

Helping Students Build Knowledge with a Photograph and Article Related to an Early Telecommunications Milestone

Lee Ann Potter

Among the 183 images in the Gilbert H. Grosvenor Collection of Photographs of the Alexander Graham Bell Family at the Library of Congress is the one featured in this article (www.loc.gov/item/00650383). According to its bibliographic record, it was taken of “Alexander Graham Bell at the opening of the long-distance line from New York to Chicago,” on October 18, 1892, and printed later. Its summary provides little additional detail, describing only what is visible in the image, “Alexander Graham Bell seated at table, speaking into telephone while a group of men watch.”

Library of Congress



Alexander Graham Bell at the opening of the long-distance line from New York to Chicago, October 18, 1892. (www.loc.gov/item/00650383)

Sharing such an image with students—one of a newsworthy event, but containing very little explanation or contextual information—can generate dozens of questions, lead to creative research, and quite possibly, inspire a fascination with historic newspapers. (The Primary Source Analysis Tool, available from the Library of Congress at www.loc.gov/programs/teachers/getting-started-with-primary-sources/guides, may be useful.)

Students might wonder: Who were the other people in the room? How many people were there? How and why did they get invited? Where was the room? Was Bell in New York or Chicago? Who did he talk to? Was the call successful? What did Bell and the other person on the call talk about?

Encouraging students to generate a list of such questions, then brainstorming with them another list of what sources

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ICER.

VOLUME

Talking One Thousand Miles.

The perfection of the science of long distance telephony has been going on for the past five or six years, until an epoch of much interest has finally been reached; that is the perfect transmission of articulate speech for a distance of one thousand miles and over.

We were invited to attend the first public demonstration of this fact on the afternoon of October 18, at the main offices of the Long Distance Division of the American Telephone and Telegraph Company, No. 18 Courtlandt Street, in this city, and with many distinguished lights in the electrical world listened to the distinct conversation that was carried on between that point and the main western office of the company at 105 Quincy Street, in Chicago.

About one hundred guests were assembled in the reception room when the president of the company announced that a cornet solo would first be transmitted from Chicago. Soon forty one receiving telephones in New York gave forth every note of the distant instrument perfectly, then a funnel was attached to a receiver and the sound was heard by those standing near.

Mayor Grant was introduced and entered into conversation with Mayor Washburne, of the city of Chicago.

After the usual "Hello!" he returned the compliments of New York City, on the success of long distance telephony, but had some difficulty in hearing all Mayor Washburne said, because the latter read his speech and neglected to put his mouth close into the transmitter, but otherwise the transmission was perfect.

When Prof. Alexander Graham Bell, the inventor of the telephone, was introduced and sat down in front of the telephone and engaged in a conversation with his old friend, Mr. William G. Hubbard, in Chicago, a scene of unusual

interest was presented, which evidently gave the inventor much satisfaction. Photography was brought into play at this point, recording, by means of the flash light, a picture of the inventor in the act of talking over a thousand miles of space.

It was in 1876, at the Philadelphia Centennial, in the presence of the Emperor of Brazil and Sir William Thomson, that Prof. Bell first showed the operation of his telephane, having the same Mr. Hubbard as his assistant, who is also believed to be the first person that ever heard speech through the then new instrument.

At the conclusion of the formalities those present were accorded the privilege of testing the line personally. Through the courtesy of Mr. A. S. Hibbard, the expert operator, and Mr. F. A. Pickerneer, the chief engineer of construction, we were given an opportunity of trying the line, and conversed perfectly with Mr. Edward H. Lyon, the expert operator in Chicago, and with a representative of the western office of the *Scientific American*, Mr. G. M. Abbott. The most noticeable feature was the entire absence of all induction and perfect quiet of the line, also the sharpness of clear-cut quality of the words. The sound appeared to be fifty per cent. less in volume than on short lines, but was otherwise as good.

