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Nikola Tesla's Long Range Weapon

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The French ship Iena blew up in 1907. Electrical experts were sought by the press for an explanation. Many thought the explosion was caused by an electrical spark and the discussion was about the origin of the ignition. Lee De Forest, inventor of the Audion vacuum tube adopted by many radio broadcasters, pointed out that Nikola Tesla had experimented with a "dirigible torpedo" capable of delivering such destructive power to a ship through remote control. He noted, though, Tesla also claimed that the same technology used for remotely controlling vehicles also could project an electrical wave of "sufficient intensity to cause a spark in a ship's magazine and explode it."

It was Spring of 1924, however, that the time seemed best for "death rays," for that year many newspapers carried a several stories about their invention in different parts of the world. Harry Grindell-Matthews of London lead the contenders in this early Star Wars race. The New York Times of May 21st had this report:

Paris, May 20 - If confidence of Grindell Mathew (sic), inventor of the so-called 'diabolical ray,' in his discovery is justified it may become possible to put the whole of an enemy army out of action, destroy any force of airplanes attacking a city or paralyze any fleet venturing within a certain distance of the coast by invisible rays.

Grindell-Matthews stated that his destructive rays would operate over a distance of four miles and that the maximum distance for this type of weapon would be seven or eight miles. "Tests have been reported where the ray has been used to stop the operation of automobiles by arresting the action of the magnetos, and an quantity of gunpowder is said to have been exploded by playing the beams on it from a distance of thirty-six feet." Grindell-Matthews was able, also, to electrocute mice, shrivel plants, and light the

wick of an oil lamp from the same distance away.

Sensing something of importance the New York Times copyrighted its story on May 28th on a ray weapon developed by the Soviets. The story opened:

News has leaked out from the Communist circles in Moscow that behind Trotsky's recent war-like utterance lies an electromagnetic invention, by a Russian engineer named Grammachikoff for destroying airplanes.

Tests of the destructive ray, the Times continued, had began the previous August with the aid of German technical experts. A large scale demonstration at Podosinsky Aerodome near Moscow was so successful that the revolutionary Military Council and the Political Bureau decided to fund enough electronic anti-aircraft stations to protect sensitive areas of Russia. Similar, but more powerful, stations were to be constructed to disable the electrical mechanisms of warships.

The Commander of the Soviet Air Services, Rosenholtz, was so overwhelmed by the ray weapon demonstration that he proposed "to curtail the activity of the air fleet, because the invention rendered a large air fleet unnecessary for the purpose of defense."

Picking up the death ray stories on the wire services on the other side of the world, the Colorado Springs Gazette, ran a local interest item on May 30th. With the headline: "Tesla Discovered 'Death Ray' in Experiments He Made Here," the story recounted, with a feeling of local pride, the inventor's 1899 researches financed by John Jacob Astor.

Tesla's Colorado Springs tests were well remembered by local residents. With a 200 foot pole topped by a large copper sphere rising above his laboratory he generated potentials that discharged lightning bolts up to 135 feet long. Thunder from the released energy could be heard 15 miles away in Cripple Creek. People walking along the streets were amazed to see sparks jumping between their feet and the ground, and flames of electricity would spring from a tap when anyone turned them on for a drink of water. Light bulbs within 100 feet of the experimental tower glowed when they were turned off. Horses at the livery stable received shocks through their metal shoes and bolted from the stalls. Even insects were affected: Butterflies became electrified and "helplessly swirled in circles - their wings spouting blue halos of 'St. Elmo's

Fire.'"

The most pronounced effect, and the one that captured the attention of death ray inventors, occurred at the Colorado Springs Electric Company generating station. One day while Tesla was conducting a high power test, the crackling from inside the laboratory suddenly stopped. Bursting into the lab Tesla demanded to know why his assistant had disconnected the coil. The assistant protested that had not anything. The power from the city's generator, the assistant said, must have quit. When the angry Tesla telephoned the power company he received an equally angry reply that the electric company had not cut the power, but that Tesla's experiment had destroyed the generator!

