger mistook some other apparatus for a telephone receiver, Robert Heller must have indeed installed it (or had someone build it in for him) within a short period of time because he died in November 1878, two years after the invention of the telephone. However, in his article *Second Sight*, which appeared in *The Magical World* in 1913, Saram Richard Ellison refers to the

¹³ Letter to Henry R. Evans, dated August 3, 1932, quoted by him in: “Mental Magic,” 523.

¹⁴ Ibid.

¹⁵ On the history of Martinka & Co. see: Jack Flosso (as told to Ben Robinson): “The World’s Oldest Magic Shop”, accessed February 12, 2015, <http://www.martinka.com/martinka/martinka/story.asp>. After the brothers’ retirement, Martinka & Co. was bought by the magician Carter the Great; a couple of years later by Harry Houdini and subsequently by other illusionists. It still exists today, though mainly as an online magic shop, auction house, and museum.

same sofa, which was still in Martinka’s possession at the time, and apparently had no built-in telephone: “Concealed beneath the stage was a real confederate [...] with a powerful pair of field glasses. As Heller held up other articles the man below saw them and whispered to Haidee through the speaking tube which ended in the sofa—Martinka will show you the tubed sofa any day.”¹⁶

This was also the method employed by Harry Kellar (Heinrich Keller, 1849–1922) who, according to his autobiographers Mike Caveney and Bill Miesel, learned the basics of the “Second Sight” from Haidee Heller and her new partner after Robert Heller’s death.¹⁷ It would then seem likely that the speaking tube was also used in the Hellers’ performance—being a much simpler mechanism than a telephone, and serving the same purpose (the advantage of a telephone would be that the second assistant would not necessarily have to stand below the “clairvoyante’s” chair). However, it is unlikely that Dunninger and Houdini would have mistaken a simple speaking tube for a telephone receiver. Assuming that Dunninger’s description is reliable, it is possible that the sofa was equipped with all three means of communication, which could be operated interchangeably. Perhaps Martinka never actually opened up the sofa (like Dunninger and Houdini did) to discover the telephone, which had been there all along. Another possibility is that he was aware of its existence but kept it a secret, thus following the magicians’ code of secrecy, which he, being the most prominent manufacturer of magical apparatus, knew very well. Either way, even if there never actually was a telephone inside Heller’s sofa, the fact that Dunninger imagines there to have been one testifies to the magical effect the medium still had around 1920, when he is likely to have examined it.¹⁸

A method using the telegraph lever is described by “Dr. Herman Pinetti,” according to whom Heller’s secret confederate was seated in the audience and had an electric push button next to his seat which he could make use of with his foot. Pushing it would close an electric circuit, thus activating some kind of lever installed at the chair Mrs. Heller was sitting on. The lever would then slightly knock on the chair leg so that she could hear or feel the tapping, referring to the numbers, which could then be deciphered according to the system described above.¹⁹ In fact, there were many variations of this

¹⁶ Saram R. Ellison, “Second Sight,” *The Magical World* 1, no. 9 (1913).

¹⁷ Mike Caveney and Bill Miesel, *Kellar's Wonders* (Pasadena, CA: Mike Caveney's Magic Words, 2003), 101. In 1891, Kellar bought Charles Morritt’s “Second Sight” and eventually combined various techniques to generate an act he called “Karmos” (ibid., 202). Kellar’s variant with the speaking tube, “the epitome of low-tech,” is described in: ibid., 270 (the quote is from here) and Evans, “Mental Magic,” 196.

¹⁸ Dunninger does not say when this examination took place, but since Houdini died on October 31, 1926, it must have been between 1918 and this date.

¹⁹ Herman Pinetti, *Second Sight Secrets and Mechanical Magic* (Bridgeport, CN: Dunham, 1905), 26. In 1902, before he received Dunninger’s report of what he had

illusion, employing different methods to confer the code to the assistant. These ranged from very low-tech devices such as the rubber tube connecting with the clairvoyante's ear and into which a hidden assistant would speak from under the stage to comparatively complex electrical installations such as the one described by Herman Pinetti. Sometimes, if the hidden performer was unable to see the item in question, the magician would communicate the description by gesticulation to him or her.²⁰

