

“What Hath God Wrought?”: The Effect of Morse Code and the Telegraph on American History

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Historical Paper

Length: 2,500 words

Process Paper Length: 500 words

## **Process Paper**

Both Morse code and the telegraph are such interesting parts of history. The telegraph was a groundbreaking invention, and morse code has many uses to this day. The topic was so engaging, and I, like many people, did not know a lot about it. I wanted to learn more about it and how it evolved throughout time. Morse code is a system for communication, and the telegraph is how that system was first put into effect. In addition to this, the telegraph was the first form of efficient long-distance communication. Before it would take weeks or possibly months to contact someone who lived far away, but because of the telegraph, it would take at most a couple of hours. This revolutionized communication as we know it, and it paved the way for more advanced technology.

I researched Morse code and the telegraph to get some background information and general knowledge on both. Then when I had a thesis statement and an outline, I could do specific research in accordance with what I needed to have in my paper. While writing, I did more research to get specific details.

I created a research paper. With the amount of information on the telegraph and Morse code, the most effective way to communicate how impactful it was, in my opinion, is via a research paper. The telegraph had many impacts and so did Morse code. In order to fully explore everything that I wanted to, my project would have to be a paper.

For writing my project, I followed some simple steps. After I got solid background information from my research, I formed a thesis and an outline. After I did more research, I was able to start writing my project. I focused on each section individually. Once that was done, I revised and edited it.

I am trying to convince everyone that Morse code and the telegraph were crucial to American history. Without them, we would not be where we are today, financially, politically, socially, or technologically. They connected people together regardless of location. This created epicenters of finance, politics and communication. The telegraph also formed a foundation on which technology, such as the telephone, could build on. Without Morse code or the telegraph, we would not be as connected as we are today. People would not be able to call, FaceTime, or text each other if the telegraph did not exist. People who lived far away from each other would have very limited communication, if they did have any. Without the telegraph, and without morse code, society would not be the same.

The creations of Samuel F.B. Morse (The developer of Morse code, and the person often credited with the invention of the telegraph) had a lasting impact on American history. They allowed people to have conversations despite the miles separating them. The fastest way to get a message to someone before this was via mail; Due to Morse code and the telegraph, it was almost instantaneous.

## **Thesis**

Samuel F.B. Morse (1791-1872) developed Morse code in the 1830s and 1840s and he created an electromagnetic telegraph in 1844. His work on these led to a labyrinth of wired connectivity within cities, while also erasing the miles of gaps between communicating epicenters, thereby increasing the speed and expanding the audience for commercial, political, and social issues in America. Morse's creations were the foundations for other inventions like the telephone, and the cell phone. Without his work, we, as humans, would not be able to communicate over long distances like we do today.

## **Background Information**

The history of the electric telegraph and the history of morse code are intimately intertwined. Without one, the other would not exist in the form we know today. Thus, many of the effects of the telegraph are also effects of morse code and vice versa.

Many different inventors worked on and contributed to the invention of the telegraph; thus, it cannot be credited to a single individual. However, the patent and the government grant to build telegraph lines, was given to Samuel Finely Breese Morse. This was because Morse's telegraph was, in the words of historian Donald Cole, "built better, less complicated, and less expensive than the others."<sup>1</sup> Due to the grant, the invention of the telegraph is often attributed to Morse. <sup>2</sup>

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<sup>1</sup> Walker Howe, Daniel, *"What Hath God Wrought"* (Oxford University Press: 2007) 697

<sup>2</sup> "Morse Code and The Telegraph" HISTORY.COM Editors. Last modified 2019. Accessed April 3, 2021 [Morse Code & the Telegraph - Inventor & World Impact - HISTORY](#)

The telegraph was fully developed and operational on May 24<sup>th</sup>, 1844.<sup>3</sup> The way it works is simple. The sender would tap out a series of dots and dashes that would send as electromagnetic pulses. The pulses would move through a wire to a receiving telegraph.<sup>4</sup> The operator on the receiving telegraph would record the series and translate it from dots and dashes when the message was finished. One of the longer parts of this process would be the decoding of the message, which could take up to an hour. The actual transmitting of the message from one telegraph to another, however, would be close to instantaneous. The speed at which a message could reach its destination over long distances was something no one had ever seen before. Previously it would've taken weeks, perhaps even months to send one message, but now one could have a conversation with a person who lived many miles away, provided that there were telegraph lines connecting the two.

