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A COMMUNICATOR'S GUIDE TO THE
CUMMINGSBURG CAMPAIGN

LIEUTENANT COLONEL R. A. SAVERON

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The Gettysburg Campaign was the first campaign in American history where the Signal Corps provided the army commander communications with all of his corps commanders. The Signal Corps provided communications and intelligence during the entire campaign by operating a complex system of fixed and mobile flag signal and observation stations. This paper is a comprehensive self-guide of the Signal Corps involvement in the Gettysburg Campaign. It utilizes the format and methodology of the series of battlefield guides developed for the U.S. Army War College by Dr. Jay Luvaas and COL Harold Nelson. The user of this guide will tour the key locations utilized by the signalmen and learn about the action directly from the participants by reading from their individual reports, letters, and diaries. This guide has been developed specifically for company grade signal officers as a tool for their professional development. It is intended to increase regimental affiliation and instill a sense of pride in the heritage of the Signal Corps by demonstrating the difficulties which faced our predecessors and how they overcame them.

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A COMMUNICATOR'S GUIDE TO THE
GETTYSBURG CAMPAIGN

An Individual Study Project
Intended for Publication

by

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U.S. Army War College
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ABSTRACT

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The Gettysburg Campaign was the first campaign in American history where the Signal Corps provided the army commander communications with all of his corps commanders. The Signal Corps provided communications and intelligence during the entire campaign by operating a complex system of fixed and mobile flag signal and observation stations. This paper is a comprehensive self-guide of the Signal Corps involvement in the Gettysburg Campaign. It utilizes the format and methodology of the series of battlefield guides developed for the U.S. Army War College by Dr. Jay Luvaas and COL Harold Nelson. The user of this guide will tour the key locations utilized by the signalmen and learn about the action directly from the participants by reading from their individual reports, letters, and diaries. This guide has been developed specifically for company grade signal officers as a tool for their professional development. It is intended to increase regimental affiliation and instill a sense of pride in the heritage of the Signal Corps by demonstrating the difficulties which faced our predecessors and how they overcame them.

INTRODUCTION

This paper is a self-guided tour of the Signal Corps involvement in the Gettysburg campaign. It is specific in describing the action of the signal soldiers and it makes no attempt to explain the battle of Gettysburg in general. Neither is it a history of the U.S. Army Signal Corps. There are numerous volumes which satisfy both of those requirements.

This guide is written in the general format of the series of U.S. Army War College battlefield guides edited by Dr. Jay Luvaas and COL Harold W. Nelson. COL Nelson served as the faculty advisor for this project and his assistance was invaluable.

Whenever possible, this guide uses first hand accounts of the participants from The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies, commonly known as the Official Records (O.R.), to describe the action. Walking the ground and standing on the actual sites of the signal stations while reading the accounts of the signal officers who manned them gives a perspective you cannot get from reading a book alone.

This guide is not written for the general public or the Civil War historian. It is written for company grade signal

officers and assumes the reader has a knowledge of modern tactical signal operations. The guide is designed to provide first hand accounts not easily available in order to give signal officers a sense of pride in the heritage of their Corps. It will also serve as a teaching tool, illustrating tactical and operational problems confronted by our predecessors and showing how they endeavored to solve them. As you use the guide and follow the actions of the various signal officers, you will see them struggling with many of the same problems modern signal officers face: selecting and securing good signal sites, profiling line of sight communications, managing communications networks, training soldiers, maintaining equipment, preventing communication information from being intercepted by the enemy, and, most importantly, providing timely communications and information to the tactical commander.

In order to use the guide properly, you should have a general knowledge of the battle of Gettysburg. The following three works are recommended to give the reader a basic understanding of the action within this campaign: The West Point Atlas of the Civil War; The Killer Angels by Michael Shaara; and chapter 1, FM 22-100. For an overall guide to the battle, The U.S. Army War College Guide to the Battle of Gettysburg by Luvaas and Nelson is excellent both as a tool for a self-guided staff ride and as a reference containing first hand accounts.

This guide loosely follows the chronology of the battle

once the various corps arrive on the battlefield. While it does not detail the signal stations used during the movement of the Army of the Potomac from Virginia to Pennsylvania, the tour does encompass the primary stations used as the Army of the Potomac followed the Army of Northern Virginia south to the Potomac River.

The exact location of some of the signal stations is not known, but most of them are well documented. The guide will tell you when the locations are approximate. A compass and a pair of field glasses are a necessity in order to view the various stations, some of which are well over ten miles apart.

The guide will tell you if the station was used as a station of communication, or observation, or both. Signal officers had two distinct functions in the Civil War. One was to provide communications by various means; and the other to provide information on the location and movements of the enemy. Due to the necessary elevation of the signal stations, many served both functions. There are numerous examples in this guide where signal officers provided key information to tactical commanders during this campaign. A detailed description of the observation function is provided in Col. Myer's words at Stop 8.

The tactical and operational level communications function was primarily performed by flag signals. The Signal Corps owned a field telegraph service which was used to extend the commercial lines to the various headquarters,

but most of the long distance telegraph service was provided by commercial companies which had been federalized and placed under the auspices of the Military Telegraph Service. That service was not a part of the Signal Corps, but was a civilian bureau attached to the Quartermaster's Department. A detailed description of the flag signal equipment is at Appendix I.

In analyzing the available message traffic in the Official Records, it is difficult to distinguish messages that were sent via flag signal from those written and sent by courier. Other than the obvious mention of a signal station or having been signed by a signal officer, there are few clues. Most signal messages do not include typical embellishments of the day such as "Very respectfully, your obedient servant" or simply "Very respectfully". Signal messages also tended to be written in a straightforward manner with simpler text than written notes. This guide uses only those messages than can be tied directly to the Signal Corps. However, that can leave a false impression. In reviewing the traffic published in this guide, you can get the idea that the preponderance of the traffic was simply signal officers reporting their observations to various headquarters. The problem is that messages sent from and to commanders by flag signals are not necessarily identified as such. Signal messages were used in command and control, but at the time of Gettysburg the practice was in a fledgling state. Meade would not displace his

headquarters from the Leister House to Power's Hill until it was brought to his attention that a signal officer was present at the new location. [George G. Meade, Letter to John Bachelder, Descriptive Key to the Painting of the Repulse of Longstreet's Assault at the Battle of Gettysburg, New York, John B. Bachelder, 1870, p. 61.]

The consequences of how the signal assets were assigned is an interesting study in this campaign. During the portion of the campaign conducted on the battlefield, signal officers were assigned to the various corps and tended to select sites based upon their own reconnaissances. In his role as Chief Signal Officer of the Army of the Potomac, Captain Lemuel B. Norton apparently exercised minimum control as to the selection and conduct of the various signal stations. The signal system employed on the Gettysburg battlefield could be referred to as a "command system" in modern signal terminology. The signal officers were under the direct control of the supported corps and moved with the corps. In Norton's case, there appeared to be little "system" planning or control. That he had been in the position for less than one month and was the same rank as the corps signal officers certainly could have been contributing factors.

As the Army of the Potomac moved south through Frederick, at the close of the campaign, signal assets were deployed and controlled differently.

On 6 July, Captain William Nicodemus was ordered by the

Chief Signal Officer of the Union Army, Colonel Albert Myer, to take 12 officers and 27 enlisted men and report to the Army of the Potomac which on the 7th was located at Frederick, Maryland. [O.R., XXVII, Part I, p. 207.] Captain Nicodemus established a tightly controlled "area" signal system which this staff ride will examine in detail. The differences in the systems employed by Norton and Nicodemus make an interesting comparison.

Because this guide is not in strict chronological order, the following brief overview of the Signal Corps involvement in the campaign is provided.

On the 14 June 1863, the headquarters of the Army of the Potomac commenced its initial move out of Falmouth Virginia. On 24 June, the Confederates were reported crossing the Potomac near Sharpsburg, Maryland. The Signal Corps attached to the Army of the Potomac under Captain Norton provided observation and communication services as the Army moved north eventually meeting the Army of Northern Virginia at Gettysburg. Norton and the various corps signal parties supported the Army of the Potomac during the Battle of Gettysburg and continued to provide communication and observation services as the Army moved south through Frederick, Maryland, following the Confederates into the Boonsborough Valley. On 7 July, a detachment of signal officers and enlisted men under Captain William Nicodemus, was ordered from Washington by Colonel Myer, to support Captain Norton and provide communication services to the

Army of the Potomac. This detachment supported the Army during what was primarily a cavalry action, as the bulk of the Army of the Potomac moved toward contact with the Army of Northern Virginia south of Hagerstown, Maryland prior to the Confederates recrossing the Potomac River.

COMMUNICATIONS ON THE GETTYSBURG BATTLEFIELD

To begin the staff ride, park in the **CYCLORAMA CENTER** parking lot and walk across **TANEYTOWN ROAD** to the **NATIONAL CEMETERY**. Enter the Cemetery and follow the road to the left until you are between the **SOLDIERS NATIONAL MONUMENT** on your right and a flag pole on your left.

STOP 1, POSITION A. GETTYSBURG SIGNAL STATIONS

This position offers the best view of the three signal station sites in the town of Gettysburg. Take your compass and sight the following stations: Lutheran Seminary cupola - 325 degrees; Pennsylvania Hall, Gettysburg College - 356 degrees; Gettysburg Courthouse - 20 degrees. All of these structures are white and are lower on the horizon than the church steeples around them. This guide does not include these signal stations as individual stops but they are worthwhile sites to visit at your convenience. There is a plaque on Pennsylvania Hall identifying it as a Union signal station and the Lutheran Theological Seminary contains a museum which is open to the public.

All three of the Gettysburg stations were operated in direct support of Brig. Gen. Jno. Buford's First Cavalry Division. Buford's Chief Signal Officer was Lieutenant Aaron Jerome who on 30 June established a signal observation station in the cupola of the Lutheran Seminary and later in

the cupola of Pennsylvania Hall at Gettysburg College. On 1 July, the station was moved to the Gettysburg Courthouse. These stations were in flag signal contact with the station here on Cemetery Hill which will be visited next. "The station on the Seminary transmitted numerous reports as to the number and movements of the enemy, which were received by the signal officer serving with Gen. Howard, who on the death of Reynolds had assumed command and had taken position on Cemetery Hill." [J. Willard Brown, Signal Corps, U.S.A. in the War of the Rebellion, New York, Arno Press, 1974, p. 359.]

