

Review

Nikola TESLA

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Abstract: Nicolae Tesla, has remained and spent most of his life, making it hard to pronounce "Teslea"), is considered to be the inventor of the alternating current and uncovered cableless power transmission. It is attributed to the transmission of energy through monophasic, biphasic, polyphase alternating currents and transmission of non-wired energy by electromagnetic waves (oscillations) in the industrial alternating current frequency band (102-109 [Hz]), overlapping band with radio frequencies (the radio band being even more extensive than that of alternative industrial currents). He discovered the spinning magnetic field (simultaneously with the Italian Galileo Ferraris, 1847-1897), Tesla invented both the biphasic and polyphase alternating electric currents and studied the high-frequency current. He built the first two-phase asynchronous motors, the electric generators, the high-frequency electric transformer and so on. In atomic, he researched the atomic nucleus fission, with the help of the high voltage electrostatic generator and was also a pioneer of nuclear power based on nuclear fission reactions. (Einstein was contacted and visited personally by his research in this field). By working permanently in industrial bands, Tesla has inevitably given over radio waves whose frequencies overlap with those of alternating currents. Even though Marconi made the first radio broadcasts over the ocean, a little before Tesla, yet at the basis of his achievements were all the patents and works of Tesla, which Marconi had studied in detail. Tesla is also the first and foremost builder of the world's first and largest radio stations. In 1899, Tesla builds a large 200kw radio station in Colorado, conducts wireless telegraphy transmissions over 1,000km and manages to get 12 million volts of volumes to produce the first artificial lightning (lightning). He drives the first unmanned ship by radio, from a distance to a public demonstration on the ocean, in New York. Transmits concentrated energy through long-distance electromagnetic waves, the energy it uses to power remote consumers or remote control. Tesla deals with natural energy, the production of artificial earthquakes based on huge energies using very low frequency waves (Tesla is the first to accurately determine the resonance frequency of our planet), acceleration of nuclear particles to very high energies and targeting them or microwaves concentrated in beam (deadly rays) capable of reaching and destroying a target at a great distance (airplane, rocket, ship, etc.). He proposes to build a defensive shield to defend America, but even the planet, if needed (the current US defense shield of the Earth is a continuation of his work). It imagines, presents and designs wireless audio-video transmissions (but was too early to implement them massively, technologies were a long way from discovering it; the pieces were then lamps and tubes, there were no chips or integrated circuits, not even transistors).

Keywords: Nikola Tesla, Inventor of Electronics, Energy, Acceleration of Nuclear Particles, Waves, Power Transmission, Microwaves Concentrated in Beam, Polyphase Alternating Currents, Airplane, Ship, Resonance Frequency, Defensive Shield

Introduction

The great scholar Nikola Tesla (July 10, 1856 - January 8, 1943) was Romanian. He was a Romanian-born Istron and called him Nicolae Teslea, a Serb-Croatian citizen, descended from Romanian parents (Macedonian Romanians, or "Alexandro-Romanians" as they are also said to Romanian citizens of Macedonian ethnicity, or Istro-Romanian, the istriotians come from the Croatian area of Serbia, from the Istrian Peninsula, situated in the north of the Adriatic Sea, the area was historically conquered and re-conquered. After first belonging to the Hunters, it passed to the West Roman Empire, was plundered by the Goths and Longobardi, annexed to the French kingdom, subject to the Carinthian dukes, then to Meran, Bavaria, after which he passed by the patriarch of Aquileia and also belonged to the Republic of Venice, in order to pass under the power of the Austro-Hungarian Empire of the Habsburgs, with an interruption in the time of Emperor Napoleon who has been annexing it for a while. After the First World War he came under Italian protection and after World War II it was annexed by Serbia, when Tito, with the support of the Russian Communists, created the Serbian Yugoslav Empire. Several years after the "communist camp" broke down, the Croats returned to the island. Among the Istriot communities, there are also the Istro-Romanians coming from Banat, Transylvania and Timoc.).

Nicolae Tesla, or shortened Nicola Tesla (as it is generally known to Americans where the universal genius Nicola has remained and spent most of his life, making it hard to pronounce "Tesla"), is considered to be the inventor of the alternating current and uncovered cableless power transmission. It is attributed to the transmission of energy through monophasic, biphasic, polyphase alternating currents and transmission of non-wired energy by electromagnetic waves (oscillations) in the industrial alternating current frequency band (102-109 [Hz]), overlapping band with radio frequencies (the radio band being even more extensive than that of alternative industrial currents).

