

“Readers Refuge” article for June 16, 2010, meeting at 7:00pm at the Cheyenne Mountain Heritage Center, 1118 W. Cheyenne Road

(The following article is taken from Lightning in His Hand – The life Story of Nikola Tesla. The authors are Inez Hunt and Wanetta W. Draper.)

Tesla was outgrowing his New York laboratory in 1899. He longed for space and privacy to carry out certain experiments which would be dangerous in urban areas. It was his old friend, Leonard Curtis, who invited him to Colorado Springs. Curtis had been patent attorney for both Tesla and Westinghouse during the tense “War of the Currents.”

“Come to Colorado Springs,” wrote Curtis to Tesla, “and I can get you all the land you want, rent free from the Colorado Springs Company.” He was referring to the prairie pasture east of the Deaf and Blind School. “And all the electricity you need free from the Colorado Springs Electric Company,” he added. In return, he felt that Tesla would be a charming visitor who would contribute to the prestige of the region.

It was May 17th that Tesla arrived in Colorado Springs to be met by Curtis and be whisked off to lunch at the El Paso Club, Little London’s equivalent to the haunts of Ward McAllister’s 400. He was tired and anxious to check into the Alta Vista Hotel.

Reporters wanted to know why he came, what he was going to do, and when he intended to do it. Tesla answered that he intended to send a wireless message from Pikes Peak to Paris. He was also planning an exhaustive research in regard to unsolved phases of wireless experiments and said that he wished to investigate electrical disturbances at this altitude.

Leonard Curtis was anxious to introduce his famous friend to the elite of Little London and some of Colorado’s notables, so he planned a dinner party for May 23, at the El Paso Club. Twenty men were the selected guests invited to have the privilege of hearing this genius who had spoken before scientific royalty of Europe and America.

Tesla had been asked about his proposed laboratory, and had revealed his plans for a large building, about 50’ X 60’ and 18 feet high. Tesla had warmed to the group and grown so daring as to predict that he would communicate with Mars.

It was a happy circumstance when Tesla secured Joseph Dozier to agree to build the big laboratory for him. There were to be receiving stations also dotted over various parts of town. Old Mr. Dozier was just enough of a visionary to understand Tesla whose great inventions had been built on a vision. Both men had fantastic dreams which had led to the rejection of the dreamers. Both were aware of the vast deposits of ore in the surrounding mountains. Both attributed the violent electrical storms of the region to the magnetic attraction of the ore deposits. Both men were certain the universe reached far beyond the limits of Little London, or of this earth, or even this galaxy. It was a pleasant friendship.

As the equipment began to be installed, Tesla scheduled projects requiring great amounts of current for evening hours when the city load would not be too heavy. The New York laboratory had been rushing the materials for Tesla. Balloons of eight and ten foot dimensions; three hundred bottles had to be packed and sent; eleven hundred feet of solid wire went out in the first shipment. Oscillators and spools were being packed.

Tesla fenced off the area around the building and posted signs with black letters on all the posts warning, "KEEP OUT – GREAT DANGER."

Tesla was increasingly content in his new laboratory and felt his choice of Colorado was a fortunate one. He set to work eagerly, filled with hope and anticipation. He was not oblivious to the beauty of the western skies or the imposing sight of high mountain ranges. The quiet and restfulness of the place made ideal conditions for his scientific observations. The exhilarating climate sharpened his senses and his feeling of physical well-being. He declared: "No better opportunities for such observations as I intended to make could be found anywhere. Colorado is a country famous for the natural displays of electric force. In that dry and rarefied atmosphere the sun's rays beat the objects with fierce intensity."

The earth was proving itself a conductor, and the tremendous significance of this fact in the transmission of energy became clear to Tesla. He was convinced that not only could he send telegraphic messages to any distance without wires, a fact he had long before recognized, but also that it would be possible to impress upon the entire globe the faint modulations of the human voice, and even more wonderful, to transmit unlimited power to any terrestrial distance with scarcely any loss.