The inventor explained to The Electrical Experimenter, in August of 1917 what had happened. While running his transmitter at a power level of "several hundred kilowatts" high frequency currents were set up in the electric company's generators. These powerful currents "caused heavy sparks to jump thru the winds and destroy the insulation." When the insulation failed, the generator shorted out and was destroyed.

Some years later, 1935, he elaborated on the destructive potential of his transmitter in the February issue of Liberty magazine:

My invention requires a large plant, but once it is established it will be possible to destroy anything, men or machines, approaching within a radius of 200 miles.

He went on to make a distinction between his invention and those brought forward by others. He claimed that his device did not use any so-called "death rays" because such radiation cannot be produced in large amounts and rapidly becomes weaker over distance. Here, he likely had in mind a Grindell-Matthews type of device which, according to contemporary reports, used a powerful ultra-violet beam to make the air conducting so that high energy current could be directed to the target. The range of an ultra-violet searchlight would be much less than what Tesla was claiming. As he put it: "all the energy of New York City (approximately two million horsepower [1.5 billion watts]) transformed into rays and projected twenty miles, would not kill a human being." On the contrary, he said:

My apparatus projects particles which may be relatively large or of microscopic dimensions, enabling us to convey to a small

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area at a great distance trillions of times more energy than is possible with rays of any kind. Many thousands of horsepower can be thus transmitted by a stream thinner than a hair, so that nothing can resist.

Apparently what Tesla had in mind with this defensive system was a large scale version of his Colorado Springs lightning bolt machine. As airplanes or ships entered the electric field of his charged tower, they would set up a conducting path for a stream of high energy particles that would destroy the intruder's electrical system.

A drawback to having giant Tesla transmitters poised to shoot bolts of lightning at an enemy approaching the coasts is that they would have to be located in an uninhabited area equal to its circle of protection. Anyone stepping into the defensive zone of the coils would be sensed as an intruder and struck down. Today, with the development of oil drilling platforms, this disadvantage might be overcome by locating the lightning defensive system at sea.

As ominous as death ray and beam weapon technology will be for the future, there is another, more destructive, weapon system alluded to in Tesla's writings.

When Tesla realized, as he pointed out in the 1900 Century article, "The Problem of Increasing Human Energy," that economic forces would not allow the development of a new type of electrical generator able to supply power without burning fuel he "was led to recognize [that] the transmission of electrical energy to any distance through the media as by far the best solution of the great problem of harnessing the sun's energy for the use of man." His idea was that a relatively few generating plants located near waterfalls would supply his very high energy transmitters which, in turn, would send power through the earth to be picked up wherever it was needed.

The plan would require several of his transmitters to rhythmically pump huge amounts of electricity into the earth at pressures on the order of 100 million volts. The earth would become like a huge ball inflated to a great electrical potential, but pulsing to Tesla's imposed beat.

Receiving energy from this high pressure reservoir only would require a person to put a rod into the ground and connect it to a receiver operating in unison with the earth's electrical motion. As Tesla described it, "the entire apparatus for lighting the average country dwelling will contain no moving parts whatever, and

could be readily carried about in a small valise."

However, the difference between a current that can be used to run, say, a sewing machine and a current used as a method of destruction, however, is a matter of timing. If the amount of electricity used to run a sewing machine for an hour is released in a millionth of a second, it would have a very different, and negative, effect on the sewing machine.

Tesla said his transmitter could produce 100 million volts of pressure with currents up to 1000 amperes which is a power level of 100 billion watts. If it was resonating at a radio frequency of 2 MHz, then the energy released during one period of its oscillation would be 100,000,000,000,000,000 Joules of energy, or roughly the amount of energy released by the explosion of 10 megatons of TNT.

Such a transmitter, would be capable of projecting the energy of a nuclear warhead by radio. Any location in the world could be vaporized at the speed of light.

