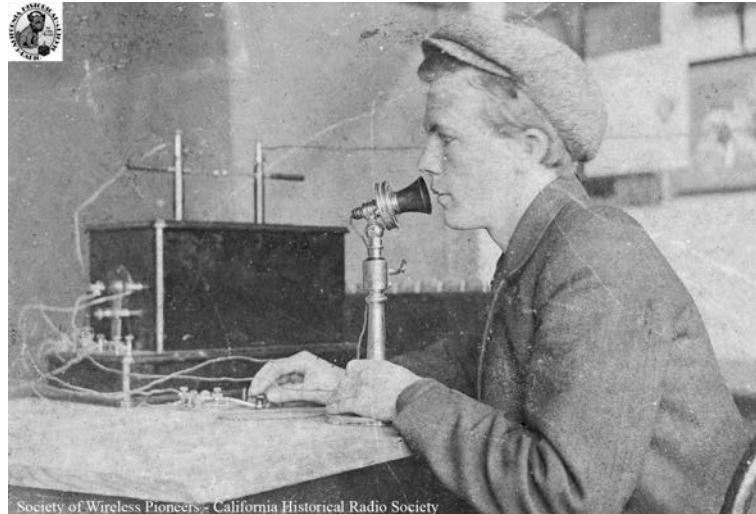


The McCarty Wireless Telephone

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As early as 1902, the human voice was sent across Stow Lake in San Francisco's Golden Gate Park by a 17-year-old inventor, Francis J. McCarty. Simultaneously, other equally successful demonstrations were being made by Valdimir Poulsen in Denmark, and by Reginald J. Fessenden and Arthur F. Collins in New York. Yet Francis McCarty was the youngest and the first to bring wireless telephony to western America.

He was one of thirteen children, twelve boys and a girl. And while her hungry brood still tugged at her apron strings, the mother, Kitty, was left alone with her baker's dozen when the father walked out of his home, never to return. It was at this point that young Francis promised his mother that the revenue derived from his wireless telephone invention would support the family.

UNCLE "WHITE HAT"

Francis was assisted in his work by two brothers, Ignatius and Joe. To help promote the McCarty Wireless Telephone Company, an uncle, widely known among the city's bon vivants as *White Hat McCarty*, undertook the sale of stock among his many acquaintances in the saloons of San Francisco where the famed five-cent glass of steam beer was drawn. His name derived from a tall, white beaver hat which he wore wherever he went. He traveled in style in his horsedrawn buggy, taking respite at every watering trough for his dobbin, and at every corner barroom to buy drinks for those within, and to sell

additional shares of stock in the McCarty Wireless Telephone Company. *White Hat* was not only successful in the sale of stock but also in his wagering at a local horse racetrack. On one occasion, he executed a successful coup which brought him a fortune of almost twenty-thousand dollars. He was responsible for the early successes of his nephew, Francis.

In 1902, at age 13, Francis approached his mother, Kitty, with a plan. If he were permitted to leave school and become a scientist, he would devote all of his time to his invention, and make it earn rewards. Kitty McCarty knew not the meaning of such words as waves, and arcs, and mercury coherers, while Francis argued that geography, spelling, history, and mathematics would rob him of too much time—and which he could always study at home at some later stage in life. Once he made his wireless contraption a success, there would remain ample time to study academics. "I have time now for one thing only," he pleaded: "My big idea."

SEEDS OF GENIUS

The following day his mother went to school to interview one of the professors. Quickly he agreed that Francis should be given a free hand, for the seeds of genius were already beginning to sprout from his fertile brain. The professor went so far as to offer the young McCarty the use of the school library at any time at all.

His enthusiasm was unbounded. At 15 he was hard at work on his first patent application, and soon the technical journals as far away as Germany were reviewing his ideas.

CAVEAT

The description of an invention for which patent application is made is called a *caveat*, and a copy of McCarty's caveat is in the library of the Society of Wireless Pioneers. It was conceived, prepared, and written by a boy just out of grade school, yet his language is that of the experienced engineer and patent lawyer. There was so little to describe in this caveat that it occupied but two typewritten pages, with the schematic wiring diagram on a separate sheet. The utter simplicity of the device is evident from the diagram of the receiving "equipment" which consisted of only a mercury coherer, a telephone receiver, and a dry-cell battery, plus the conventional aerial and ground.

The mercury coherer was a forerunner of the crystal detector and the vacuum tube. It was an extremely inefficient detecting device, suitable only for very-short -distance communication. McCarty's wireless telephone transmitter was a replica of a part of the original Marconi system. Both used an induction coil, or spark coil, the McCarty system employing a microphone in place of the mechanical vibrator.

