

The Life & Legacy

Nikola Tesla - Born into a family of Serbian origin, Tesla's father was an Orthodox priest. He had several sisters and one older brother, Dane, who died when Nikola was five. In his autobiography ("[My Inventions](#)"), Tesla tells of the early workings of his mind in a description that we can only regard with amazement. He began seeing flashes of light that interfered with his physical vision. When a word was spoken, he would envision the object so clearly that he had trouble distinguishing between the imagined (spoken) object and the real. In later years, he would build a machine in his mind, run it to see where it was flawed, and make whatever repairs and adjustments were needed, *before* he ever began his construction. At night and in solitude, Tesla had an inner world of personal vision where he made journeys to distant places, studies, carried on conversations and met people that seemed as real to him as his outer world. By the time he was a teenager he spoke four languages. At about age 17, he found to his delight that he could create things in his mind, picturing them as the finished product without models, drawings or experiments. He invented such things as a low friction finless waterwheel and a motor driven by June bugs.

He trained to be an engineer, attending the Technical University at Graz, Austria and the University of Prague. Beginning his studies in physics and mathematics at Graz Polytechnic, he then took philosophy at the University of Prague. After finishing the studies at the Polytechnic Institute, doing two years of study in one, working 19 hours a day and sleeping only two, he suffered a complete nervous breakdown. During the malady, he observed many phenomena, both strange and unbelievable. His vision and hearing intensified beyond any normal human capacity. He could sense objects in the dark in the same way as a bat. It was a period in which his sensitivities were so heightened that the flashes of light that he had seen from the time he was a youth now filled the air around him with tongues of living flame. Their intensity, instead of diminishing, *increased* with time, and seemingly attained a maximum when he was about twenty-five years old. His responses were so keenly tuned that a word would become an image that he could feel see and taste. It was during this time that he had one of his most famous ideas; the rotating magnetic field and alternating current induction motor.

Bringing himself back to the world as it is, Tesla began work as an electrical engineer with the Central Telegraph Office in Budapest, Hungary in 1881 and the following year, he went to work in Paris for the Continental Edison Company. In 1883 he constructed, after work hours, his first induction motor.

He sailed to America in 1884, arriving with four cents in his pocket. He found immediate employment with Thomas Edison - who quickly became a rival - Edison being an advocate of the inferior DC power transmission system. For the remainder of his life, Tesla would have, at times, difficulty getting his ideas and inventions funded because most financiers were in Edison's corner. Even later in his life, many of his ideas and inventions could not get funding, and so remained in notebooks, which are still examined to this day, by engineers searching for clues from his brilliant scientific mind. Edison and Tesla parted company within a year due to a false promise made by Edison. Tesla was told (by Edison) that if he could repair all of the faulty and broken down motors and generators in the Edison plant that he would receive \$50,000.00 for his effort. This Tesla did, and in record time, no less. At the completion of the repair work, Tesla approached Edison for the monies that were promised, at which time Edison replied that he was only "joking" about the money. Tesla did not find it very "funny" and left his employ.

Perhaps the lowest point in his life was in 1884-85 after he left Edison, and without recognition or a mentor, had to take manual labor to survive. He was digging ditches at \$2.00 a day when he met Mr. A. K. Brown of the Western Union Telegraph Company who put up some of his own money and interested a friend in joining him in Tesla's project. Shortly thereafter, Tesla was commissioned with the design of the AC generators installed at Niagara Falls.

Tesla and Edison have often been represented as rivals. They were rivals, to a certain extent, in the battle between the alternating and direct current in which Tesla championed the former. He won; the great power plants at Niagara Falls and elsewhere are founded on the Tesla system. Otherwise the two men were merely opposites. Edison had a genius for practical inventions immediately applicable. Tesla, whose inventions were far ahead of the time, aroused antagonisms which delayed the fruition of his ideas for years. However, great physicists like Kelvin and Crookes spoke of his inventions as marvelous. "**Tesla**," said Professor A. E. Kennelly, of Harvard University, when the Edison medal was presented to the inventor, "**set wheels going round all over the world. . . . What he showed was a revelation to science and art unto all time.**"

In May 1885, George Westinghouse purchased the patents to his induction motor, his polyphase system of alternating-current dynamos, transformers and motors and made this the basis of the Westinghouse power system which still underlies the modern electrical power industry today. When Westinghouse found that they could not stay in business if they paid him his due of Twelve Million Dollars, Tesla tore up the contract. Tesla did this, quite simply, so people could have the benefit of financially attainable electricity. Tesla made his first million before he was 40, but gave up the royalties on his most profitable invention as a humanitarian gesture.

In April 1887, he established his own laboratory, where he experimented with shadowgraphs similar to those involved in the discovery of x-rays. In 1888 his discovery that a magnetic field could be made to rotate if two coils at right angles are supplied with AC current 90 degrees out of phase made possible the invention of the AC induction motor. The major advantage of this motor being its brushless operation, which many at the time was believed impossible.



By 1890, Tesla was a young, striking and desirable bachelor. Handsome, magnetic and elegant, he was the "catch" of New York society, yet remained unmarried and a misanthrope. He was wealthy, gifted, accomplished and recognized. He wore his clothes well and was quiet and modest. Many a designing matron with a marriageable daughter was eager to capture him for her salon. Social leaders and businessmen considered him a good contact and the intellectuals of his day found him an inspiration. However, Tesla proved to be impervious, an unattainable prize. Except at formal dinners he always dined alone, and never under any circumstances would he dine with a woman at a twosome dinner. At the Waldorf-Astoria and at the famous Delmonico's restaurant, he had picked out particular discrete tables, which were always reserved for him. In spite of all of the adulation that was heaped upon him, Tesla had but one desire – to continue his work. He lived the life of a celibate and a hermit. He enjoyed poetry and the opera and though he was not a drinker, he appreciated a glass of beer and advocated the limited consumption of liquor as an elixir of life.

In 1915 he was severely disappointed when a report that he and Edison were to *share* the Nobel Prize proved erroneous. Tesla was the recipient of the Edison Medal in 1917, the highest honor that the American Institute of Electrical Engineers could bestow. When others claimed credit for the revolutionary ideas that came from his extraordinary mind, he did not contest them.



Imprecise in financial matters, eccentric and compulsive, Tesla had few friends, but those included Mark Twain, John J. O'Neill and Francis Marion Crawford. He never married, and cited on at least one occasion that marriage wasn't good for inventors. He was driven by compulsions and had a progressive germ phobia, washing his hands frequently and avoiding shaking hands and measuring the volume of his food before he ate it. He liked a fresh tablecloth with every meal. Always a fastidious dresser, he wore new gloves weekly and a new tie daily. He maintained the same weight through his lifetime, 142 pounds, and always slept only four hours per night.