From a media historical perspective, Heller's variant using the telephonic/telegraphic couch is particularly interesting because it evidences in a very straightforward way the connection between technical media and concepts of supernatural powers, such as telepathy. It accomplishes the alleged demonstration of these abilities by secretly employing technical media as the "mind reading" is made possible by the use of modern electronic media of communication: The couch is not merely a piece of sitting furniture or a stage prop but a telephone and telegraph at the same time. In order for the illusion to be effective, the apparatus must be invisible to the audience—concealed so well that the Martinkas probably never discovered the technology inside because they did not remove the upholstery. As Simone Natale has pointed out in his analysis of stage magic and early cinema, even though technology was present on the magician's stage, "emphasis still lied on the presence of the magician, a performer whose skill in the arts of optics and mechanics obscured the role of technology." In cinema, on the other hand, the apparatus performing the illusion was visible to the spectators, challenging them "to acknowledge the artificiality of the trick and the illusory nature of their experiences."²¹ Leaving cinema aside in this context, it should be noted that in the "Second Sight," too, the performing apparatus has to be hidden from the audience's view. Only then can its performance be attributed to a supernatural skill the magician and his assistant possess. Technical media then produce spectral or magical effects which appear as such only if detached from their visible, material source, and which are in part the same as those attributed to clairvoyants, mediums etc.

found inside Heller's sofa, Evans described his method in a similar manner in *Magic and Its Professors* (London: George Routledge and Sons, 1902), 69.

²⁰ Pinetti, *Second Sight Secrets and Mechanical Magic*, 27-28.

²¹ Simone Natale, "The Cinema of Exposure: Spiritualist Exposés, Technology and the Dispositif of Early Cinema," *Recherches Semiotique / Semiotic Inquiry* 31, no. 1 (2011): 111-112.

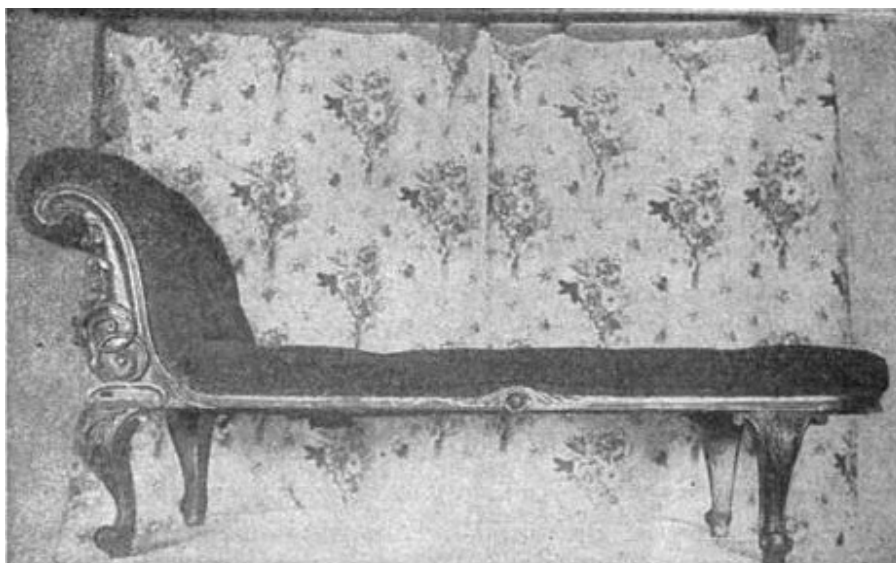


Figure 3 – Robert Heller’s “telepathic sofa”

Charles and Lilian Morritt

Another noteworthy method of performing the “Second Sight” silently was originated by Yorkshire born magician and inventor Charles Morritt (1860–1936). Before starting his own show in 1893, he was performing at John Nevil Maskelyne’s (1839–1917) Egyptian Hall in London, the most innovative magic theatre of the late nineteenth century, providing inspiration for the most successful magicians of the late nineteenth century. Morritt originated many well-known illusions of the time like “Oh!,” in which a person disappeared onstage, an instant after holding the hands of two spectators. Magician Will Goldston (1878–1948) relates that he sent Harry Houdini to see Charles Morritt when he was looking for new, original effects. The vaudeville star ended up buying several of Morritt’s illusions and commissioning magical apparatus with him.²² Among his newly acquired illusions was the method for Morritt’s best known effect, the “Disappearing Donkey,” which Houdini used to vanish an elephant at the New York Hippodrome in 1918. Much earlier, when he first appeared on the great magicians’ radar in 1886, Charles Morritt was performing the “Second Sight” with his “sister” Lilian. At this time, this illusion had become a staple act on magicians’ playbills and the code phrases used since Robert-Houdin’s 1852 version had turned into a cliché. Morritt, however, introduced an ingenious improvement:

While Lilian sat blindfolded on the stage, he walked up and down the aisles, receiving objects from spectators, stopping and turning them over in his