Morse code was a system of communications created specifically for the electric telegraph. Morse developed this code, with the help of his assistant Alfred Vail. It is comprised of dots and dashes. Each letter in the English alphabet is given a different pattern of code.<sup>5</sup> The more a letter is used, the simpler the code is. For example, the letter "E", the most used letter in the English language, is a single dot. In contrast, letter "Z" is dash-dash-dot-dot.<sup>6</sup> The code that was originally created was difficult to send and translate into other languages. Because of the difficulty, it was simplified. The edited version is known as the international Morse code,<sup>7</sup> while its predecessor is known most as the original Morse code.

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<sup>3</sup> Samuel F.B. Morse, "The First Telegraphic Message---24 May 1844" (Library of Congress)

<sup>4</sup> See Appendix A

<sup>5</sup> "Morse Code." Britannica. Last Modified 2020. Accessed September 18 2020.

[Morse Code: Additional Information | Britannica](#)

<sup>6</sup> See Appendix A

<sup>7</sup> See Appendix A

## Commercial Impact

On May 24, 1844, the first telegraphic message was sent.<sup>8</sup> It was sent through a telegraph line that stretched from Washington D.C. and Baltimore. With the four words, “What hath God wrought?”<sup>9</sup> an entire industry was created. With such a high demand for quick and efficient communication, the market for connecting communities and businesses became incredibly competitive very quickly. Rivaling patents were created; several firms competed against one another. Each firm was trying to have the best quality and the best ratings in order to draw in the most customers.<sup>10</sup> The market realized the profitability of morse code and the telegraph and acted accordingly.

Firms often placed telegraph lines where they were predicted to be the most profitable. This resulted in many of them competing over routes to cities like Buffalo, Washington D.C., Boston, and New York.<sup>11</sup> This led to certain cities becoming centers of communication, with New York being a notable one. When prices of certain bonds or stocks dropped in New York, they would drop in other states as well. This happened because of the level of connectivity it had with the rest of the states. New York became the financial capital of the United States because the telegraph tied the other states to New York.<sup>12</sup> Because of this, the stock market in New York grew exponentially. Communication was much quicker, and that made buying and selling stocks quicker as well. People could invest in New York from miles away. Prices could rise or fall on a whim in New York, and they would follow suit in cities across the country. Trading was faster

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<sup>8</sup> See Appendix B

<sup>9</sup> Morse, “The First Telegraphic Message---24 May 1844”

<sup>10</sup> Nonnemacher, Tomas, “The History of the U.S. Telegraph Industry.” EH. Net Encyclopedia. Accessed March 3 2021.

[History of the U.S. Telegraph Industry \(eh.net\)](#)

<sup>11</sup> See Appendix C

<sup>12</sup>Nonnemacher, “The History of the U.S. Telegraph Industry.” EH. Net Encyclopedia.

than it had ever been. It is estimated that “by 1910, 90 percent of all bond and two-thirds of all stock trades occurred on the New York Stock Exchange.”<sup>13</sup> This was neither positive nor negative. While it was a drastic change, it contributed about an equal number of positive and negative effects. New York was growing wealthier, and its stock market was expanding. But market manipulation and speculation increased along with it. Because of the market manipulation, Society’s wealth did not increase, but it did not decrease either. The overall effects were neutral.

### **Political Impact**

Morse’s creations effectively shortened the wait-time of getting messages. Because of this, new information was much more immediate. When in the past, it would take several weeks to get an update, at this point, it would take a couple of minutes at most. According to *The Polynesian*, a Hawaii based newspaper, “by the Electro Magnetic Telegraph, rail-road speeds were rendered comparatively snail-like.” For the first time in American history, events that were taking place in Washington (D.C.) could be instant news in Baltimore. Politicians would know what bills were passed, and which weren’t almost as soon as it happened.<sup>14</sup> Diplomats could respond to a crisis faster than ever, because they wouldn’t have the hindrance of travelling.<sup>15</sup>

Because of the vast reach of telegraph lines from Washington, the press could get stories about politics faster than ever. In 1848, Zachary Taylor was elected president. The election of 1848 was the first one to have the press call the election results.<sup>16</sup> This set the precedent of the

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<sup>13</sup> Nonnemacher, “The History of the U.S. Telegraph Industry.” EH. Net Encyclopedia.