Stationary waves in the earth mean something more than mere telegraphy without wires to any distance. They will enable us to attain many important specific results impossible otherwise. For instance, by their use we may produce at will, from a sending-station, an electrical effect in any particular a region of the globe; we may determine the relative position or course of a moving object such as a vessel at sea, the distance traversed by the same, or its speed; or we may send over the earth a wave of electricity traveling at any rate we desire, from the pace of a turtle up to lightning speed.

Tesla made another discovery that summer which he considered of cosmic importance. Alone in his laboratory one night he became aware of signals coming in a pattern. He became increasingly confident that these were definitely an attempt at interplanetary communication from either Venus or Mars.

He was jubilant in his success with power transmission through the earth by means of his magnifying transmitter. Full records of his experiments will never be known, for many of his plans he carried in his retentive mind, not trusting his secrets on paper. He even required his technicians to be able to work without drawings. He could visualize every section fitted and every measurement worked out to perfection.

At last came the time for the experiment which was to mark the high hill of Tesla's career. For some time he had been working with the apparatus which produced lightning-like discharges. With the approaching time for the experiments, he inspected every piece of equipment thoroughly. He intended to produce far higher voltages than had been produced in the high-voltage transmission lines at Niagara Falls. He was confident he could duplicate celestial lighting by man-made means.

Everything was finally in order. He planned that the flames would strike from the copper ball at the top of the mast and he hoped that his calculations were right. Tesla and Czito (his technician) were at last alone and ready for the zero hour at hand.

Tesla warned Czito, "We will close the switch only for a second and then quickly open it." When they made sure of the operation, Tesla would stand outside the laboratory to view the results.

"Now," said Tesla, "I must stand outside where I can see the top of the mast perfectly. I will give the signal and you are to leave the switch closed until I signal you to open it." A few minutes later he called, "Czito, close the switch." Czito obeyed order and then jumped back to a distance from which he could yet reach the switch on command. Now he was certain the short circuit would come. The crackling and snap repeated and then came a tremendous upsurge of sound as the power built up. There was a crescendo of vicious snaps from above. The noises became machine-gun staccato – then roared to artillery intensity. Ghostly sparks danced a macabre routine all over the laboratory. There was a smell of sulphur that might be coming from hell itself. A weird blue light spread over the room. Flames began to jump from the ball at the top of the mast – first a few feet long – then longer and brighter – thicker, bluer. More emanations until they reached rod-like proportions, thick as an arm and with a length of over a hundred and thirty feet. Tesla estimated the length by comparing the flashes with the laboratory. The heavens reverberated with a terrific thunder that could be heard fifteen miles over the ridge in Cripple Creek.

Suddenly the inferno ceased with dramatic silence. Tesla screamed a rebuke to Czito for opening the switch. But Czito had not touched the switch. There had been a power failure. Tesla made a frantic call to the electric company, pleading with them not to interfere with his experiments. His call brought only an indignant reply from the company employee. The boys on the night shift were having their hands full with a blazing generator. They informed him that he

had plunged the town into darkness and ruined their generator and that this would be the last of his free power from the Colorado Springs Electric Company, Mr. Curtis or no Mr. Curtis. From then on, he was told he would have an independent dynamo and it would be the one he had burned up – if and when he could repair it!

On this night he had wrested the power of heaven from the sky. He had stood for a fleeting moment with lightning in his hand.

In February 1882, Tesla discovered the rotating magnetic field, a fundamental principle in physics and the basis of nearly all devices that use alternating current. Tesla brilliantly adapted the principle of rotating magnetic field for the construction of alternating current induction motor and the polyphase system for the generation, transmission, distribution and use of electrical power. Today it lights the entire globe.

Tesla was a pioneer in many fields. The Tesla coil, which he invented in 1891, is widely used today in radio and television sets and other electronic equipment. His alternating current induction motor is considered one of the ten greatest discoveries of all time. Among his discoveries are the fluorescent light, laser beam, wireless communications, wireless transmission of electrical energy, remote control, robotics, Tesla's turbines and vertical take off aircraft. Tesla is the father of the radio and the modern electrical transmissions systems. He registered over 700 patents worldwide. His vision included exploration of solar energy and the power of the sea. He foresaw interplanetary communications and satellites.