²² Will Goldston, *Sensational Tales of Mystery Men* (London: Will Goldston Ltd., 1929), 123.

hands, saying nothing but short phrases like "Yes." and "Thank you." Without being addressed, Lilian started describing each item in detail. The spectators, by now at least vaguely suspecting that there was some kind of secret message conveyed in the phrases the magician and his assistant exchanged, were baffled. What Morritt had in fact created was a code based on silence. At the heart of the illusion was a similar code as the one described above, which used numbers to refer to memorized lists of items and their possible properties. The novelty was their communication by synchronized counting: The performers had learned to count silently, at the same pace, like a metronome—it is astonishing that the musician Heller had not come up with this version. Any sound made by Morritt—word or phrase, a tap, a step, a click of a heel—marked the point at which they would both start counting to themselves, probably assisted by the music that would set the rhythm. On another acoustic sign given by Morritt, they would stop. In this way, the performers both arrived at the same number. Charles gave the cues to start, stop and change the list of items or characteristics, thus allowing for detailed descriptions.²³

What is evident here is the use of a binary code, a system that "can do with one sign and its absence, 1 and 0."²⁴ On the magician's signal, Charles and Lilian Morritt switched to "counting," from 0 to 1; and on another signal they switched back to "not counting," to 0. The difference between these two states and the exact amount of time spent in the mode "counting" allowed for the two performers to arrive at a certain number. This served as the key to a second, semantic code, in the manner of the one used by the Hellers. Thus, the amount of time the performers spent in the counting state, which was limited by certain signals given by the magician, could be re-translated into spoken language. The underlying principle of this romantic presentation, suggesting a "supernatural vision" displayed by the performers (who were introduced as close relatives) and allowing for them to read each other's minds, was, in fact, a highly mechanized, rational process. In the course of this process, the magician, functioning as a transmitter, coded a message and transmits it to his assistant, the receiver, who deciphers it and accesses stored information. Human memory here is no longer selective and narrative, it is discrete and without qualification—every encoded, single piece of information needs to be retrievable at any moment.

Invisible Transmissions

²³ On the Morritts' "Second Sight" see Evans, "Mental Magic," 198-199 and Jim Steinmeyer, *Hiding the Elephant: How Magicians Invented the Impossible* (London: Arrow, 2005), 118-120.

²⁴ Kittler, *Gramophone, Film, Typewriter*, 18.

The use of binary codes for communication has a long history, commencing with mountaintop beacons in antiquity.²⁵ To jump right to electric telegraphy, the first binary system of signal transmission was proposed by diplomat Pavel L’vovitch Schilling who demonstrated it to Tzar Nicholas in Berlin in 1832.²⁶ Among others, Samuel F.B. Morse and surgeon Edward Davy, who patented a chemical marking telegraph in 1838, constructed several other electrical telegraphs in the following years. William Fothergill Cooke and Charles Wheatstone developed the first commercial telegraph system, for which they were granted a patent in June 1837. However, due to its advantage of employing a simple (though not binary) code in order to represent the whole alphabet, Morse’s system was widely adopted as the standard by the middle of the century.²⁷

This very brief timeline of early electric telegraphy should suffice to illustrate that by the time of the Morritts’ “Second Sight,” commercial telegraphy was not only established throughout Europe and the United States, it was also being advanced with dizzying speed. More recent developments included receivers that automatically translated electrical signals into typographic letters, which were then printed on a paper strip. Thus, laymen were capable of receiving telegraphic messages directly in Roman letters, without the necessity of learning a special code (the sender, however, still needed to enter the message in Morse code). Moreover, by the 1890s, several inventors were working on wireless transmission systems, among them Guglielmo Marconi who, building on the work of his predecessors, succeeded in transmitting the first wireless signal over a distance of 6 km in Great Britain in 1897. A few years after Morritt’s silent “Second Sight,” the telegraphic network was completed to such an extent that it encircled the world, with submarine cables running across the Atlantic, to Australia and, finally, across the Pacific (in 1902). As Jeffrey Sconce has observed, “[t]he telegraph not only inaugurated a new family of technologies, [...], but also produced a new way of conceptualizing communications and consciousness. [...] The simultaneity of this new medium allowed for temporal immediacy amid spatial isolation and brought psychical connection in spite of physical separation.”²⁸ The “Second Sight” seized upon the notion of simultaneous, direct communication, spread by modern technical media, by seemingly demonstrating a psychical bond between two physically separated minds. It must also be noted that the radio was often associated with telepathy.²⁹ It

²⁵ See Aesch. Ag. 8-10, 282-283.