<sup>14</sup> Greeley and McElrath, “The Magnetic Telegraph- Its Success” *New York Daily Tribune*, May 27, 1844. Library of Congress

<sup>15</sup> “U.S. Diplomacy and The Telegraph, 1866.” Office of the Historian. Accessed March 3, 2021.

[Milestones: 1866–1898 - Office of the Historian \(state.gov\)](#)

<sup>16</sup> The Associated Press, et. Al., “Why Do the News Call Races in U.S. Election?” First Amendment News. Accessed March 6, 2021.

media calling races before the Electoral College does. Because of the telegraph, people began expecting the news immediately. It became the standard to know election results as soon as they are counted. Because of the high demand for quick results, news media often made mistakes in the name of speed. This trend continued even after the telegraph became obsolete. Most famous is the election of 1948. The *Chicago Daily Tribune* had declared that Thomas Dewey had won the race against Harry Truman, even though not all the votes were counted. It was on the front page, for all to see. While it was true that Dewey was ahead at that point, as more votes were counted, it was clear that Truman had won.<sup>17</sup> Because news media was now able to have exact details and could get them quickly, they started prioritizing speed over accuracy. Whether this is positive, or negative is debatable, but the truth still stands; stories that would've taken months could get done in less than a week because of the telegraph.

### **Social Impact**

With the invention of the telegraph, many people could connect with their friends and family no matter how far away they lived. The message would be sent immediately and after maybe an hour of handling and decoding, it would reach its destination. If there was a telegraph line connecting them, people could have conversations, arguments, debates, and discussions. People quickly accepted telegrams as the new normal. Long distance communication was no longer a long and laborious process, but instead it was fast and easy.<sup>18</sup> The time when it would take weeks to hear from someone was in the past. The generations that were born after the

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[Why do the news media call races in U.S. elections? | The Free Speech Center \(mtsu.edu\)](#)

<sup>17</sup> The Associated Press et. Al., "Why Do the News Call Races in U.S. Elections?" First Amendment News.

<sup>18</sup> Nonnemacher, "The History of the U.S. Telegraph Industry" EH.Net Encyclopedia.

telegraph was created were more connected than generations that came before. Being able to talk with people who lived far away was normal and regular.<sup>19</sup>

The quick communication that the telegraph provided was especially useful for William Storey. Storey was a telegraph operator at Camp Grant, Arizona who failed to receive a leave of absence for his wedding in 1876. Because of this, he could not fly to San Diego, California to marry his then fiancé, Clara Choate. Having Choate go to Arizona would cause other problems as well. Mainly, there would be no minister available at Camp Grant to marry them. Forced to be creative, Storey contacted Jonathan Mann, a minister who agreed to marry them via the telegraph. He, and Choate's father were in San Diego at the time of the marriage while Storey and Choate, who had taken a wagon ride to the camp, were in Arizona. Mann's words were sent to Arizona, where Storey and Choate transmitted, "I do," at the appropriate times. The telegraph provided means for two people to get married when the officiant was in another state. Had it not been for the inventions and innovations of Morse, it would not have been achievable.<sup>20</sup>

The telegraph also influenced later technologies that made communication easier. With the technological advancements made by the telegraph, inventors such as Alexander Graham Bell could build on what was already there and make something even better.<sup>21</sup> Thus came the telephone, the answering machine, the cell phone, and the smart phone.<sup>22</sup> With this technology, people are more connected than ever. Without even leaving their house, one can go to class, talk

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<sup>19</sup> Thompson, Alex "A Brief History of Long Distance Communication" Wilson Amplifiers. Last modified November 15, 2016. Accessed March 5, 2021.

[A Brief History of Long Distance Communication \(wilsonamplifiers.com\)](https://www.wilsonamplifiers.com/a-brief-history-of-long-distance-communication/)

<sup>20</sup> Standage, Tom, "The Victorian Internet" (New York: Bloomsbury, 2014) 120-121

<sup>21</sup> "Telephone and Multiple Telegraph." Library of Congress. Accessed March 6, 2021.

[Telephone and Multiple Telegraph | Articles and Essays | Alexander Graham Bell Family Papers at the Library of Congress | Digital Collections | Library of Congress \(loc.gov\)](https://www.loc.gov/rr/exhibitions/alexander-graham-bell-family-papers/)

<sup>22</sup> Nyguen, Tuan, "A Brief History of Communication" ThoughtCo. Last Modified January 31, 2021. Accessed April 3, 2021.

