

Book Review

Strange Frequencies: The Extraordinary Story of the Technological Quest for the Supernatural—Peter Bebergal (New York, NY, USA: Penguin Random House, 2022, 256 pp.)

Reviewed by A. David Wunsch 

University of Massachusetts Lowell
Lowell, MA 01854 USA

■ **FOR OVER 40** years, starting in 1954, *Popular Electronics Magazine* was the major American publication for electrical hobbyists. The last years of the magazine saw it renamed *Computers and Electronics*. This is an unremarkable history but, as explained by Peter Bebergal about 3/4th of the way through his fascinating book *Strange Frequencies*, there is an issue from October 1995 that proposes experiments that deviate from the magazine's usual gadgetry. The magazine is easily read at this website <https://worldradiohistory.com/Archive-Poptronics/90s/95/PE-1995-10.pdf>. The cover features a middle-aged man hunched over a reel-to-reel tape recorder. Behind him, he is haunted by a trio of faded ghost-like figures. The cover story is captioned, "Ghost voices: Are the dead trying to contact us through electronic means? Try these experiments and see for yourself." The article begins with a discussion of two electronic voice phenomena (EVP) experimenters of the 1950s: Frederick Jurgenson and Konstantin Raudive who claimed that with electronics they have communicated with the dead and that they have recordings of those voices preserved on tape.

Digital Object Identifier 10.1109/MTS.2023.3329898
Date of current version: 22 January 2024.

During his lifetime, Raudive asserted that he captured about 70,000 such communications.

The article encourages readers to conduct some experiments of their own: the simplest involves plugging a microphone into a tape recorder followed by the experimenter's asking voices to speak. After an unspecified interval of waiting and recording, the hobbyist plays back the tape and listens for voices.

Their next experiment suggests using the tape recorder to record the output of an AM or FM radio, tuned to some frequency lying between broadcast stations, and again listening for voices in the recording. The author does acknowledge that any voices detected might be interpreted as stray signals from a radio station and goes on to propose instead a white noise generator involving a diode, an operational amplifier, and a transistor. The noise generated is recorded on a tape and the experimenter is supposed to listen for voices in the recording.

Having read the October 1995 issue on the web, one might wish to read the letters to the editor that it generated that were published in the February 1996 issue. The lead item deplores the entirety of the original article, pointing to a phenomenon called "audio rectification" which explains the jumbling together

of voices from various sources that eventually leads to what briefly sounds like someone speaking. Another letter complains that the magazine exposing its younger readers to “shopworn pseudoscience.” An interesting piece warns that the book of *Deuteronomy* tells us not to communicate with the dead and goes on to cite the *Gospel of John* with its command to stay away from false prophets (“believe not every spirit”).

Finally, another correspondent reports hearing voices on a recording he made from an FM radio tuned between stations. He writes: “Are the voices from the dead? Maybe. Are they from a different dimension in space and time? That’s possible. Or could it be, as a psychologist friend of mine claims, that the voices are, simply the result of *my intense desire to hear voices*, and because of that desire I created a mental electronic imprint on the tape resulting in recorded voices on tape” [italics added]. These two issues of *Popular Electronics* can provide a window into the subject matter of Bebergal’s book. The history of trying to engage with the spirits of the dead or perhaps mysterious other creatures, some of whom may exist on other planets or solar systems beyond our own, by means of technology, has a long and rich history. We are reminded of Arthur Clarke’s famous observation in 1963: “any sufficiently advanced technology is *indistinguishable from magic*.”

A treatment of this subject, at least for the United States, must inevitably focus on the Fox sisters, who in mid-19th century America garnered a reputation for creating the religion that became known as Spiritualism. At ages 14 and 11, these girls in upstate New York apparently communicated with spirits of the dead who would tap on the walls or tables of their séance room with responses—the girls were obviously conduits to the spirit world. Their fame spread rapidly and they were soon filling halls and demonstrating the knocking sounds of spirits. Their career flourished as they moved on to New York City and advanced Spiritualism which spread throughout the United States and Europe. Not surprisingly, the 620,000 war dead from the American Civil War (1861–1865) was a great stimulus not only to their business but to that of their numerous imitators. Strange to say, after years of fame and fortune, their trajectory took a strange turn. Apparently tiring of the demands made on them by the bereaved to communicate with their loved ones, suffering from alcoholism, and disliking criticism of their methods, after a run of 30 years, they responded

in 1888 to an offer by a newspaper *The New York World* of \$1,500 if the sisters would show how they perpetrated a hoax. And one of them did. A sister, Margaretta showed how by removing one shoe and holding it in her hand she could surreptitiously create knocking sounds by using the toe of her bare foot to create a rapping noise on a stool. Doctors present suggested that she was cracking her toe joints. Collecting the money, she later recanted but damage had been done. However, the Spiritualist movement had been solidly launched and flourished not only in the United States, but also in the United Kingdom as well. Interestingly, the *Popular Electronics* letter citing *Deuteronomy* with its warning to avoid false prophets has antecedents in opposition to Spiritualism in the 19th century. *Leviticus* was often cited: “Do not turn to mediums or wizards; do not seek them out, to be defiled by them.”