²⁶ Jeffrey L. Kieve, *The Electric Telegraph: A Social and Economic History* (Newton Abbot: David and Charles, 1973), 17.

²⁷ On the history of telegraphy see *ibid.*

²⁸ Jeffrey Sconce, *Haunted Media: Electronic Presence from Telegraphy to Television* (Durham, NC: Duke University Press, 2000), 7.

²⁹ See *ibid.*, 75-81.

would be slightly anachronistic, however, to connect it with the “Second Sight” whose heyday was in the 1890s, even though it was still being performed after the advent of the radio.

At about the same time as electromagnetic telegraphy was being advanced in the 1840s and 1850s, a different system of communication started to flourish, which would also gain considerable influence on Western culture. In March 1848, a family in Hydesville, New York, experienced what would later become the founding event of spiritualism. The teenaged sisters (!) Margaret (Maggie, 1833–1893) and Catherine (Kate) Fox (1837–1892) seemed to communicate with the spirit of a deceased occupant of the house, who answered their questions by “rappings,” using a binary code. Apparently, the existence of the Morse code opened up new possibilities of communication—by discrete acoustic signals such as knocks and raps. Their older sister Leah realized the economic potential of this demonstration and took charge of the younger siblings, the three of them subsequently touring the USA for decades, demonstrating communication with the beyond. It is well known that spiritualism became widely popular in the United States as well as in Europe and developed into an elaborate religious movement, which became independent from the Fox sisters and persisted long after Margaret Fox Kane explained how the girls produced the rapping noises with their toes in 1888.³⁰

As Simone Natale has shown, spiritualism was as much interwoven with popular entertainment, consumer and celebrity culture as with religion. While private séances offered not only a religious, or at least spiritual, experience but also a special evening entertainment that could, according to Natale, be understood along the lines of party table games, professional spiritualists staged large, spectacular séances for a paying audience. They and their impresarios adapted marketing strategies common in show business, putting out advertisements, books, magazines and sensationalist press articles, inflaming controversies about the authenticity of their spirit manifestations. Moreover, spiritualists invited critical approaches, skeptics, debunkers and scientists to take part in their séances, and profited from the discourse thus created. The presence of skeptics, who were specifically targeted in séances, was part of a dialogue of conviction and thus an integral part of spiritualism.³¹

³⁰ In a statement published in *The New York World* on October 21, 1888, she declared: “My sister Katie was the first to observe that by swishing her fingers she could produce certain noises with the knuckles and joints, and that the same effect could be made with the toes. Finding that we could make raps with our feet—first with one foot, then with both—we practiced until we could do this easily when the room was dark.” Cited in: Harry Houdini, *A Magician Among the Spirits* (New York, London: Harper & Brothers, 1924), 5-11 (quote: 7).

³¹ Simone Natale, “The Medium on the Stage” and id., “Geisterglaube, Unterhaltung und Showgeschäft im 19. Jahrhundert,” *Historische Anthropologie* 21, no. 3 (2013).

David Walker has analyzed how, beginning with the Fox sisters' demonstrations, spiritualism "consisted in critical self-references, allusions to concealments, and incitements to examination." Thus mediums purposefully stressed ambiguity and incited discourses about performative religion, fraud, commerce, and modernity.³²

Although by that time, stage conjurers had long begun to stress that the world they performed in was an enlightened one, imbued with science and technology, they kept evoking the supernatural in purposefully ambiguous performances and paratexts. Magicians like John Nevil Maskelyne, "royal illusionist and anti-spiritualist," prominently debunked mediums,³³ who according to Maskelyne, despicably exploited the emotional situation of bereaved family members and friends. Those were being deceived by the medium, who was supposedly communicating with their deceased loved ones, while really presenting manifestations which were "altogether mundane in their origin, and mainly attributable to gross and harmful trickery and fraud."³⁴ As the mediums' methods were similar to those employed by magicians, the latter had no trouble exposing them, while stressing their moral corruption and commercial interests and at the same time pointing to the more enlightened and humane approach of magicians who made no secret of their trickery. However, the line between magicians and mediums was indeed not that clear. Among other magicians, Harry Houdini and his wife Bess performed as spiritualist mediums at the start of their career.³⁵ Although Houdini later turned into a highly prominent and ruthless debunker, he was never a skeptic. His main motivation was the search for a truly authentic communicator with the dead who would allow him to get in touch with his deceased mother. Houdini was exposing mediums "not because he wanted to prove it was all false, but because he so much wanted to believe it might be true."³⁶ To name another example, Martin Van Buren Bly performed both as a medium and a debunker of spiritualists, and refused to decide on the authenticity of the manifestations he presented.³⁷ Thus, stage conjuring and spiritualist mediums were intertwined by more than the fact that most magicians' repertoire encompassed performances inspired by séances.

