

# Cipher in the Civil War

During the Civil War, the Union Army communicated using coded telegrams. Since enemies would often tap telegraph lines, the code was very important for protecting information. To make sure the messages sent were kept secret, the Union Code was made up of arbitraries (words that were used to replace other words), null words (words added randomly to the ends of lines), and routing instructions (details about rewriting the message in the correct order). Telegrams written in code looked like nonsense to the average eye. But, for telegraph operators who understood the code, the messages were simple to read. Using this code allowed the Union Army to communicate quickly and easily. They did not have to be afraid of the enemy getting and taking advantage of secret information.

## *Table of Contents*

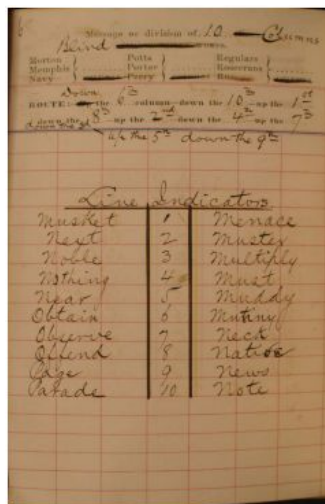
1. The Union Code
2. The Grid
3. Arbitraries
4. Null Words
5. Routing Instructions
6. Why So Secretive?
7. Did You Know?

## The Union Code

Since the methods for using Morse code was common knowledge and telegraph wires could not be easily protected, it was simple for the Confederate Army to tap the telegraph wires and intercept messages. In order to keep information from ending up in the wrong hands, the Union Army developed a code to use when sending its messages. Telegrams were encoded by writing the telegram on a grid in a ledger book and then sending the telegram in a scrambled form following a method for sending the words on the grid in jumbled order.

The code had three main parts: arbitraries, null words, and routing instructions. Arbitrarities were common words or punctuation marks that were used to replace other words in the message. For example, when the word "Headquarters" appeared in a telegram, one of the codebooks required that it be replaced by the word "glaze." There were hundreds of arbitraries in the Union codebooks, making the task of breaking the code very difficult. In fact, the code was never broken!

Null words were random words added to the telegraph message, just to confuse anyone trying to steal the message. Routing instructions told the telegraph operators how to send the message. The combination of these three elements made coded messages almost impossible to understand. An enemy who did not know the code would not be able to understand the message.



*This a page from a Union codebook. This page shows commencement codes that tell the telegraph operator how many rows and columns will be in the message.*

Image credit will come from Huntington

*Check Your Understanding:*

- Why did the Union Army develop a code for telegrams?

## The Grid

The first step in decoding a coded telegram was to write all the words of the message in a grid. Words at the beginning of the message told the reader how many rows and columns the grid should have. For example, one telegram used the words “What’s next news” as the special directions for how to send the message. Each word would be written in its own box in the grid. The message written on the grid would fit just right into the right number of rows and columns. The grid would then be used to further decode the message.

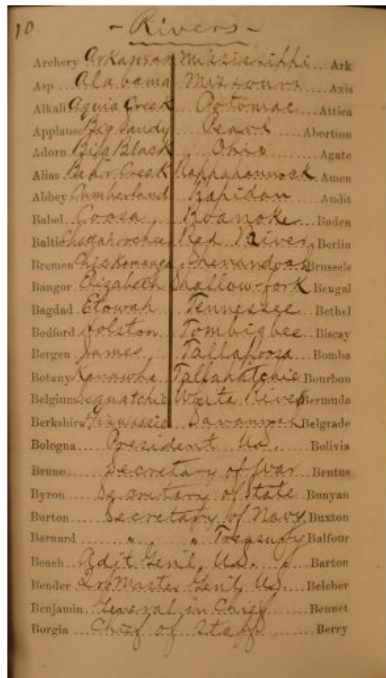
Need an image of a ledger book

*Check Your Understanding:*

- What are the steps to writing a message in a grid?

## Arbitraries

Once the message was written in grid form, the reader would look for the arbitraries included in the telegram. There were several code books that would be used to encode and decode messages. Each book had its own list of arbitraries. Most arbitraries replaced important words like the names of people and places as well as some common verbs. For example, in cipher book 1, “President of the United States” might be replaced by “Bologna” or “Bolivia.” Arbitraries could also stand for punctuation marks. For example, in cipher book 1, a period might be replaced by “Zodiac” or “zebra.” As a result, most coded messages had no punctuation marks. This made them even more confusing to read for someone who did not know the code. Once the reader found all the arbitraries in the message, they could use the key in the cipher book to replace them with the original words.



