

Emile Bachelet – Inventor from Mount Vernon, New York

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This article is based on the reminiscences of Emile Bachelet's eldest son, Alfred, who lives in Queensbury, N.Y. Mr. Bachelet has donated his father's papers, photographs and other items to the Smithsonian Institution, and has willed the bust of his father which illustrates this article to the Westchester County Historical Society.

The first public announcement of the invention of an electromagnetically levitated railway appeared on the front page of the Mount Vernon (N.Y.) Daily *Argus* of March 15, 1912. Headlines announced: "Could Send Mail From Here To Boston In Hour.... Emile Bachelet, Local Inventor of Co-Acting Magnetic Wage Generators Shows New Device.... Levitated in Magnetic Field, It Will Attain a Wonderfully High Speed.. ."

This invention by Emile Bachelet preceded modern "Maglev" by half a century. The "device" described in the news article was a working model built in a laboratory at Fulton Avenue and Third Street in Mount Vernon. It was made of aluminum, about three feet long, shaped like a cigar pointed at both ends. It ran along a track thirty-five feet long. Levitated by magnetic repulsion, moved by magnetic attraction, it reached an astonishing speed of more than 300 miles per hour.

Bachelet's invention brought him worldwide attention. In London, where he established a laboratory and gave lecture/demonstrations, Winston Churchill said it was the most wonderful thing he had ever seen. Members of the Admiralty, the War Office, and Parliament, as well as scientists, financiers, and railroad officials from England, France, Germany and Japan, all hastened to the London laboratory to see the wonderful "Flying Train" and to anticipate its possible applications. In the long run it proved to be economically unfeasible, and Bachelet died in oblivion after many years of trying to find an economical means of obtaining the electric power required to run his transportation system.

Although most of his adult life was tied to Mount Vernon, Bachelet was not "a native son." He was born in Nanterre, France, a village outside of Paris, in 1863. He was orphaned at the age of nine, ran away from a cruel uncle with his younger brother Philip, and lived on the streets of Paris until about the age of eighteen, when he emigrated to the United States.

He began his career in Boston in the 1880s as an electrician on the building staff of the Boston Institute

(which became the Massachusetts Institute of Technology). There is no evidence as to how they met, but about 1889 or 1890 Cornelius Vanderbilt recommended Bachelet to do electrical wiring at a race track near Pasadena, California. Vanderbilt sent Emile, his wife Celeste, and her mother to the coast, presumably by way of the sea route established at the time of the California Gold Rush, with land transport across Nicaragua. They sailed by schooner from Gloucester, Massachusetts. From Pasadena Bachelet went to Tacoma, Washington, where the inventor pioneered the design and installation of stage and house lighting in theaters in Tacoma, in Olympia, the state capital, and in Vancouver, British Columbia.



Bust of Emile Bachelet by Frederick Callcott, London, c. 1914. *WCHS Picture Collection, donation by Alfred Bachelet*

Bachelet then became an electrician for the city of Tacoma, and for the state of Washington, positions that led directly to his career as an inventor and his move back to the East. He discovered that arthritic pain disappeared when he was near the huge generators at state institutions and began to experiment with therapeutic uses of electromagnets. He obtained seven United States patents for various devices, and, with the backing of Siegfried F. Sahn of Tacoma, went to New York City in about 1905 to set up the Bachelet Medical Apparatus Company.

Emile went east first, before his family, to get established in New York City. Celeste, whose mother had died in Tacoma, made the transcontinental trip by train with the three Bachelet children, Aimee, Albert and Henry. After various moves around Staten island, Brooklyn, Manhattan and Westchester, the family settled into the rented house at 604 South 8th Avenue, Mount Vernon, where they lived from 1906 to 1915, when they moved to 252 South 9th Avenue.

Albert Bachelet, the inventor's eldest son, remembers vividly his family's life in Mount Vernon. In 1910 the Bachelets had a White Steamer motor car. (President Taft had one too.) It took twenty minutes to get the steam up before starting to move. The manipulation of valves and levers and the consultation of gauges was so complicated that a contemporary book of instructions used several pages, complete with diagrams, to describe the process of getting under way: and staying that way.