Letter from Lieut. A. B. Jerome, Signal Officer, First Cavalry Division, to Maj. Gen. Winfield S. Hancock, Commander Second Corps

A squadron of the 1st Cavalry Division entered Gettysburg driving the few pickets of the enemy before them. The General and staff took quarters in a hotel near the Seminary. As signal officer, I was sent back to look out for a prominent position and watch the movements of the enemy. As early as seven A.M. I reported their advance, and took my station in the steeple of the "Theological Seminary." General Buford came up and looked at them through my glass, and then formed his small cavalry force. The enemy pressed us in overwhelming numbers, and we would have been obliged

to retreat but looking in the direction of Emmitsburg, I called the attention of the General, to an Army Corps advancing some two miles distant, and shortly, distinguished it as the "first" on account of their "corps flag". The Gen. held on with as stubborn a front as ever faced an enemy, for half an hour, unaided, against a whole corps of the rebels, when Gen. Reynolds and a few of his staff rode up on a gallop and hailed the Gen. who was with me in the steeple, our lines being but shortly advanced. In a familiar manner Gen. Reynolds asked Buford "how things were going on", and received the characteristic answer "let's go and see." [A. B. Jerome, Signal Officer, First Cavalry Division, Letter to Maj. Gen. W. S. Hancock, 18 Oct, 1865, Bachelder Papers, U.S. Army Military History Institute.]

The following signal message from Lieut. Jerome to General Howard is credited by the Official Records as having been sent on the second of July. The date was recorded in brackets, indicating that it was added by the compiler. Based on the text of the message it appears that the message was in fact sent on the first to warn of General Rodes' approach, and it was likely sent from the College station or the Courthouse.

[July 2], 1863

General Howard:

Over a division of the rebels is making a flank movement on our right; the line extends over a mile, and is advancing, skirmishing.

There is nothing but cavalry to oppose them.

A. B. Jerome,

First Lieutenant, Signal Officer

[O.R., XXVII, Part III, p. 488.]

Jerome's utility to the First Cavalry Division is testified to by Buford:

Lieutenant [Aaron B.] Jerome, signal corps, was ever on the alert, and through his intrepidity and fine glasses on more than one occasion kept me advised of the enemy's movements when no other means were available.

[O.R., XXVII, Part I, p. 930.]

Walk back toward the entrance until you reach the
GETTYSBURG ADDRESS MEMORIAL.

STOP 1, POSITION B. CEMETERY HILL SIGNAL STATION

This is the approximate site of the Cemetery Hill signal station. [Map of the Battle of Gettysburg, Office of the Chief of Engineers, U.S. Army, Boston, John B. Bachelder, 1876, Plate 1] Take your compass and sight Meade's Headquarters at 210 degrees and the Little Round Top signal station at 195 degrees. Because this station was operated by a number of signal parties, communicating with various stations on the battlefield, it may have been located at times on other parts of Cemetery Hill.

The first signal officers to occupy this position were Captains P. Babcock Jr. and T. R. Clark of the Eleventh Army Corps. The Eleventh Corps signal station was established when Maj. Gen. O. O. Howard left a portion of his command as a reserve on Cemetery Hill. During the action of the first day, Babcock and Clark were in contact with the stations in Gettysburg which were operated by Jerome.

This site was also the initial location of the Chief Signal Officer of the Army of the Potomac, Captain Lemuel B. Norton. Captain Norton was assigned to that position after Captain B. F. Fisher was captured near Aldie on 17 June while on reconnaissance.

**Report of Capt. Lemuel B. Norton, Chief Signal Officer,
Army of the Potomac**

On July 1, general headquarters remained near Taneytown. A station of observation was established,

first on the college and subsequently on the court-house in Gettysburg, and reports of the position, numbers, and movements of the enemy sent by signals to General Howard, on Cemetery Hill, southeast of the town. In the afternoon of this day two reconnaissances were made from Gettysburg, for the information of General W. S. Hancock, by the signal officer temporarily attached to his staff.

In the evening I was made acquainted by the general commanding with the line of defense to be occupied by the army in case the enemy made an irresistible attack upon our position, and directed by him to "examine the line thoroughly, and at once upon the commencement of the movement extend telegraphic communication from each of the following points, viz, general headquarters, near Frizellburg, Manchester, Union Mills, Middleburg, and the Taneytown road."

In order that these instructions might be promptly and successfully fulfilled, signal telegraph trains were sent to Frizellburg, and everything held in readiness to extend the wire at a moment's notice to the points desired by the commanding general. During the whole of this day, endeavors were made to open the signal line between general headquarters, Emmitsburg, and Round Top Mountain, but, on account of the smokiness of the atmosphere, the desired result was not obtained until 11 p.m., when the first message was

received. These lines were kept open during the subsequent battle at Gettysburg and until July 6. In the event of the repulse and retirement of our army, they must have been eminently useful. [O.R., XXVII, Part I, pp. 201-202.]

This station was also used by the First Corps and was maintained by First Lieutenants J. C. Wiggins and N. H. Camp. The following messages have been documented as being transmitted from this signal station.

Cemetery Signal Station

July 2, 1863, 12.35 P.M.

Gen. Butterfield:

Numerous fires, apparently from the burning of wagons, south-southeast from here. A wagon train can be seen in the same direction. I think our trains are being destroyed.

Babcock,

Capt., Signal Officer

Signal Station near Wadsworth's Headquarters

July 2, 1863, 4.35 P.M.

Capt. Norton:

One regiment rebel infantry has just come out of the woods into a field east-northeast from here. The enemy's sharpshooters are in the woods at the foot of this hill. I can see sixteen guns, not in position,-

eight north-northwest and eight northeast from here.

Very respectfully,

N. Henry Camp,

Lieut., Signal Officer

[O.R., XXVII, Part III, pp. 488-489.]

The allocation of two signal officers per corps had been ordered by the Chief of Staff of the Army of the Potomac, Major Gen. Butterfield, on 20 June. This represents a change from having the signal assets assigned to the three army wings which was the configuration as of the 14th of June in anticipation of the move north. Capt. Norton explains.

In view of the contemplated movement of this army from the line of the Rappahannock, in June last the following detail of signal officers was made by direction of the commanding general, viz: The right wing was supplied with 6, the left wing with 4, and the center with 4, 8 officers being held as a reserve, to be used whenever the Changes in the position of the army might render them of the greatest service....

....On the 20th, by direction of the chief of staff, two signal officers were assigned to each army corps.

[O.R., XXVII, Part I, p. 200.]

the organization of the Signal Corps was being formalized during the Gettysburg Campaign. The leadership of the Army of the Potomac was organizing its signal assets internally. At the same time the War Department was deciding how many signal soldiers should be assigned to each corps. The Military Board of 1863 recommended the following complement of signal soldiers for each corps; one captain as Chief Signal Officer of the corps; one sergeant as clerk; and one sergeant as quartermaster and commissary sergeant of the corps party in charge of the train. In addition, it contained eight lieutenants, five sergeants, twenty first-class privates, and thirty-four second-class privates. [Albert J. Myer, A Manual of Signals, New York, D. Van Nostrand, 1866, p. 332.]

The Chief Signal Officer was heavily involved in recruiting officers and enlisted men for the new corps. Prior to March, 1863, all signal officers were in an acting status and most of them were on temporary duty from their regiments. With the advent of the formal organization of the corps, a board of officers was established by the War Department to examine officers for permanent acceptance into the Signal Corps. The following circular illustrates the emphasis which was being placed on recruiting soldiers for the new corps.

[CIRCULAR.]

OFFICE OF THE SIGNAL OFFICER
Washington, D.C., July 1, 1863

Chief signal officers of departments or army corps are instructed to proceed at once to enlist and re-enlist men for the Signal Corps, U.S. Army, after passing the required examination, for the period of two or three years or the war.

Enlisted men now upon duty in the corps may be transferred for the balance of their unexpired term of service.

Transfers to the corps of men now serving in it may be made in accordance with General Orders (from the War Department), No. 106.

By order of the Signal Officer of the Army:

HENERY S. TAFFT,
Captain and Signal Officer.

[O.R., Series III, Volume III, p. 461.]

Memoirs of Captain Gustavus S. Dana, U.S. Army Signal Corps

Soon after this we were notified that the law passed Mar 3/63, organizing a Signal Corps, consisting of 1 Col, 1 Lt Col, 3 Majors, 20 Capts, 100 1st Lts, and 150

2nd Lts, all to be a part of the regular army required an examination. All not passing such ex to be returned to our reg'ts. I found out what studies would be necessary, sent North for an elementary Chemistry, Prescott's Electricity, a grammar & arithmetic & crammed. Expected college bred boys would get the cream but had the promise of soon being the Col of my old regt if I returned to it. Col Chatfield and Maj Rodman had been mortally wounded on July 18th and the Lt Col [John] Speidel was about to resign, the senior Captain did not want the Colonelcy and all the other Capts agreed to waive their rank in my favor. It was a compliment I ought to have appreciated enough to go back to the old 6th but I was young & desired more dash and freedom than could be had with infantry and concluded to not do so unless the result of the ex-reduced my rank. [Captain G.S. Dana, "The Recollections of a Signal Officer," Edited by Lester L. Swift, Civil War History, State University of Iowa, Vol. IX, No. I, March 1963, p. 41.]

Now you should return to your automobile and drive to
STOP 2.

Drive **WEST**, away from the **TANEYTOWN ROAD**. As you leave the **CYCLORAMA CENTER** parking lot take the first **LEFT** on to **HANCOCK AVENUE**. You will continue past the **HIGH WATER MARK** and proceed for one mile. The road will change to **SEDGWICK**

AVENUE. Stop and park in the **LITTLE ROUND TOP** parking lot. Walk up the trail to your right front about 50 feet and stop at the **SIGNAL CORPS MONUMENT.** The monument is a bronze tablet on a large rock which is a few feet in front of the **WARREN STATUE.**

STOP 2 LITTLE ROUND TOP SIGNAL STATION

Standing directly behind the boulder which holds the Signal Corps Monument, you can see most of the signal station sites that were in use on the field. The sites on Culp's Hill and Power's Hill are now obscured by timber. Take your compass and sight the signal stations from left to right as follows: Jack's Mountain - 265 degrees, Meade's Headquarters - 35 degrees, Cemetery Hill - 36 degrees, Culp's Hill - 44 degrees, Power's Hill - 50 degrees. Although the exact location of some of the Gettysburg signal sites are difficult to pinpoint, it is well documented that the Little Round Top station was the boulder holding the tablet and the one right behind it. [E. B. Cope, Engineer, Letter, War Department Gettysburg National Park Commission, Gettysburg, January 10, 1900.] The history of the Signal Monument is available for review at the National Park Service Library in the Cyclorama building.

