

# THE TELEPHONE BELL.

FRANK G. CARPENTER'S MIDNIGHT CHAT WITH HIM AT HIS WASHINGTON HOME.

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

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WASHINGTON, D. C.—It was a still small voice that reached my ear the other night, when I called up Dr. Alexander Graham Bell and asked him for a chat about some of his recent scientific experiments. The voice was that of Dr. Bell himself. As it came over the wire it was not louder than a whisper, but its every syllable was articulate and distinct and I could hear it as plainly as though I stood before the famous inventor face to face. As I listened my mind went back to the time when that same voice made its first successful communication of this kind, and my heart thrilled at the thought of what its owner has given the human race.

It is scarcely a generation since Dr. Bell invented the means of sending articulate sounds over a wire, and today that invention the voice of all the world goes to and fro without regard to distance. Last year in the Bell telephone lines alone there were more than 4,500,000,000 conversations, or enough to give three talks to every man, woman and child upon earth and leave some to spare. Those conversations took place in the United States and it is fair to presume that an equal number were uttered in Europe, Asia, South America and Australia.

## OUR BIG TELEPHONE BUSINESS.

I have before me the last report of the American Telephone and Telegraph company. It gives no statistics outside its own business, and it practically includes only the progress of the Bell lines in the United States. The figures are astounding and they should be multiplied by two or more to give an adequate idea of the telephoning of the world. The total mileage of the Bell lines is now more than 6,000,000. It has in use enough wire to reach 240 times around the earth, more than enough to bind two girls around the sun and still leave plenty over for waist bands for Mars and our little sister continent, the moon. Indeed, if wire could be stretched through space, the Bell wires alone are enough to make 29 private lines to the moon and leave a million odd miles to spare. The wires which were stretched by that company during last year would go 54 times around the earth, and they use so much copper to make them that some of our greatest mines are kept busy furnishing it. It would take a big forest to supply the 8,000,000 poles to which those lines are hung, and the underground conduits in which they lie are so many that if placed end to end they would girdle the world.

As to the money invested in the telephone business its amount is inconceivable. The Bell companies alone have a capitalization of more than \$300,000,000, and the capitalization of the independent companies here and of the other companies belonging to governments and individuals in Europe and the rest of the world is probably much greater.

These figures give some idea of what that still, small voice meant when it first sent articulate sounds over the wires and thereby began the conversation which have so revolutionized the world of society, business and trade.

## A MIDNIGHT CHAT.

It required but a few words to arrange the interview. The time fixed was midnight, for the inventor of the telephone is a night worker. He has always done the greater part of his experimenting and thinking after dark, finding that his mind works more clearly as the world grows quiet, and that it is at its best between 12 and 4 in the morning. During the summer months

he seldom goes to sleep before dawn, and his usual hours for rest are from 4 until 11 a. m.

Dr. Bell's afternoons are devoted to business and social engagements, and his nights to reading and scientific experiments. During our talk I asked him whether his arrangement of the hours was not injurious to health. He replied that he had not found it so, and that he far preferred it to that of other men who work by day. Indeed, night and day are much the same to him, and when he is especially interested in some of his experiments goes many hours without sleep, working on far into the day, and then sleeping for many hours at a stretch to make up. It is by this means that he does an enormous amount of work, carrying on studies and experiments along many lines, and, at the same time, keeping himself thoroughly abreast of the scientific world. He is now within a year or so of the age at which Dr. Oerle said the working man should be chloroformed, but his eye is as bright, his step as firm and his mind as active as when he made his most discovery as to the telephone 30 odd years ago. He tells me that he never felt better than he does now, and I doubt whether he has ever enjoyed his life or work more.

## JOSEPH HENRY AND THE TELEPHONE.

Our conversation covered a wide range. In response to my questions it was at times personal, now drifting into reminiscences connected with his many inventions, and now scientific as I asked him as to the possibilities of new discoveries along certain lines in the future. A part of the talk I have already published in an article about Dr. Bell's recent experiments in the evolution of sheep, and as to his present work on his flying machine. Another part I give you today in the conversation which follows.

We had been talking about the Smithsonian institution, of which Dr. Bell is one of the regents, and of its late secretary, Dr. S. P. Langley, who was one of Dr. Bell's intimate friends, when I asked him whether he had known Joseph Henry, the first secretary and director of that institution. Dr. Bell replied:

"I became acquainted with Prof. Henry when I was still working on the telephone and he was kind to me. It was a year or so before my patent was granted, when I called upon him at the Smithsonian institution and explained my ideas as to the construction of an instrument which would carry vocal sounds. I was then interested also in multiplex telegraphy, and we talked about that. Prof. Henry was a man of remarkable ability along the very lines upon which I was working. He had made many discoveries in electricity and in electro dynamics, having constructed an electro-magnetic telegraph long before the invention of Prof. Morse. He appeared much interested in my experiments, and I determined to ask his advice about the apparatus which I had designed for the transmission of the human voice by means of an electric wire. After I had explained the idea I asked him to advise me whether I had better publish my discoveries and let others go to work along the same lines, or whether I should keep it at and attempt to solve the problem myself.