³² David Walker, "The Humbug in American Religion: Ritual Theories of Nineteenth-Century Spiritualism," *Religion and American Culture: A Journal of Interpretation* 23, no. 1 (Winter 2013), 35.

³³ On anti-spiritualist shows of stage magic see Natale, "The Cinema of Exposure."

³⁴ John Nevil Maskelyne, *Modern Spiritualism: A Short Account of its Rise and Progress, with Some Exposures of so-called Spirit Media* (London: Frederick Warne & Co., 1876), vi.

³⁵ Ruth Brandon, *The Life and Many Deaths of Harry Houdini* (London: Martin Secker & Warburg Ltd., 1993), 64-65.

³⁶ *Ibid.*, 236-237. On Houdini and spiritualists see also 232-272.

³⁷ On Bly see Walker, "The Humbug in American Religion," 41-44.

What makes spiritualism interesting from a media historical point of view is not only the parallel of media and mediums communicating over long distances but also the explicit references spiritualists made to technical media. The latter were used as metaphors or models in order to explain the otherworldly conversations conducted by spiritualist mediums: Kate Fox, who was considered the most powerful medium among the sisters, was said to have opened a “‘telegraph line’ to another world.”³⁸ The association is not far to seek because, as Jeffrey Sconce has noted pointed out, “[t]alking with the dead through raps and knocks, after all, was only slightly more miraculous than talking with the living yet absent through dots and dashes; both involved subjects reconstituted through technology as an entity at once interstitial and uncanny.”³⁹

Both communication channels allowed for a direct connection despite (geographical or metaphysical) separation. The spiritualist medium thus appears in a very technological way as a receiver, vested with a special sensitivity that enables it to pick up signals from other, invisible worlds, existing parallel to our own, and to translate them into human speech—just as the telegraph turns invisible electromagnetic waves into messages perceptible by human senses. Functioning as a passive mediator, the spiritualist medium enables communication with the deceased, who are separated from her by a metaphysical difference—just as the telegraph enables a mediated communication over a spatial distance, when a direct one is impossible. “Importantly,” Sconce continues, “Spiritualist faith in mediums and celestial telegraphy went beyond a mere utilitarian application of the telegraph as a metaphor. [...] Spiritualist doctrine clearly stated that the spiritual telegraph was in fact a ‘real’ (albeit invisible) technology.”⁴⁰

³⁸ Sconce, *Haunted Media*, 22.

³⁹ *Ibid.*, 28.

⁴⁰ *Ibid.*, 36.

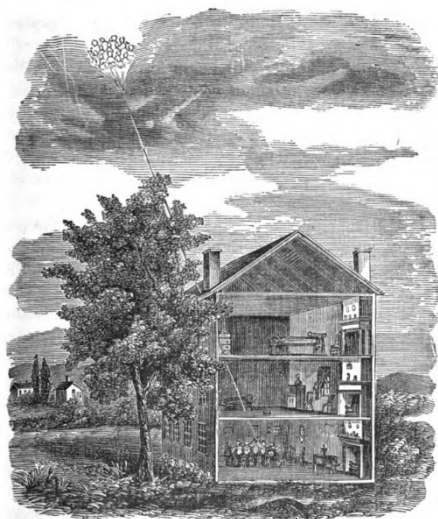


Figure 4 – the celestial telegraph. The original caption says: “Elevated above the cloud-region, is seen the spirit-circle in telegraphic correspondence with the mundane party in the lower story of the dwelling. The influence from the upper circle is seen passing down through the roof and floors to the surface of the table, where it imperceptibly radiates and emits invisible rays in every direction [...]. The diameter of this magnetic current, which is fine and very strong, as I have frequently seen, varies in size from that of a knitting needle to a child’s little finger.”⁴¹

In addition, Sconce observes, “the *concept* of telegraphy made possible a fantastic splitting of mind and body in the cultural imagination.”⁴² In spiritualism, this new notion was extended to the belief that the mind lingered on after death, while it was still attached to the deceased person’s former life, and even after the body had disappeared. Thus, telegraphy, first appearing fifteen years before the Fox sisters’ rapping phenomena, has paved the way for the broad conception of spiritualism’s central notion of communication with the dead. Similarly, the new technology might have served as an inspiration for the “Second Sight” which became particularly popular during the 1880s and 1890s, when the illusion’s silent versions associated the invisible and inaudible wireless transmission of information the scientists were trying to realize. Equally transcending traditional possibilities of communication, spiritualist mediums seemed to directly perceive thoughts of the deceased, which were inaudible to everyone else, and whose transmission was facilitated by the presence of somebody close to the communicating spirit (such as a spouse or a relative). Equivalently, performers of the “Second Sight” seemed

⁴¹ Andrew Jackson Davis, *The Present Age and Inner Life: Ancient and Modern Spirit Mysteries Classified and Explained: A Sequel to Spiritual Intercourse* (Rochester N.Y.: Austin Pub. Co., 1910), 89-90, accessed February 15, 2015, <http://babel.hathitrust.org/cgi/pt?id=wu.89062919840;view=1up;seq=93>.