[A Brief History of Communication \(thoughtco.com\)](https://www.thoughtco.com/a-brief-history-of-communication/)

with friends, talk with family, etc. None of this would've ever been possible without morse code, and the telegraph.

### **Short-term Impacts**

While Morse had an idea of the long-term impact his work would have on the world, but he only saw what happened immediately, in the short-term. People could communicate very easily, and without as much effort as it took in the past. Fast communication can be useful in many places, at many times.

During the Civil War, the Union saw the advantage that the telegraph provided, and used it to defeat the Confederacy. The Union, having more telegraph lines and telegraph operators, were able to have conversations about strategy, battles, and any other important information that needed to be shared. The intense speed at which their messages were sent and delivered helped the Union win many battles.<sup>23</sup>

During the battle of Antietam, Maryland, Major General George Briton McClellan was able to get bullets and supplies for his soldiers.<sup>24</sup> This was only made possible because the officers of the Union were constantly in touch with each other. The connectivity allowed everyone to know what was going on, and plan accordingly. During the battle of Spotsylvania, the Union was in a tricky spot. The Confederates were attacking, and Major General Winfield Scott Hancock was unable to keep his position without reinforcements. Because of the telegraph, he was able to have support within ten minutes. Because of this, Hancock was able to keep his

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<sup>23</sup> Hochfelder, David, "The Telegraph- Essential Civil War Curriculum." Virginia Center for Civil War Studies at Virginia Tech. Accessed March 3, 2021.

[The Telegraph - Essential Civil War Curriculum](#)

<sup>24</sup> Hochfelder, "The Telegraph- Essential Civil War Curriculum" Virginia Center For Civil War Studies at Virginia Tech.

position. As Luther Rose, a telegrapher for the Union once said, “Here the Telegraph came forcibly into play, showing to what great benefit it could be used.”<sup>25</sup>

Before the telegraph, such quick communication was not heard of. Important and time sensitive information had to be delivered using creative methods. For example, in 1775, there was a plot for British soldiers to arrest Samuel Adams and John Hancock, two significant leaders in the American revolution against Britain. A man named Paul Revere was assigned to tell them of these plans, so they could avoid arrest. He had to use a signal system to alert everyone on the harbor that the British were crossing the Charles River. He also had to ride on horseback throughout the night to tell the men about the plot.<sup>26</sup> In contrast, it took a mere few seconds to send information after the telegraph was developed. With the story of Paul Revere, we can see how far the telegraph advanced communication, especially during wars.

After the telegraph became obsolete due to technological advancements, Morse code continued to be used for war and military strategy. Throughout the 19<sup>th</sup> and 20<sup>th</sup> centuries, Morse code was used by almost all countries during wartimes. It was used to send transmissions about locations, strategies, and sometimes even distress signals.<sup>27</sup> During WWII, the women operating at Station X would intercept and write down Morse code messages from enemy ships<sup>28</sup>. They would encounter encrypted messages from Germany, Italy, and Japan. With the information these telegraphists found, the Allied powers were given a tactical advantage over the Axis powers.<sup>29</sup>

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<sup>25</sup> Hochfelder, “The Telegraph- Essential Civil War Curriculum” Virginia Center For Civil War Studies at Virginia Tech.

<sup>26</sup> “Paul Revere.” HISTORY. Last Modified November 19, 2020. Accessed March 8, 2021.

[Paul Revere - House, Ride & Poem - HISTORY](#)

<sup>27</sup> Glyn-Jones, Anne, “Morse Code Wrens of Station X.” (United Kingdom, Imprint Academic, 2017) 51-52

<sup>28</sup> Glyn-Jones, “Morse Code Wrens of Station X”, 51

<sup>29</sup> Glyn-Jones, “Morse Code Wrens of Station X,” 58

## **Long-term Impact**

Morse's creations became obsolete eventually. However, they had a lasting impact on the world. The systems he created became the foundation for subsequent technologies such as the telephone and the cell phone.<sup>30</sup> He created an age of connectivity. People today can get information at the click of a button and can talk to each other from different continents. Without the telegraph creating a paradigm shift we would not be at the level of instant communication we have today.<sup>31</sup>

Morse code and the telegraph had short term effects with long term consequences. For instance, the Union held an advantage that helped them win some battles through the telegraph. It can be argued that without the telegraph, the Civil War wouldn't have ended with the Union's victory.<sup>32</sup> The battles may have been short term wins, but the war was very much long term. Without such an important contributor to the defeat of the Confederacy, it is hard to say what would have happened.