"He replied that he thought I had the germ of a great invention, and that I would do much better to keep the matter secret and work along by myself."

"But," said I, "I feel that my mechanical knowledge is weak. There are many difficulties to be overcome and I fear I have not the knowledge of electricity required."

"Well then you had better get it," said Prof. Henry.



DR. ALEXANDER BELL IN 1906.

This Photograph, Secured By Mr. Carpenter, for the Deseret News, is One Taken in Edinburgh, at the Time He Was Given the Degree of Doctor of Laws, by the University There.

"Those words spurred me to action. I cannot tell you how much they encouraged me. I did go to work again and it was the result of that work which enabled me to bring about my final success. My patent for the telephone was granted just about two years before Prof. Henry died."

## THE DANGERS OF PUBLICITY.

"Suppose Prof. Henry had advised you to publish your discoveries and you had done so, Dr. Bell?" said I. "What would have been the result?" "I might have lost my invention, and my work would have been claimed and stolen by others. As it was, as soon as the practical advantages of the telephone became known there sprang up claims of prior invention on all sides. A number of well known electricians appeared, each announcing himself the original inventor; and numerous

claims and interferences were filed against my patent. This is the case with nearly every successful patent that is issued, and claims have been filed for such infringements by men bearing fairly good reputations."

"Some of the most remarkable instances of this kind," continued Dr. Bell, "were in reference to a newspaper hoax which was perpetrated by some way a few years after the telephone had become a success. If I remember correctly, it was about about 1880, when many new things were being discovered in electricity, when the electric light was superseding gas, and the electric motor beginning to run the street cars. At this time an item was published to the effect that Dr. H. E. Lix of Mauneh Chik, Pa., or some other town of that kind, had discovered a way to 'see through a wire,' and had been able by this means

to convey the image of a pussy cat kept in an adjoining room through the wall into a hall and to throw it on a screen before the delighted audience. The dispatch chronicling the discovery was full of technical electric terms and it also contained several proper names, sounded like that of the alleged inventor, Dr. H. E. Lix (helix) or some such scientific word.

"Well that dispatch went the round of the press and coupled with it came the statement that Prof. Bell, the inventor of the telephone, was interested in it and that he had filed in the Smithsonian institution a sealed package containing a full description with illustrations of his investigations. Now, the fact was that I had filed a package, but it related to my investigations as to the telephone or the conveyance of sound by means of rays of light. How it became associated with the helix matter I do not know. At any rate the moment my name was published in connection with it, an indignant letter was written in a reputable English scientific journal, signed by two well known professors, Ayrton and Perry, stating that neither I nor the mythical Dr. H. E. Lix had any right to claim the first discovery of transmitting images by wire, and that they were the real discoverers of the process. A week or two later other claimants appeared. They came forth from different parts of the United States and from England.

"One of the claimants was a well known New York electrician, Mr. Sawyer, who, like the rest, asserted that he could see through a telegraph wire and could send any kind of an image he wished in that way from one place to another. Another published an article in the Scientific American with illustrations of his invention. I answered nothing in reply to such statements. I had never made any experiments of the kind, and had no inventions to claim. After a short time it appeared that the claimants themselves were in the same situation. They were frauds, pure and simple, and some of them undoubtedly had put forth their statements with the idea of filling interferences if the invention as alleged should prove to be a practical success."

## ELISHA GRAY AND THE TELEPHONE.

"How about Elisha Gray?" "Prof. Gray made his claims, I believe, at the instance of his lawyers, and largely through the influence of the directors of a great telegraph company, who then feared that the telephone might injure the telegraph. He had, however, fortunately for me written me a letter of congratulation upon learning that I had made my discovery and disclaiming it for himself; and this letter was brought forth as evidence with the other testimony before the courts. Prof. Gray and myself were working at multiplex telegraphy at about the same time; and his discoveries were so much like mine that I was for a time afraid of him and thought he had some way of getting at the secrets of my laboratory work. It was for that reason that I changed my laboratory. When I afterwards met Prof. Gray I realized that his character was such that he could not have done anything of the kind I had imagined and I regretted my unjust suspicions."