A scientist and prolific inventor of electronics and radiotechnika, the discoverer of the spinning magnetic field (simultaneously with the Italian Galileo Ferraris, 1847-1897), Tesla invented both the biphasic and polyphase alternating electric currents and studied the high-frequency current. He built the first two-phase asynchronous motors, the electric generators, the high-frequency electric transformer and so on. In atomic, he researched the atomic nucleus fission, with the help of the high voltage electrostatic generator and was also a pioneer of nuclear power based on nuclear fission reactions. (Einstein was contacted and visited personally by his research in this field). By working permanently in industrial bands, Tesla has inevitably given over radio

waves whose frequencies overlap with those of alternating currents.

Even though Marconi made the first radio broadcasts over the ocean, a little before Tesla, yet at the basis of his achievements were all the patents and works of Tesla, which Marconi had studied in detail. Tesla is also the first and foremost builder of the world's first and largest radio stations. In 1899, Tesla builds a large 200kw radio station in Colorado, conducts wireless telegraphy transmissions over 1,000km and manages to get 12 million volts of volumes to produce the first artificial lightning (lightning).

He drives the first unmanned ship by radio, from a distance to a public demonstration on the ocean, in New York.

Transmits concentrated energy through long-distance electromagnetic waves, the energy it uses to power remote consumers or remote control.

Tesla deals with natural energy, the production of artificial earthquakes based on huge energies using very low frequency waves (Tesla is the first to accurately determine the resonance frequency of our planet), acceleration of nuclear particles to very high energies and targeting them or microwaves concentrated in beam (deadly rays) capable of reaching and destroying a target at a great distance (airplane, rocket, ship, etc.).

He proposes to build a defensive shield to defend America, but even the planet, if needed (the current US defense shield of the Earth is a continuation of his work). It imagines, presents and designs wireless audio-video transmissions (but was too early to implement them massively, technologies were a long way from discovering it; the pieces were then lamps and tubes, there were no chips or integrated circuits, not even transistors).

We can certainly believe that Tesla is actually the true "Parent of Informatics".

Professor Univ. assoc. Dinu-Ştefan T. Moraru, PhD, a member of the Academy of Scientists from Romania, testifies in the newspaper "Formula AS" of January 11, 1999 (Petrescu, 2016).

"In a conversation with Henri Coanda, recorded on tape, the great scholar personally declared to me that he had known Teslea:" I met Teslea when I was young all over my father (General Constantin Coanda) who was always near me Nicolae Teslea, who is the inventor of the alternating electric current, was Romanian from Banat (he was Aromanian), he was a Banat man and his way of thinking and seeing, I was struggling enormously He was four months younger than my father, but I can't say that I was not influenced by him either, because his way of talking and presenting things was so extraordinary that even though I was a child, I see, one of the very important Romanians, who may have changed the whole life of mankind, is a Banat! ... ". If now, let's say 150 years, it would have been said,

someone would have come to tell us how Tesla Nicholas, Tesla, the Romanian in Banat, said: "I will make electric light, that is, light, I will do this by moving a piece of iron in front of a copper wire ", the world would have shut him down like a madman. Coanda's encounter with Tesla occurred in 1893, when Tesla was in the country due to his mother's death. It was already famous all over the world, but less in Romania."

Nicola Tesla (the most brilliant mind of this planet, so far, this Romanian engineer, Romanian-Romanian, Istro-Romanian, Banat), came to the world at a time when electricity was visible only to those lucky enough to, he saw the glowing beams in the dark sky of rains and storms.

With the invention of the AC generator, he also discovered the way to bring electricity to every corner of the globe and started a real war with Thomas Alva Edison to make it happen. In addition, he discovered the radio and even had some attempts to contact alien life.

His enigmatic lifestyle has entered the legend, is probably perceived as more than eccentric. The truth is that he wanted and succeeded, that through his inventions he could reach a better world.

The great scientist and inventor Nicolae Tesla (Nikola Tesla) was born on the night of 9th to 10th July 1856, during a terrible storm (thunder and lightning), as the son of Orthodox priest Milutin Tesla and Gica Mandici (Fig. 1). The father's family was a family of anti-Ottoman border guards in the former Austro-Hungarian empire.

The original family name was Draghici, but he was replaced in time by the nickname of Tesla, after the trades (the legacy from father to son) of the carpenter (teslar).

Milutin had a brother, Joseph, a career military, who, after graduating from the school of officers, taught mathematics in various military schools, eventually becoming a professor at the Vienna Academy of War.

Tesla's father, initially a student at the military school, quickly changed his profession, going to the theological seminary, becoming an Orthodox priest in 1845 when he married Gica. The church in which Father Tesla originally served was in the Similian commune in Lica Province, with its center at Gospici.

