

THE SIGNAL CORPS

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No other arm of the military services during the Civil War excited a tithe of the curiosity and interest which surrounded the Signal Corps. To the onlooker, the messages of its waving flags, its winking lights and its rushing rockets were always mystic in their language, while their tenor was often fraught with thrilling import and productive of far-reaching effects.

The signal system, an American device, was tested first in border warfare against hostile Navajos; afterward the quick-witted soldiers of both the Federal and Confederate armies developed portable signaling to great advantage. The invention of a non-combatant, Surgeon A. J. Myer, it met with indifferent reception and evoked hostility in its early stages. When the stern actualities of war were realized, its evolution proceeded in the Federal army in face of corporation and departmental opposition, yet despite all adverse attacks it ultimately demonstrated its intrinsic merits. Denied a separate organization until the war neared its end, the corps suffered constantly from strife and dissension in Washington, its misfortunes culminating in the arbitrary removal of its first two chiefs. Thus its very existence was threatened. Nevertheless, the gallant, efficient services of its patriotic men and officers in the face of the foe were of such striking military value as to gain the confidence and win the commendation of the most distinguished generals.

Major Myer began work in 1861, at Georgetown, District of Columbia, with small details from the volunteers, though the corps eventually numbered about three hundred officers and twenty-five hundred men. Authorized as a separate corps by the act of Congress, approved March 3, 1863, its organization was not completed until August, 1864. The outcome was an embodiment of the army aphorism that "one campaign in Washington is worth two in the field." More than two thousand signalmen served at the front, of whom only nine were commissioned in the new corps, while seventeen were appointed from civil life. As a result of degradation in rank, eleven detailed officers declined commissions or resigned after acceptance. Colonel Myer, the inventor and organizer of the service, had his commission vacated in July, 1864, and his successor, Colonel Nicodemus, was summarily dismissed six months later, the command then devolving on Colonel B. F. Fisher, who was never confirmed by the Senate. That a corps so harassed should constantly distinguish itself in the field is one of the many marvels of patriotism displayed by the American soldier.

Signal messages were sent by means of flags, torches, or lights, by combinations of three separate motions. The flag (or torch) was initially held upright: "one" was indicated by waving the flag to the left and returning it from the ground to the upright position; "two" by a similar motion to the right and "three" by a wave (or dip) to the front. Where a letter was composed of several figures, the motions were made in rapid succession without any pause. Letters were separated by a very brief pause, and words or sentences were distinguished by one or more dip motions to the front.

SIGNAL ALPHABET, AS USED LATE IN THE WAR

A-- 11	G--1122	M--2112	S-- 121	Y-- 222
B--1221	H-- 211	N-- 22	T-- 1	Z--1111
C-- 212	I-- 2	O-- 12	U-- 221	&--2222
D-- 111	J--2211	P--2121	V--2111	tion--2221
E-- 21	K--1212	Q--2122	W--2212	ing--1121
F--1112	L-- 112	R-- 122	X--1211	ed--1222

NUMERALS

1--12221 - Wait a moment.
 2--21112 - Are you ready?
 3--11211 - I am ready.
 4--11121 - Use short pole and small flag.
 5--11112 - Use long pole and large flag.
 6--21111 - Work faster.
 7--22111 - Did you understand?
 8--22221 - Use white flag.
 9--22122 - Use black flag.
 0--11111 - Use red flag.

CODE SIGNALS

3 - "End of word." 33 - "End of sentence." 333 - "End of message."
 121212 - "Error." 11, 11, 11, 3 - "Message received (or understood)."
 11, 11, 11, 3 - "Cease signaling." Constant and unbroken waving -
 "Attention, look for signals."

To hasten work there were many abbreviations, such as: A - "After";
 B - "Before"; C - "Can"; Imy - "Immediately"; N - "Not"; Q - "Quiet";
 R - "Are"; U - "You" and Y - "Why."

When using Coston signals there were more than twenty combinations of colored lights which permitted an extended system of prearranged signals. White rockets (or bombs) - one; red - two, and green - three. White flags with a square red center were most frequently employed for signaling purposes, though when snow was on the ground a black flag was used, and with varying backgrounds the red flag with a white center could be seen at greater distances than the white.