## **Conclusion**

Both Morse code and the telegraph were essential elements to American history. They revolutionized the ways humans communicate and centralized communication and finance in America.<sup>33</sup> It paved the way for future technology, being the basis for inventions like the telephone. Telegraph messages turned the tides in many wars, providing scores of victories to

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<sup>30</sup> "Telephone and Multiple Telegraph", Library of Congress, Accessed March 6 2021. [Telephone and Multiple Telegraph | Articles and Essays | Alexander Graham Bell Family Papers at the Library of Congress | Digital Collections | Library of Congress \(loc.gov\)](#)

<sup>31</sup> Thompson, "A Brief History of Long Distance Communication." Wilson Amplifiers.

<sup>32</sup> Hochfelder, "The Telegraph- Essential Civil War Curriculum." Virginia Center for Civil War Studies at Virginia Tech.

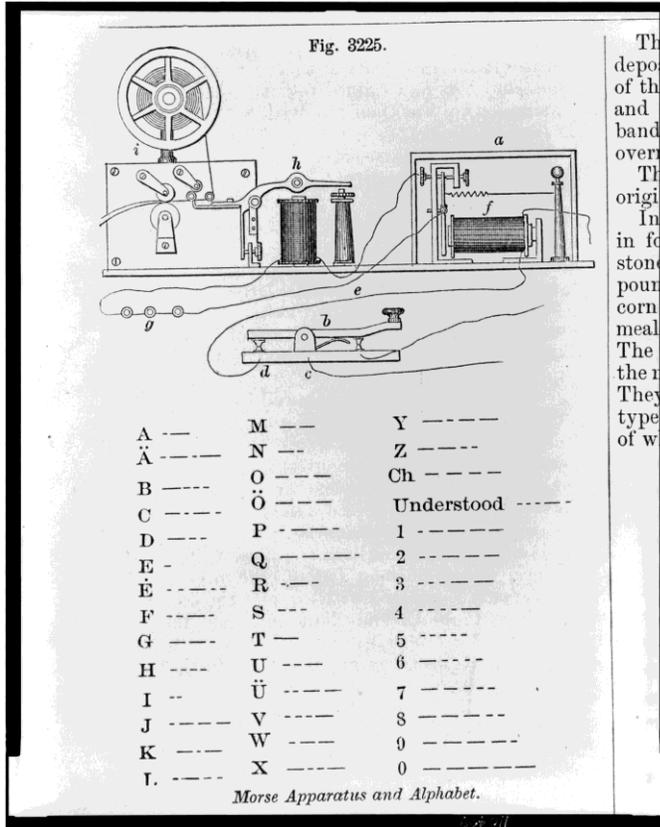
<sup>33</sup> Nonnemacher, "The History of the U.S. Telegraph Industry" EH.Net Encyclopedia.

those who took advantage of the benefits they provided.<sup>34</sup> The age of connectivity in which we live today would've never been possible without them. Morse code and the telegraph forever changed America.

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<sup>34</sup> Hochfelder, "The Telegraph- Essential Civil War Curriculum" Virginia Center for Civil War Studies at Virginia Tech.

**Appendix A**



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This is a picture of the International morse code alphabet and a diagram of the electric telegraph.

Knight, Edward H. *Morse Apparatus and Alphabet*. 1877. *Library of Congress*,

[www.loc.gov/resource/cph.3c10409/](http://www.loc.gov/resource/cph.3c10409/). Accessed 3 Mar. 2021.

## Appendix B



This is a picture of the first morse code message ever sent. It reads, “What hath God wrought?”

Morse, Samuel Finley Breese. "First telegraphic message---24 May 1844." 24 May

1844. Samuel Finley Breese Morse papers, 1793-1944, Library of Congress,

Series: Miscellany MSS33670: box 71, folder 009 Microfilm reel: 34. Letter.

## Appendix C



This is a postcard of Broadway, New York from the 1880s. It depicts the numerous telegraph lines that were above the city, connecting the rest of America with New York.

Miklós, Vincze. "Photos from the Days When Thousands of Cables Crowded the Skies." *Gizmodo*, 3 Sept. 2014, [io9.gizmodo.com/photos-from-the-days-when-thousands-of-cables-crowded-t-1629961917](http://io9.gizmodo.com/photos-from-the-days-when-thousands-of-cables-crowded-t-1629961917). Accessed 4 Mar. 2021.