⁴² Sconce, *Haunted Media*, 27.

to know each other’s thoughts, equally imperceptible for everybody else, and whose transmission also seemed to be aided by their affinity. Both performances—and we should not forget that spiritualism was as much part of show business as magic was—exploit similar notions of communication by building upon the same cultural knowledge and associations of their spectators.

Telephonic Presence

The other technical medium we encounter in the “Second Sight,” particularly in Heller’s silent version utilizing the sofa, is the telephone. Independently patented on February 14, 1876, both by Elisha Gray and Alexander Graham Bell, it has since sparked popular imagination of supernatural communication. The uncanniness inherent in this medium still haunts it in its appearances in the horror genre. Here, telephones frequently function as supernatural communicators to other worlds, often predicting unnatural death of the paranormal call’s recipient, for instance in *A Nightmare on Elm Street* (USA 1984, dir. by Wes Craven), *Ringu* (Japan 1998, dir. By Hideo Nakata) and its American remake *The Ring* (USA 2002, dir. by Gore Verbinski). The telephone was the first technical medium to establish a cyberspace—an invisible realm overlapping with the space occupied by ourselves. Such a space had already been implied by the spiritualists, who conceive it as being inhabited by spirits, perceptible only to those endowed with a special sensitivity. In telephonic communication, it is the virtual space in which the communication takes place, and which is separated from the spaces the callers’ bodies occupy.

Technical media, according to Friedrich Kittler, “are models of the so-called human”⁴³ who can only learn about her own senses because technical media provide models of explanation for human organs and perception. Examples Kittler provides are the wax tablet on which Greek philosophers wrote, and which, in antiquity served as a model for the human soul. That same soul was thought of in cinematic terms around 1900, when people who went through near-death experiences described how, in their last moments, they saw their whole life rush past their inner eye like time-lapse photography.⁴⁴ New technical media, thus, expand the realm of the thinkable and the imaginable, not only in regard to science fiction but also to metaphysics. Technical media therefore also influence conceptions of life and death or, in Kittler’s words, “[t]he realm of the dead is as extensive as the storage and transmission capabilities of a given culture.”⁴⁵ In the late

⁴³ Friedrich Kittler, *Optical Media: Berlin Lectures 1999*, trans. Anthony Enns (Cambridge: Polity 2010), 36.

⁴⁴ *Ibid.*, 34-35.

⁴⁵ Kittler, *Gramophone, Film, Typewriter*, 13.

nineteenth century, photography produced visual reproductions of spirits and "the invention of the Morse alphabet in 1837 was promptly followed by the tapping specters of spiritistic seances [sic] sending their messages from the realm of the dead."⁴⁶ According to Enns, "[w]hile the telegraph inspired spiritualist practices like 'rapping' and 'knocking,' it was the telephone and the phonograph that inspired 'direct voice mediumship' and 'trumpet manifestations'."⁴⁷ For instance, Cecil M. Cook claimed that voices of the dead "spoke to her through an old chimney pipe when she was four years old, and they would often tell her to perform certain duties." Cook later built so-called "trumpets," devices that allowed for a reproduction of spirit voices of this kind in private homes. Enns regards this practice as analogous to the phonograph, "as the trumpet was essentially a phonograph horn that could receive and amplify sounds using electricity."⁴⁸

Moreover, after the telegraph had already split mind from body, the telephone introduced the separation of body and voice, which had only been anticipated in fairy tales and mythology before (such as the myth of Echo reported by Ovid). By doing so, the medium liberated instantaneous communication from the necessity of bodily presence—just as the latter was not required for spiritualistic communication. In addition, as Anthony Enns has pointed out, "[t]he telephone resembled the spiritual séance in its ability not only to transmit voices, but also to produce new kinds of noise—electrical static—that seemed otherworldly." These new noises, Enns continues, "seemed to represent real acoustic events, yet they were not generated by any source in the outside world."⁴⁹ Bell's assistant Thomas Watson, himself a believing spiritualist, was fascinated by this phenomenon. In his autobiography, he reports how he spent „hours at night at the laboratory listening to the many strange noises in the telephone and speculating as to their cause," for instance, imagining them to be signals from another planet.⁵⁰ The telephone thus qualifies—especially in its early days—as an uncanny medium with potentially utopic (or dystopic) characteristics. Like spiritualist mediums, it seemed to open up unprecedented ways of communication, which seemed spectral, eerie and fascinating at the same time.