Henri Coanda presents the great inventor Tesla as a Romanian Banat from the Serbian Banat, but the reality was that his friend Nicholas was a Croatian Istro-Romanian. The Lica province was inhabited by Moroccan Istro-Romanians since the 19th century. XV-XVI. Gospici is located a few kilometers from the shores of the Adriatic Sea and the Similian village 12 km from Gospici, the village being the home of Tesla.

The priest, a worshiper and a reader, was particularly interested in literature, philosophy, natural sciences and mathematics. The attempt of denationalization gathered the morals under the banner of the Orthodox church.



Fig. 1. The house where Nikola Tesla was born

Tesla's mother, Gica Mandici (Romanian by name), remained orphaned by a young child and had to maintain herself and even take care of her six younger brothers. His father refused to send her to a foreign language school, but as self-taught, she completed her husband's culture as a pupil. In the priest's house, there was a vast library of various fields (more scientific). Gica was especially famous for the beautiful embroidery he was doing.

Tesla also had a bigger brother, Dan (or Dane), the dead young man in an accident and three sisters: Milca, Angelica (Anghelina) and Marica, whom he loved most.

Nicola spent her childhood in an idyllic, rural setting, along with Dane, her older brother and her three sisters often playing on the green fields, alongside the animals in the family household.

The Tesla family might be very much told. Nicholas, the inventor, made his studies at Karlovat and the Polytechnic in Graz (1875-1881).

He started his famous discoveries and inventions from 1881-1882 in Graz, Budapest, Paris, Edison Company (1882) in Strasbourg (1884) and then begins in the American Odyssey.

The invention of the "spinning electric field" phenomenon was born in 1882 in Budapest, but immediately, on the basis of a recommendation, Tesla leaves for Paris, where he is employed in the "Continental Edison Company".

Here, he changes the Edison car. Within the same company, he is building the Strasbourg power plant. Although he had promised \$ 25,000 at the end of the difficult work, he was frustrated with gratification.

Materials and Methods

One of Edison's assistants, Charles Bachelor, proposes to emigrate to America and gives him a recommendation letter to Edison personally (1884; Fig. 2).

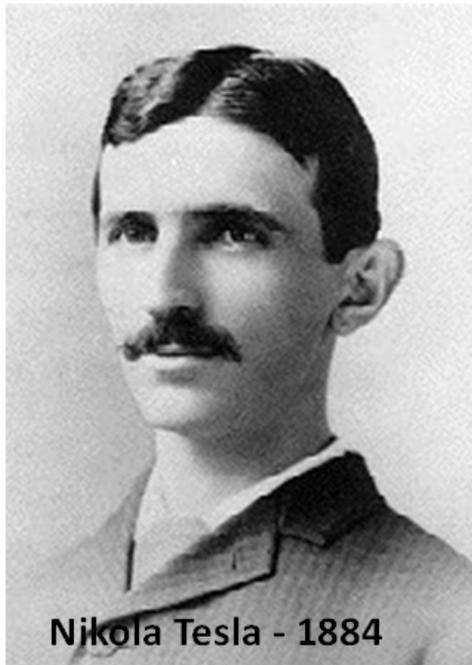


Fig. 2. Nikola TESLA, 1884

After some riots (stolen money at Le Havre station), he addressed the owner of the ship, who understood his situation (the ticket and the place belonged to them, being nominated) and on the basis of the board document is received and thus without a ticket, arrives in New York, where he shows up directly to Edison.

He is received with difficulty and cold, but on the basis of the written recommendation, he is employed in the company's workshops, as an engineer-electrician for the repair of Edison motors and generators.

The first meeting of the two "light-wizards" took place at Edison's new lab, located on Goerck Street.

Tesla was thrilled to have the chance to meet the great inventor, known as the "Wizard of Menlo Park," where Menlo Park was the place where the New Jersey lab was where Edison developed his most famous inventions, phonograph and light bulb incandescence.

But soon in the meeting, we could see the fundamental differences between these two men.

Tesla, a European who could be proud of his impeccable manners and the stylish way to carry a conversation, was shocked when he came across a thicker guy (and even a bit bumpy) (Petrescu, 2016).

Edison was interested in Count Dracula, given the proximity of Tesla's home to Transylvania and even went so far as to ask his guest whether he "ever tasted human flesh." Tesla was horrified by Edison's gross remarks and replied briefly, "No."

Nevertheless, Tesla has always had a certain admiration for Edison's genius who had done so much

for the benefit of mankind, with a training he had made himself, almost entirely absent from school education. Tesla, who had studied several languages and spent hours in the library of books, when he had just begun to think that he had spent too much time studying areas that had not personally used them, but soon realized that rudimentary-primitive methods of Edison's was far too inferior to his ability to solve the problems in the project phase, before starting the actual prototyping (How to compare Edison, kicked out of the first primary classes and left without any theoretical training, with Nicola Tesla, who besides being a super-genius, was also trained in several European universities of tradition, already having several degrees from several faculties).