To secure secrecy all important messages were enciphered by means of a cipher disk. Two concentric disks, of unequal size and revolving on a central pivot, were divided along their outer edges into thirty equal compartments. The inner and smaller disk contained in its compartments letters, terminations, and work-pauses, while the outer, larger disk contained groups of signal numbers to be sent. Sometimes this arrangement was changed and letters were on the outer disks and the numbers on the inner. By the use of prearranged keys, and through their frequent interchange, the secrecy of messages thus enciphered was almost absolutely ensured.

In every important campaign and on every bloody ground, the red flags of the Signal Corps flaunted ^a definitely at the forefront, speeding stirring orders of advance, conveying warnings of impending danger, and sending sullen suggestions of defeat. They were seen on the advanced lines of Yorktown, Petersburg, and Richmond, in the saps and trenches at Charleston, Vicksburg, and Port Hudson, at the fierce battles of Chickamauga and Chancellorsville, before the fort-crowned crest of Fredericksburg, amid the frightful carnage of Antietam, on Kenesaw Mountain deciding the

fate of Allatoona, in Sherman's march to the sea, and with Grant's victorious army at Appomattox and Richmond. They spoke silently to Du Pont along the dunes and sounds of the Carolinas, sent word to Porter clearing the central Mississippi River, and aided Farragut when forcing the passage of Mobile Bay.

Did a non-combatant corps ever before suffer such disproportionate casualties - killed, wounded, and captured? Sense of duty, necessity of exposure to fire, and importance of mission were conditions incompatible with personal safety - and the Signal Corps paid the price. While many found their fate in Confederate prisons, the extreme danger of signal work, when conjoined with stubborn adherence to outposts of duty, is forcefully evidenced by the fact that the killed of the Signal Corps were one hundred and fifty per cent of the wounded, as against the usual ratio of twenty per cent.

The Confederates were first in the field, for Beauregard's report acknowledges the aid rendered his army at Bull Run by Captain E. P. Alexander, a former pupil of Myer. McDowell was then without signalmen, and so could neither communicate regularly with Washington nor receive word of the vitally important despatch from Patterson at Harper's Ferry telling of Johnston's departure to reenforce Beauregard at Manassas, which should have averted the battle. Major Myer was quick, however, to establish a signal training-school at Red Hill, Georgetown, District of Columbia.

In view of modern knowledge and practice, it seems almost incredible to note that the Secretary of War disapproved, in 1861, the recommendation made by Major Myer, signal officer of the army, for an appropriation for field-telegraph lines. While efforts to obtain, operate, and improve such lines were measurably successful on the part of the army, they were strenuously opposed by the civilian telegraph corporations so potent at the War Department.

Active protests proved unavailing and injurious. Colonel Myer's circular, in 1863, describing the systematic attempts of the civilian organization to deprive the Signal Corps of such lines "as an interference with a part of the Signal Corps' legitimate duties," caused him to be placed on waiting orders, while all field-trains were ordered to be turned over to the civilian force. It may be added that both organizations in the field cooperated with a degree of harmony and good-fellowship that was often lacking in Washington.

Skilled parties were thus available for the Peninsula campaign of 1862, where McClellan utilized them, strictly army work being supplemented by placing signal officers with the navy, and thus ensuring that cooperation vitally essential to success. Not only was military information efficiently collected and distributed, but at critical junctures McClellan was able to control the fire-direction of both the field-artillery of the army and the heavy guns of the navy.

At Yorktown, coigns of vantage were occupied in high trees and on lofty towers, whence messages were sent to and fro, especially those containing information of the position and movements of the foe, which were discerned by high-powered telescopes--an important duty not always

known or appreciated. Often their work drew the Confederate artillery and sharpshooters' fire, of unpleasant accuracy. The saving of Franklin's command at West Point, after the evacuation of Yorktown, was in large part due to the efficiency of the Signal Corps.

