

ATLANTIC AND PACIFIC OCEANS JOINED BY BELL TELEPHONE LINE

President Vail's Engineers Make It Possible For President Wilson to Send His Voice Across the Continent Instantly.

BELL, VAIL AND WATSON, CREATORS OF TELEPHONE, EXCHANGE GREETINGS OVER 4,400-MILE CIRCUIT

Public Officials of Cities on Two Coasts Take Part in Celebration and Congratulate One Another on New Bond Established Between East and West.

New York, January 25.—The completion of the long distance telephone line between New York and San Francisco was celebrated today. First, this city had speech with her California neighbor, 3,400 miles away. Then the wires that swing southward from New York brought Washington and San Francisco into telephonic touch. On down the coast to little Jekyll Island opposite Georgia, they carried the Golden Gate's greeting. To the North, Boston, the birthplace of the telephone, talked across the continent.

At the White House President Wilson spoke into the mouthpiece of his telephone and his voice was whirled across thirteen States to the shore of the Pacific.

President Wilson Talks.

President Wilson talked first to President Moore of the Panama-Pacific exposition. He said:

"It appears to the imagination to speak across the continent. It is a fine omen for the exposition that the first thing it has done is to send its voice from sea to sea. I congratulate you on the fine prospects for a successful exposition. I am confidently hoping to take part in it after the adjournment of Congress. May I not send my greetings to the management and to all whose work has made it possible and has made it the great event it promises to be, and to convey my personal congratulations to you?"

Clear as a bell came back President Moore's reply:

"We are looking forward to your coming here. I think you will be pleased with what we have done. I assure you, Mr. President, that you will never receive a welcome that will be more cordial and more enthusiastic."

President Wilson then talked to Mr. Thomas A. Watson, in San Francisco, with Dr. Alexander Graham Bell listening in on the line at New York. President Wilson said:

THEODORE N. VAIL.

"I consider it an honor to be able to express my admiration for the inventive genius and scientific knowledge that has made this possible, and my pride that this vital cord should have been stretched across America as a new symbol of our unity and our enterprise. Will you not convey my cordial congratulations to Mr. Bell. And I want to convey to you my personal congratulations, sir." The President then said to the inventor of the telephone, Doctor Bell, at New York:

"May I not congratulate you very warmly on this notable consummation of your long labors and remarkable achievement? You are justified in feeling a great pride in what has been done. This is a memorable day and I convey to you my warm congratulations, sir."

After talking with Doctor Bell, the President was asked by Mr. Kingsbury if he cared to say a word to Theodore N. Vail, president of the American Telephone and Telephone Company, who is staying at Jekyll Island, off the coast of Georgia. "Why, yes, certainly," answered the President. While the circuit was being arranged the President chatted with Mr. Kingsbury, several times expressing his admiration of the achievements in which he was a participant. Mr. Vail was then announced, and the President immediately placed the receiver to his ear, asking: "Is this Mr. Vail?" Mr. Vail's voice came over the wire so plainly that the President held his receiver lightly away from his ear, and then said:

"Mr. Vail, it is a great pleasure to hear your voice. I want to send you my congratulations on the consummation of this remarkable work. I am very sorry, also, to know that you are unwell. A pause ensued, the President listening to Mr. Vail's reply. The President then said: "Well, I envy you your ability to get off good-by, Mr. Vail."

But on a day when long distance telephone records were smashing up the country over, it was the talk between San Francisco and Jekyll Island that had the honor of breaking every world's record for long distance telephonic communication. President Theodore N. Vail of the American Telephone and Telephone Company is spending the winter on Jekyll Island, and when he spoke to San Francisco, his voice had to travel 3,400 miles up the Atlantic seaboard to New York before it started on its transcontinental journey. When he spoke to the receiver at San Francisco he had come 4,400 miles in all.

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ard transmitter and continued the conversation.

"What wonderful progress has been made by the Bell System since then to enable our voices to be transmitted over a circuit of 6,000 miles, without the least apparent distortion or weakening."