Not unexpectedly, many scientists doubted the technical feasibility of Tesla's wireless power transmission scheme whether for commercial or military purposes. The secret of how through-the-earth broadcast power was found not in the theories of electrical engineering, but in the realm of high energy physics.

Dr. Andrija Puharich, in 1976, was the first to point out that Tesla's power transmission system could not be explained by the laws of classical electrodynamics, but, rather, in terms of relativistic transformations in high energy fields. He noted that according to Dirac's theory of the electron, when one of those particles encountered its oppositely charged member, a positron, the two particles would annihilate each other. Because energy can neither be destroyed nor created the energy of the two former particles are transformed into an electromagnetic wave. The opposite, of course, holds true. If there is a strong enough electric field, two opposite charges of electricity are formed where there was originally no charge at all. This type of transformation usually takes place near the intense field near an atomic nucleus, but it can also manifest without the aid of a nuclear catalyst if an electric field has enough energy. Puharich's involved mathematical treatment demonstrated that power levels in a Tesla transmitter were strong enough to cause such pair production.

The mechanism of pair production offers a very attractive explanation for the ground transmission of power. Ordinary electrical currents do not travel far through the earth. Dirt has a high resistance to electricity and quickly turns currents into heat energy that is wasted. With the pair production method

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electricity can be moved from one point to another without really having to push the physical particle through the earth - the transmitting source would create a strong field, and a particle would be created at the receiver.

If the sending of currents through the earth is possible from the viewpoint of modern physics, the question remains of whether Tesla actually demonstrated the weapons application of his power transmitter or whether it remained an unrealized plan on the part of the inventor. Circumstantial evidence points to there having been a test of this weapon.

The clues are found in the chronology of Tesla's work and financial fortunes between 1900 and 1915.

1900: Tesla returned from Colorado Springs after a series of important tests of wireless power transmission. It was during these tests that his magnifying transmitter sent out waves of energy causing the destruction of the power company's generator.

He received financial backing from J. Pierpont Morgan of \$150,000 to build a radio transmitter for signaling Europe. With the first portion of the money he obtained 200 acres of land at Shoreham, Long Island and built an enormous tower 187 feet tall topped with a 55 ton, 68 foot metal dome. He called the research site "Wardenclyffe."

As Tesla was just getting started, investors were rushing to buy stock offered by the Marconi company. Supporters of the Marconi Company include his old adversary Edison.

On December 12th, Marconi sent the first transatlantic signal, the letter "S," from Cornwall, England to Newfoundland. He did this with, as the financiers noted, equipment much less costly than that envisioned by Tesla.

1902: Marconi is being hailed as a hero around the world while Tesla is seen as a shirker by the public for ignoring a call to jury duty in a murder case (he was excused from duty because of his opposition to the death penalty).

1903: When Morgan sent the balance of the \$150,000, it would not cover the outstanding balance Tesla owed on the Wardenclyffe construction. To encourage a larger investment in the face of Marconi's success, Tesla revealed to Morgan his real purpose was not to just send radio signals but the wireless transmission of power to any point on the planet. Morgan was uninterested and

declined further funding.

A financial panic that Fall put an end to Tesla's hopes for financing by Morgan or other wealthy industrialists. This left Tesla without money even to buy the coal to fire the transmitter's electrical generators.

1904: Tesla writes for the Electrical World, "The Transmission of Electrical Energy Without Wires," noting that the globe, even with its great size, responds to electrical currents like a small metal ball.

Tesla declares to the press the completion of Wardenclyffe.

1904: The Colorado Springs power company sues for electricity used at that experimental station. Tesla's Colorado laboratory is torn down and is sold for lumber to pay the \$180 judgement; his electrical equipment is put in storage.

1905: Electrotherapeutic coils are manufactured at Wardenclyffe for hospitals and researchers to help pay bills.

Tesla is sued by his lawyer for non-payment of a loan.

In an article, Tesla comments on Peary's expedition to the North Pole and tells of his, Tesla's, plans for energy transmission to any central point on the ground.