Valuable as was the work before Richmond, under fire, in reconnoitering and in cooperation with the military telegraph service, it proved to be indispensable to the success of McClellan in changing his base from York River to James River--its importance culminating at Malvern Hill. It will be recalled that the Seven Days' Battles ended with the bloody struggle on the banks of the James, where the use of the Signal Corps enabled McClellan to transform impending defeat into successful defense. When the vigorous Confederate attack at Malvern Hill threatened the flank of the army, McClellan was aboard the United States steamship Galena, whose army signal officer informed him of the situation through messages flagged from the army. McClellan was thus enabled not only to give general orders to the army then in action, but also to direct the fire of the fleet, which had moved up the James for cooperation, most efficiently.

Lee's invasion of Maryland in 1862 would have been a complete surprise, except for the watchful vigilance of an officer of the Signal Corps, Lieutenant Miner, who occupied Sugar Loaf, the highest point in Maryland. From this lofty station were visible the more important fords of the Potomac, with their approaches on both sides of the river. Miner detected the Confederate advance guard, the train movements, and noted the objective

points of their march. Notifying Washington of the invasion, although unprotected he held his station to the last and was finally captured by the Southern troops. The reoccupancy of Sugar Leaf a week later enabled McClellan to establish a network of stations, whose activities contributed to the victory of South Mountain.

As Elk Mountain dominated the valley of the Antietam, it was occupied only to find that the dense woods on its summit cut off all view. However, energetic action soon cleared a vista, known to the soldiers as "McClellan's Gap," through which systematic telescopic search revealed all extended movements of the foe. The busy ax furnished material for a rude log structure, from the summit of which messages of great importance on which were based the general disposition of the Federal troops, were sent.

At Fredericksburg flag-work and telescopic reconnoitering were supplemented by the establishment of a field-telegraph line connecting army headquarters with Franklin's Grand Division on the extreme left. The flag station at headquarters kept Burnside in constant touch with the Federal attacking force on the right, under Couch and Hooker, through their signalmen in the court-house steeple. One station near a field-hospital was under a fire, which killed about twenty men and wounded many others near by, until the surgeons asked suspension of flagging to save the lives of the wounded.

A most important part of the Signal Corps' duty was the interception and translation of messages interchanged between the Confederate signalmen. Perhaps the most notable of such achievements occurred in the Shenandoah valley, in 1864. On Massanutten, or Three Top Mountain, was

a signal station which kept Early in touch with Lee's army to the south-eastward, near Richmond, and which the Federals had under close watch. Late in the evening of October 15th, a keen-eyed lieutenant noted that "Three Top" was swinging his signal torch with an unwonted persistency that betokened a message of urgency. The time seemed interminable to the Union officer until the message began, which he read with suppressed excitement as follows: "To Lieutenant-General Early. Be ready to move as soon as my forces join you, and we will crush Sheridan. Longstreet, Lieutenant-General."

Sheridan was then at Front Royal, en route to Washington. The message was handed to General Wright, in temporary command, at once, and was forwarded by him to Sheridan at midnight. The importance of this information is apparent, yet Early took the Union army completely by surprise three days later, at daybreak of October 19th, although the tide of morning defeat was turned to evening victory under the inspiration of Sheridan's matchless personality.

In the battles of Gettysburg the Confederates established their chief signal station in the cupola of the Lutheran seminary, which commanded an extended field of operations. The Union Signal Corps was extremely active in gathering information and transmitting orders, and for perhaps the first time in military history the commanding general of a large army was kept in communication during active operations with his corps and division commanders.

The most important Union signal station, on the second day of this titanic struggle, was at Little Round Top on the Federal left flank, which

commanded a view of the country occupied by the right of Lee's army. Heavy was the price paid for flag-work at this point, where the men were exposed to the fierce sharpnel of artillery and the deadly bullet of Confederate sharpshooters in Devil's Den. On or beside this signal station, on a bare rock about ten feet square, seven men were killed or seriously wounded. With rash gallantry, Captain James A. Hall held his ground, and on July 2d, at the most critical phase of the struggle signaled to Meade's headquarters, "A heavy column of enemy's infantry, about ten thousand, is moving from opposite our extreme left toward our right."