Albert describes the family on a Sunday outing. dressed in typical touring style, his mother wearing a duster and a large hat with long scarf to tie it securely against the wind; father and the boys with caps. the latter in knee pants; all wearing goggles against the dust. His father brought the car out of the chicken coop that served as a garage (they had to put the top down on the car to get it in and out of the "garage"; and steamed noiselessly over the lawn between the rows of cherry trees. Mother, the maid, Aimee and the dog got into the back seat; Henry sat on a jump seat; Papa and Albert rode in front. Neighbors looked up from their yard chores. looked out from their windows, waved from their porches, and the Bachelets, waving rather grandly in return, motored down 8th Avenue and off toward Long Island Sound.

Papa, however, was fundamentally a frugal man, and he hated to spend the money for expensive gasoline when cheap kerosene would burn almost as well. One day he mixed the two in what he considered to be an appropriate blend, ignoring the noxious smoke from the burning kerosene, and set off for a spin on the newly-opened Pelham Parkway. Suddenly a burst of flames shot out as the heat of the main burner ignited the mixture. Albert says that his mother broke

the sitting broad jump record, clearing the side door inches ahead of the dog. While the family hurried away from the blaze, Papa quietly worked his levers and valves. When it was clear that it would be impossible to continue the drive, Papa had to stay with the Machine, as he called it, till help could be summoned. He calmly informed the family that they would have to make their way home on foot. Albert and Henry knew the woods and led the way. Late in the afternoon, Mama, the maid, Aimee, the dog, Henry and Albert straggled down 8th Avenue toward home, covered with dust and mud, scratched by brambles, veils ripped and clothing covered with burrs and two-pronged stickers. So much for the grandeur of the White Steamer.

Another problem common to all cars those days was that of flat tires. Albert remembers many stops to deal with this problem. His father would jack up the car, remove the tire, take out the inner tube and patch it, put the tube back into the tire, put tire and tube on the wheel, lower the jack, and find that in the process the inner tube had been pinched, and the tire was again flat, so that the whole thing had to be done over again. He recalls that as the air became blue with his father's unrepeatable French, his mother would say, "Come along, children. We'll go gather some flowers."

During the summers of 1911 and 1912, and again in 1916, the family spent summer vacations in South Harpswell, Maine, going up by steamboat from New York to Portland, then across Casco Bay to the Germania Hotel (the hotel's name was changed to Sea Gables after the beginning of World War I). Albert; memories of these trip\ were not always fond:

Eastern Steamship Company's *North Star* (one funnel) and *Northland* (two funnels), each 300 feet long, made the voyage from the foot of Manhattan Island to Portland, Maine, in an overnight trip of twenty-two hours. They went up Long Island Sound past Block Island and out to sea to go around Cape Cod - the Cape Cod Canal had not yet been built.

Papa always made sure the staterooms were in the middle of the ship to reduce motion, but it didn't make any difference - we were all seasick. The coats used to swing on their hooks with the roll of the ships. There was plenty of "mal de mer"!

Someone told my mother that if she wrapped us up in brown wrapping paper, we wouldn't get seasick. She did it! We were all wrapped up and laid on our berths, and the stuff kept us awake all night - it was stiff and it crackled. And we were just as seasick as ever.

She only did it once.

To save money, mother put up a lot of sandwiches and packed them in a cardboard suitbox, along with bananas, apples and oranges. The dining room served full meals, but they were too expensive.

Emile Bachelet's newly organized Bachelet Medical Apparatus Company operated a factory in Brooklyn, had an office on the eleventh floor of the new Flatiron Building, a showroom on West 23rd Street, and a laboratory at 18th Street and Broadway in Manhattan, where Bachelet continued experimenting with therapeutic effects of electromagnetism.