**Report of Capt. Lemuel B. Norton, Chief Signal Officer,
Army of the Potomac**

A station was established upon Round Top Mountain, on the left of our line, and from this point the greater part of the enemy's forces could be seen and their movements reported. From this position, at 3.30 P.M., the signal officer discovered the enemy massing upon General Sickles left, and reported the fact to General Sickles and to the general commanding.

At 5.30 P.M. the enemy opened a terrific fire, but our left was fully prepared for them, and the fight gradually extended to the whole front, so that every signal flag was kept almost constantly working. The station at Round Top was once, and that at General Meade's headquarters twice, broken up by the rapid advance of the enemy and the severity of the fire, but were immediately reoccupied when the positions became tenable. [O.R., XXVII, Part I, p. 202.]

Much of the importance of the Round Top signal station came from the fact that its mere presence caused a delay in the employment of Longstreet's Corps on 2 July. The station was the direct cause of Longstreet's countermarch. Maj. Gen. Lafayette McLaws, one of Longstreet's division commanders, recounts Longstreet's decision to countermarch:

Suddenly, as we rose a hill on the road we were taking, the [Little] Round Top was plainly visible, with the flags of the signal men in rapid motion. I sent back

and halted my division and rode with Major Johnston rapidly around the neighborhood to see if there was any road by which we could go to into position without being seen. Not finding any I joined my command and met General Longstreet there, who asked "What is the matter?" I replied, "Ride with me and I will show you that we can't go on the route, according to instruction, without being seen by the enemy." We rode to the top of the hill and he at once said, "Why this won't do. Is there no way to avoid it?" I then told him of my reconaissance in the morning, and he said: "How can we get there?" I said: "Only by going back - by counter marching." He said: "Then all right," and the movement commenced. But as General Hood, in his eagerness for the fray (and he bears the character of always being so), had pressed on his division behind mine so that it lapped considerably, creating confusion in the countermarch, General Longstreet rode to me and said: "General, there is so much confusion, owing to Hood's division being mixed up with yours, supposed you let him countermarch first and lead in the attack." I replied: "General, as I started in the lead, let me continue so;" and he replied, "Then go on," and rode off. [Lafayette McLaws, "Gettysburg," Southern Historical Society Papers, Vol. VII, p. 69.]

Take your compass and sight a red barn and metal silo

at 308 degrees. This is the location where the above conversations between McLaws and Longstreet took place. You can see that McLaws was correct in his assertion that he couldn't continue without being seen by the signalmen at this station.

Col. E. P. Alexander, in charge of Longstreet's artillery and the founder of the Confederate signal service, comments on the significance of the Round Top signal station:

Ewell's corps, holding the extreme left, was to attack the enemy's right on hearing Longstreet's guns. Longstreet was directed, in his march, to avoid exposing it to the view of a Federal signal station on Little Round Top Mountain.

Meanwhile, on the arrival of Longstreet's reserve artillery in the vicinity of the field, I had been placed in charge of all the artillery of his corps, and directed to reconnoitre the enemy's left and to move some of the battalions to that part of the field. This had been done by noon, when three battalions, - my own, Cabell's and Henry's - were located in the valley of Willoughby Run awaiting the arrival of the infantry. Riding back presently to learn the cause of their non-arrival, the head of the infantry column was found halted, where its road became exposed to the Federal view, while messages were sent to Longstreet, and the

guide sought a new route... [E. P. Alexander, Military Memoirs of a Confederate, New York, Charles Scribner's Sons, 1910, pp. 391-392.]

The Round Top signal station was used by a number of two man signal detachments representing the various corps to which they were temporarily attached. A review of the message traffic indicates that Buford's signal officer, Lieutenant Jerome, was the first to use the station on the second day of the battle. The following messages were sent before noon on 2 July:

Mountain Signal Station

July 2, 1863, 11.45 A.M.

Gen. Butterfield:

Enemy's skirmishers are advancing from the west, one mile from here.

Jerome,

Lieut., Signal Officer

Round Top Mountain Signal Station

July 2, 1863, 11.55 A.M.

Gen. Butterfield:

The rebels are in force, and our skirmishers give way. One mile west of Round Top Signal station the

woods are full of them.

Jerome,

Lieut., Signal Officer

[O.R., XXVII, Part III, p. 488.]

Jerome, attached specifically to support Buford's division, evidently left the station when the division was pulled from Little Round Top.

In view of the following message, it is probable that that the Chief Signal Officer, Capt. Norton, joined Capt. P. A. Taylor at the Little Round Top station. He brought the station to the attention of Capt. James Hall who along with Taylor was attached to the Second Corps. You will note that although Norton tells Hall that Little Round Top is a good observation station, he does not direct him to occupy it. This message is typical of the indirect methods Norton employed in fulfilling his duties as Chief Signal Officer.

Round Top Mountain Signal Station

July 2, 1863.

Capt. Hall:

Saw a column of the enemy's infantry move into woods on ridge, three miles west of the town, near the Millerstown road. Wagon teams, parked in open field beyond the ridge, moved to the rear behind woods. See wagons moving up and down on the Chambersburg pike, at Spangler's. Think the enemy occupies the range of hills three miles west of the town in considerable

force.

Norton,

Taylor,

Signal Officers

[P.S.]-This is a good point for observation. [O.R.,
XXVII, Part III, p. 489.]

Although the Second Corps signal party evidently did not render a specific report of their Little Round Top activities, the available message traffic indicates that Hall joined Taylor on the Round Top Station by at least 1:30 P.M. on the second of July. There are a number of opinions as to the utility of Capt. Hall's actions which vary from his "saving the day", expressed by fellow signalmen, to that he contributed to the problem by presenting confusing information to Generals Butterfield and Meade.

J. Willard Brown, an enlisted signalman during the war and the postwar historian of the U.S. Veteran Signal Corps Association, gives Hall much of the credit for saving Little Round Top. According to Brown, Hall was responsible for sending messages which caused Warren to visit the station, and then had to convince the general that the Confederate troops were concealed in front to the position. Brown elaborates:

It was Capt. Hall's announcement that the enemy were moving around Sickles's left that brought Gen. Warren

to Little Round Top. When he reached the station the enemy were under cover, and were scarcely visible except to eyes accustomed to the use of the field-glass. Capt. Hall found it very difficult to convince Gen. Warren that the enemy's infantry and artillery were there concealed. While the discussion was in progress the enemy opened on the station. The first shell burst close to the station, and the general, a moment later, was wounded in the neck. Capt. Hall then exclaimed, "Now do you see them?". [J. Willard Brown, Signal Corps, U.S.A. in the War of the Rebellion, New York, Arno Press, 1974, p. 367.]

Although Hall's version of the account is certainly interesting, his credibility may be suspect. Hall was the Vice President of the Veteran Signal Corps Association and was a protege of Brown's. They visited the station on Little Round Top on July 2, 1888, along with John Chamberlin who was Hall's flagman, during an annual reunion of the organization. [Minutes of The Thirteenth Annual Reunion of the U.S. Veteran Signal Corps Association, held at Gettysburg, Pa., July 2 and 3, 1888.] Hall's version was probably recounted to Brown during that reunion, 25 years after the actual event, and was almost certainly colored by time and parochialism.

Harry W. Pfanz, a modern student of the battle, believes that the messages which Hall sent to General

Butterfield contributed to the confusion as to the Confederate activity on the left. He postulates that the signal station could have done a better job providing the Army with information. [Harry W. Pfanz, Gettysburg: The Second Day, The University of North Carolina Press, 1987, pp. 141-142.] Hall sent the following traffic from Little Round Top on July 2, 1863:

Round Top Mountain Signal Station,
July 2, 1863, 1.30 P.M.

Gen. Butterfield:

A heavy column of enemy's infantry, about ten thousand, is moving from opposite our extreme left toward our right.

HALL,

Capt. Signal Officer

Round Top Mountain Signal Station,
July 2, 1863, 2.10 P.M.

Gen. Butterfield:

Those troops were passing on a by-road from Dr. Hall's House to Herr's tavern, on the Chambersburg pike. A train of ambulances is following them.

HALL,

[O.R., XXVII, Part III, p. 488.]

Capt. Hall's party departed the station at some point

in the afternoon and left the station without a signal party. According to Brown, Col. Morgan ordered Capt. Hall to report to Gen. Sedgwick. [J. Willard Brown, Signal Corps U.S.A. in the War of the Rebellion, New York, Arno Press, p. 366.]

That the Round Top Signal station reported information on the disposition of Confederate troops prior to Longstreet's assault on Sickles is confirmed by Brig. Gen. Gibbon's aide, Lieut. Frank A. Haskell. Lieut. Haskell's "letter" tells us:

About noon the Signal Corps, from the top of Little Round Top, with their powerful glasses, and the cavalry at the extreme left, began to report the enemy in heavy force, making disposition of battle, to the West of Round Top, and opposite to the left of the Third Corps. [Frank A. Haskell, The Battle of Gettysburg, Edited by Bruce Catton, Boston, Houghton Mifflin Company, 1958, p.31.]

The third signal party to assume position on Little Round Top was that of Capt. E. C. Pierce of the Sixth Corps. At the time Capt. Pierce and his detachment arrived, Capt. Hall had departed the site.

**Report of Capt. E. C. Pierce, Signal Officer, Sixth
Army Corps**

The 6th Corps reached Gettysburg at 2 o'clock p.m., July 2nd, after a continuous march of nineteen hours. After resting three hours, orders were given for the corps to proceed to the extreme left of our line and engage the enemy.

Lieut. Geo. J. Clarke and myself assisted Gen. Sedgwick and staff in forming the line of battle, and getting the troops in position, as the tide of battle appeared to turn upon the celerity with which the 6th Corps was engaged. The splendid manner in which our first line went in to the fight fairly turned the tide, and at dusk we had repulsed the enemy at all points. Before that consummation, we had learned that a signal station had been abandoned by some signal officers as impracticable. It being described to us a splendid post of observation, we determined to occupy it. The position, as we eventually found it, was a pile of rock on our left and a little to the right of the place occupied by Hazlett's battery. From it a magnificent view of the entire battlefield could be had, extending from the cemetery, on our right, to the Emmitsburg road on the left. We remained there during the Night.

July 3. At daylight we commenced making observations, the results of which we reported by orderlies, to Major-Generals Meade, Sedgwick, Sykes, Hancock, Birney, Pleasonton, Newton, etc.