It is therefore not surprising that the telephone was immediately used as a metaphor for direct communication, in particular for telepathy. Sigmund

⁴⁶ Ibid., 12.

⁴⁷ Anthony Enns, "Voices of the Dead: Transmission/Translation/Transgression," *Culture, Theory & Critique* 46 (2005): 14.

⁴⁸ Ibid. 14-15.

⁴⁹ Enns, "Voices of the Dead," 15-16.

⁵⁰ Thomas A. Watson, *Exploring Life: The Autobiography of Thomas A. Watson* (New York, London: D. Appleton & Co., 1926), 81.

Freud refers to telepathy as a “mental counterpart to wireless telegraphy.”⁵¹ In the same lecture, he also compared it to telephonic communication. The new technology, “as an extension of the psychic apparatus,” seemed to prove the existence of telepathy.⁵² Alexander G. Bell and Thomas A. Edison themselves attempted to produce technical means for telepathic communication. The latter, although he disapproved of the spiritualists’ methods of communication with the deceased, did not rule out the possibility of contacting the dead. In an interview published in the *American Magazine* in 1920, he announced that he has “been at work for some time building an apparatus to see if it is possible for personalities which have left this earth to communicate with us.”⁵³ Marconi, too, worked on a device that would receive voices from the dead, “hoping to someday hear the last words of Jesus on the cross.”⁵⁴

The disembodied, spectral voice transmitted by the telephone seemed to possess special, authoritative powers. Walter Benjamin describes the commanding force of this voice in his collection of autobiographical notes *Berlin Childhood Around 1900*:

When, having mastered my senses with great effort, I arrived to quell the uproar after prolonged fumbling through the gloomy corridor, I tore off the two receivers, which were heavy as dumbbells, thrust my head between them, and was inexorably delivered over to the voice that now sounded. There was nothing to allay the violence with which it pierced me. Powerless, I suffered, seeing that it obliterated my consciousness of time, my firm resolve, my sense of duty. And just as the medium obeys the voice that makes possession of him from beyond the grave, I submitted to the first proposal that came my way through the telephone.⁵⁵

In this quote, Benjamin not only illustrates the violent, invasive attack the telephone and its action-demanding ringing constituted, and which was particularly felt in this medium’s early days. He also describes the power of the disembodied voice over the call’s receiver—reminiscent of Cook’s

⁵¹ „[...] psychisches Gegenstück zur drahtlosen Telegraphie” [translation: KR]; Sigmund Freud, „Traum und Okkultismus,” in: Sigmund Freud, *Neue Folge der Vorlesungen zur Einführung in die Psychoanalyse. Studienausgabe*, vol. 1 (Frankfurt am Main: Fischer 1969), accessed January 29, 2015, <http://gutenberg.spiegel.de/buch/neue-folge-der-vorlesungen-zur-einfuehrung-in-die-psychoanalyse-925/2>.

⁵² Enns, “Voices of the Dead,” 17.

⁵³ B. C. Forbes, “Edison Working on How to Communicate with the Next World,” *American Magazine* 90, 10/11 (1920): 10.

⁵⁴ Sconce, *Haunted Media*, 61.

⁵⁵ Walter Benjamin, *Berlin Childhood Around 1900*, trans. Howard Eiland (Harvard: Harvard University Press 2006), 49-50.

commanding voices from chimney pipes. Moreover, he explicitly compares receiving a phone call to a spiritualist medium being possessed by a spirit that commands her what to say or do. It is as if the caller would invade the receiver’s mind from another world, delivering commands directly inside her head. In view of this magical potential, it is not surprising that magicians quickly became attentive to the telephone and exploited its capabilities within demonstrations of the seemingly supernatural. Especially when the device itself was concealed, the effects it produced seemed truly otherworldly.