An unexpected situation makes it remarkable (1885). The Oregon Transatlantic, equipped with the Edison generator, which had failed, had to go to Europe on a fixed date; had all the seats sold and the delay would have brought the shipowners a great deal of damage (which Edison's company had to bear and assure the assembly and guarantee of the electrical power system components).

Edison's firm instructs Tesla to repair the generator in as short a time as possible; Tesla discovers the generator's short circuit in the coil winding coils, which he quickly fixes, re-winding it in just 20 hours. Edison had promised a \$ 50,000 prize if the malfunction was removed in time allowing the vessel to leave at the pre-announced date (if the remedy had not been done on time, Edison's losses would have been much higher than the reward promised to the young Romanian engineer).

The ship is leaving due to the overwork of the young engineer Tesla, Edison escapes with "clean face" (otherwise it would have lost huge amounts of money) but Tesla receives nothing from Edison, nothing but an explanation: it was a joke.

Soon, Edison would laugh at her nose when Tesla asked him to pay her \$ 50,000 promised. The great inventor told him: "You only left a Parisian. When you become a regular American, you will know how to appreciate an American joke. "Certainly, Tesla never appreciated that joke so-called" American, "even if one day he would become an American citizen.

No other promises, such as the upgrading of Edison electric generators and motors in 24 variants, fitted with a regulator and a new type of switch, are not granted.

Meanwhile, Tesla left Edison's company and managed to set up his own company. Edified on Edison's conduct, Tesla will now work on his own and complete his original system based on polyphase alternating currents. Time passes right to Tesla in his competition with Edison and gradually, his thesis on the alternative current succeeds in imposing itself.

Results

Since the spring of 1885, Tesla refuses to collaborate with Edison and works independently, setting up his own company, Tesla Electric Light and Manufacturing Company.

While Tesla obtained the patent for the AC power patent, a fierce competition between electricity companies began to develop to form a partnership to hold the patent rights of the most efficient alternative energy system. At first, it was not quite clear who would succeed in winning - whether it was the Tesla-patented system or the site of one of its contemporaries, such as William Stanley (he was responsible for developing the Gaulard-Gibbs system at George Westinghouse's) or Elihu Thomson (from Thomson-Houston Electric Company, a prolific inventor who had developed an AC-like system like Tesla's own).

In May 1888, Thomson and Tesla exchanged famous replies in a presentation made to the American Institute of Electric Engineers (IAEA). After Tesla introduced the AC system that proved that electricity could be distributed hundreds of kilometers away from the source (a major drawback of Edison's DC system, it was that he could distribute electricity to a maximum of one kilometer Thomson, a meticulous inventor who has been involved in the American energy industry for much longer than Tesla, came to the assembly and referred to a device he had developed that seemed almost identical to the one he built by Tesla.

Still, the "almost identical" devices were all the differences in the world, which Tesla had demonstrated to the distinguished assembly.

During that heated debate, Tesla proved to be the true winner in front of the audience of the most prestigious figures of electrical engineering. Thomson was not amused at all by the verdict of the engineering community and for the rest of his life, he was an unarmed enemy of Tesla.

Tesla's clear recognition of the alternative power system, superior to the other systems proposed by other inventors, including William Stanley's switch device, has led George Westinghouse, a very influential man in the power industry and renowned for his predictions in relation to industrial change, to consider building a partnership with Nicola Tesla before anyone else thinks about it. In July 1888, Westinghouse arranged a meeting with Tesla in Pittsburgh to negotiate the acquisition of patents for his inventions.

Westinghouse was indeed a perfect partner for Tesla and as soon as it managed to grow four times the sales of its electric company, Westinghouse was able to pay a reasonable amount of money for the use of patents to Tesla. It is difficult to determine precisely what was the

amount that Tesla received for its Westinghouse patents, but for USA between 1888 and 1897, it was close to 100,000 US dollars. Taking into account the inflation rate, this amount converted into today's currency amounts to several million dollars.

In the spring of 1888, the alternator (alternate current generator) was already known and spread, Tesla's fame crossed America's borders and his best friend, George Westinghouse (journalist, businessman and close and permanent collaborator of Tesla) regularly paid him fine sums for his transposed patents, so Tesla moved from the rented apartment in New York to one of Pittsburgh's bunked hotels where he would live from then on.

This marked the beginning of Tesla's affinity for living in the hotel.