"Their work has been superb," declared Mr. Watson, "and superb also is the discipline of the organization that watches every inch of this long circuit to safeguard those feeble vibrations."

"All honor to the men who have rendered this great achievement possible," concluded Dr. Bell. "They have brought all the people of the United States within sound of one another's voices, and united them into one great brotherhood."

When the telephone had grown so that it could be taken outdoors on October 9, 1876, Dr. Bell had called "ahoy" across two miles of wire, just as he was calling now across three thousand, and it was not until some time later that "hello" was used.

Mayor Mitchell of New York and Mayor Rolph of San Francisco exchanged greetings.

Statement by Mr. Bethell.

In speaking of the new transcontinental line, U. N. Bethell, senior vice-president of the American Telephone and Telegraph Company, said:

"The completion of the transcontinental line is not only an epoch-making event in scientific development, but also the opening door to better conditions, commercial and social, throughout the nation. It means the breaking down of old barriers. By facilitating the exchange of information and ideas it brings the most remote points in the country closer together than were points lying within a single state a quarter of a century ago. It broadens mutual understanding and appreciation and thus aids tremendously in the advance of civilization. This is one of the romantic and inspiring steps in the progress of the art as developed by our great and always mutually helpful organization which embraces in its ranks both men and women. To the organization as a whole this event will have significance that cannot be overestimated. It will exert an influence that will not end with our work on working for better and greater results through years to come. In some way, directly or indirectly, every man and woman in the organization has contributed something to the achievement, and therefore, as a whole, the organization merits congratulations."

Greeting From Boston.

The following conversation took place between Thomas D. Lockwood in Boston, and Thomas B. Doolittle in San Francisco:

MR. LOCKWOOD speaking: "Good evening, Mr. Doolittle. I send you greetings from the birthplace of the telephone. It is worth while to have given the best part of our lives to the telephone service, to realize that we have reached this notable day and are privileged to take part in it. It recalls the earlier days when by building the Boston and Lowell line, the Boston and Providence lines, and the first experimental line between Boston and New York, this last supervised by yourself, the first steps in the march of long distance telephone communication were taken."

"That seems but yesterday, so fresh it is in my memory, and yet here we are celebrating the completion of an ancient dream to the Pacific coast, the crown and culmination, and that has been made possible by the combination and exercise of constant effort in engineering, but to you, constant profit by the teaching of experience."

MR. DOOLITTLE, IN SAN FRANCISCO, speaking: "Glad to hear you, Mr. Lockwood, and to exchange greetings and congratulations. I reciprocate your expressions of admiration for the successful accomplishment of this great feat. Speaking of and looking backward over the history of telephone progress, we can both say as Edison once said, 'I am proud of which I saw and part of which I was. But are you not going to invite me to dinner?'"

MR. LOCKWOOD, replying: "Certainly, I am happy to invite you to dinner; but don't forget that times and conditions are changed. When you were in Lowell, you would have heard my invitation while I was giving it, and could have joined me inside of an hour, but now, and where you are, while you will hear with your own ears my invitation two hours before I give it, you cannot reach the table until four or five days later."

Colonel Higginson Talks. Col. Henry Higginson spoke to Mr. Thomas A. Watson in San Francisco and was followed by Mayor James M. Curley and Mr. Elmer J. Bliss, President of the Boston Chamber of Commerce.

Mr. P. L. Spaulding, President of the New England Telephone and Telegraph Company and George E. McFarland, President of the Pacific Telephone and Telegraph Company exchanged greetings.

In New York it was 4 o'clock when Doctor Bell sent his "ahoy" across the continent, and one of the first of the guests to speak after him asked the time in San Francisco. Each one looked at his watch as the answer came back: "One o'clock." This started a flurry of figuring. Those who know sound waves and the rate they travel said that it would take four hours for a man's voice, unaided, granted the possibility

DR. ALEXANDER GRAHAM BELL.

"Ahoy? Ahoy? Mr. Watson, are you there? Do you hear me?" asked Mr. Bell in New York.

"Yes, Mr. Bell, I hear you perfectly. Do you hear me well?" replied Mr. Watson at his end of the line in San Francisco.