Headquarters signal station was in plain sight all the time, and we could hence call it, but not without exposing the lives of our men to the deliberate aim of the enemy's sharpshooters, who, stationed behind rocks, in tops of trees, etc., fired with fatal effect upon all that showed themselves. They kept two guns of Hazlett's battery silent, except when worked by volunteers, and kept up a continual fire upon the rock, not ten feet square, occupied by us. Seven men, including officers, who were drawn there by curiosity, were killed or severely wounded by the combined fire of the sharpshooters and artillery. About 11 A.M. we were joined by Lieutenants Wiggins and Camp, who agreed with us upon the impossibility of employing flag signals, and consequently we continued to report by orderlies.

About 3 P.M., the enemy opened fire with all their artillery upon our lines, and the necessity of sending orderlies increased as Gen. Warren, Chief of Engineers on Gen. Meade's staff, who came to our station at 2 o'clock, p.m. directed us to keep a lookout on certain points, and to send messages every few minutes to Gen. Meade during the day. In this connection, I wish particularly to place upon record the fact that the signalmen attached to Lieut. Wiggin's party and mine are worthy of all commendation for the bravery displayed by them in riding to and fro, through an unexampled artillery fire, with important messages.

During the afternoon of this day, after the enemy were repulsed from our right and centre, Major-Generals Meade, Sedgwick, Sykes, Pleasonton, etc., visited our station, and remained there until Gen. Crawford's division drove the enemy and sharpshooters from their position.

July 4th. We opened communication by flag signals with headquarters station and made constant reports of the movements of the enemy. At 4 o'clock P.M., Lieutenants Wiggins and Camp reported back to 1st Corps by order of Gen. Newton." [Capt. E. C. Pierce, report, quoted in J. Willard Brown, Signal Corps, U.S.A in the War of the Rebellion, New York, Arno Press, 1974, pp. 361-362.]

**Diary entry of Sergeant Luther C. Furst, USA, Flagman,
Sixth Army Corps**

July 2d, 2 P.M. We have just made the second halt for orders. We are now within four miles of Gettysburg. After a short rest advanced again. Got up to our line of battle about 4 P.M., having made a march of thirty-six miles, the longest rest being one hour. We immediately reinforce our troops upon the left, they being pressed very hard. We just reach the conflict in time to make secure the Round Top Mountain to our

forces. The fight now became general along the lines extending to Gettysburg, which is plainly visible from this point. Our forces have been able to hold their positions at every point. The 6th Corps came up the Round Top Mountain six lines deep, secured and made safe our position on little Round Top. We immediately established the signal station on the crest, the other signal officers having deemed it impracticable.

July 3rd. Were up before daylight. Began to signal in direction of Gettysburg at daybreak. Held our station all day, but were much annoyed by the enemy's sharpshooters in and near the Devil's Den. Have to keep under cover to protect ourselves. The large rocks piled up all around us serve as good protection. Today there have been seven men killed and wounded near our station by the enemy's sharpshooters: hundreds on all sides of us by the enemy's severe cannonading. Up to near noon there has been considerable skirmishing along the line. A little later the whole of the artillery on both sides opened up and shell flew fast and thick. A good many have been struck near our station, but we are able to keep up communication. The fight upon the right is said to have been very severe, but our troops have held their positions and repulsed the enemy at every point. The loss of the 6th Corps has not been great, owing to the advantageous and protected position. [Sergeant Luther C. Furst, Diary entry,

quoted in J. Willard Brown, Signal Corps, U.S.A. in the War of the Rebellion, New York, Arno Press, 1974, pp. 362-364.]

As described by both Capt. Pierce and Sgt. Furst, on the third of July, this station was under such fire that it lost its utility as a station of communications but remained a station of observation. Messengers were used to relay the information obtained by the signal parties to the army headquarters. Historian George R. Stewart tells us: "Pickett began his advance from the bottom of a swale, and for several minutes his lines moved forward without anyone on Cemetery Ridge being able to see them. Almost at once, however, his two front brigades came under observation from Little Round Top, and the alert men of the Signal Corps sprang into action. The Vermonters of Stannard's brigade, occupying low ground, knew that the attack was launched before they saw a Confederate flag or soldier." [George R. Stewart, Pickett's Charge, Boston, Houghton Mifflin Company, 1959, p. 179.]

If Stewart is correct in his assertion that the Vermonters knew that Pickett's brigades were underway, they must have received the information by courier from this station.

Now you should proceed to **STOP 3**.

Drive to the bottom of the hill and turn **LEFT** on **WRIGHT**

AVENUE. Continue until you reach **TANEYTOWN ROAD** (HWY 134) and turn **LEFT**. Drive 1.4 miles and turn right on **GRANITE SCHOOL HOUSE LANE**. Drive 0.6 miles and stop along the road. You will see a monument in the woodline at the base of a small hill to your left. This prominence is **POWER'S HILL**. Walk to the top of the hill and stop by the artillery battery monument. The hill is heavily timbered, but in the late autumn and winter you can sight **LITTLE ROUND TOP** at 235 degrees.

STOP 3 POWER'S HILL SIGNAL STATION

This site was the location of Maj. Gen. Slocum's Right Wing headquarters and was probably supported by Lieut. J. E. Holland who was temporarily attached to the Twelfth Army Corps. This location was also an important artillery position which was used effectively against Confederates on Culp's Hill.

The Power's Hill signal station played a part in Maj. Gen. Meade's decision to move his headquarters to this location during the cannonade which preceded Pickett's Charge. [Edwin B. Coddington, The Gettysburg Campaign: A Study in Command, Dayton Ohio, Morningside Bookshop, 1979, p. 496.] In an attempt to notify Meade, news of Pickett's initial movement was signaled to this signal station by Capt. David Castle who had remained at Meade's original headquarters. The details of this event will be examined when you visit Meade's headquarters at the Leister House.

When studying the various signal sites on this battlefield, it becomes apparent that their selection was of the utmost importance. Col. Myer, comments on the selection of signal stations:

A station should never be located in a camp, or among tents, or where the white canvas of tents can form the background of signals viewed from the other station...

Signal stations should always be chosen elevated from the ground as much as is possible, when there is difficulty about smoke, or haze, or dust. The undulation of the atmosphere, noticeable on a hot summer's day, is always less at a distance from the earth's surface. Thus it is sometimes practicable to read from a tree or a house-top when it is almost impossible to so read from the ground. This undulation is less also over spots well shaded than in the glare of the sun. This should be borne in mind in all telescopic examinations. Permanent stations should never be placed in hollows, or on low land, when high ground is attainable. The greatest elevation should invariably be sought... By careful selections of high ground, stations can often be worked when signals on the lower fields would be invisible. For these reasons, it is well to have, sometimes, a station for night work on a house-top or in a tree, while during the day the station is worked from the ground. [Albert J. Myer, A Manual of Signals, New York, D. Van Nostrand, 1866, pp. 246-247.]

Now return to your automobile and proceed to **STOP 4**.

Drive the short distance to **BALTIMORE PIKE** and turn left. Take the first right at the park sign to **SPANGLER'S SPRING** and **CULP'S HILL**. Follow the signs to the top of **CULP'S HILL** and park by the observation tower.

STOP 4 CULP'S HILL OBSERVATION TOWER

This position was not a signal station. However, because of the increase in timber growth on the battlefield, this tower offers the best view of the signal stations on the field. Climb the observation tower and orient yourself to the other signal sites on the battlefield. While you can't use your compass due to the metal in the tower, most of the sites can be located by using the round sighting device located in the center of the observation deck.

During the period of the Gettysburg Campaign, signal officers and soldiers were trained in a number of ways. Many received little or no formal training other than on-the-job. The Army's formal signal training was instituted in August 1861, with the creation of the Signal Camp of Instruction at Red Hill, near Georgetown, D.C. The camp served as the Army's primary center for training signal soldiers. A description of the Signal Camp of Instruction is in Appendix II.

Col. Myer established a signal drill which was patterned after the manual of arms then in use. These training drills were used at the Signal Camp of Instruction as well as smaller unit sponsored schools and on the job training within the signal parties. Myer wrote his manual in 1864 but the drills were in common use prior to the manual being published. A Manual of Signals is lengthy and tends to be redundant, but it certainly does not want for detail. The following excerpts from the chapter on signal instruction gives a flavor of the style of training popular at the time.

Experience has shown that as, in the Manual of Arms, the soldier must be continually drilled to maintain his full efficiency, so in the practice of signalling, a drill, regular and habitual, is needed to fit either officer or man for the duty in the first place, and to retain them then with that skill which is needed in the moment of danger and of actual war.

The instruction should commence with the study of the principles of signalling, and the theories of their general use. The pupil should be well grounded in this study before practice is entered upon. He should then be required to commit to memory certain signal alphabets to be used; and these are to be so thoroughly memorized that no signal combination will require thought to determine its meaning. The General Service

Flag and Homographic Codes are to be committed in this manner. To this follows practice in the recitation-room with the "wand," a slender rod about eighteen inches long, - the class reading messages signalled by the instructor in the alphabets learned, rapid movements of the wand; or practising in couples, transmitting messages with the wand to each other during the hours set aside for study, until each is able to read messages of what ever character signalled with the greatest rapidity of motion that can be given. And in this portion of the course should be included practice with codes of different numbers of elements, and signalled by different modes of position or of motion, until the pupil is well accustomed to rapidly read and make the signals. He is practised also in rapidly repeating signals as they are made to him, both according to the plans given for returning signals to the sending station... [Albert J. Myer, A Manual of Signals, New York, D. Van Nostrand, 1866, pp. 220-221.]

Memoirs of Captain Gustavus S. Danna, U.S. Army Signal Corps

On Reporting at H.Hd [Hilton Head] I was obliged to take a solemn oath never to have in my possession anything that our code might be written on, never to tell it to anyone, not even our flagmen unless by

proper authority. Then I was furnished a kit & glasses & sent to Beaufort for instruction with the understanding that if not ready for duty in 30 days I would be expected to return to my regt. There were 4 of us 2nd Lts in the same detail. Each of us had selected 4 enlisted men from our regts who were also detailed by the same order.

The code written on a sheet of paper was handed me by Lt [Townsend L.] Hatfield with instructions to commit it to memory and then destroy the paper. It was terrible hard at first but about midnight I had the alphabet and then spelled books full till most morning and lighted my pipe with the paper the code was on just at streak of dawn.

Then we had the men to learn how to make the motions. It looked simple to wave a flag but it takes considerable practice even after you know how to make the motions to prevent wrapping the flag about the pole. The officers stationed at Beaufort were [Charles F.] Cross, [Townsend L.] Hatfield, [Franklin E.] Town & [W.H.] Hammer and they gladly let us work the station as soon as we could without making mistakes for it gave them more time for fun... [Captain G. S. Dana, "The Recollections of a Signal Officer", edited by Lester L. Swift, Civil War History, State University of Iowa, Vol IX, No I, March 1963, p. 38.]

