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PART FIVE-65 TO 80.

SATURDAY, DECEMBER 17, 1904. SALT LAKE CITY, UTAH.

TRUTH AND LIBERTY.

FIFTY-FOURTH YEAR.



(Special Correspondence of the Deseret News by Frank G. Carpenter.)

EW YORK .-- I give you today | only one who could make them he supthe substance of two remark- plied the boys of his neighborhood. He able talks with Nikola Tesla. made clocks at eight or nine years and The first I had in his labora- began to dabble in electricity before he tory on East Houston street | was in his teens. His first determina-

Behind the Scenes With Tesla in His Laboratory-A Queer Mind Which Works When Asleep-How it Feels to Make a Big Invention-Tesla's Boyhood-Transmitting Electrical Energy Without Wires-Sending Force ference of intensity in the individual | able only by the use of certain artificea discharges, "What could it be?

"Through instruments made for the purpose I tested the matter from time power from the Canadian Power comto time and finally came to the conclu- pany. What I want to do is to build sion that the vibrations caused by the | machinery there and transmit this powlightning moved around the world and that there were stationary waves. 1 could gage the discharges near the laboratory and see them fade away and after a certain fixed period find them returning with almost no loss of power. In short, this planet, as blg as it is, was acting as a conductor, and I became convinced that upon it not only telegraphic messages, but also the modulations of the human voice and electrical power in unlimited amounts. could be carried around the entire globe and sent to any part of it with hardly any perceptible loss. With my transmitter I actually sent electrical vibrations around the world and treceived them again, and I then went to develop my machinery. I had, as I have told you, been studying and inventing along the lines of electrical transmission and was ready to take advantage of my discovery. I have since so improved the means of individualization and isolation that such energy may be sent in any amount to any fixed place without danger of its going elsewhere or affect. of the United States going and give ing others, and I believe the individualization can be carried out to almos. any degree. NIAGARA FOR THE WORLD. "Will this enable the power of Niagara to be sent anywhere over the world?" "Yes. I have been experimenting at my laboratory on Long Island. I have machinery and buildings there which one of its parts. By the employment have cost in the neighborhood of \$350.. of a number of plants, each of which 000, and the results show me that a plant could be erected at Niagara which can transmit its force to any place desired. I am designing such a plant now at my laboratory, and would have had it not been for unforescen delays, which have nothing to do with its technical features. The design which I have adopted will have a transmitter which will emit a wave complex of a total maximum activity of 10,000,000 horse power, 1 per cent of which is enough to girdle the globe. This enormous rate energy delivery-it is twice as much as the force of Nlagara Falls-is obtain-

which I shall make known some time in the future.

"We have been offered 10,000 horse

nine years ago last September, tion to devote his life to invention came the second was held in the Waldorf tonight.

The first interview was the most interesting, giving a wonderful insight into Tesla the inventor and Tesla the Mr. Tesla at its close, on the ground of business reasons, begged that I say nothing about him for months to come, I wrote out the notes, however, and laid them away, and when I met Mr, Tesla tonight I told him I now intended to said I possessed it and, upon examinuse them. At the same time we had the extraordinary conversation about his recent discoveries and inventions small things and I decided to strive toas to the transmission of force, which I reproduce in the latter part of this ar-

First take a glance at Tesla the man. He looked more like an Italian savant than a hard-working inventor when I saw him in the Waldorf tonight. He was in evening dress and was the most striking figure of the score of public men who stood about the lobby. Mr. Tesla is now 47 years of age and is in his physical and intellectual prime. He is tall and slender, his head is long, thin and intellectual, with a forehead high and full. He was born in Hungary and educated there, but he speaks English perfectly and is one of the most charming conversationalists I have ever met.

During my chat of some years ago he talked of his boyhood. His father was a clergyman of the Greek church, and Nikola was intended for the priesthood. He had a brother older than hlioself, whom the rest of the family considered much brighter. That brother died young, and this so crazed his father and mother that it took them long to realize the genius of Nikola, If he stood well in his studies his father's eyes would fill as he thought how much better, perhaps, the other son might have done, and whatever Nikola did was always compared with the possible work of the boy who had passed away. His first education was in the public schools of Gospich, and after that he went to the Real Schule at Karlstadt, As he went on with his studies he liked mathematics so much that he intended to fit himself to be a professor of mathematics and physics, Polytechnic school at Gratz. He changed to the engineering course, and Buda Pest. He has since been made a doctor of laws by Yale and Columbia. Shortly after completing his studies Mr. Tesla was associated with the government of Austria-Hungary in the telegraph engineering department,, where he invented several improvements. From there he went to Paris to be engineer of a large lighting company, and thence to the United States, where he was employed by Thomas Edison in his laboratory. His next position was that of electrician to the Tesla Electric Light company, and at the same time he established the Tesla laboratory here, from which his great inventions have come.