Tesla is sued by C.J. Duffner, a caretaker at the experimental station in Colorado Springs, for wages .

1906: "Left Property Here; Skips; Sheriff's Sale," was the headline in the Colorado Springs Gazette for March 6th. Tesla's electrical equipment is sold to pay judgement of \$928.57.

George Westinghouse, who bought Tesla's patents for alternating current motors and generators in the 1880's, turns down the inventor's power transmission proposal.

Workers gradually stop coming to the Wardenclyffe laboratory when there are no funds to pay them.

1907: When commenting on the destruction of the French ship Iena, Tesla noted in a letter to the New York Times that he has built and tested remotely controlled torpedoes, but that electrical waves would be more destructive. "As to projecting wave energy to any particular region of the globe ... this can be done by my devices," he wrote. Further, he claimed that "the spot at which the desired

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effect is to be produced can be calculated very closely, assuming the accepted terrestrial measurements to be correct."

1908: Tesla repeated the idea of destruction by electrical waves to the newspaper on April 21st. His letter to the editor stated, "When I spoke of future warfare I meant that it should be conducted by direct application of electrical waves without the use of aerial engines or other implements of destruction." He added: "This is not a dream. Even now wireless power plants could be constructed by which any region of the globe might be rendered uninhabitable without subjecting the population of other parts to serious danger or inconvenience."

1915: Again, in another letter to the editor, Tesla stated: "It is perfectly practical to transmit electrical energy without wires and produce destructive effects at a distance. I have already constructed a wireless transmitter which makes this possible... When unavoidable, the [transmitter] may be used to destroy property and life."

Important to this chronology is the state of Tesla's mental health. One researcher, Marc J. Seifer, a psychologist, believes Tesla suffered a nervous breakdown catalyzed by the death of one the partners in the Tesla Electric Company and the shooting of Stanford White, the noted architect, who had designed Wardenclyffe. Seifer places this in 1906 and cites as evidence a letter from George Scherff, Tesla's secretary:

Wardenclyffe, 4/10/1906
Dear Mr. Tesla:

I have received your letter and am very glad to know you are vanquishing your illness. I have scarcely ever seen you so out of sorts as last Sunday; and I was frightened.

In the period from 1900 to 1910 Tesla's creative thrust was to establish his plan for wireless transmission of energy. Undercut by Marconi's accomplishment, beset by financial problems, and spurned by the scientific establishment, Tesla was in a desperate situation by mid-decade. The strain became too great by 1906 and he suffered an emotional collapse. In order to make a final effort to have his grand scheme recognized, he may have tried one high power test of his transmitter to show off its destructive potential. This would have been in 1908.

The Tunguska event took place on the morning of June 30th, 1908. An explosion estimated to be equivalent to 10-15 megatons of TNT

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flattened 500,000 acres of pine forest near the Stony Tunguska River in central Siberia. Whole herds of reindeer were destroyed. The explosion was heard over a radius of 620 miles. When an expedition was made to the area in 1927 to find evidence of the meteorite presumed to have caused the blast, no impact crater was found. When the ground was drilled for pieces of nickel, iron, or stone, the main constituents of meteorites, none were found down to a depth of 118 feet.

Many explanations have been given for the Tunguska event. The officially accepted version is that a 100,000 ton fragment of Encke's Comet, composed mainly of dust and ice, entered the atmosphere at 62,000 mph, heated up, and exploded over the earth's surface creating a fireball and shock wave but no crater. Alternative versions of the disaster see a renegade mini-black hole or an alien space ship crashing into the earth with the resulting release of energy.

Associating Tesla with the Tunguska event comes close to putting the inventor's power transmission idea in the same speculative category as ancient astronauts. However, by looking at the above chronology, it can be seen that real historical facts point to the possibility that this event was caused by a test firing of Tesla's energy weapon.