Return to your automobile and drive to **STOP 5**.

Proceed down the hill on **SLOCUM AVENUE** and stop beside the road across from the equestrian statue of **MAJ. GEN. SLOCUM**. Walk across the road to the grassy area surrounding the statue.

STOP 5 CULP'S HILL SIGNAL STATION

This area is the location of the Twelfth Corps signal station as documented on the Bachelder Maps. [Map of the Battle of Gettysburg, Office of the Chief of Engineers, U.S. Army, Boston, John H. Bachelder, 1876, Plate 3] Although Maj. Gen. Henry W. Slocum was the Commanding General of the Twelfth Corps at the time of the battle, he had been appointed Right Wing Commander and had in turn appointed Brig. Gen. Alpheus S. Williams as the temporary commander of the corps. On 2 July, Slocum still considered himself Wing Commander, and brought Williams to Meade's Council of War that evening as the Corps Commander. The signal station located at this site supported Williams' Twelfth Corps headquarters and the station on Power's Hill supported Slocum as the Wing Commander. [O.R., XXVII, Part I, p. 760.]

The following message shows intelligence received by signal observation being provided to the Twelfth Corps. This message may have been sent by flag signal or by courier.

Headquarters Army of the Potomac

July 2, 1863-5.30 p.m.

Commanding Officer Twelfth Corps:

The signal officer reports that a heavy column of infantry is moving round to the right, and in front of Slocum's corps.

By command of Major-General Meade:

S. Williams

Assistant Adjutant-General

[O.R., XXVII. Part III, p. 489]

Now return to your automobile and drive to **STOP 6**

Continue down the hill and take **SLOCUM AVENUE** until you reach **BALTIMORE PIKE**. Turn **RIGHT** and take the first **LEFT** into the **NATIONAL CEMETERY**. Drive through the cemetery and turn left onto **TANEYTOWN ROAD**. Take the first right and park in the **CYCLORAMA CENTER** parking lot. Looking just south of the **CYCLORAMA CENTER**, you can see the equestrian statue of **MAJ. GEN. MEADE**. Walk to a point halfway between the statue and the small white house which is **MEADE'S HEADQUARTERS**. This is the approximate location of the signal station which supported Meade.

STOP 6 MEADE'S HEADQUARTERS SIGNAL STATION

This was the central station on the field and was key in receiving the various reports from Little Round Top and the

other signal stations. Maj. Gen. Butterfield was provided information on the movement of Longstreet's Corps on the afternoon of 2 July by flag signals between this station and the one on Little Round Top. On 3 July the station was used extensively. The Chief Signal Officer explains:

**Report of Capt. Lemuel B. Norton, Chief Signal Officer,
Army of the Potomac**

The station at General Meade's headquarters and that of General Howard's were rendered inoperative for a couple of hours by the furious attack of the rebels upon our center, but both were again actively employed as soon as the tremendous fire moderated sufficiently to permit of messages being read and transmitted with accuracy. The station on Round Top continued to report throughout the day discoveries in regard to the enemy's position... I take pleasure in still further mentioning Capt. D. E. Castle, of this corps, for distinguished gallantry and close attention to duty under most trying circumstances. On July 3, when the enemy made their furious attack upon our center at Gettysburg, Captain Castle occupied a signal station at General Meade's headquarters, near Cemetery Hill, and remained there on duty after all others had been driven away. His flagmen had also left with his signal equipments, under the impression that their officer had

gone with the rest. Having occasion to send a couple or important messages to the general commanding, then at General Slocum's headquarters, Captain Castle quickly cut a pole, extemporized a signal flag from a bedsheet procured near by, and sent his dispatches through under a most galling fire. [O.R., XXVII, Part III, pp. 203-206]

Maj. Gen. Meade, in a letter written to John B. Bachelder after the war, explains the circumstances of his leaving this location to go to Slocum's headquarters and he describes the role the signal stations had in that decision.

On the 3d of July, 1863, when the enemy's batteries were opened, I was at the house on the Taneytown Road occupied by me as head-quarters. This house, as you are aware, was situated about three or four hundred yards in the rear of the line of battle, and about the center of the enemy's converging lines of fire. Having around me a large number of officers and animals, exposed without any particular necessity to the very severe fire, the question of moving my head-quarters to a position less exposed was repeatedly brought to my notice; but in view of the importance of my being where it was known I could be found, I felt compelled to decline listening to any appeals till informed there was a signal officer on the hill on the Baltimore pike

(occupied as head-quarters by Major-General Slocum) who could communicate with the signal officer at the head-quarters I was occupying, I ordered head-quarters to be transferred to this hill. Prior to doing so, I moved over to a barn on the opposite side of the Taneytown Road, which seemed to be out of the line of the heaviest fire, but which, on reaching, was as much exposed as the place I had left. On arriving at the hill selected, I at once went to the signal officer on the summit, and directed him to communicate my arrival to the officer I had left at the house. I then ascertained the signal officer at the house had left there.

As soon as I learned this, I returned immediately to my old head-quarters. [George G. Meade, Letter to John Bachelder, Descriptive Key to the Painting of the Repulse of Longstreet's Assault at the Battle of Gettysburg, New York, John B. Bachelder, 1870, p. 61.]

Based on the accounts of both Capt. Castle and Maj. Gen. Meade, it appears that Meade had left the Power's Hill location before Castle made his improvised attempt to signal Meade. This event does show that the use of flag signals did figure in Meade's resources for command and control. The fact that Castle was still at this station after Meade's departure appears to be substantiated by the account of Lieut. Haskell of Gibbon's staff:

The General said I had better "go and tell General Meade of this advance". To gallop to General Meade's headquarters, to learn there that he had changed them to another part of the field, to dispatch to him by the Signal Corps in General Gibbon's name the message, "The enemy is advancing his infantry in force upon my front," and to be again upon the crest, were but the work of a minute. [Frank A. Haskell, The Battle of Gettysburg, Edited by Bruce Catton, Boston, Houghton Mifflin Company, 1958, p. 101.]

This is the last stop on the battlefield. The remaining stops visit signal station sites which were a part of Army of the Potomac's movement within the campaign.

Return to your automobile and drive to **STOP 7**.

COMMUNICATIONS AS THE ARMY MOVES SOUTH

Drive toward the center of **GETTYSBURG** and turn left on **FAIRFIELD ROAD** (HWY 116). Drive 9.3 miles passing through **FAIRFIELD** and turn right on **JACK'S MOUNTAIN ROAD**. (Jack's Mountain road is not marked. There is a large billboard advertising the Gettysburg Game Park at the turn-off.) Drive 1.3 miles and turn left on **PINEHILL ROAD** and take the first right on **WARREN ROAD**. Drive about 100 yards and stop at the intersection of **WARREN ROAD** and **GLADYS ROAD**. Park your car and stand by the telephone pole.

STOP 7 JACK'S MOUNTAIN SIGNAL STATION

The exact location of the Jack's Mountain signal station is not known. However, this location gives you a sense of the panoramic view which was available to the signal team operating on this mountain. Take your compass and orient yourself by sighting the National Tower at 70 degrees. Now you can find Little Round Top at 73 degrees. Looking to the left you can see the dome of the Pennsylvania monument and the obelisk of the Congressional monument. Realizing that there was less timber on the field in 1863, you can see that a signal team on this mountain would have had a clear view of troop movements.

This station was occupied by Capt. C. S. Kendall and

Lieut. L. R. Fortescue who were ordered here by Capt. Norton when he was at Emmitsburg enroute to the battlefield. They were able to establish flag signals with Taneytown but were never successful in opening flag signals with the Little Round Top station. Confederate troop movements were visible to include the initial formations massing for Pickett's Charge. This information was signaled to Taneytown but not to the Round Top station. The signalmen at Little Round Top were clearly visible and Lieut. Fortescue sent a courier to the battlefield to tell Capt. Norton that the team could see the Round Top station. [J. Willard Brown, Signal Corps, U.S.A. in the War of the Rebellion, New York, Arno Press, 1974, p. 370]

The information which could have been made available to the Commanding General if the signal officers were more aggressive in contacting each other might have influenced the action. The lack of control exercised by Capt. Norton over the various stations was a limiting factor in the effectiveness of the Signal Corps at this stage in the campaign.

After the battle was over, Capt. Kendall and Lieut. Fortescue were captured by the Confederates. J. Willard Brown, the historian of the U.S. Veteran Signal Corps Association, tells the interesting story:

On Saturday morning, July 4th, at about 6 o'clock, a farmer rode up to the station and hurriedly informed

the signal party there stationed that the rebel cavalry (a squad of about twenty) were coming down the Millerstown Pike, intending to capture them, that they had fed and watered their horses at his place during the night, and had been heard to refer to the signal flag, which they remarked would be looked after at daylight.

Being thoroughly satisfied of the truth of this report from the numerous cavalry squads seen on the pike, the signalmen were soon in their saddles and were shown a road not much frequented, which led them to the Millerstown road near Emmitsburg. Arriving at the latter town, they made a detour of the Catholic College and were soon galloping hard for Taneytown. Later in the day, when near the latter place, they met the advance of Kilpatrick's Division of cavalry going in the direction of Emmittsburg, and, as they had received no orders to leave their station, they returned with them to again occupy it.

When they reached the town it was dark and raining quite hard, a night wholly impracticable for signalling, but with the hope that it might clear away they dismounted under a shed and awaited the rear the cavalry then slowly passing through the town. At twelve o'clock, the last of them had passed.

They had been informed by members of Kilpatrick's staff that Lee's entire army had retreated through the

Monterey or Fairfield Gap, and that our army would advance at daylight. Acting upon this information, not having had a word from Capt. Norton, and realizing the impossibility of using torches or of seeing the opposite station in such a rain, as well as the extreme probability of a change of stations owing to Lee's repulse, they turned into a barn near the foot of the mountain, stationed a man on guard near the road, while Kendall and Fortescue made a bed on the floor of the house adjoining.

Before daylight, Stuart's cavalry having been cut off by Kilpatrick, who occupied the gap in Lee's rear, commenced retreating southward to find an unoccupied gap, and, although the enemy's cavalry were on the roads all around them within three hours after they had lain down, the guard did not recognize the rebels but supposed them to be Kilpatrick's men.

As daylight dawned, he discovered his mistake and awoke the rest of the party, but too late. The thieving propensity of the rebel cavalry for horseflesh soon led them to the barn, and before very long the signal detachment had taken up the line of march for Richmond. [J. Willard Brown, Signal Corps, U.S.A. in the War of the Rebellion, New York, Arno Press, 1974, pp. 370-371.]