Although the technology employed by the Foxes was minimal, this was not the case in the next century. Photography, already a major force in the 19th century, was extolled by Sir Arthur Conan Doyle, the creator of Sherlock Holmes, who was trained in medicine. The existence and popularity of X-rays, showing the invisible, was a spur to spiritualist thinking that ordinary photography might be an opening to the otherwise invisible spiritualist world. In 1922 Doyle published a book, *The Coming of the Fairies*, with photographs showing children apparently in the presence of fairies. He was soon presented with proof that the fairies were faked—easy to do in photography—but he persisted in asserting that with the aid of the proper technology humans could gain access to another reality. He conjectured that with time psychic spectacles would be invented that would see things whose existence is invisible owing to their use of frequencies invisible to the eye. Of course, there is such an invention—infrared binoculars—enabling one to see in the darkness, but they have not added to the spiritualist experience.

Bebergal’s thesis is that both 19th- and 20th-century efforts to channel the paranormal and Spiritualism persist to this day and are now employing sophisticated present-day technologies as well as the older one of photography. Bebergal introduces us to Donna Hogan, a researcher in EVP, who explains to the author how it changed her life. In the summer of 2005, her brother-in-law, Neil, was killed in a traffic accident. Summoned to the local mortuary to identify his body, she is asked to turn off her cell

phone. Approaching his corpse, for no apparent reason her mobile phone switched on. Her sister says “that’s probably Neil.” Later, back home, she starts listening to messages on her answering service. First, she hears a noise but ultimately a message of greeting from her dead brother-in-law. The timestamp for the call reveals that the message was sent after his death. Discussing this with an engineer provided by the phone company she has advised “Google: phone calls from the dead.” Doing this, I found that there are millions of hits.

According to Bebergal, there are at the time of his writing over 60 different EVP-related iPhone and Android apps. He buys for \$20 one called *Ethereal*, based on Windows, which is preloaded with spiritual words, as well as a white noise generator. Scanning the UHF radio bands, it seeks to combine any patterns there with the preloaded words and white noise. The user is invited to speak questions into this device, which Bebergal does, but he receives voices that fail to sound like any people familiar to him.

Besides those claiming to hear the dead are those who hear voices from other planets or civilizations perhaps even beyond our solar system. A diary entry suggests that for a while Nikola Tesla thought he might be receiving radio signals from Mars. Bebergal decides to “go native” and build for himself what is described in a magazine as a “Spooky Tesla Spirit Radio,” which is apparently little more than an old-fashioned crystal set, not invented by Tesla. The author rightly observes that “Tesla himself is more legend than man” and that feeling is only reinforced when his radio produces only static.

I wish Bebergal had devoted more space to something he treats only briefly on account of his focus on the United States: The Society for Psychical Research, an organization founded in England in 1881 and still alive today. Composed of both believers and skeptics, it investigated and sometimes demonstrated, such phenomena as mental telepathy, ghosts, haunted houses, and seances. Among its most notable members was Sir Oliver Lodge (1851–1940), a highly regarded physicist who is sometimes credited with priority over Marconi in the invention of the wireless telegraph. Lodge was president of the Society from 1901 to 1903. He was well grounded in James Clerk Maxwell’s difficult theory of electromagnetism, published in 1873, which posits the existence of electromagnetic waves moving at the speed of light and concludes that light itself is an example of such a

wave. Because water and air were media supporting fluid waves and sound waves, Maxwell describes a medium for electromagnetic wave phenomena, the ether, an ethereal substance undetectable by any of the five senses. Lodge clung tenaciously to the ether even after it was demolished by Einstein’s theory of special relativity published in 1905.

Oliver Lodge’s son Raymond was killed in World War I in 1915 and following his death Lodge published a book *Raymond or Life and Death* (1916) in which he claimed that he had communicated, by means of a medium, with the dead youth whose spirit was alive in the ether. The invention of wireless telegraphy in the late 19th century in which there was no observable physical connection between transmitter and receiver seemed only to strengthen popular attachment to the ether. Rudyard Kipling, for example, in his story *Wireless* (1902), has a wireless telegraph operator receiving a poem from John Keats who had died in 1821. A book such as Bebergal’s with its focus on science and technology might have examined more closely a popular belief in the ether and where it was sustained. Spiritualism in British society is treated in *The Other World* by Oppenheim [1] who nicely examines Lodge’s tenacious belief in the ether.

IN AN EPILOG, the somewhat wistful Bebergal, unable to connect with the paranormal, observes, “I felt the desire of the Spiritualists whose own need for evidence of life after death might have even confused their own ability to discern truth from fantasy. Like magic and ritual, technology has long been understood as another tool for connecting to the divine and enacting our will upon nature.” ■

■ Reference

- [1] J. Oppenheim, *The Other World: Spiritualism and Psychical Research in England, 1850–1914*. Cambridge, U.K.: Cambridge Univ. Press, 1985.

A. David Wunsch is a professor emeritus with the Department of Electrical and Computer Engineering, University of Massachusetts Lowell, Lowell, MA 01854 USA. He is a book review editor for *IEEE Technology and Society Magazine*.

■ Direct questions and comments about this article to A. David Wunsch, University of Massachusetts Lowell, Lowell, MA 01854 USA; david_wunsch@uml.edu.