As a result, research into cable less power transmission began a revolutionary idea through which he hoped to change the way of life of mankind (Fig. 3).

From 1889 to 1891, Tesla continued to meet his friend, writer Thomas C. Martin, to make him support him in his projects. Soon, Martin would publish a whole page about Tesla, highlighting the personality of an inventor in full assertion and the stunning AC power produced by him.

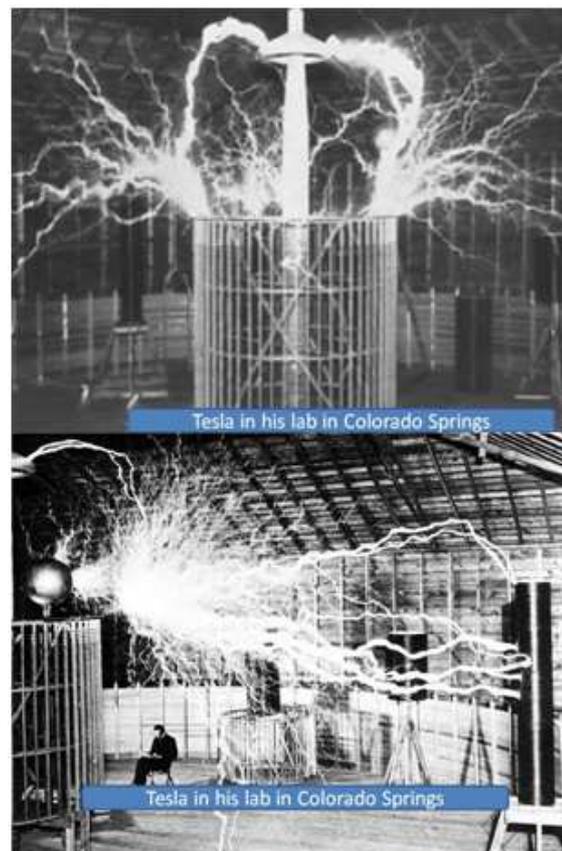


Fig. 3. Tesla in his lab in Colorado springs

Discussion

Meanwhile, Tesla has begun to make intense experiments using his own body or his friends to complete his invention. In front of a large audience, he led an experiment during which he lit two fluorescent tubes he held in his hand. Curious to know if Tesla was injured after the experiment, the people asked him if he felt any pain to which he replied: "Sometimes I have an accidental burn, but that's all" (Fig. 4).

The experiment will then be repeated many times and later, including his future good friend, already famous writer Mark Twain (which appears in the photo below with the energy globe between his hands, while Tesla looks at him from the left-hand side; Fig. 5).

At the end of 1891, Tesla received the news that his mother was seriously ill. When he heard the news, he immediately went to Gospici, where he met his three sisters and his mother, who was in bed and unable to move. His mother died in April 1892, a few months after his arrival. Tesla was so overwhelmed with pain that the hair on the right side of her head blew almost instantly. His mother had a positive influence on her life and had undoubtedly conveyed some of her creative side. Later, he stayed in Gospici for a few weeks to rest. Strangely, it was one of the few periods in his life when he stayed away from his work.

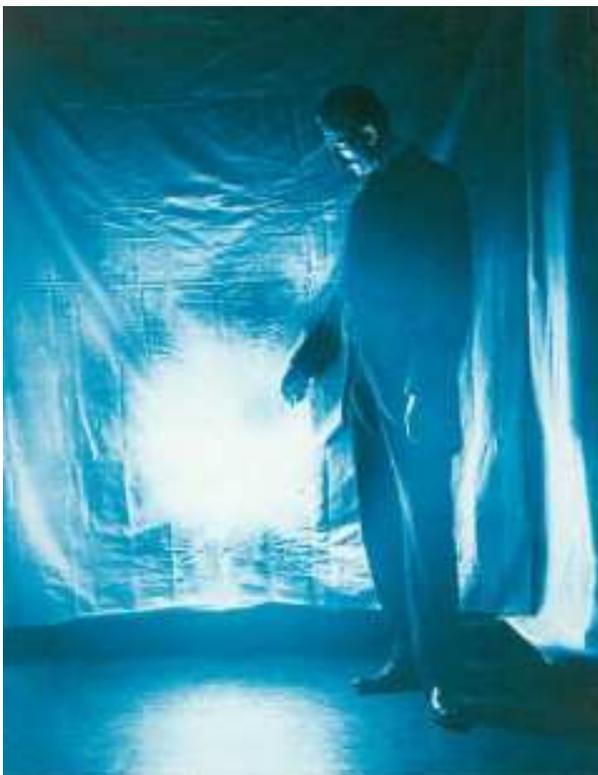


Fig. 4. "Sometimes I have an accidental burn, but that's all"

