

## WIGWAG

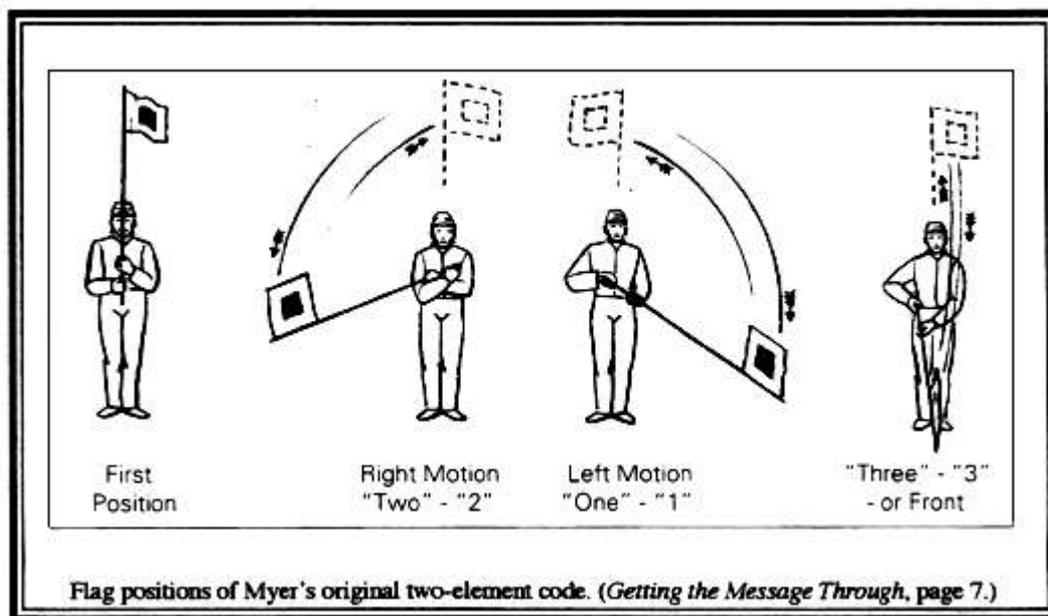
One of the most fascinating stories of the American Civil War (1861-65) is about communications using flag telegraphy or also known as the wigwag signal system.

Wigwag is a system of positioning a flag (or flags) at various angles that indicate the corresponding twenty-six letters of the alphabet. It was created in the mid-1800s by three men working at separate locations: Navy Captain Phillip Colomb and, Army Captain Francis Bolton, in England, and Surgeon-inventor Albert J. Meyer in America. Meyer observed the railroad electromagnetic telegraph, developed by Alexander Bain, and invented a touch method of communication for the deaf and later the wigwag system. He developed companion methods with torches and disks. The name "wigwag" derived from the flag movements.



Three main color combinations were used in flags measuring two, four and six feet square. The white banners had red square centers while the black or red flags had white centers. Myers method required three motions (elements) to be used for each letter. The first position always initiated a message sequence. Motion one went from head to toe and back on right side. Motion 2 went from head to toe and back on left side. Motion three went from head to toe and back in front of the man. Each motion made quickly. Chart below indicates the multiliteral alphabet and directional orders required to convey a message.

A - 112	H - 312	O - 223	V - 222
B - 121	I - 213	P - 313	W - 311
C - 211	J - 232	Q - 131	X - 321
D - 212	K - 323	R - 331	Y - 111
E - 221	L - 231	S - 332	Z - 113
F - 122	M - 132	T - 133	
G - 123	N - 322	U - 233	



### Myers Signal Directions

3	- End of a word
33	- End of a sentence
333	- End of message
22.22.22.3	- Signal of assent. Message understood
22.22.22.333	- Cease signaling
121.121.121.3	- Repeat
212121.3	- Error
211.211.211.3	- Move a little to the right
221.221.221.3	- Move a little to the left

As the Civil War wore on, Myer increased the wigwag motions to four. This enabled more specialized words and abbreviations to be used. In 1864, Myer invented a similar daytime system with disks.

For night signals, Myer applied his system with torches on the signal poles and lanterns. A foot torch was used as a reference point. Thus the direction of the flying wave could better be seen. Compare this to the semaphore system used by ships at sea when radio silence is a must.

Myer continuously improved his invention through 1859 and presented his findings gratis to the Union Army (which gave him a luke warm yawn for his trouble). Alexander Porter, his chief assistant joined the Confederate Army

and used the wigwag system in actual combat. Porter was able to warn Colonel Nathan Evans at Manassas Junction - Stone Bridge that the Union Army had reached Sudley Ford and was about to surprise General Beauregard's best Division. Porter sent from his observation tower, the following message to Colonel Evans at the Stone Bridge defenses: "Look out for your left, you are turned."

Colonel Evans turned his cannons and musket fire toward the Federal troops before they could initiate their attack. Porter was credited later (and decorated), for his vigilance led to changes in the tactics of the entire struggle around Manassas Junction. The application of the new signal system had directly influenced the shocking Union defeat that eventful July day.

Myers signaling system was catapulted into use at the Battle of Gettysburg. General Lee had invaded northern soil in June 1863. His Potomac crossing was relayed by flag system to the War Department. General Joseph Hooker resigned under fire on June 28. General George Meade (of NSA grounds fame) took over command of the Army of the Potomac. His headquarters were at Taneytown, MD. Startling news came via signalmen on July 1. A skirmish on the Maryland border indicated that General Buford was facing a major force not in Maryland but in Pennsylvania. Lee was himself in command at Gettysburg. Signalmen of each army unit sent out calls for help. Reinforcements from dozens of units several miles away were committed to the fray. By July 1, 73,000 gray and 88,000 blue met in one of history's most decisive battles. Rarely, if at all, do textbooks even hint that the secret message system of flags affected these history changing events. Yet the crucial sightings by Union observers directly tipped the scales against Lee's best tactics. The most famous incident was when Captain Castle on Cemetery Ridge, refused to submit to Confederate artillery barrage as General George Pickett charged the "thin blue line", used a wooden pole and a bedsheet to make a makeshift flag to alert Union forces under General Meade who ordered counter- measures. Pickett's charge was stopped short of breaching the Union lines. General Lee's gamble failed. Previously disregarded flagmen enabled George Meade to enter the shrine of heroes.

[Excerpt from "Classical Cryptography Course" by Randy Nichols (LANAKI)]