## Annotated Bibliography

### Primary Sources

Bane News Service. *Telegraph messenger, Berlin*. 1914. *Library of Congress*, ca. 1915, [www.loc.gov/item/2014699572/](http://www.loc.gov/item/2014699572/). Accessed 17 May 2021. This photograph of a telegraph messenger gave me a knowledge of how the telegrams were distributed after they were sent.

Davis, Theodore R., and Alfred R. R. Waud. *The Army telegraph - setting up the wire during an action The Army telegraph - the operator at work*. *Library of Congress*, [www.loc.gov/resource/cph.3c11072/](http://www.loc.gov/resource/cph.3c11072/). Accessed 31 Mar. 2021. This is an illustration of the process of setting up telegraph lines during the civil war. This gave me some knowledge of what the Union had to do in order to be able to communicate via telegraph.

Delano, Jack. *Greenville, South Carolina. Air Service Command. Men of the the 1067th signal company of the 25th service group learning to send and receive Morse code. World War II*, [www.loc.gov/item/2017860323/](http://www.loc.gov/item/2017860323/). Accessed 3 Apr. 2021. This photograph of Airmen learning how to receive and send more code messages gave me an understanding of how Morse code was used throughout WWII.

Disturnell, John, and Henry A. Burr. *Disturnell's new map of the United States and Canada showing all the canals, rail roads, telegraph lines and principal stage routes*. 1851. *Library of Congress*, [www.loc.gov/resource/g3700.rr000170/?r=0.554,0.037,1.884,0.812,0](http://www.loc.gov/resource/g3700.rr000170/?r=0.554,0.037,1.884,0.812,0). Accessed 12 May 2021. Map. I used this map to gain an understanding of the routes of the telegraph line.

Glyn-Jones, Anne. *Morse Code Wrens of Station X: Bletchley's Outer Circle*. United Kingdom, Imprint Academic, 2017. This is an autobiography of one of the Morse code Wrens. I used this to gain information about Morse code's use during WWII.

Greeley, and MeElrath. "The Magnetic Telegraph- Its Success." *New-York Daily Tribune* [New York], 27 May 1844. This newspaper article from 1844 showed me how people felt about the telegraph, and how it influenced politics.

*Harry S. Truman, president-elect, holds up edition of Chicago Daily Tribune with headline "Dewey Defeats Truman."* *Library of Congress*, 1948, [www.loc.gov/item/95517420/](http://www.loc.gov/item/95517420/). Accessed 12 May 2021. This is a picture of Harry Truman holding a newspaper reading, "Dewey Defeats Truman." I used this to understand the political impacts of the telegraph.

Henry, Joseph. Letter to Samuel Finely Breese Morse. 24 Feb. 1842. *Smithsonian Institution*, [www.si.edu/object/joseph-henrys-letter-samuel-f-b-morse-february-24-1842:siris\\_sic\\_13100?edan\\_q=Joseph%20Henry%20Letter%20to%20Samuel%20F.%20B.%20Morse%20&destination=/search/all&searchResults=1&id=siris\\_sic\\_13100](http://www.si.edu/object/joseph-henrys-letter-samuel-f-b-morse-february-24-1842:siris_sic_13100?edan_q=Joseph%20Henry%20Letter%20to%20Samuel%20F.%20B.%20Morse%20&destination=/search/all&searchResults=1&id=siris_sic_13100). Accessed 1 Apr. 2021. This letter from Joseph Henry to Samuel F.B. Morse, contains information about how the scientific community reacted to Morse and his work. I used this to gain an understanding about the telegraph's beginnings and what people thought of it.

Knight, Edward H. *Morse Apparatus and Alphabet*. 1877. *Library of Congress*, [www.loc.gov/resource/cph.3c10409/](http://www.loc.gov/resource/cph.3c10409/). Accessed 3 Mar. 2021. This diagram of the telegraph along with the Morse code alphabet, gave me a better understanding of how the telegraph worked and what Morse code was.

"Liner Sinks off Sandy Hook after Collision in the Fog; 'S.O.S.' Saves 76 Passengers." *The Evening World* [New York], 15 Oct. 1914. *Library of Congress*, [www.loc.gov/resource/sn83030193/1914-10-15/ed-1/?sp=1](http://www.loc.gov/resource/sn83030193/1914-10-15/ed-1/?sp=1). This newspaper article provided me with more examples of short term impacts of Morse code.