By 1902, Francis McCarty and his brothers Ignatius and Joe were ready to give a practical

demonstration of their system to the press. The first distance spanned was only 200 feet. The clarity of the human voice surprised the three brothers, whose first experiment marked a milestone in wireless history.

In 1903 Francis transmitted his voice from his laboratory at home on Gough Street in San Francisco to a listening station atop Mount Olympus, about two-miles away.

THE “BIG” DEMONSTRATION

In 1905, he invited the press to witness a demonstration of an improved transmitter and receiver which he had installed in the carpenter shop of the old Cliff House at the Ocean Beach. He talked, and he sang a half-dozen songs into the microphone. His voice and song were heard with remarkable clarity a mile or two to the south in a place called Cycler's Rest on the ocean side of the Great Highway opposite the Beach Chalet.

Wrote a reporter for the San Francisco *Chronicle* "If the experiments made yesterday on the beach below the Cliff House may be used as a basis of speculation, it appears that a San Francisco boy just past 17 has solved the problem which gray-haired scientists declared impossible of solution.

"The boy believes that he has made the first great step toward the solution of the problem of wireless telephony. and his experimental exhibition certainly bears out his belief. "

Francis' hopes ran high. Ample funds came from the effort of *White Hat* McCarty... until one day the flow of gold came to an abrupt halt. The debonair man in the tall white beaver hat had squandered his fortune. He was soon forgotten.

Francis and his brothers now faced a dilemma. Where would the money now come from? Francis conceived a plan to give public demonstrations of his wireless telephone in public parks and playgrounds of the city, and to permit the onlookers to test the practicability of the new miracle of communication with their own voices. By this means, additional shares of stock could be sold. The plan was only partially successful, not sufficient to feed and clothe the large family.

In quest of big money, Francis ventured to the offices of the one-time mayor of San Francisco, James D. Phelan, later a senator, and whose tall building in downtown San Francisco still bears his name. Phelan was a philanthropist, one of a secret group of public-spirited citizens who helped finance the prosecution of the notorious Abraham Ruef, the city boss of the 1900-1906 era of corruption. Francis believed that Phelan would come to his aid.

Their meeting proved disastrous. Said Phelan to Francis: "Do you mean to sit there and tell me that I can talk from my own office to a person in another office on the opposite side of Market Street without wires?"

“QRM”

Francis replied affirmatively. The ex-mayor blew up. "Absolutely absurd," he said. "Those waves, or whatever you call them, would get fouled-up in all the street noises. If the man across the street could receive my waves, he would also get a lot of other waves from the horsecars and carriages, and everything else on the street. Why, he would never be able to make heads or tails out of anything I tried to say."

Phelan refused to invest in McCarty 's invention.

But there were others who, when approached, were not so skeptical. Among them were George Davis, John McCann, the Jack Crow family, and an attorney named L. Seidenberg. Together they founded the McCarty Wireless Telephone Company and issued 200,000 shares of capital stock with a par value of \$1 per share. Francis was awarded 100 ,000 shares, plus a controlling interest in the new company.

CHALLENGED BY THE PRESS

A brochure was prepared (copy published elsewhere), a stock prospectus released, and numerous public demonstrations of the wireless telephone were made. Then a rumor made the rounds among the newspaper reporters that the McCarty Wireless Telephone was a fake and a fraud on the public. Francis, who had always cooperated with the press, was deeply hurt when informed of the grapevine gossip. He issued an open challenge to the entire newspaper fraternity. He would stage a public demonstration for all of them under conditions of their choice, and at a place of their own selection at their own time.

The reporters rose to the challenge and specified a location at the Ocean Beach, asking McCarty to set up his equipment so that it would operate between the Cliff House and Cyclor's Rest, as on an earlier occasion. But this time there would be certain stipulations.

The demonstration would be conducted under the rules laid down by the press, principal of which was a request by the reporters that they be permitted to dig deep trenches in the sandy soil around Cyclor's Rest where the receiving apparatus was stationed. They wanted to make certain that no wires or cables had been run from the transmitting point to the receiver. The request seemed incredible to Francis, and he laughingly told them to dig as deeply as they desired. Of course, they found no cables or wires, and the go-ahead signal was given.

A white flag, flying from a tall bamboo pole atop the Rest, would be the signal for Francis to begin talking.

This time, the transmitter did not function as satisfactorily as before. The voice was unclear. It was intermixed with a sizzling, frying noise. It was barely distinguishable. But soon the difficulty was overcome, and music began pouring into the receiver. All of the familiar tunes were easily recognizable by the members of the press. "Auld Lang Syne," "In The Good Old Summer Time," "Home, Sweet

Home," "The Holy City," and "Hiawatha," were the ones Francis played on his phonograph which was placed before the microphone. The large, old-fashioned wooden horn helped amplify the music and give it a pleasing tone.