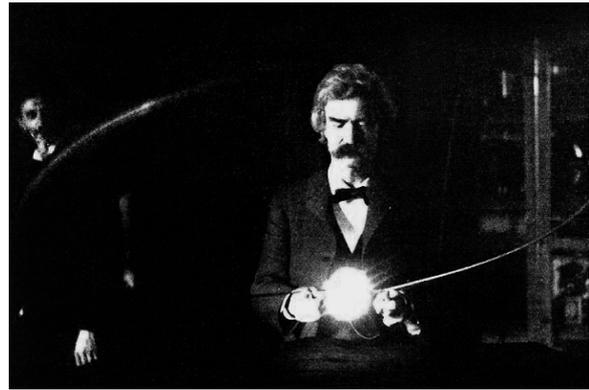


Fig. 5. The experiment will then be repeated many times and later, including his future good friend, already famous writer Mark Twain

One year after returning to Gospici in February 1893, Tesla and Martin left for the National Electricity Association convention, during which the great inventor would exhibit many of his creations, including the polyphase alternative energy system, the way in which alternative power could be distributed.

One of the inventions he presented then became known as the "Tesla Coil", through which a charge of electricity was transmitted to the ether, producing what appeared to be a light purple lightning that traversed the room. Tesla warned the audience that electrical charges "do not offer any inconvenience, except that at the end there is a burning sensation at the fingertips."

After such incredible spectacles of delight, Tesla gained great popularity in the media. The New York Herald interviewed him that he was "electrocuted by an electrical charge of over 300,000 volts, a quantity of energy that if he had received it in a different way "Tesla's amazing coil meant the birth of a new field of science, which for many who were incapable of understanding the phenomenon became just an SF myth and science.

In the same year (1893), George Westinghouse, Tesla's closest business partner, won a lighting contract for the Universal Exhibition in Chicago. It was a major success for Westinghouse who suffered major losses following the lying propaganda initiated a few years before by Thomas Edison against them and the alternating currents. Westinghouse immediately asked Tesla's help to create a lighting system for the event and he accepted it without reservation. Of course, the two needed incandescent light bulbs to create this system, but Edison had forbidden Westinghouse and Tesla to use the patents of his inventions. Fortunately, Westinghouse had a patent for another type of bulb that could serve their purpose. The time available for them to successfully prepare the lighting system of the exhibition was totally inadequate. The contract for the first hydroelectric plant

in the world on Niagara River is under negotiation and Westinghouse hopes to get a fortune from it. A successful company at the exhibition guaranteed that the contract would be his own and Tesla would design that system (Fig. 6), (Aversa *et al.*, 2017a; 2017b; 2017c; 2017d; 2016a; 2016b; 2016c; 2016d; Mirsayar *et al.*, 2017).

At night the fair was lit by electricity. Who would light the fair would soon light the world! Edison and Westinghouse both put in bids to light the fair. General Electric Company (Edison's and Morgan's company) first bid to light the fair for \$1.8 million. That bid did not go over well. The two did a second bid worth \$554,000. Unbeknownst to General Electric, George Westinghouse, armed with Tesla's new induction motor, proposed to light the fair for \$399,000. Westinghouse won the contract. The effect of winning the bid would change history. Tesla's AC polyphase system would be on display for not only the US to see but the whole world. Originally, Tesla planned on using GE bulbs but Edison, still miffed, would not sell to Tesla and Westinghouse. Instead, Westinghouse came up with a more efficient double-stopper light bulb.

At night, the fair became a scene of wonderment as the lights displayed the wonder of the fair and its location.

"If evenings at the fair were seductive, the nights were ravishing. The lamps that laced every building and walkway produced the most elaborate demonstration of electric illumination ever attempted and the first large-scale test of alternating current. The fair alone consumed three times as much electricity as the entire city of Chicago. These were important engineering milestones, but what visitors adored was the sheer beauty of seeing so many lights ignited in one place, at one time. Every building, including the Manufactures and Liberal Arts Building, was outlined in white bulbs. Giant searchlights — the largest ever made and said to be visible sixty miles away — had been mounted on the Manufactures' roof and swept the grounds and surrounding neighborhoods. Large colored bulbs lit the hundred-foot plumes of water that burst from the MacMonnies Fountain." ... it "was like getting a sudden vision of Heaven." — The Devil in the White City, by Erik Larson (Lighting the 1893 World's Fair).