The Second Sight thus, further, reveals the uncanny qualities of modern stage conjuring. On the one hand, as Tom Gunning has observed, magic tricks generate an “optical uncanny” by making visible an operation that the spectators know to be impossible. They thus not only make spectators question the reliability of their senses of perception, but also evoke “a hesitation that recalls the Fantastic hesitation [Tzvetan Todorov], but which instead of coming from a fictional world is enacted before the viewer, invoking not so much our imagination as it plays with our perception.”⁵⁶ Yet, the “Second Sight” differs from optical illusions like sleight-of-hand performances in that it primarily relies on speech and hearing. At the same time, the illusion also has a strong visual component: the clairvoyant is blindfolded so she does not see the item in the magician’s hand, his gestures, or anything else. This serves to enforce the “telepathic” nature of the performers’ communication, which allegedly does not rely on conventional sensory perception. Thus, on the other hand, the uncanniness inherent in the “Second Sight” stems from the evocation of an omnipresent invisible network of signals, which became real around 1900 when wireless communication technology was developed. As Jeffrey Sconce has pointed out, wireless replaced the “individuated ‘stream’ with that of the vast etheric ‘ocean.’ [...] one that evoked a no less marvelous yet somehow more melancholy realm of abandoned bodies and dispersed consciousness.”⁵⁷ Although suggesting a surrounding environment of invisible wireless signals, which could be picked up by technology—and, as implied by the “Second Sight” and spiritualism alike, also by sensitive individuals—this form of communication nonetheless stressed the isolation of the single receivers.

I hope to have shown how stage magicians of the late nineteenth century seized upon contemporary trends in cultural imagination and employed state of the art technology in their illusions. The development of the

⁵⁶ Tom Gunning, “Uncanny Reflections, Modern Illusions: Sighting the Modern Optical Uncanny,” in *Uncanny Modernity: Cultural Theories, Modern Anxieties*, ed. Jo Collins and John Jervis (New York, NY et al.: Palgrave Macmillan, 2008), 68–90, 73.

⁵⁷ Sconce, *Haunted Media*, 14.

“Second Sight” can serve as an example for this: At first, it was performed with the help of a secret code to convey information by a hidden double meaning of spoken language. The second version analyzed here made use of a wired piece of furniture, directly implementing technical media into the performance—again using them to convey information in secret. Finally, Charles Morritt’s version from 1886, employing synchronized silent counting, evokes associations with computers and robots and evidences the spread of the binary code throughout communication. Furthermore, the “Second Sight” drew upon the emergence and popularization of spiritualism and profited from its success by illustrating the supernatural abilities of communication propagated by its supporters. While magicians displayed a rational approach by using most recent technologies onstage to achieve a seemingly supernatural effect, spiritualists for their part were equally aware of state of the art technology, using technical media as metaphors to explain their supernatural connection to the spirit world. Spiritualism, technical media and telepathy were interconnected by notions and concepts, which were elaborated on in this article. While new media allowed for unprecedented ideas and practices to seem possible, these, in turn, inspired new techniques and technologies. For instance, if the telephone opened up the possibility of communicating with the dead, this idea led to the standardization of spiritualist séances as well as to new devices that tried to contact the deceased, like Edison’s “spirit phone.” Moreover, technical media provided models for explanation of phenomena like spiritualism. All of these points converged on the magician’s stage. Conjurers built their illusions on the grounds of these discourses and their interconnectedness in popular imagination. At the same time they were quick to adapt innovations and to exploit their potential onstage. Later, magicians were among the first to include cinematography into their shows, and to experiment with film production, thus advancing and spreading it from 1896 onward.

The “Second Sight” further illustrates magicians’ compulsion to constantly change their performance and to invent new methods of presenting the same effect, in order to keep dazzling audiences who have seen through its secret. Thus, if a speaking code is suspected, a silent version is introduced, and if Haidee Heller’s head being in constant touch with the back of the couch becomes suspicious, she lifts it and receives the signal via the telegraph lever touching her extremities. Even when this piece of furniture disappears from the stage because someone may have suspected some kind of technology being concealed in it, along comes a new method applying neither special apparatus nor speech. The methods described in this article are just three among many ways of performing this feat.⁵⁸ I picked those in the hope of illustrating how magic tricks of the late nineteenth century were deeply

⁵⁸ On other methods employed by Heller see Ellison, “Second Sight.”

intertwined with other cultural phenomena as well as state of the art technology and scientific knowledge.

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- Figure 1: "Le magicien." *Musée de la Magie*. Accessed February 15, 2015. <http://www.maisondelamagie.fr/1099-robert-houdin-magicien.htm>
- Figure 2: Demarest, Marc. "Kellar's Beautiful Production." *Chasing Down Emma*. September 1, 2015. Accessed February 15, 2015. <http://ehbritten.blogspot.de/2012/09/kellars-beautiful-production.html>.
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