"Yes, your voice is perfectly distinct," said Bell. "It is as clear as if you were here in New York instead of being more than 3,000 miles away. You remember, Mr. Watson, that evening, 38 years ago when we conversed through the telephone on a real line for the first time?"

"Yes, indeed," answered Watson, "that line was two miles long, running from Boston to Cambridge. You were overjoyed at the success of the experiment."

"We are talking over 3,400 miles as easily and clearly as we talked over two miles 38 years ago," said Prof. Bell.

"The telephone men have certainly done wonderful things with your invention since that first outdoor test," said Mr. Watson. "We must not forget that the circuit we are talking over is really 6,000 miles long, as of course, the earth cannot be used for the return now as we used it then."

"I want to switch in another telephone and talk to you through that," said Dr. Bell, and suiting the action to the word he switched in a replica of his first telephone instrument. "I am now talking through an exact duplicate of the first telephone, which was made in June, 1876," continued Dr. Bell, "can you hear me?"

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of such titanic lungs, to travel to San Francisco through the air. On the wires it takes less than one-fiftieth of a second. Electricity was driving Dr. Bell's "ahoy" at the rate of 58,000 miles per second. Sound, unaided, limps along in comparison, making only 1,160 feet per second.

Work Taken Two Years. The work of constructing the transcontinental line took two years, but the history of the work of making the poles and wires, set and strung by the

construction crews who do their duty, runs back over the space of many years. It brings you into experiment stations and testing rooms and laboratories. It covers innumerable experiments and improvements. Every step forward in the development of telephony has been over a gigantic scrap heap. Bell's original transmitter has seventy-three descendants. Fifty-three types and styles of transmitters have been introduced since 1877. Within ten years the Bell System spent for construction and reconstruction an amount more than equal to the present book value of the entire plant.

And what is true of transmitters and receivers is even truer of all that lies between the terminals of the transcontinental line, for it is in this field that the engineers had their real problems. To fill in the gap between Denver and the Coast with wires and poles was comparatively simple. The task they confronted was to begin at New York and working all along the line, make the multitudinous improvements necessary for a 3,400 mile talk. Transmitters, switchboards, metallic circuits, hand-drawn copper wire and loading coils all had to be attuned to the transcontinental keynote. There's a hint of the real achievement in what the engineers did with the loading coil. When the loading coil left the hands of its inventor it was as large as a keg, and the fine iron wires inside it cost a mint to make. To-day the loading coil is a few inches in size, and in the New York-San Francisco line there are 13,000 miles of that wire whose cost of manufacture is comparatively low.

Big Problems Solved. For those in the Day Street offices there was striking proof that the problem of transmitting speech is not solved by any loud-speaking transmitter in the replica of Bell's invention that lay before them. They realized as they looked at that instrument, crude in the light of all that has happened to transmitters since, what the engineers had accomplished to make it speak across the whole United States. They saw that it was not a question of more horse power, that the telephone

THOMAS A. WATSON.



Who made the first telephone 40 years ago according to Doctor Bell's specifications. Mr. Watson in San Francisco talked to Doctor Bell in New York over the transcontinental circuit.

engineer could not speed up dynamos or start more engines running to get what he was after. For telephony's motive power is the feeblest thing imaginable. It is a mere breath. And the engineer must preserve and hurry to their destination practically instantaneously the thousands of minute waves made in the air by the voice with all their separate shapes and individualities preserved. In speaking of his engineers' problems, President Vail said:

"The solution was found only in the cumulative effect of improvements, great and small, in telephone transmitter, line, cable, switchboard and every other piece of apparatus, or plant required in the transmission of speech."

Nine Million Telephones.

But proud as telephone engineers are of what they have accomplished, they will tell you that this transcontinental line is by no means the last word in the telephone's development in this country. The new line is the backbone of a network of 21,000,000 miles of wire woven round 9,000,000 telephone stations of the Bell System. The completion of this line is a mighty step forward toward that ideal of universal service preached by President Vail and his associates back in the Seventies. As they interpreted universal service, it meant that anyone anywhere could speak to anyone anywhere in this country by taking his telephone receiver off the hook. The line is still in the hands of the engineers. There is an amount of field work to be done before it is opened to the public for commercial use, but when it is opened it will mean that a New York business man can talk to his San Francisco associate without leaving his desk.