SAN FRANCISCO'S NEW HERO

The reporters were convinced. Francis J. McCarty became the city's news hero, and his name was written indelibly into the pages of history.

The next demonstration was made on the sales floor of the old Hale Bros. Department Store in downtown San Francisco. Shoppers, clerks, and the ever-present newspaper reporters crowded around the young inventor, plying him with an endless stream of questions.

Soon McCarty spoke into the microphone: "Hello, hello, this is the McCarty Wireless." Almost immediately the nearby telephone rang. "We heard it! We heard it!", shouted an excited caller.

The call came from a house on Broderick Street, about a mile distant, as the wireless waves flew. And again the newspapers acclaimed the feat.

But this time the success of the demonstration was exaggerated out of all proportion. People throughout the city actually believed that they need but lift the receiver from the hook of their telephone instrument—and hear a wireless voice. Francis pleaded with the press to help set straight these strange misconceptions.

Soon thereafter, the early McCarty transmitter, with a high-voltage spark activated by the movement of the microphone current through an induction coil, was discarded in favor of what was known as an "Arc" transmitter. This arc used carbon rods similar to those of the ordinary street-lighting system, and the voice was impressed upon the flame; it was then sent into the ether and ground, if such a crude explanation is sufficient here.

McCarty did not know that the Danish inventor, Valdimir Poulsen, was experimenting with an identical system in his native country. A lack of communication in those days prevented one from knowing what others were doing for months on end.

NEW HORIZONS

Impressed with the success of his arc transmitter, Francis envisioned a new era on the horizon. He needed a complete new transmitter, with the arc as its heart. He had no funds, and his old backers refused to aid him further. He met a model-maker named Schnell, who agreed to build the model transmitter without remuneration.

Francis promised him a "piece of the company" in return for his effort—if and when success came. Schnell went further. He agreed to pay for the numerous resistors and controls essential for the cooling

system of the arc, and to replace those originally adopted by Francis by which the arc was cooled by pouring buckets of water into a series of coils.

A new station was then set up on the 12th floor of the St. Francis Hotel in San Francisco. Francis had now gone first-class.

Another station was put into operation in a little shack on 45th Avenue near Lawton Street in the howling sand dunes of the Sunset District. The wind from the ocean nearby was at times of such velocity as to pile huge drifts of sand against the building, making it necessary for the McCarty to shovel their way into and out of the wireless station house.

EARTHQUAKE

A few months later, on April 18, 1906, at 5:12 a.m., the great earthquake and fire devastated a wide area of San Francisco. The St. Francis Hotel fell victim to the flames, but the little shack in the sand dunes was untouched. Francis had salvaged at least part of his apparatus.

Offices of the McCarty Wireless Telephone Company were moved to Oakland, directly across the bay from the ruined city, and here the young McCarty made his final effort to secure the finances needed to assure the success of his invention. The Henshaw Brothers of Oakland were well-known, prosperous bankers. Francis appealed to them for aid. He drove the streets of Oakland in a two-wheeled horsecart, called a "Collector's Chariot", of the type commonly used by rent and bill collectors of that era. Francis mounted his cart, dressed in his best Sunday clothing, headed for the Henshaw establishment. His horse bolted. The wheels of the cart jumped the curbing. Francis was thrown out, headlong against an iron pole.

TRAGEDY

The young inventor, only two weeks of being 18, lay on his deathbed in Providence Hospital in Oakland. His injuries were so serious as to preclude him from being moved across the Bay to San Francisco. He lived from Tuesday until Friday, conscious, but unable to speak because of fractured jaws. On the third day, shortly before his mother reached the hospital, he died.

THE WIRELESS TELEPHONE PATENTS

Francis McCarty had developed a satisfactory, workable system of wireless telephony as early as 1902, but his patent, No. C-14,540, Class 21a, was not issued until April 19, 1906—four years after he made his first demonstration—and, ironically, only one day following the great San Francisco earthquake and fire. McCarty was not the first person to put the human voice on the air, but he was among the first; in the West, however, he was the pioneer and for a number of years he had no rivals.

Valdimir Poulsen of Denmark applied for patent No. 5590 on December 15, 1902, and the claim was allowed in April 1903. His American patent for an identical system of wireless telephony, by means of an arc, was applied for in 1903 and issued in 1905.

Still earlier experiments were conducted by A.F. Collins of New York, circa 1899-1900, who was able to communicate over a distance of about 60 meters with a spark-type wireless telephone transmitter. Reginald J. Fessenden was granted patent No. 706742 on a system of wireless telephony, and another patent on September 28, 1901, carrying the serial number 753863. The Fessenden patents were therefore issued before the date on which McCarty filed his claim.