## TELEPHONING WITHOUT WIRES.

"Will we ever have a wireless telephone, Dr. Bell?" I asked. "I think it possible, although the distance of its use may be limited. I remember some experiments I once made not far from the Cambridge observatory near Boston. We had driven two poles into the ground a few hundred feet apart and had connected them by wire. As soon as the connection

was made I put the receiver to my ear and heard a clock distinctly ticking. The tick was a peculiar one, and I recognized it as that of the clock on the Cambridge observatory, which set the time for the greater part of Boston. Upon studying the matter, it was concluded that the sound was conducted by the ground to my receiver. A short time later I tried some experiments as to wireless telephony on the Potomac here at Washington, and I was able to hear signals made on a boat at the Aqueduct bridge while in another boat, stationed as far down the river as the Washington monument. In this case the water acted as the conductor. Indeed it is a question whether what we now know as wireless telegraphy is brought about by the signals being carried by the medium of the air or by means of the ground and water. It may be found that in all cases the real conductor is the latter."

## SOME TELEPHONE IMPROVEMENTS.

"Do you look for many changes in the telephone in the near future, Dr. Bell?" I asked.

"Not in the improvement of the transmission of sound," said Dr. Bell. "That will remain practically as it is; but I do expect changes in the machinery to facilitate the uses of such transmission. I believe that we shall soon have an automatic telephone service in which every subscriber, by means of certain buttons and a combination of wires, will be able to call up whomever he pleases without the annoyance of the central station. When this is accomplished the cost of telephoning will be much reduced, for the greater part of the cost of telephone operators will be done away with and the expenses of operation can be made less."

"How about having newspapers by telephone with readers at a central station and buttons by which the news can be turned off and on?" "I don't know about that," said Dr. Bell. "Such an attempt was made not long ago in Vienna or Buda Pest, I think, but whether it was a success or not I am unable to say. Inventions have been recently made by which music can be carried long distances by telephone, and they are now planning to have concerts so furnished all over New York, giving the best of classic and other music to thousands of subscribers at once. As to the practicability of that invention I do not know; but many men believe that it is of value and that it will be a success. I have not seen the machinery nor heard it in operation."

## LOCATING GARFIELD'S BULLET.

"During my talk with Dr. Bell I asked him to tell me something about his attempts to locate the bullet in President Garfield's body. It will be remembered that when Guitau shot the president the X-ray had not been discovered. The surgeons probed again and again. Other experiments were made to find where the bullet lay, and among them some by means of Dr. Bell's inductive balance, which had then just been invented, said Dr. Bell. "My instrument consisted of a piece of mahogany board of about the size and shape of a flatiron. It had a handle upon the top, and its bottom was covered with a green cloth. Inside the board was an electric coil, so made that when it was moved over anything of a metallic substance it would buzz. I could take a bullet in my hand, and, having made the proper electrical connections, could rub the board over the back of my hand and the result would be a loud buzzing noise, the sound being loudest when the coil was over the bullet. The instrument afterward proved to be of great value for this purpose in hospitals, although it failed in connection with President Garfield. It was on account of that

invention that the University of Heidelberg gave me the degree of honorary M. D."

"What was the cause of the failure, doctor?" "It is easy to see now," was the reply. "Although we did not realize it at the time, we took the machine to the White House and tried it upon the president with the assistance of Surgeon General Hamilton. We moved it all over the person of the president, and to our surprise the machine began to buzz whenever it came near him. According to it, he was full of lead, and the result was that we left the White House in despair. The failure worried me, and a day or two later in thinking about it, I came to the conclusion that there must have been something metallic about the bed upon which President Garfield was lying. I inquired and learned that his mattress was resting on wire springs and it was the steel wires that made the machine buzz. We did not try it again, however, and the matter was allowed to drop." FRANK G. CARPENTER.

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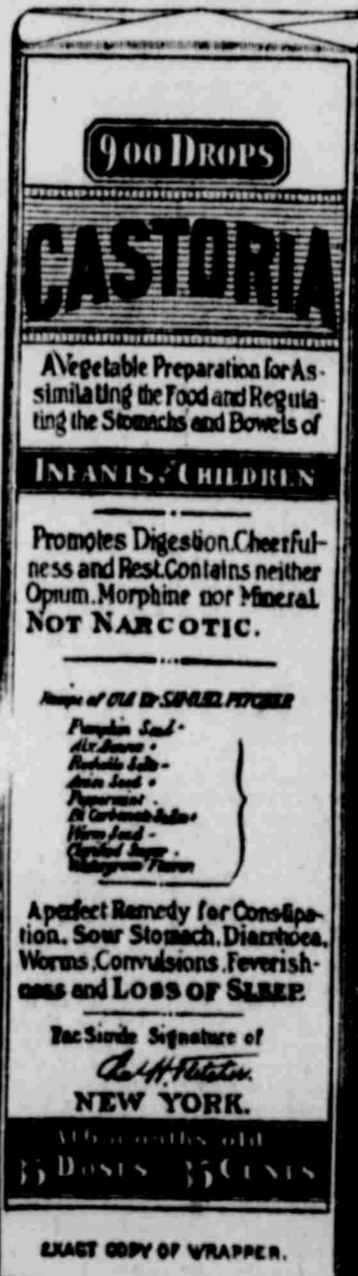
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