The conduct of signal officers had become a concern to

the Chief Signal Officer who issued a General Order in June of 1863 which outlined a "code of conduct." There had been cases where the actions of signal officers had caused panic and confusion within the Army, and this order is interesting in that it not only prescribe conduct to prevent over-reaction from exaggerated reports but also outlines proper conduct in the face of the enemy to prevent capture or compromise of equipment or information which would have an intelligence value to the enemy.

**General Order issued by Col Albert J. Myer, Chief
Signal Officer, U.S. Army**

General Orders, OFFICE OF THE SIGNAL OFFICER,
No.9, Washington, D.C., June 26, 1863.

I. It having come to the knowledge of the Signal Officer of the Army that in some instances officers of the Signal Corps have transmitted information by signals of such a character as to produce alarm, uproar, and confusion among troops, and the inhabitants of town or cities with which they may be in communication, which reports have often been without foundation, the officer thereby being guilty of conduct prejudicial to good order and military discipline, it is hereby ordered and enjoined that all signal officers shall be held fully responsible and amenable to the military regulations of the Army for such stampede reports forwarded without foundation or forethought.

II. Under all circumstances must officers of this corps be fully cognizant of the responsibility resting upon them as proper and reliable sources of information or means of communications, such information being in most cases for the use of the commanding general or other officers commanding troops, and being the foundation of important movements or operations of the Army or Navy.

III. Reports must be made fully, concise, and clear, detailing all important discoveries, such as movements of the enemy, direction taken, probable numbers, whether artillery, cavalry, or infantry, and their position taken by compass from the station of observation. They must be made quietly, and written or delivered without the slightest exaggeration or excitement.

IV. Should the enemy be discovered advancing toward an officer or station, the signal party must not fall back until it is absolutely necessary to prevent capture, previously reporting to headquarters the advance of the enemy, and then a retreat must be effected quietly, and as much under cover as possible, taking care to create no needless alarm.

V. Every precaution must be taken that no signal apparatus, glasses, or papers of any description fall into the hands of the enemy. If necessary to prevent capture, everything will be destroyed.

VI. Chief signal officers of departments or army corps are required to see that the provisions of this order are fully carried out and that it is promulgated to every officer of the detachment. Nothing gives to commanding generals greater confidence in their informants than to see that they at least are not in the slightest degree excited, stampeded, or alarmed.

VII. It is designed that the officers and men of this corps shall become known and noticed throughout the Army for their bravery, coolness, and reliability under the most trying circumstances. Every officer not only bears upon himself the responsibility of sustaining his individual honor and reputation, but the honor of a corps performing its duties in the dangerous undertaking of establishing stations of observation and communication almost within the lines of the enemy and amid all the perils of the battle-field.

By order of the Signal Officer of the Army:

HENRY S. TAFFT,

Captain and Signal Officer.

[O.R., SERIES III-VOLUME III, pp. 417-418.]

Securing the signal station from the enemy to prevent capture or the compromise of information was a concern which was expressed in Col. Myer's A Manual of Signals:

Stations must be kept concealed from the enemy so far

as is possible. On stations of observation solely, no flags will be shown and no persons permitted except those actually on duty. Every precaution will be taken to prevent the enemy ascertaining the purpose for which the point is occupied. When communication by signals is needed, the flag will be screened from observation, if it can be, and in any case it will be shown only while transmitting messages... [Albert J. Myer, A Manual of Signals, New York, D. Van Nostrand, 1868, p. 250.]

Now you should return to you automobile and drive to **STOP 8.**

Go back to **JACK'S MOUNTAIN ROAD** and turn **LEFT**. Drive 1.5 miles and turn left on **SR 16**. Drive 6.4 miles to **EMMITSBURG**. Turn **RIGHT** at the stoplight and drive 0.5 miles to **HWY 15**. Turn **RIGHT** and drive 1.1 miles to **MT. SAINT MARY'S COLLEGE**. Exit **HWY 15** to the **RIGHT** and enter the parking lot of the college. Park by the visitor's center. The signal site was on the hill which you can see directly behind the college. You may ask in the visitors center for directions to the hiking trail. The hill is open to the public. The hill is heavily timbered and visibility is limited. You may wish to read the material here in the parking lot.

STOP 8 EMMITSBURG SIGNAL STATION

There were at least two signal stations located in Emmitsburg, one in the town and this one located on the hill behind the college. There was flag signal communication between this station and Little Round Top signal station from 2 July until 6 July, when it was purposely discontinued. The signal station in the church steeple in Taneytown has not been designated as a stop because it is somewhat out of the way. However, it is mentioned in Norton's report and would make an interesting side trip.

**Report of Capt. Lemuel B. Norton, Chief Signal Officer,
Army of the Potomac**

On the 30th, general headquarters removed to Taneytown. A signal station was placed in the church steeple at that place, and a party sent to Emmitsburg for the purpose of opening a line between General J.F. Reynolds and headquarters. Communication was not opened this day on account of the haziness of the atmosphere. The signal officer with General John Buford, who occupied the town of Gettysburg, took position in the steeple of the college, and reported to General Buford the whereabouts and movements of the enemy. The offices attached to the First Corps, from a station of observation on the mountain back of Emmitsburg, made a telescopic reconnaissance toward

Gettysburg, reporting the results to the general commanding that corps...

...During the whole of this day [1 July], endeavors were made to open the signal line between general headquarters, Emmitsburg, and Round Top Mountain, but on account of the smokiness of the atmosphere, the desired result was not obtained until 11 p.m., when the first message was received. These lines were kept open during the subsequent battle at Gettysburg and until July 6. In the event of the repulse and retirement of our army, they must have been eminently useful....

On July 6, the lines between Round Top and Taneytown and Emmitsburg and Taneytown were discontinued. The two officers attached to the First Corps made a telescopic reconnoissance from the hill back of Emmitsburg, and sent the information obtained to Maj. Gen. John Newton. [O.R., XXVII, Part I, pp.201-203.]

As mentioned in the introduction, signal stations had two distinct purposes, communications and observation. The station behind Mt. Saint Mary's College was used for communications with Round Top but its primary purpose appears to have been for observation. Col. Myer explains the observation function in his A Manual of Signals:

The observations and reconnoissances made by signal officers differ from those of other reconnoitering

officers, in the facts that, by their long practice, they are able to use their telescopes with an almost wonderful skill; and that the information they gain can sometimes be compared by them, from the place of observation, with that had at the same time by other officers in view and watching the enemy from other points, by the immediate transmission from one to the other of the facts noticed by each. The reports of their reconnoissances can also, in many instances, at once be communicated to the commanding general from the place at which the observations are making, while the reconnoitering officer remains to add further to his information. The reports are of a general character, relating to the presence or movements of the enemy, etc., such as are made by scouts. They are not expected to embrace the specialties exhibited in a report of engineers. An officer is often posted for weeks together at one station of observation...

The principal station of observation ought to command a view of fords, principal roads, railways, bridges, towns, camps, gaps in mountains, rivers, ports, as the case may be, and generally of the routes of march or movement in that section of the country...

Observations of reconnoissance are generally made from several prominent stations. They are to be briefly made, but they ought to be made with scrupulous exactness. The parties moving with signal-officers on

reconnaissance are generally small. They should move with the utmost rapidity and secrecy. [Albert J. Myer, A Manual of Signals, New York, D. Van Nostrand, 1866, pp. 360-362]

Now proceed to **STOP 9**.

Drive south on **HWY 15** 22.3 miles and exit on **WEST 40**. Drive 1.8 miles and turn **LEFT ON ALT 40**. Drive 5.2 miles to **MIDDLETOWN**. There was a station located in Middletown which was in flag communication with the station on Washington Monument. Although it is not documented, it was probably located in the Zion Lutheran Church. The church was used as a hospital during the Antietam campaign and based on the design of the steeple, was more than likely the site of the Middletown signal station in July 1863. Continue on **ALT 40** for 5.3 miles stopping across from the **OLD SOUTH MOUNTAIN INN**. There is room to park by the side of the road adjacent to a number of blue battlefield signs marking the battle of **TURNER'S GAP**.

STOP 9 TURNER'S GAP SIGNAL STATION

At this point in the campaign, the signal officers who were assigned to the Army of the Potomac were augmented by a detachment of signal officers from the Signal Camp of Instruction sent to assist the Army by Col. Myer. This

detachment was headed by Capt. William Nicodemus who organized and controlled it. The actions of the detachment are described by the reports of Capt. Norton and Capt. Nicodemus.

**Report of Capt. Lemuel B. Norton, Chief Signal Officer,
Army of the Potomac**

July 7, The headquarters of the army moved to Frederick. The signal officer who had been previously assigned to duty with the detached command under General Neill made a reconnaissance near Waynesborough, Pa., discovering the whereabouts and movements of the enemy.

July 8, in the afternoon, general headquarters moved to Middletown. A party of signal officers, under charge of Capt. W. J. L. Nicodemus, arrived from Washington, for the purpose of working in conjunction with the signal corps of this army. Captain Nicodemus opened a line of communication between Frederick and South Mountain Pass.

On July 9, headquarters of the army moved to Turner's Gap. A station was occupied near this place, communicating, through others at Middletown and Crampton's Pass, with Maryland Heights. This line, appearing of little importance on account of telegraphic facilities, was abandoned the same day, and

its officers ordered to more active duty in the front... [O.R., XXVII, Part I, p. 203]

Report of Capt. William J. L. Nicodemus, Signal Officer, Commander of the Washington Reserve Signal Detachment

Captain: I have the honor to report that, in obedience to Special Orders, No. 106, dated Office of the Signal Officer, Washington, July 6, 1863, I reported to General French, at Frederick.

July 7. - On the 7th instant, with 12 officers and 27 enlisted men, General French ordered me to report to General Meade, who ordered me to the front, then the South Mountain Pass; ordered Lieutenants [Charles] Herzog and [Thomas P.] Rushby to Maryland Heights; Lieutenant Fisher to Crampton's Pass; Captain Daniels, with Captain Denicke and Lieutenants [William J.] Galbraith, Briggs, Denicke, Swain, and [S. Cary] Tuckerman, to the front, with the following instructions:

You will open communication between Frederick City and South Mountain Pass, and establish observation stations to command the Boonsborough Valley.

July 8. - Left Frederick City on the 8th instant, accompanied by Captain McCreary. Lieutenant [William S.] Andrews being sick, was left at Frederick City,

with orders to report to me as soon as able. Broke up stations along the route as fast as Morse's telegraph communication was established. Captain Daniels opened communication at 12 m. between battle-field and South Mountain station. Result of the day's fighting was driving the enemy to Beaver Creek Bridge, on Boonsborough and Hagerstown pike, 3½ miles north of Boonsborough. All movements of the enemy were observed from Washington Monument on South Mountain, by Captain [Ernst A.] and Lieutenant [C. F. M.] Denicke, and promptly reported to the different headquarters concerned.