On May 1, the Universal Exhibition in Chicago opened. Exhibition pavilions stretching over an area of over seven hundred acres gathered over 60,000 exhibitors, costing up to the fabulous amount of over US \$ 25 million (old). In total, about 28 million people visited the "White City," most of whom had seen Tesla sitting in the technical booth of the show watching the crowd of people astonished by his public cable-free lighting system. After the exhibition, Tesla's fame brought to light all his other inventions (Petrescu, 2016).

The following year, in 1894, Tesla met with Thomas C. Martin Robert Underwood Johnson, editor of Century Magazine, the man who would become his closest confidant.



Fig. 6. The Universal Exhibition in Chicago, 1893, when the whole city was enlightened by Tesla, with the help of alternating current transmitted by electromagnetic waves to specially designed lamps with gas bulbs. Source: <https://historyrat.wordpress.com/>

Johnson and his wife Katharine seemed to worship Tesla as a god, being completely fascinated by his personality, his genius, his uninterrupted work. The couple was tied up in New York's high society, meeting regularly with personalities such as writer Mark Twain, political man Theodore Roosevelt, future US president and so on. From now on, Tesla had found more "guarding angels," and things were starting to get into a normal run.

Also in 1894, Tesla will face the biggest test in his life - testing the polyphase alternate energy system for Niagara Falls hydrographic and power distribution to Buffalo, New York, some tens of kilometers further. Until that time, Edison's only DC system was able to transport electricity at a distance, feeding public lighting up to one kilometer from the power plant (Fig. 7).

Edison had come up with a plan to distribute DC electricity in Buffalo, obtained by the force of the huge waterfall, but for a distance of more than one kilometer, his plan was not feasible. Automatically only Tesla competed with his new method.

At this psychological moment, the magnate J.P. Morgan, who once invested Edison's company, has decided to invest with Westinghouse now, favoring Tesla's AC. This event proved to be a serious boost for the continuation of the project. The project took three years to complete and in 1896 Tesla's polyphase AC system first distributed electricity to the world at an appreciable distance from the power plant. The historic event is commemorated by a plate placed near the Niagara Falls, where both Tesla's and Westinghouse's names are engraved.

Even before the Niagara Project was revealed, Tesla had begun to enjoy a lot of attention from the media. His inventions were presented in numerous articles in the Century Magazine, the New Science Review and the New York Times, all of them telling in an eloquent manner about his great theories and his latest discoveries.

One of the articles in the Times claimed that "there can be no better proof of the practical qualities of its innovative genius."

Thanks to Westinghouse's collaboration with J.P. Morgan, Tesla now had access to the upper echelons of the corporate world.

Tesla seemed to bring to life any invention she thought and wanted.

In the spring of 1898, Tesla publicly demonstrates radio broadcasting, at a distance, of an unmanned vessel. Experiences were conducted offshore, near New York (another big public success).

In 1899, Tesla builds a large 200kw radio station in Colorado, wireless transmissions over 1,000km and manages to get 12 million volts of voltages to make lightning artificial.

It transmits concentrated energy through long-distance electromagnetic waves, the energy it uses to power remote consumers or remote control.

In the new century, Tesla deals with natural energy production, the production of artificial earthquakes based on huge energies using very low frequency waves, the acceleration of nuclear particles to very high energies and their directing or microwaves concentrated in bundles) capable of touching and destroying a long-distance target (airplane, rocket, ship, etc.). Its lethal radius, thinner than the hair, could carry huge energies at great distances, penetrating through anything. He also built a miniature for a medical scalpel.

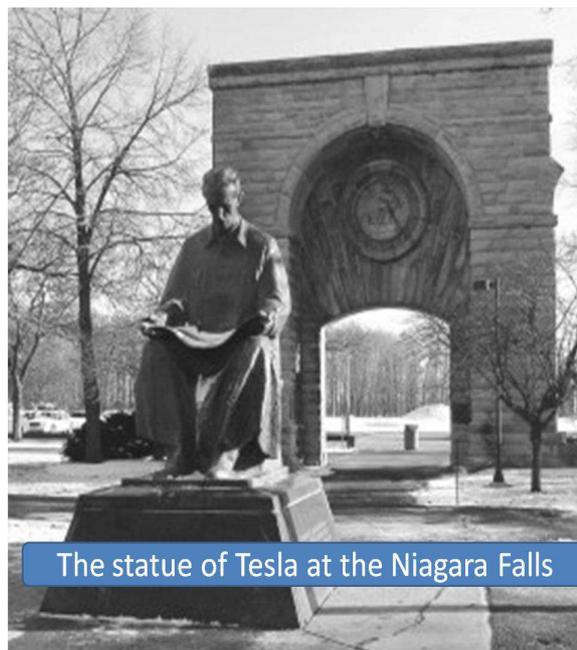


Fig. 7. The statue of Tesla at the Niagara Falls

He proposes to build a defensive shield to defend America, but even the planet, if needed.