On one side of the room was a long map showing the direction of the line from New York. It passes by cable under the North River, thence follows highways across the country through Newark, N. J., Easton, Harrisburg, Altoona and Pittsburg, Pa., thence to New Castle, O., South Bend, Ind., and to Chicago. The line is built of two No. 8 hard-drawn copper wires carried along parallel with each other and transposed at certain intervals or crossed diagonally without touching, creating what is termed the electrical balance, which is proof against induction. There are forty-five poles to the mile, each 35 feet high, the total number being 42,750. The distance is 950 miles, and there are 435 pounds of wire to the mile, making a total weight in copper for the circuit of 826,500 pounds. An ordinary circuit for the same distance would weigh but 200,000 pounds. We were told the circumference area of the wire, if laid out to represent a flat surface, would cover 5-10 acres. The company have been but six months in building the extension of the line from Pittsburg westward, and will

soon be able to connect Chicago with Milwaukee and other cities. Conversation has been carried on successfully between Chicago and Boston, a distance of about 1,200 miles.

It should be mentioned that an important element in the success of long distance telephony is the improved battery now used for energizing the transmitter, which has the merit of maintaining a nearly uniform electro-motive force of high tension for an extensive period of time. It is an improvement on the well known Fuller battery, and consists in the glass jar a solution of bichromate of soda and sulphuric acid, made as follows: Water, 10 gallons; commercial sulphuric acid, 25 pounds; and bichromate of sodium, 8½ pounds. In the bottom of the porous cup is placed mercury, an amalgamated zinc and a saturated solution of common salt. One large plate of carbon forms the other pole. A wood cover fits over the jar to prevent evaporation of the fluids. The outer solution, when fresh, has a light orange color. When exhausted, the solution changes to a dark olive green. It is called the "Standard" battery. Three cells are used to operate the transmitter, and were employed in making the test between New York and Chicago.

We were informed also that the long distance transmitter has been improved by using in it one uniform size of carbon granules, obtained by passing them through a sieve of a certain mesh.

The enterprise shown by the company in this great undertaking is worthy of all praise. It is a remarkable achievement, indicative of marvelous possibilities in the future, in an art still in its infancy.

The officers of the company are: John E. Hudson, president; E. J. Hall, vice president; Melville Eggleston, secretary; W. R. Driver, treasurer.

Each invited guest was presented with a neat souvenir consisting of a spiral coil of the No. 8 copper wire flattened at each end, from which is suspended two

"Talking One Thousand Miles." *The Anderson Intelligencer* (Anderson Court House, S.C.), 30 Nov. 1892. *Chronicling America: Historic American Newspapers.* (<https://chroniclingamerica.loc.gov/lccn/sn84026965/1892-11-30/ed-1/seq-1>)

Chronicling America Celebrates Two Major Milestones

Robin Pike

Teachers and students who love historic newspapers will be excited to learn that the National Digital Newspaper Program (NDNP) has reached two major milestones: the inclusion of New Hampshire as the 50th state to join the program; and making 20 million pages freely available to the public on the Chronicling America website at <https://chroniclingamerica.loc.gov>.

Dartmouth College will serve as New Hampshire's state hub, partnering with the New Hampshire State Library, the New Hampshire Historical Society, and the University of New Hampshire Library to identify historical newspapers that reflect the state's political, economic, and cultural history for inclusion in Chronicling America. Among the first newspapers to be digitized and added to the online repository are the *New Hampshire Gazette*, the first newspaper known to be printed by an enslaved person; *The Dartmouth*, founded in 1799 as the *Dartmouth Gazette*, the nation's oldest school newspaper; and *Among the Clouds*, a newspaper printed on top of Mount Washington between 1889 and 1917. With these and further additions to Chronicling America's richness and depth, this online collection provides an ever-increasing representative view of the nation's history and community voices, helping to fulfill the Library of Congress's mission to engage, inspire and inform users.

The National Digital Newspaper Program is a joint partnership between the Library of Congress and the National Endowment for the Humanities (NEH) to develop and maintain a searchable database, Chronicling America, that makes culturally significant newspapers from every U.S. state and territory, published between 1690–1963, accessible to the public. The agencies formally launched the program in 2004, growing the initiative from NEH's United States Newspaper Program (USNP), an earlier effort to catalog and preserve millions of pages of historic newspapers in every state. Building on the USNP, an initial pilot funded a limited number of institutions to digitize newspapers for contribution to the Chronicling America collection hosted by the Library. The pilot focused on newspapers of record and significance for each state within a narrow chronological representation. The success of the program over the past 16 years has extended the collection scope in date range (currently 1690–1963); in language (now including any language published in the United States); and finally region to include newspapers published in all 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands.