General Warren had hastened by Meade's order to Little Round Top to investigate. He says: "There were no troops on it (Little Round Top) and it was used as a signal station. I saw that this was the key of the whole position, and that our troops in the woods in front of it could not see the ground in front of them, so that the enemy could come upon them unawares." A shot was fired into these woods by Warren's orders. He continues: "This motion revealed to me the enemy's line of battle, already formed and far outflanking our troops. . . . The discovery was intensely thrilling and almost appalling." After narrating how he asked Meade for troops, Warren continues, "While I was still alone with the signal officer, the musket balls began to fly around us, and he was about to fold up his flags and withdraw, but remained, at my request, and kept them waving in defiance." This action saved the day for the Federals, as Warren declares.

The system around Vicksburg was such as to keep Grant fully informed of the forts of the Confederates to disturb his communications in the

rear, and also ensured the fullest cooperation between the Mississippi flotilla and his army. Judicious in praise, Grant's commendation of his signal officer speaks best for the service. Messages were constantly exchanged with the fleet, the final one of the siege being flagged as follows on the morning of July 4th: "4.30 a. m. 4: 1865. Admiral Porter: The enemy has accepted in the main my terms of capitulation and will surrender the city, works and garrison at 10 a. m. . . U. S. Grant, Major-General, Commanding."

The fleets of Farragut and Porter, while keeping the Mississippi open, carried signal officers to enable them to communicate with the army, their high masts and lofty trees enabling signals to be exchanged great distances. Doubtless the loftiest perch thus used during the war was that on the United States steamship *Richmond*, one of Farragut's fleet at Port Hudson. The *Richmond* was completely disabled by the central Confederate batteries while attempting to run past Port Hudson, her signal officer, working, meanwhile, in the maintop. As the running of the batteries was thus found to be too dangerous, the vessel dropped back and the signal officer suggested that he occupy the very tip of the highest mast for his working perch, which was fitted up, one hundred and sixty feet above the water. From this great height it was barely possible to signal over the highland occupied by the foe, and thus maintain uninterrupted communication and essential cooperation between the fleets of the central and lower Mississippi.

The most dramatic use of the Signal Corps was connected with the successful defense of Allatoona, Sherman's reserve depot in which were stored three millions of rations, practically undefended, as it was a distance in the rear of the army. Realizing the utmost importance of the railroad north of Marietta and of the supplies to Sherman, Hood threw Stewart's corps in the rear of the Union army, and French's division of about sixty-five hundred men was detached to capture Allatoona. With the Confederates intervening and telegraph lines destroyed, all would have been lost but for the Signal Corps station on Kenesaw Mountain. Corse was at Rome, thirty-six miles beyond Allatoona. From Vining's Station, the message was flagged over the heads of the foe to Allatoona by way of Kenesaw, and thence telegraphed to Corse, as follows: "General Corse: Sherman directs that you move forward and join Smith's division with your entire command, using cars if to be had, and burn provisions rather than lose them. General Vandever." At the same time a message was sent to Allatoona: "Sherman is moving with force. Hold out." and again: "Hold on. General Sherman says he is working hard for you."

Sherman was at Kenesaw all day, October 5th having learned of the arrival of Corse that morning, and anxiously watched the progress of the battle. That afternoon came a despatch from Allatoona, sent during the engagement: "We are all right so far. General Corse is wounded." Next morning Dayton, Sherman's assistant adjutant-general, asked how Corse was and he answered, "I am short a cheekbone and one ear, but am able to whip all h---l yet." That the fight was desperate is shown

by Corse's losses, seven hundred and five killed and wounded, and two hundred captured, out of an effective force of about fifteen hundred.

An unusual application of signal stores was made at the siege of Knoxville, when Longstreet attacked at dawn. Sending up a signal by Roman candles to indicate the point of attack, the signal officer followed it by discharging the candles toward the advancing Confederates, which not only disconcerted some of them, but made visible the approaching lines and made possible more accurate fire on the part of the Union artillery.

While at Missionary Ridge, the following message was flagged at a critical point: "Sherman: Thomas has carried the hill and lot in his immediate front. Now is your time to attack with vigor. Do so. Grant." Other signal work of value intervened between Missionary Ridge and Allatoona, so that the Signal Corps was placed even more to the front in the Atlanta campaign and during the march to the sea.