*This page from a Union codebook shows a list of words beside the arbitraries that replaced them.*

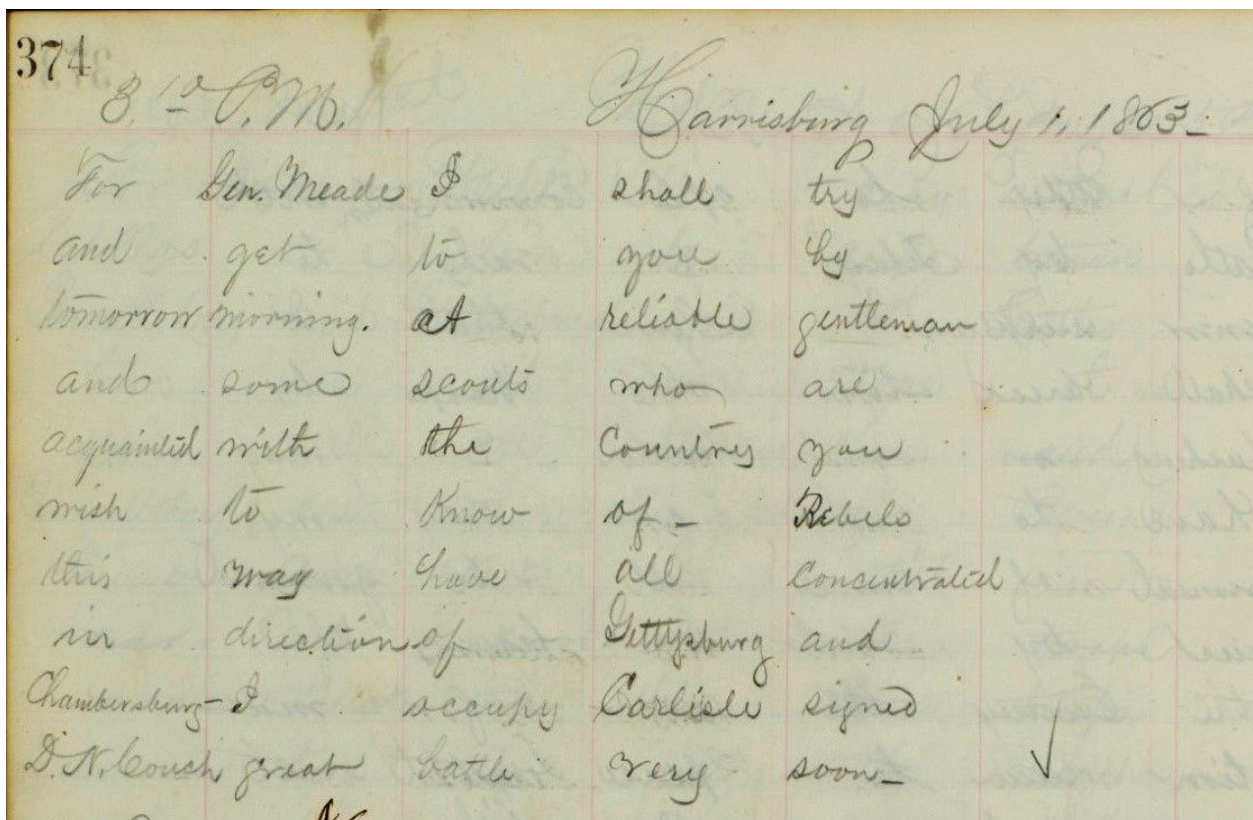
Image credit will come from Huntington

### Checking Your Understanding

- What kinds of things might an arbitrary replace?

## Null Words

Once the message was written into a grid and all the arbitraries were replaced, the telegraph operator who received the telegram would have to get rid of all of the null words added to the message. Null words were added to just make the message more difficulty to decode. Null words were usually generic words like “mean,” “your,” or “never” that did not add any meaning to the message. The person receiving the message would look through each line and column for words that did not fit or make sense and cross them out. Sometimes the telegraph operator would add their own comments as null words at the end of messages. One telegram, sent before the battle at Gettysburg, included a comment from the telegraph operator that there would be a great battle soon.



At the end of this telegram, sent before the Battle of Gettysburg, the telegraph operator wrote the words “great battle very soon” as null words.

Image credit will come from Huntington

### Checking Your Understanding

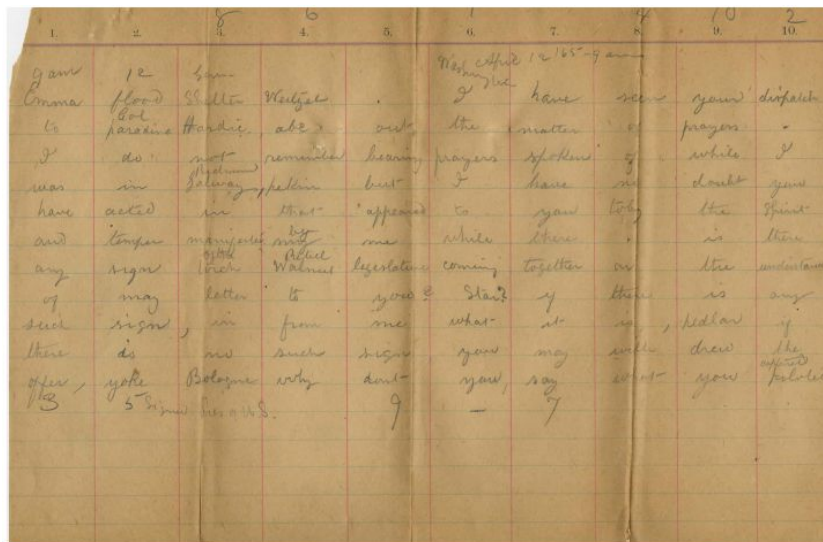
- What was the purpose of null words?

