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It All Started With Marconi

In his delightful memoir, *Love & Math* [1], mathematician Edward Frenkel shares the following “anecdote” about wireless telegraphy:

At the beginning of the 20th century, someone asks a physicist at a party: can you explain how it works? The physicist replies that it's very simple. First, you have to understand how the ordinary, wired, telegraph works; imagine a dog with its head in London and its tail in Paris. You pull the tail in Paris, and the dog barks in London. The wireless telegraph, says the physicist, is the same thing, but without a dog.

As the readers of this column will probably guess, the man who figured out how to remove the dog from the scenario was the Italian scientist and entrepreneur Guglielmo Marconi. In recognition of his contributions to the development of wireless telegraphy, Marconi shared (with Karl Ferdinand Braun) the 1909 Nobel Prize in Physics [2]. Ironically, the same year, the following note [3] appeared in *Nature*:

Statements have been made in the medical and general Press that the electric waves used in wireless telegraphy are injurious to the operators and produce various diseases, such as conjunctivitis, corneal ulceration, and leukoma. Mr. Marconi writes to the *Times* to deny

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these suggestions, for which, he says, there is no evidence whatever. He adds: — “During the twelve years or so of our operations we have had to deal with no single case of compensation for any injury of this origin, nor, so far as I can ascertain, has any such injury been suffered. Speaking for myself, I may remark that my own good health has never been better than during the often extended periods when I have been exposed for many hours daily to the conditions now challenged, and in the constant neighborhood of electrical discharges at our Transatlantic stations, which I believe are the most powerful in the world.”

A hundred years later, I reported the following incident from France in this column [4]:

Family members described complaints ranging from a metallic taste in the mouth to nosebleeds, all attributed to a cell phone tower recently installed across from its apartment building. The

family even covered the apartment windows with aluminum foil and other “protective filters” to ward off the ill effects of the radiation from the tower. For its part, the operator of the cell phone tower (Orange) dryly noted that the electronic bay for the tower had not been installed yet and, therefore, the tower was not even active.

The electromagnetic hypersensitivity syndrome [5] has worked its way even into TV shows. Recently, my wife and I watched the first season (2015) of the critically acclaimed Netflix series *Better Call Saul*. According to *The Guardian* [6], “...the long-awaited spin-off of *Breaking Bad*, has already thrown up some interesting questions: ...But perhaps most intriguing is the one raised by Saul's brother Chuck: what is electromagnetic hypersensitivity (EHS)? Chuck (played by Spinal Tap's Michael McKean) is a recluse on extended leave from his legal firm who lives without electricity and wraps himself in a shiny “space blanket” to ward off the effects of exposure to Saul's mobile phone.”

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