With the company operating successfully, however, Bachelet's interests began to focus on other aspects of electromagnetic forces, especially magnetic repulsion (as opposed to magnetic attraction, about which much more was known). He carried out his new research in the laboratory on the top floor of his home in Mount Vernon. How much electric power was required to repel various metals? What metals were repelled? What weights? What concentrations? Which reacted most efficiently? How did different metals react when layered one over the other? How could they be kept within the electromagnetic field? Bachelet developed a number of demonstrations, some of which were photographed on the lawns of the big house on 8th Avenue.

Bachelet needed money to finance this research, which was not related to his work in therapeutics. His first solution was to present the most intriguing demonstrations in vaudeville shows, where his part was billed as "The Bachelet Mystery." One of the "acts" showed a hand made of clay resting on an aluminum plate, housed in a transparent box about two feet long. The hand and aluminum plate had to be encased to keep them from falling out of the magnetic field. Underneath were two electromagnetic coils in a little wooden box, one coil under the wrist and the other under the fingers. Three buttons connected to a switchboard offstage energized one coil, the other, or both, raising the wrist or the fingers to answer questions either "yes" or "no." Energize both and the hand would float. Another of the "acts" consisted of a musical instrument in which bits of metal, encased in glass tubes, were activated by a switchboard to strike one or another of a chromatic series of

bells to create a tune. (A large, heavy-set man called Mr. Walk introduced the acts and served as operator on stage). The vaudeville acts were a failure financially, however, and soon passed into history.

With regard to the days of "The Bachelet Mystery," Albert remembers the huge vaudeville trunks, bound with heavy leather straps, standing in the entryway of the house on 8th Avenue. He also remembers using the straps to swing from the cherry trees in the yard, when the trunks were no longer in use. Another memory from that time was when "The Marco Twins" came to dinner. One of the "twins" was short and stout; the other was a tall, skinny contortionist. Yet another performer was a Mr. Pumphrey, who demonstrated the then-mysterious light of Geissler tubes to incredulous audiences. The Geissler tube was filled with gas such as neon, which glowed when warmed by Mr. Pumphrey's hands. It was Mr. Pumphrey who built the model of the railway system.

In the meantime, Bachelet had begun to develop his ideas for the magnetically-levitated railway. The results of his experiments looked so promising that Miles Bracewell, a well-known basso of the day, invested \$30,000 in it. This made possible the establishment of the Bachelet-Bracewell Laboratory at Fulton Avenue and 3rd Street in Mount Vernon, where the working model was constructed. In one of the early trials, before controls were perfected, the car shot off the track and crashed into a window. Eventually, however, all problems of levitation, forward motion, lateral motion and terminal control were solved.

A patent was applied for in 1910 and granted in 1912. Until it was safely in hand, Bachelet often slept

in the laboratory, fearing that word of what he was achieving would bring thieves to rob him of the rewards he hoped to earn through his work.

Bachelet was a handsome man, moderately tall, of strong build and powerful personality. He believed in his inventions and in his ability with compelling sincerity, and was very persuasive in his arguments. He needed all his powers to obtain financing for his work and spent much time looking for prospects, arranging meetings, looking for other prospects, getting a little money, always hoping for a major investor.

One day Bachelet's hopes for support from an established financier were realized. John Jacob Astor was interested. Albert, now in his nineties, remembers that Astor came to their house to see his father, and that he gave Celeste \$50 for "candy for the children." Astor left for Europe soon after, promising to finance a full-scale laboratory on his return. But it was not to be; his return was on the *Titanic*.

Finally in 1913 an Englishman, Ernest Britten, undertook to establish a consortium of investors in London. Bachelet, with his model, now known as "The Flying Train," went to London and set up a laboratory near Holborn Circus. The plan was to develop the miniature railway into a mail delivery system.

To obtain the widest possible publicity and subsequent support, Bachelet began to give lecture/demonstrations at the laboratory in May 1914. "The Flying Train" and the "French scientist" who invented it quickly became the sensation of the day. Emile lived in a castle owned by the Pears Soap family, wore suits made in Savile Row, and sat for a sculpted bust by Frederick Callcott, a noted artist who was widely shown in London galleries. He was presented with a platinum watch with his initials set in diamonds, and with a jeweler's model of his railway in bronze, silver and ebony.