Many longtime state partners have successfully expanded their contributions to Chronicling America beyond newspapers of record into newspapers that represent a wider and more diverse population—ethnic press and immigrant communities; special interest papers such as those published by and for women, labor groups, and religious groups; newspapers covering the wide political spectrum; and more. Through the

“A More Perfect Union” initiative at NEH (www.neh.gov/news/mzzore-perfect-union) and by seeking to increase collection representation, partners have pursued thematic digitization projects, such as identifying and digitizing African American newspapers and other culturally representative materials to add to the database. It is on the strength and diversity of these collective contributions that Chronicling America has become such an impactful database at 20 million pages, unique among other free digitized newspaper collections that may focus on a region, topic, or period in American history.

The recently-released interactive map and timeline (www.loc.gov/ndnp/data-visualizations) shows approximate locations of digitized newspapers available in the Chronicling America Historic American Newspapers collection. Explore the newspapers by clicking the dots on the map and access a time slider in the lower left hand corner to interact with the newspaper publishing timeline. Dates on the timeline represent publication dates of digitized content available in Chronicling America. Additional issues may not yet be digitized, but newspaper content is added weekly!



Robin Pike, Head of Digital Collections Services, Serial and Government Publications Division, Library of Congress.

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might contain the answers, and a third list of where those sources might be available, can provide insight into student awareness of information sources, as well as their understanding of what information sources existed during different time periods.

In the case of the Bell photograph, it was a newsworthy event that indeed made it into the newspaper. In fact, roughly six weeks after the image was taken, on November 30, 1892, an article titled "Talking One Thousand Miles," (<https://chroniclingamerica.loc.gov/lccn/sn84026965/1892-11-30/ed-1/seq-1>) appeared on the front page of the *Anderson Intelligencer*, published in Anderson Court House, S.C. It was submitted to the paper by *Scientific American*, a once weekly precursor to today's *Scientific American Magazine*.

Invite students to read the article on page 356, remind them of the questions they had generated after analyzing the photograph, and lead a class discussion in which students answer the questions based on information contained in the article.

The amount of detail contained in it might surprise students. (It actually mentions the featured photograph being taken!) But, while the newspaper article may answer all of the questions that they posed, it will likely generate new questions to be answered by other sources.

As time allows, brainstorm with students what those additional sources might be and what repositories might make them available. Then, assign student pairs to pursue them and report back to the class. ■

LIBRARY OF CONGRESS BLOG

If you try these suggestions, or a variation of them, with your students, **tell us about your experience!** During the last week of October, the Teaching with the Library of Congress Blog at blogs.loc.gov/teachers will feature a post tied to this article, and we invite you to comment and share your teaching strategies.

Author's Note

In July 2022, I facilitated a panel discussion that was part of the Smithsonian Institution's National Education Summit. "The Perfect Primary Source Combination" (<https://s.si.edu/PerfectPrimarySourceCombination>) began with a brief analysis of the Bell photograph featured in this article.

Then, over the next 90 minutes, panelists described how they have been combining primary sources from the Library of Congress with items from the Smithsonian and other repositories in their work developing curricular materials and professional development opportunities for educators. They also shared the transformative results they have experienced as a result of those combinations.



The panel featured four Library of Congress Teaching with Primary Sources (TPS) Consortium partners including: Jessica Ellison from the Minnesota Historical Society, Tuyen Tran from the California History Social Studies Project at UC-Davis, Bridget Morton from Mars Hill University in western North Carolina and Alison Noyes from the Collaborative for Educational Services in Massachusetts.



Lee Ann Potter is the Director of Professional Learning and Outreach Initiatives at the Library of Congress and serves as the editor of the Sources and Strategies feature. For more information on the education programs of the Library of Congress, please visit www.loc.gov/teachers.