## Routing Instructions

The last step in decoding a message was to rewrite the words in message in the correct order. Every cipher book had routing instructions for how to read a message. The instructions changed depending on how many rows and lines were in the message. For example, in Cipher Book 1, a message with 10 columns and 11 rows would be read in the following order:

Down Column 6  
Down Column 10  
Up Column 1  
Down Column 8  
Up Column 2  
Down Column 4  
Up Column 7  
Down Column 3  
Up Column 5  
Down Column 9

After rewriting the message in this order, the person receiving the message would finally be able to read the decoded telegram.



*This telegram has numbers written at the tops and bottoms of the columns so that the telegram could be written and then read in the right order.*

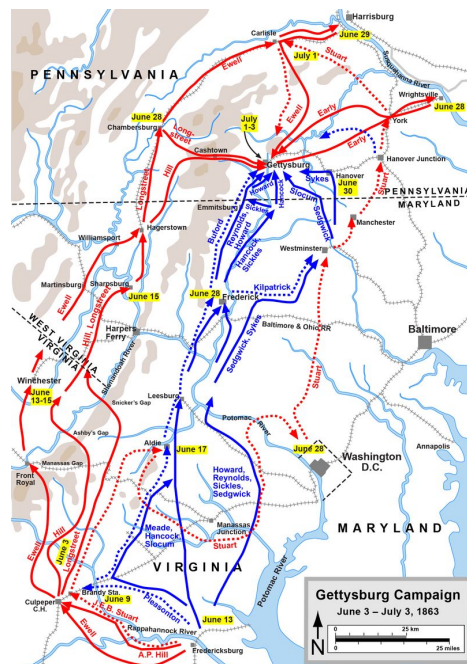
Image credit will come from Huntington

### Checking Your Understanding

- How did routing instructions help a reader decode the message?

## Why So Secretive?

What kind of information was the Union Army trying to protect with its codes anyway? Due to its speed, the telegram became one of the main ways President Abraham Lincoln communicated with military officials during the war. As a result, telegrams could include discussions of strategy. For example, during the 1863 Gettysburg Campaign Lincoln sent a telegram to General Hooker advising him not to focus on taking Richmond, but rather to focus on defeating General Lee's army north of the city. Telegrams might also contain direct orders for troop movements. During the Shenandoah Valley Campaign, led by General Jackson, President Lincoln sent telegrams to the battlefield with direct orders for where to move the men. Officers also used telegrams to report on **casualties** and the condition of their troops. If any of this information had ended up in the hands of the Confederate Army, the results might have been disastrous for the Union.



*This map shows Union and Confederate troop movements during the Battle of Gettysburg.*

### Image Credit

[https://en.wikipedia.org/wiki/Gettysburg\\_Campaign#/media/File:Gettysburg\\_Campaign.png](https://en.wikipedia.org/wiki/Gettysburg_Campaign#/media/File:Gettysburg_Campaign.png)

### Checking Your Understanding

- What kind of information was the Union Army trying to keep secret?

## **Did You Know?**

### Morse Code

Morse Code was a series of long and short signals used to send messages over telegraph lines. The patterns of long and short signals stood for different letters. A skilled telegraph operator could translate back and forth between the letters in the message and the signals sent over the wire. Morse Code is named after Samuel Morse, who developed an early version of the code.

### How to Tap a Telegraph Wire

The telegraph machine made “wiretapping” possible for the first time. In order to hear the message being sent over a telegraph line, all you would have to do is hold the line to your ear and tap on it. Then, you record the signals you hear and use Morse code to read the message.



## Instructional materials for this explainer

### *Pre-reading Prompts*

- What would you do if you knew your rival or enemy could read all of your text messages and listen to all your phone calls?
- What would happen if someone got ahold of the passcode to your phone, or the password to your email or your bank account?
- If you and your friends had a secret code, how would you use it?

### *Final Checking Your Understanding*

- Why did the Union need a secret code?
- What kind of messages would the Union want to send in code?
- Do you think this code is too easy, too hard, or just right? What would be the consequences of making it harder or easier?
- What are the strengths and weaknesses of the code?
- How do you think communication improved when the telegraph replaced the Pony Express?

### *Vocabulary Words*

- Casualties: (noun) Soldiers killed or injured during a war
- Cipher: (noun) A secret way of writing, a code;(verb) to write in code

### *KWL Chart*

Fill out the first two columns before reading and the third column after reading the text.

| Know  | Want to Know  | Learned  |
|---|---|--|
| What do you already know about codes?                           | What do you want to know about codes?                           | What have you learned about codes?                           |
| What do you already know about how codes have been used in war? | What do you want to know about how codes have been used in war? | What have you learned about how codes have been used in war? |

*Extension Activities*

- Have students form groups and have ask each group to give a explain one of the six sections to the class using a drawing or other visual aid.
- Have students create a cartoon explaining the reading with a panel for each section.
- Create an outline or graphic organizer explaining the main ideas of each section.