In 1907 and 1908, Tesla wrote about the destructive effects of his energy transmitter. His Wardenclyffe transmitter was much larger than the Colorado Springs device that destroyed the power station's generator. His new transmitter would be capable of effects many orders of magnitude greater than the Colorado device. In 1915, he said he had already built a transmitter that "when unavoidable ... may be used to destroy property and life." Finally, a 1934 letter from Tesla to J.P. Morgan, uncovered by Tesla biographer Margaret Cheney, seems to conclusively point to an energy weapon test. In an effort to raise money for his defensive system he wrote:

The flying machine has completely demoralized the world, so much so that in some cities, as London and Paris, people are in mortal fear from aerial bombing. The new means I have perfected affords absolute protection against this and other forms of attack... These new discoveries I have carried out experimentally on a limited scale, created a profound impression (emphasis added).

Again, the evidence is circumstantial but, to use the language of criminal investigation, Tesla had motive and means to be the cause

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of the Tunguska event. He also seems to confess to such a test having taken place before 1915. His transmitter could generate energy levels and frequencies that would release the destructive force of 10 megatons, or more, of TNT. And the overlooked genius was desperate.

The nature of the Tunguska event, also, is not inconsistent with what would happen during the sudden release of wireless power. No fiery object was reported in the skies at that time by professional or amateur astronomers as would be expected when a 200,000,000 pound object enters the atmosphere. The sky glow in the region, mentioned by some witnesses, just before the explosion may have come from the ground, as geological researchers discovered in the 1970's. Just before an earthquake the stressed rock beneath the ground creates an electrical effect causing the air to illuminate. If the explosion was caused by wireless energy transmission, either the geological stressing or the current itself would cause an air glow. Finally, there is the absence of an impact crater. Because there is no material object to impact, an explosion caused by broadcast power would not leave a crater.

Given Tesla's general pacifistic nature it is hard to understand why he would carry out a test harmful to both animals and the people who herded the animals even when he was in the grip of financial desperation. The answer is that he probably intended no harm, but was aiming for a publicity coup and, literally, missed his target.

At the end of 1908, the whole world was following the daring attempt of Peary to reach the North Pole. Peary claimed the Pole in the Spring of 1909, but the winter before he had returned to the base at Ellesmere Island, about 700 miles from the Pole. If Tesla wanted the attention of the international press, few things would have been more impressive than the Peary expedition sending out word of a cataclysmic explosion on the ice in the direction of the North Pole. Tesla, then, if he could not be hailed as the master creator that he was, could be seen as the master of a mysterious new force of destruction.

The test, it seems, was not a complete success. It must have been difficult controlling the vast amount of power in transmitter and guiding it to the exact spot Tesla wanted. Alert, Canada on Ellesmere Island and the Tunguska region are all on the same great circle line from Shoreham, Long Island. Both are on a compass bearing of a little more than 2 degrees along a polar path. The destructive electrical wave overshot its target.

Whoever was privy to Tesla's energy weapon demonstration must have been dismayed either because it missed the intended target and would be a threat to inhabited regions of the planet, or because it worked too well in devastating such a large area at the mere throwing of a switch thousands of miles away. Whichever was the case, Tesla never received the notoriety he sought for his power transmitter.

In 1915, the Wardenclyffe laboratory was deeded over to Waldorf-Astoria, Inc. in lieu of payment for Tesla's hotel bills. In 1917, Wardenclyffe was dynamited on orders of the new owners to recover some money from the scrap.

The evidence is only circumstantial. Perhaps Tesla never did achieve wireless power transmission through the earth. Maybe he made a mistake in interpreting the results of his radio tests in Colorado Springs and did not produce an effect engineers, then and now, know is a scientific impossibility. Perhaps the mental stress he suffered caused him to retreat completely to a fantasy world from which he would send out preposterous claims to reporters who gathered for his yearly, copy-making pronouncements on his birthday. Maybe the atomic bomb size explosion in Siberia near the turn of the century was the result of a meteorite no one saw fall.

Or, perhaps, Nikola Tesla did shake the world in a way that has been kept secret for over 80 years.

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