In November 1933, recently emigrated to the US, Albert Einstein learned about Tesla's nuclear fission research and is looking to get to know him closely.

Tesla imagines and designs wireless audio and video broadcasts (but it was too early to implement them, lack of money, needed technology, lack of support and understanding in the sense that it was not for the specialists able to understand and help it, somehow these inventions will be used not for people but just against them, war and age-delay and stop it not as much as possible from their implementation).

Tesla has set up the space shield project that is being built just now. It is meant to defend not only America but the whole planet from an eventual alien invasion, attacks with different weapons, missiles and explosives that might attack us in the future, but it will have to have the ability to protect us from possible too large bodies (asteroids, comets, meteorites, etc.) that float through space and which could come closer to our planet (our mothership), representing for her and us a real danger (Petrescu *et al.*, 2017a; 2017b; 2017c; 2017d; 2017e; 2017f; 2017g; 2017h; 2017i; 2017j; 2017k; 2017l; 2017m; 2017n).

Tesla has managed to produce local earthquakes.

Tesla imagined a surveillance system to capture any coded alien signals. He has also set up a mechanism for transmitting signals to aliens so we can eventually get in touch with them.

He is due to radio, television, the internet, mobile telephony, etc.

Modern computer systems would have been impossible without its contributions. The same as all data, command and power transmissions over very long distances without wires (by electromagnetic waves).

Modern navigation systems used primarily in aerospace vessels, but also in aircraft, seagoing vessels, etc., are based on its inventions. Modern transport and GPS are very much to it.

The actual illumination of cities and the whole world (with or without threads) is almost entirely due to it.

The transmission of energy but also power, including at a distance, is also based on its inventions.

Tesla produced the first artificial lightning.

Also, in 1915, Tesla offered to the US government the project of a rookie missile, much better than Hitler's famous V2.

Tesla made the first particle accelerators, the first nuclear fission and the first nuclear reactions.

Unfortunately, it is due to his (and his) first nuclear experiments, which later led, even without his will, to the creation of the first atomic and nuclear weapons, originally used and experimented by America just on our planet, which in his vision it had to be defended and not destroyed (Petrescu, 2012; Petrescu and Calautit, 2016a; 2016b; Petrescu and Petrescu, 2012; Petrescu *et al.*, 2016a; 2016b).

Conclusion

There is much to be said about the creative work of Nicola Tesla, an extreme genius that many thought was extraterrestrial. But we will stop here. At most I could only remember his unsuccessful attempts to produce energy infinite, first by extracting some of the energy stored in the earth; or his research into gravitational fields for the purpose of their controlled annihilation, or his projects to make an object or a creature invisible.

Nicolae Teslea (Nicola Tesla) leaves this world in New York on the night of January 7-8, 1943 and is buried on January 12.

Through his overwhelming personality, through his enigmatic and brilliant genius, Tesla marked two consecutive centuries, leaving us a fabulous technical-scientific and inheritance legacy.

The achievements of his mind have changed the world in which we live, but also our way of life, bringing us "from deep darkness to perfect light."

Tesla was the first man who managed to break our time and space and enter higher spaces, which he accidentally made while playing in his lab with three rotating electromagnetic vectors positioned differently.

We owe him the current defensive terrestrial shield.

Tesla made the first wireless networks.

He began the era of light, laser, communications and computer science.

At 40 or 60, Tesla looked almost as young as when he was 20 years old (Fig. 8).

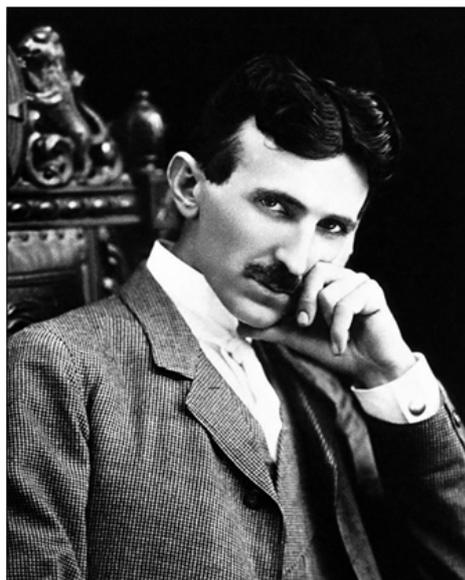


Fig. 8. At 40 or 60, Tesla looked almost as young as when he was 20 years old

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Author's Contributions

All the authors contributed equally to prepare, develop and carry out this manuscript.

Ethics

This article is original. Authors declare that are not ethical issues that may arise after the publication of this manuscript.

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