TESLA THE INVENTOR.

During my chat with Mr. Tesla I me he had always been inventing some. small boy he made toy guns, which | tassium to quiet me. would shoot birds, and as he was the

shortly after he went to London to deliver a lecture before a scientific society there. At this lecture he met Lord Rayleigh, the great physicist, and showed him some of his experiments. man, but it was never published, for Rayleigh said that he had, undoubtedly, the faculty of discovery and that he would succeed as an inventor.

"Shortly after this my mother died," said Mr. Tesla, "and I concluded to exert this faculty. Lord Rayleigh had ing myself, I believed him correct. I did not want to waste my powers on ward something that would benefit humanity. I am working on an invention for the transmission of force. This

invention will, I believe, revolutionize the world of labor. I am also working on electricity and I cannot rememher when I was not working more or less in the direction of a successful flying machine. My idea, as to that, is along different lines than any yet proposed, and I expect to see it realized. Indeed, we shall eventually have flying machines that will be large enough to carry crowds through the air. They must be large in order to succeed."

These words were uttered by Mr. Tesla nine years ago. Today he says he has completed his force transmission invention, as will be seen by my Waldorf conversation, which follows. He

has also done other things which he proposed in that interview. Remember it was before the time of the wireless telegraph, but he then said to me the following:

"I tell you, we are on the threshold of a new era. We have only begun to master the great forces of nature, and the inventions of the next few decades will be far superior to any of the past. What would you think of standing on the shore and telephoning to your friends in mideocean? What of being your whole body blaze with light? What of sending power to and fro over the earth at will and making it do its work anywhere and almost anyhow?" Mr. Tesla told me that his greatest pleasure was in his work, and that he could conceive no moment so exciting and rapturous as that connected with and with that view he studied at the the discovery of a new principle which, when put into use, would revolutionize the work of the world. Take, for inlater on studied philosophy and lang- stance, the invention which brought lages in the colleges at Prague and forth the apparatus used in the transmission of power at Niagara Falls. Said he, as he took me to a great coll of wire morning to find that the problem which wound about a stationary magnet, which held above it a little glass globe in He has always been a light sleeper. His which was a steel wheel moving on a pivot: "I had been working upon that experiment for a long time, and this father was a light sleeper. was the test. I knew that if I were correct that the wheel in this globe ciple. You can take power from Nia-

Around the World-Transmission of Intelligence, Etc.



THE TESLA POWER PLANT FOR TRANSMITTING FORCE WITHOUT WIRES.

experiments with electric lights and thrown away. He keeps a record of shores of Lake Titicaca. By the outother things. No! the greatest rapture | his experiments, and when his laboraone can have is to discover a new force | tory burned some years ago he lost the or series of forces, which will reduce man's working necessities to the mintmum. 1 do not believe in laziness, and I should like to see the loafer wiped in the center of a room and making from the face of the earth; but I want that those who are willing to work, should accomplish their results with the least labor and in the best way."

HOW TESLA WORKS.

As to Mr. Tesia himself, there is no I made me tonight in the mouth of any harder worker known. He told me | other man would be a fair test of inthat he seldom slept more than four hours of a night, and during some periods not more than three. When in the thick of a new invention it is hard to sleep. His work is always with him and he says that his mind somtimes works in his sleep. He awakes in the had worried him when he went to hed was connected with the dynamo, and has been practically solved over night. mother died at seventy and she never took more than four hours' sleep. His

Tesla is a peculiar worker. Failures do not trouble him. After he undertakes would revolve as soon as I turned on | a thing and decides that it should come the electricity. It did revolve, and I out a certain way, he keeps on experiknew I had discovered what would re- | menting and experimenting, believing volutionize the labor of the world. You in his success. He says that if he can run all sorts of power by that prin- doubted his ability it would make him crazy. He seems to have a dual mind. gara and bring it to New York. The He told me that he often found himself cars can be pulled by it, factories run, | carrying on two trains of thought at houses heated and dinners cooked. I the same time, and said that while he traina: by my discoveries it will be asked him when he first realized that cannot describe my sensation when I was talking to me he could see the he had the inventive faculty and he told saw the wheel revolve. I thought I figures of some of his calculations be-

His scrap basket is filled with the

work of years in ideas and suggestions which had been thus recorded. TESLA'S NEW INVENTIONS.