Miklós, Vincze. "Photos from the Days When Thousands of Cables Crowded the Skies." *Gizmodo*, 3 Sept. 2014, [io9.gizmodo.com/photos-from-the-days-when-thousands-of-cables-crowded-t-1629961917](http://io9.gizmodo.com/photos-from-the-days-when-thousands-of-cables-crowded-t-1629961917). Accessed 4 Mar. 2021. This article showed many pictures of what telegraph lines looked like, and how intricate they were. My understanding of this was important when I was discussing how the commercial effects of both Morse code, and the telegraph.

Morse, Samuel Finley Breese, and Morse, Edward Lind. *Samuel F.B. Morse: His Letters and Journals*. United States, Houghton Mifflin, 1914. This is a collection of Samuel F.B. Morse's Journals and letters around the time when he came up with the idea of the electromagnetic telegraph. I used this to get more knowledge about Morse and the beginnings of the telegraph.

Morse, Samuel Finley Breese. "First telegraphic message---24 May 1844." 24 May 1844. Samuel Finley Breese Morse papers, 1793-1944, *Library of Congress*, Series: Miscellany MSS33670: box 71, folder 009 Microfilm reel: 34. Letter. This was the first telegraphic message sent via the telegram. It showed me what telegraphic messages typically looked like, and gave me a general understanding of them.

N.Y. Jour. Com. "Morse's Electro Magnetic Telegraph." *The Polynesian*. [Honolulu], 16 Nov. 1844, Foreign Miscellany sec. *Library of Congress*, [chroniclingamerica.loc.gov/lccn/sn82015408/1844-11-16/ed-1/seq-](http://chroniclingamerica.loc.gov/lccn/sn82015408/1844-11-16/ed-1/seq-)

1/#date1=1844&index=0&rows=20&words=telegraph+Telegraph+Telegraphs&searchType=basic&sequence=0&state=&date2=1845&proxtext=Telegraph&y=7&x=24&dateFilterType=yearRange&page=1. Accessed 31 Mar. 2021. This newspaper article covers the immediate reaction to the success of Morse's telegraph. It helped me know how people reacted and what they said.

O'Sullivan, Timothy H. *Military telegraph construction corps*. Apr. 1864. *Library of Congress*, 1880-1889, [www.loc.gov/item/2012649236/](http://www.loc.gov/item/2012649236/). Accessed 12 May 2021. This is a photo of the Military telegraph construction corps setting up telegraph lines for the Union during the Civil War. This source gave me knowledge of the Union's use of the telegraph and how they commuted whilst still maintaining communication.

Vail, Alfred. Cover of Alfred Vail's Experimental Notebook. *Smithsonian Institution*, [www.si.edu/object/cover-alfred-vails-experiment-notebook:siris\\_sic\\_13778?page=1&edan\\_q=morse%20code&destination=/search/collection-images&searchResults=1&id=siris\\_sic\\_13778](http://www.si.edu/object/cover-alfred-vails-experiment-notebook:siris_sic_13778?page=1&edan_q=morse%20code&destination=/search/collection-images&searchResults=1&id=siris_sic_13778). Manuscript. This cover of Alfred Vail's notebook gave me a knowledge of the early stages of Morse code's development. I used this knowledge when describing the early history of Morse code.

---. "Notes of Operation on the Telegraph Lines." *Smithsonian*, [www.si.edu/object/notes-operation-telegraph-lines:siris\\_sic\\_13784?edan\\_q=the%20telegraph&destination=/search/collection-images&searchResults=1&id=siris\\_sic\\_13784](http://www.si.edu/object/notes-operation-telegraph-lines:siris_sic_13784?edan_q=the%20telegraph&destination=/search/collection-images&searchResults=1&id=siris_sic_13784). Accessed 31 Mar. 2021. These notes from Morse's partner have given me insight into the operation of the telegraph lines as well as providing me with cities in which telegraph lines were built.

"Western Union Telegraph Envelope." 1861-1865. *Library of Congress*, [www.loc.gov/item/2013645798/](http://www.loc.gov/item/2013645798/). Accessed 12 May 2021. Telegram. This is a Western Union telegraph envelope. This gave me an understanding of what telegraphs looked like to those receiving them.

## **Secondary Sources**

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