July 9. - General Buford on the 9th drove the enemy about 2 miles. A line of signal stations commanded the enemy's front. A timely report of Captain McCreary prevented our left from being flanked this day.

July 10. - Heavy skirmishing on the left; enemy driven to Funkstown; his dispositions accurately reported to the general commanding. [O.R., XXVII, Part I, p. 207.]

You should now drive to **STOP 10**

Continue towards **BOONSBORO** and take the first right on **WASHINGTON MONUMENT ROAD**. Drive 1.2 miles, following the signs to **WASHINGTON MONUMENT STATE PARK**. Park in the parking lot and follow the signs on the walking trail to

WASHINGTON MONUMENT. Climb to the top of the monument.

STOP 10 WASHINGTON MONUMENT SIGNAL STATION

This station was used extensively during the Gettysburg campaign. The monument was not as tall as it is now but the additional height of the present structure does not add significantly to the field of view. As you will see from the reports, trees were cut down in order to get a better view of and from the monument. On the way back to the car, stop at the visitors center and view the painting of the monument in use as a signal station.

Take your compass and sight the signal stations from left to right as follows: Middletown - 145 degrees, Turner's Gap - 150 degrees, Crampton's Gap - 190 degrees, Elk Mountain - 225 degrees, Hill behind Boonsboro - 295 degrees, and the approximate location of Buford's tactical signal station at Beaver creek crossing - 322 degrees.

**Report of Capt. Lemuel B. Norton, Chief Signal
Officer, Army of the Potomac**

On July 10, the general commanding and his staff removed to a bivouac near Beaver Creek crossing, west of Boonsborough. In the evening, communication was opened from general headquarters, through Washington Monument station, with headquarters of the Second and

Twelfth Corps, near Bakersville, Third and Fifth Corps near Antietam Bridge, and the First and Sixth corps near Beaver Creek crossing on the Hagerstown pike. On this day the officer who accompanied General Neill on his expedition from a point selected by him on Franklin's Cliff, South Mountain Range, near Leiterburg, discovered the numbers and position of the enemy in and around Hagerstown, and sent the information to General Neill, and by orderly to General Meade...

On July 13, all signal communications previously established was still kept up. Two officers were sent to make a telescopic reconaissance from Elk Mountain. [O.R., XXVII, Part I, pp. 203-204.]

**Report of Capt. Nahum Daniels, Signal Officer,
Washington Reserve Signal Party**

Captain: I have the honor to submit the following report:

Agreeably to orders received at Frederick, Md., July 7, at 6 p.m. I started with Captain Denicke, Lieutenants Denicke, Galbraith, Briggs, and Swain to open communications by signals from the advance of our army, then near Boonsborough, to Frederick. I left Lieutenant Galbraith at South Mountain Pass, with instructions to open an intermediate station at that

point between Frederick and Washington Monument. On the morning of the 8th instant, I ordered Captain Denicke and Lieutenant Denicke to open a station on Washington Monument; also procured a detail of men to cut away the timber which obstructed the view near the monument. At 8 a.m. I ordered Lieutenant Swain to open a station at Boonsborough, then our extreme advance. Lieutenant Briggs also proceeded to open a station on the Blue [Elk] Ridge, about 4 miles from Boonsborough. At 10 a.m. our forces commenced skirmishing with the enemy. I immediately proceeded to the front, and opened communication with the Washington Monument, about 1 mile from Boonsborough, on the Hagerstown pike. I directed Lieutenant Swain to take charge of the station at this point. At 11 a.m. I sent the following message to Captain Nicodemus:

Our advance is engaged with the enemy. Captain Denicke reported no communication yet with Frederick.

It being now quite clear, I ordered Captain Denicke to report by signal to me the movements of the enemy, which I reported to the commanding officer in front. Our forces were now engaged a distance of 3 miles in front. Lieutenant Swain remained at his post receiving messages subject to a severe fire. I cannot too highly

mention his bearing while under fire. At 1 p.m. the engagement became quite warm, Captain Denicke reporting constantly to me the every movement of the enemy, which was immediately reported to General Buford, while he by such reports was enabled to be fully prepared to meet every movement of the enemy, knowing in advance what their force was, and the kind of force. At 3 p.m., finding that communication was not open to Frederick, I ordered Lieutenant Denicke to assist Lieutenant Galbraith in opening through to that place. [O.R., XXVII, Part I, pp. 208-209]

This station was significant in that it served as a key station of observation and that information gathered by Capt. Denicke was quickly relayed through Capt. Daniels to Brig. Gen. Buford in the Antietam Valley. Below is a representative sample of the message traffic sent from Denicke and passed to Buford by Daniels as well as some general traffic.

The enemy are advancing in front and on our right. A large cavalry force in front.

Daniels
Captain.

Enemy are advancing; skirmishing on our right.

Daniels
Captain

General Buford:

Enemy have just placed a battery on left of road,
behind a large barn.

Daniels

Captain.

Captain Nicodemus:

Enemy's cavalry pickets are 1 mile in advance.

Daniels

Captain.

General Commanding:

The enemy are advancing infantry and cavalry across
the Antietam about 1 mile to our left.

Daniels

Captain

[O.R., XXVII, PART I, pp. 201-202.]

**Report of Lieut. Julius M. Swain, Acting Signal
Officer, Washington Reserve Signal Party**

Captain: I beg leave to submit the following report,
which I regret contains but an imperfect record of the
messages sent while with the signal party recently
under your command in Maryland:

I had the misfortune to lose my memorandum book

containing a copy of the messages sent to General Buford from station near Boonsborough during the engagement on the afternoon of the 8th instant, as well as some others of later date.

In accordance, with your orders, I left Frederick on the evening of the 7th instant, and proceeded to South Mountain Gap, in company with Captain Denicke, at which point we were ordered to report to Captain Daniels, July 8. We arrived at 3 a.m., and as it was raining very hard and Captain Daniels could not be found, we lay by till daylight.

Captain Daniels arrived at the Mountain House at 8 o'clock, and as soon as the weather would permit, about 9 a.m., I was ordered to Boonsborough, where I arrived at 10 o'clock, and reported to General Kilpatrick, after which I opened station on hill in rear of town, which commanded a good view of our front.

At 12 m. Captain Daniels opened station near the Hagerstown pike, about 1 mile beyond Boonsborough, and ordered me to join him which I did at once.

I remained there during the day in communication with Captain Denicke, on Washington Monument, whose station overlooked the enemy, and sent frequent messages from him to General Buford, then in command.

At 3 p.m. sent the following:

Captain Denicke:

Lieutenant Denicke will open communication between you and Frederick.

Daniels,
Captain

July 9. - Enemy retreated last evening about 2 miles toward Funkstown, and Captain Daniels went to front this morning, leaving me on the station opened yesterday.

On your arrival, about noon, you ordered me to send frequent dispatches to Colonel Myer at Washington, apprising him of all movements of interest.

Sent following:

Boonsborough July 9 - 7.30 p.m.

Heavy skirmishing has just opened about 3 miles from here, on Hagerstown road.

Nicodemus
Captain.

July 10, - Removed station to hill near Boonsborough, and opened communication with Lieutenant Tuckerman on left of our line, with Captain Denicke on Monument, and Captain Stone on Sharpsburg pike, near General French's headquarters...[O.R., XXVII, Part I, pp. 217-218]

Now you should walk back to your car and drive to
STOP 11.

Return to **ALT 40** and drive 1.6 miles towards **BOONSBORO** turning **LEFT** on **ROUTE 67**. Drive for 7.1 miles and turn **LEFT** on **GAPLAND ROAD**. Drive one mile to **GATHLAND STATE PARK**. On the way up the mountain, notice the high ground to the left. Park in the parking lot by the **CORRESPONDENT'S MEMORIAL ARCH**.

STOP 11 CRAMPTON'S GAP SIGNAL STATION

This station was occupied on 8 July by Lieut. George A. Fisher, who was directed here by Capt. Nicodemus. It had little utility as a station of communication or as a station of observation. Lieut. Fisher was forced to move further up the ridge in order to communicate with the necessary stations. The high ground you observed on the left as you drove up the mountain is the area to which Fisher relocated his station. Lieut. Fisher explains in his report.

Report of Lieut. George A. Fisher, Acting Signal Officer, Washington Reserve Signal Party

Captain: I have the honor to submit the following report of duty performed since July 6, 1863

On the evening of the 6th, was ordered to precede the

main party, with Lieutenants Herzog and Rushby, and with our men accompany and guard the wagon train to Frederick, Md., where we arrived on the 8th instant, and immediately reported to you at your headquarters.

About an hour afterward I received orders from you to proceed without delay to Crampton's Gap, in the South Mountain Range, and open communication with Middletown, Maryland Heights, and South Mountain, if possible, and take observations of the movements of the enemy. I endeavored that evening to open communication, but was unable to find a point where I could see more than one of the stations, and after calling Maryland Heights for some time, was obliged to give it up for the night.

Early next morning I moved across the gap, and proceeded along the ridge about 3 miles, and selected a station from which, with some labor, I was enabled to communicate with both Middletown and Maryland Heights, thus completing the line of stations between Maryland Heights and Hagerstown.

On the 12th instant, Captains [Joseph] Gloskoske and [Richard] Dinsmore received orders from Captain Norton to close up the station at Middletown and rejoin his command. I was then obliged to find some other station with which to keep up the line of communication, and was enabled to do so with Lieutenant Briggs, who was at Elk Ridge, in communication with South Mountain. Owing to the state of the weather, for the most of the time

we were unable to take many observations, but embraced every opportunity that presented itself... [O.R., XXVII, Part I, pp. 213-214.]