The Confederates had changed their cipher key, but Sherman's indefatigable officers ascertained the new key from intercepted messages, thus giving the general much important information.

Several stations for observation were established in high trees, some more than a hundred feet from the ground, from which were noted the movements of the various commands, of wagon trains, and railroad cars. Hood's gallant sortie from Atlanta was detected at its very start, and despite the severity of the fight during which one flagman was killed, messages were sent throughout the battle--even over the heads of the foe.

Of importance, though devoid of danger, among the final messages on arrival at Savannah was one ordering, by flag, the immediate assault on Fort McAllister by Hazen, with the soldierly answer, "I am ready and will assault at once," and the other announcing to the expectant fleet that Sherman had completed the famous march to the sea with his army in excellent condition.

In the approaches and siege of Petersburg, the work of the Signal Corps was almost entirely telescopic reconnoitering. While an occasional high tree was used for a perch, yet the country was so heavily timbered that signal towers were necessary. There were nearly a dozen lines of communication and a hundred separate stations. The most notable towers were Cobb's Hill, one hundred and twenty-five feet; Crow's Nest, one hundred and twenty-six feet, and Peebles Farm, one hundred and forty-five feet, which commanded views of Petersburg, its approaches, railways, the camps and fortifications. Cobb's Hill, on the Appomattox, was particularly irritating and caused the construction of an advance Confederate earthwork a mile distant, from which fully two hundred and fifty shot and shell were fired against the tower in a single day--with slight damage, however. Similar futile efforts were made to destroy Crow's Nest.

At General Meade's headquarters a signal party had a unique experience--fortunately not fatal though thrilling in the extreme. A signal platform was built in a tree where, from a height of seventyfive feet the Confederate right flank position could be seen far to the rear. Whenever important movements were in progress this station naturally drew a heavy fire, to prevent signal work. As the men were charged to hold fast at all

hazards, descending only after two successive shots at them, they became accustomed in time to sharpshooting, but the shriek of shell was more nerve-racking. On one occasion several shots whistled harmlessly by, and then came a violent shock which nearly dislodged platform, men, and instruments. A solid shot, partly spent, striking fairly, had buried itself in the tree half-way between the platform and the ground.

When Petersburg fell, field flag-work began again, and the first Union messages from Richmond were sent from the roof of the Confederate Capitol. In the field the final order of importance flagged by the corps was as follows: "Farmville, April 7, 1865. General Meade: Order Fifth Corps to follow the Twenty-fourth at 6 a. m. up the Lynchburg road. The Second and Sixth to follow the enemy north of the river. U. S. Grant, Lieutenant-General."

It must not be inferred that all distinguished signal work was confined to the Union army, for the Confederates were first in the field, and ever after held their own. Captain (afterward General) E. P. Alexander, a former pupil in the Union army under Myer, was the first signal officer of an army, that of Northern Virginia. He greatly distinguished himself in the first battle of Bull Run, where he worked for several hours under fire, communicating to his commanding general the movements of opposing forces, for which he was highly commended. At a critical moment he detected a hostile advance, and saved a Confederate division from being flanked by a signal message, "Look out for your left. Your position is turned."

Alexander's assignment as chief of artillery left the corps under Captain (later Colonel) William Morris. Attached to the Adjutant-General's Department, under the act of April 19, 1862, the corps consisted of one major, ten each of captains, first and second lieutenants, and twenty sergeants, the field-force being supplemented by details from the line of the army. Signaling, telegraphy, and secret-service work were all done by the corps, which proved to be a potent factor in the efficient operations of the various armies.

It was at Island No. 10; it was active with Early in the Valley; it was with Kirby Smith in the Trans-Mississippi, and aided Sidney Johnston at Shiloh. It kept pace with wondrous "Stonewall" Jackson in the Valley, withdrew defiantly with Johnston toward Atlanta, and followed impetuous Hood in the Nashville campaign. It served ably in the trenches of beleaguered Vicksburg, and clung fast to the dismantled battlements of Fort Sumter. Jackson clamored for it until Lee gave a corps to him, Jackson saying, "The enemy's signals give him a great advantage over men."