And now to Mr. Tesla's latest discoveries. If he has what he thinks he has he will revolutionize labor and give man greater benefits than have come from any inventor since the world began. Indeed, the statements

sanity. But many of Tesla's wild statements of the past have been verified by great working inventions. He said he could harness Niagara, and through his experiments in the rotary magnetic fields Niagara is now furnishing a power equal to that of tens of thousands of horses, and electrical works are being run by the same principle all ver the globe. The New York subway,

for instance, is founded upon it. Tesla demonstrated that wireless telegraphy could be done in 1893, and It is a question whether his inventions in that field are not prior to those of Marcon. or De Forrest.

Tonight he told me that he had almost completed inventions by which he could send electrical power to any distance without wires, and that in any quantity, small or great. Said he: "I have proved that power can be thus transmitted. Let us suppose I have my plant at Niagara and you are running a sugar factory in Aus- studied the principles of electrical possible to send you 100, 500 or 1.000 horse power for your factory, and to | ning I noticed that the discharges afar should go crazy, and I went to my la- hind me and could carry them on at supply the same regularly by the force thing or other. When he was quite a boratory and took some bromide of po- the same time. He is always figuring. furnished from Ningara Falls. Suppose my laboratory more than those near you are traveling in the wilds of the by. Upon examination I found that It has been the same in some of my calculations which he has torn up and Andes and make your camp on the this could not be caused by the dif-

come of this principle you may have telegraphed to you there instantaneous reports of the news of the world as it happens from time to time. You may cook your dinner over an electric fire thus transmitted, and you may have the same at will on any part of the globe. We shall be able to send power from place to place at will, and that at such a small cost that it will be industrially profitable."

> THE TRANSMISSION OF ELEC-TRICAL ENERGY WITHOUT WIRES.

"How did you discover that this might be done, Mr. Tesla?" I asked. "I have for years been working on

the transmission of electrical evergy, and in 1893 established a laboratory on the edge of the Rocky mountains near Colorado Springs. My laboratory there was over 6,000 feet high, higher than the top of Mount Washington, and I had extraordinary conditions for my experiments. Colorado is famous for its natural displays of electrical force. The earth at times is alive with electrical vibrations and the air is full of electricity. I have seen 12,000 lightning discharges within two hours and all within a radius of 30 miles of my laboratory. These discharges were of great violence, some of them looking like trees of fire on the heavens. It was among such discharges that I had my electrical instruments and transmission through the earth and air. One day while watching the lightoff often affected the instruments in

er to different parts of the globe. The value of that amount of horse power would be about \$200,000 per year, and a plant erected to take advantage of it will pay large dividends."

"How much would the plant cost?" 'It might cost in the neighborhood of \$2,000,000, but its value would be enor-mous, and its success would revolutionize the working forces of the globe, it would result in other plants being crected otherwheres and in the utilization of all the great water falls for the work of

MOTHER EARTH PUT TO WORK.

"By this invention every live part of Mother Earth's body would be brought into action. Energy will be collected an over the globe in amounts small or large, as it may exist, ranging from a fraction of one to a few horse power or more. Every water fall can be utilized, every coal field made to produce energy to be transmitted to vast distances, and every pince on earth can ave power at small cost. One of the minor uses might be the illumination of isolated homes. We could light houses all over the country by means of vas cuum tukes operated by high frequen-cy currents. We could keep the clocks everyone exact time; we could turn factories, machine shops and mills, small or large, anywhere, and I believe could also navigate the air.

THE TRANSMISSION OF INTELLI. GENCE.

"One of the most important features of the Invention," said Mr. Tesla, "will the transmission of intelligence. It ill convert the entire earth in a huge rain, capable of responding in every can transmit signals to all parts of the world, the news of the globe will be flashed to all points. A cheap and simple receiving device, which might be carried in one's pocket, can be set up inywhere on sea or land; and it will reord the world's news as it occurs, or special messages as are intended for it. If you are in the heart of the Sahara, your wife can telegraph to you rom Washington, and if the instrument s properly made you alone will get the nessage. A single plant of a few horse lower could operate hundreds of such instruments, so that the invention has an infinite working capacity and will cheapen the transmission of all kinds of intelligence.

FANK G. CAPENTER.



The city of Mukden, in Manchuria, which has acquired great prominence since the Russo-Japanese war, is a well built and rather handsome town. It is surrounded by massive brick walls about sixty feet in height, which rest on stone, beneath which is a concrete foundation. There are eight fine gateways, with huge bastions surmounted by high watch towers and battlements. These gateways are examples of the highest type of oriental masonry and will last for centuries. The bricks with which they are faced are superior to those made in western countries. This inner wall is surrounded by an outer inclosure of mud.