The telephone in the United States has always set the pace for the rest of the world. It has "made in the U. S. A." stamped on its very soul.

Here are some figures in connection with the New York-San Francisco line for the lovers of statistics:

Length of line, 3,400 miles. Route: From San Francisco to Salt Lake City, 770 miles; from Salt Lake City to Denver, 580 miles; from Denver to Omaha, 585 miles; from Omaha to Chicago, 500 miles. At Chicago the line branches, one branch going to Pittsburgh, 545 miles, and then to New York, 390 miles from Pittsburgh. The other branch goes from Chicago to Buffalo, 603 miles, and then down to New York, 350 miles. There is a continuation of the line from Buffalo to Boston, 465 miles long. From Pittsburgh there is a continuation extending to Baltimore, 250 miles away on to Washington, 265 miles. Philadelphia is reached by a branch from the line extending from Pittsburgh to New York, connecting at Newtown Square. The diameter of the hand-drawn copper wire of number 8 B. W. G. gauge used in the line is .165 inch. The total weight of one circuit consisting of two such wires is 1,480 tons. There are 120,000 poles in the line.

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VICTORY COUNCIL, No. 119, Royal League—Meets first and third Tuesdays in each month in Morris hall. Carl Stalger, Archon; George Stalger, Scribe.

DOWNERS GROVE CHAPTER, Daughters of the American Revolution—Hold a monthly meeting on the third Tuesday of each month in the homes of the members. Officers of the chapter are: Regent, Mrs. E. H. DeGroot; Mrs. R. W. Babcock, Secretary.

MAPLE GROVE LODGE No. 529, K. of P.—Meets first and third Wednesdays in each month in Morris hall. John Gollan, Chancellor; Commander, H. P. Lezenhausen; Keeper of Records and Seal.

DOWNERS GROVE H. W. R. Ladies of the Macraebes. Meets in Morris hall every second and fourth Friday. Mrs. Sam Hoffer, C. o. m. m.; Mrs. A. R. Hamann, Record Keeper.

MAPLE CAMP No. 86, M. A. M.—Meets the second Thursday of each month in Morris hall. W. E. Chessman, V. C.; A. H. Barnhart, W. A.; R. O. Miller, Clerk.

NAPER POST, No. 48, G. A. R.—Meets the second Thursday of each month in G. A. R. hall, Captain J. R. Rogers, commander; P. A. Rogers, Senior Vice-Commander; Geo. T. Hughes, Junior Vice-Commander; E. W. Farrar, Officer of the Day; R. W. Bond, Adjutant; Geo. B. Hearty, Quartermaster.

GROVE LODGE No. 224, A. F. & A. M.—Stated meeting—fourth Fridays at 8 o'clock p. m., at Masonic hall, Curles and Main streets. B. C. White, Secretary; T. H. Stusser, Worshipful Master.

GROVE CHAPTER, No. 224, R. A. M.—Stated meeting first Thursday of each month in Masonic hall, at 8 o'clock p. m. Visiting companions always welcome. John Gollan, Secretary; Delbert Austin, E. H. P.

VESTA CHAPTER, No. 72, O. E. S.—Meeting second and fourth Tuesdays of each month in Morris hall. Worthy Matron, Walter Chessman; Worthy Patron, Osa Lower; Secretary.

DOWNERS GROVE LODGE No. 224, I. O. O. F.—Meets every Saturday evening at 8 o'clock in Masonic hall, corner Main and Curles streets. F. H. Kenyon, N. G.; W. H. Beldeman, Secretary.

ROYAL NEIGHBORS OF AMERICA—Honor Camp No. 863. Meets the third Thursday evening of each month in Morris hall. Miss Carrie Barnore, Oracle; Miss Anna Veard, Recorder.

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