More important, of course, were the visits of powerful persons such as Winston Churchill, then First Lord of the Admiralty; other members of the Admiralty, the War Office and Parliament; scientists such as Sir John Fleming and Sir Hiram Maxim; and many railroad magnates, financiers and engineers. All were looking for ways to realize the potential values of this phenomenal invention.

Then came August 4, 1914, and the beginning of World War I. The flying train went into oblivion. Bachelet began working for the British war effort,

designing guns, catapults and other military applications of his knowledge of electromagnetic force. By the time the war was over, the plans for a mail delivery service fell victim to a growing realization of the amount of electricity that would be needed to power it, and the apparent impossibility of ever developing the amount of power needed for economical freight and passenger transportation.

Bachelet did not give up. He believed that he could harness power in what he called "a planetary scheme" for capturing free energy. He rejected all suggestions that he was embarking on a futile effort to build a perpetual motion machine, since he envisioned a source of energy entirely different from conventional mechanically-produced power. He failed to convince Churchill and his advisors that the British government should finance this work, but the investors who had supported it before the war believed in him enough to set up an account in a London bank to be drawn on as needed, with the proviso that periodic reviews would be made to determine whether or not the project should continue to receive funding.

In 1917 the Bachelet family left the home on South 9th Avenue in Mount Vernon and spent the school year of 1917-18 at the New Tenney Hotel in Asbury Park, New Jersey. When they returned to Mount Vernon, they moved into Schmieder's boarding houses while looking for a permanent location. The wealthy Schmieders had lost a fortune in the 1906 crash and kept their property by turning their two identical mansions into homes-away-from-home for those who could afford elegantly furnished rooms and meals served by a butler. One of the guests was the pastor of The Little Church Around the Corner, and in the second house there lived a prominent lawyer and his

family. As the Bachelet fortunes became precarious, the family lived thereafter in a number of different apartments in Mount Vernon, until Celeste's death in 1952.

Bachelet gave up his London laboratory and returned to the United States in 1920 to begin his new project. To support his family, still living in Mount Vernon, he accepted a consultant's role with a company formed to manufacture Bachelet therapeutic devices (no longer protected by patents). The company operated out of Kingston, New York, and Bachelet had his own laboratory in the factory, near Roundout Creek. About 1921 a representative of the British investors visited, found no evidence of progress, and recommended that the funding be dropped.

The Bachelet Magnetic Wave Company went out of business, and when the family that Bachelet lodged with moved to Poughkeepsie, he moved with them. He continued his efforts to capture free energy in a small workshop on Academy Street in Poughkeepsie until his death in 1946 at the age of eighty-three.

The three children, Aimee, Albert and Henry, all completed twelve years of schooling in Mount Vernon. Aimee married George Gaines, a construction engineer who won contracts for setting the pilings of the George Washington Bridge, building overpasses on the Bronx River Parkway, and wrecking the old **Waldorf** Astoria to make way for the Empire State Build-

ing. Henry married Betty Taggett, daughter of a New York City politician, and was successful as a salesman for the Iron Fireman Heating Company. Albert earned a degree in electrical engineering at Columbia University, and in 1923 began a 43-year career as a member of the technical staff of Bell Telephone Laboratories. He was granted thirty-three United States patents for transmission circuitry. He was involved in solving problems of early long distance telephone transmission in the 1920s; radio program switching in the 1930s; war work, television transmission and mobile telephone transmission in the 1940s; and applying the new technologies of solid state physics in the 1950s and 1960s. One of his last contributions to the field of telecommunications was to design circuits for Telstar, the communications satellite.

The oblivion into which Emile Bachelet's pioneering work had fallen was ended by Eric Laithwaite, professor of heavy electrical engineering at the Imperial College in London. In a 1987 book, *A History of Linear Electric Motors*, he stated, "In respect of high-speed transport, Bachelet was too far ahead of his time to be successful . . . [but it was he who] first conceived the idea of an object in free flight — levitated, guided and propelled by the mystic forces of electromagnetism which Faraday had revealed almost a century earlier."