As evidenced by the movement to establish line of sight with other stations described in Lieut. Fisher's report, it does not appear that maps were used to establish line of sight profiles for the potential signal stations. This was probably due to the lack of maps with sufficient contour detail as well as the fact that the art simply had not progressed that far. There is no mention of the use of maps for this purpose in Col. Myer's A Manual of Signals. Col. Myer's visual method for establishing signal stations is as interesting as it is intricate. It is described in his manual as follows:

To open a line of stations across a country, first choose some prominent position, and one well visible; and here establish the initial station. Let the party assemble here. Let them, together, select a second prominent point in view as nearly as possible in the line of direction you wish to take. Upon the first station, erect some kind of beacon - as a white or other colored signal-flag; or some marked object, by which it can be recognized from a distance. Take from this first point the bearing by compass of the point selected. This second point should be one not only

visible from the initial point, but one also probably in view from positions beyond it. Note should be made of some peculiar house, rock, tree, or other marked object upon it, in order that the exact place may be recognized when it is reached. At the first point, now marked with its beacon, station an officer to reply to any signals he may see, and to watch the course of the marching party. The other officers will then move, guided by compass, if need be toward the second point selected, carrying a signal-flag flying, in order that their position may be known whenever they come in view from the first station, and intently watched by the officer left at that station, the marching party will, from time to time, put itself in communication with the first station, so as to receive from it any direction as to its course the first station may wish to give, or any other information. It will also frequently verify its course by compass. On reaching the point chosen for the second station, a beacon or flag will be there erected, observations will be made, and communication will be opened with the first station. Points, on either side or to the rear, will be examined, to see if the second station can be better located than it is with reference to a third station to be next established. The second station will then be definitely established and marked, and an officer there stationed, as before at the first station, to watch the

marching party. The point for the third station will be hence chosen, and the party will proceed toward it with the same general rules as before. These operations will be repeated in the case of each station, until the terminal station is reached. Attempts will be afterward made to reduce the number of intermediate stations by finding other and better points at which to locate some of them. [Albert J. Myer, A Manual of Signals, New York, D. Van Nostrand, 1866, pp. 255-256.]

Now you should drive to **STOP 12**.

Go back down **GAPLAND ROAD** and turn right on **ROUTE 67**. Drive 5.4 miles and turn **LEFT** on **MT. CARMEL CHURCH ROAD**. Drive 0.3 miles and it turns into **DOGSTREET ROAD**. Continue for 2.1 miles and turn **LEFT** on **RED HILL ROAD**. You are now on **ELK MOUNTAIN**. Drive 1.2 miles and stop in the parking lot of the **McCLELLAN GUN CLUB**.

STOP 12 ELK MOUNTAIN SIGNAL STATION

The exact site of the Elk Mountain Signal Station is not known. This location affords a view of Washington Monument and Crampton Gap stations. The various stations in the valley to the left are obscured by timber. A picture of the Elk Mountain Signal Station Battle of Antietam, appears

in Volume 8 of The Photographic History of the Civil War. This particular tower was not used by Briggs in that he mentions in his report that he built one. However, it is a good example of a hastily constructed signal tower.

Report of Lieut. Ephraim A. Briggs, Acting Signal Officer, Washington Reserve Signal Party

Captain: In compliance with an order received this morning to make an official report of all duty performed by me as acting signal officer of the Washington Reserve Signal Corps since the 6th instant, I submit the following:

At 5 p.m. of the 6th instant, I received orders to be prepared to leave camp with the party going to the front for active duty in the field.

At 8 p.m., the 6th instant, said party left camp, Georgetown, D.C., proceeding toward Frederick, riding all night, arriving at Frederick, Md., 5 p.m. of the 7th instant, when I was ordered to proceed toward South Mountain without delay, in company with Capt. Daniels. We proceeded to South Mountain, opening signal station on the Washington Monument at 9 a.m. of the 8th instant, the heavy rain falling all night preventing its being sooner accomplished.

By order of Captain Daniels, I proceeded to Elk Mountain to open signal station communicating with one

on Washington Monument. Arriving at Elk Mountain 11 a.m., I opened station, and called Monument until 1 p.m.; had no reply; atmosphere was clear. I saw the enemy's pickets within 2 miles of this point. At 2.30 p.m., commenced and called Monument all the afternoon, excepting from 4 p.m. until 5.30 p.m., without receiving reply; 4 p.m. received the following message by orderly;

To Signal Officer:

Ascertain and send immediate report whether the rebels are in Sharpsburg or Keedysville. Their evident intention is to take Sharpsburg. Make report in writing, and send by orderly.

A. B. Jerome,

First Lieutenant, and Acting Assistant Signal Officer.

At 4.15 p.m. sent following answer:

Lieutenant Jerome:

I can see no signs of enemy occupying Sharpsburg or Keedysville. Their cavalry were in both places this morning, I am informed by reliable citizens.

If you can communicate with Washington Monument, tell them to answer my call.

E. A. Briggs

First Lieutenant, and Acting Signal Officer.

At 9 p.m. returned to Boonsborough, and procured rations and forage for my men and animals, oil, etc.

At 10.30 a.m., received following by orderly:

Lieutenant Briggs:

Proceed to station on Elk Ridge, which you occupied last night, and communicate with station one-half mile northeast of Boonsborough. If you cannot see that station, communicate with the Monument.

Nicodemus,

Captain, Signal Officer.

July 9. - The day smoky; not able to do anything.

July 10. - Called the Monument from 8.30 a.m. an hour and thirty minutes before any reply.

At 3 p.m. received from monument signal station:

To Elk Mountain:

You will go to the gap, and open with Bakersville and the White flag at the foot of the Monument.

By order of -

Norton,

Captain.

In obedience to above, I spent from that time till 6 p.m. answering and swinging, as I saw three or four

white flags swinging in vicinity of Bakersville, though facing too much to my right. Swung torch during the evening without any success.

Called the Monument to report I was not able to communicate with Bakerville; after an hour's work, gave them up.

July 11 - The morning thick and hazy. Clear at 10.30 a.m.

At 1 p.m. received from Washington Monument:

I want communication with Maryland Heights, though Boonsborough and Lieutenant Fisher.

Nicodemus,
Captain.

5 p.m. - Sent from Elk Mountain:

Captain Nicodemus:

I have seen Fisher, at Crampton's Pass, and have communication open with Maryland Heights when atmosphere permits.

E. A. Briggs,
Lieutenant, Acting Signal Officer.

10 p.m. - Sent from Elk Mountain:

Captain Nicodemus:

Maryland Heights are in full view of this point, or at Crampton's house. On this range, both Maryland Heights and Monument are to be seen, and commanding miles of the river and fords at the same time; the latter not to be seen excepting at Dam No. 4.

E. A. Briggs,

Lieutenant, Acting Signal Officer.

Through messenger, I called Monument till 12 a.m. and got no reply, and sent it by an orderly.

July 12. - Thick and excessively smoky all day; not able to see anything.

12 m. - Received by Orderly Knapp:

Lieutenant Briggs:

You will open signal station on Elk Mountain beyond Keedysville, communicating with Maryland Heights, Crampton's Pass, Washington Monument, and, when Downsville Station is open, with Fairview. You will report to me through Washington Monument station, or in any way possible. My headquarters are with the right wing. Answer all flags. You will be relieved when station is not needed.

Nicodemus

Captain, Signal Officer.

Sent the following at 1 p.m.:

Captain Nicodemus:

My men are in need of rations and my animals of forage. Please light a fire at 9 p.m., that I may find your locality. In order to run this station successfully, requires more men.

Your obedient servant,

Briggs

Lieutenant, and Acting Signal Officer.

3.30 p.m., - Heavy shower until 5.30 p.m. Worked until 12 m. Could not get the Monument. Went to bed.

July 13. - Day rainy and thick. Cut the timber and bushes from top of mountain, so as to command all points. Built a tower. Had calls from several signal officers of Army of the Potomac viewing the country and Antietam Battle-ground.

Elk Mountain, 12 m.

Captain Nicodemus:

The weather has prevented my getting Bakerville or Downsville. Communication to Maryland Heights is perfect. I tried to communicate with you via the Monument yesterday without any success.

E. A. Briggs,

Lieutenant, and Acting Signal Officer.

July 14 , 8 a.m.- Sent from Elk Mountain:

Captain Nicodemus:

Captain Norton orders me to Crampton's House, on this range of mountains. I await your order.

Briggs,

Lieutenant, and Acting Signal Officer.

Kept a close watch all day for flags, and till 1 a.m. July 15 for lights near Mount Moriah or Donnellies Hill.

8.30 p.m. - Received from Fisher, at Crampton's Pass:

Captain Nicodemus:

Our troops crossed and reoccupied Harper's Ferry and Bolivar Heights. Saw Martinsburg to-day; no movement to indicate troops there.

Herzog,

Lieutenant, and Acting Signal Officer.

Called Monument one hour, and closed up, unable to forward the message.

July 15, - Smoky all morning and afternoon. Orderly brought following message:

Lieutenants Herzog, Rushby, Briggs, and Fisher, with

parties, will report to me at Frederick without delay.

Nicodemus.

Captain, Signal Officer Comdg. Washington Reserve
Signal Party.

Sent same to Lieutenant Fisher without any delay, and immediately repaired to Frederick and awaited further orders. [O.R., XXVII, Part III, pp. 214-217.]

Now you should drive to **STOP 13**.

Turn around and go back on **Red Hill Road** and drive 1.6 miles. Turn **RIGHT** on **MAIN STREET** in **KEEDYSVILLE**. Drive 0.8 miles following the signs to **HWY 34**. Drive 2.4 miles to **BOONSBORO**. Turn right and drive 0.6 miles. Turn **LEFT** into the parking lot of the **BOONSBORO BIBLE CHURCH**.

STOP 13 BOONSBOROUGH SIGNAL STATIONS

The hill behind Boonsborough referred to in the reports is directly behind the church. The hill is not accessible but this location affords a good view of it and the Washington Monument. The station on the hill was occupied by Lieut. Swain whose report we have already read. Now you should leave the parking lot turning **RIGHT** on **ALT 40**. Drive 3.3 miles on **ALT 40** until you reach **BEAVER CREEK**. Pull to the side of the road. This is the approximate location of

Captain Daniel's station on the Hagerstown Pike. Captain Daniels, Capt. William McCreary and Lieut. Tuckerman supported Brig. Gen. Buford's First Cavalry Division between the Beaver Creek crossing on the Hagerstown Pike and the Antietam. As previously described, Captain Daniels was receiving reports on Confederate troop movements from the Denicke brothers on Washington Monument and passing that information to General Buford.

The following excerpts from Capt. McCreary's report give a good description of the action:

**Report of Capt. William G. McCreary, Signal Officer,
Washington Reserve Signal Party**

Early next morning, with the advance of our troops, in company with yourself, advanced beyond Boonsborough, when I was directed by you to report to the right, with the right brigade of General Buford's cavalry division, General Merritt commanding, Captain Daniels being in the center and Lieutenant Tuckerman on the left of same division, to keep open communication along the line.

Soon after taking our position, an advance was made along the line, and we advanced with them. At the crossing of Beaver Creek, the enemy were established with infantry, cavalry, and artillery to dispute our advance, but after a severe skirmish were driven back.

Early next morning, July 10. moved forward, and drove them to Antietam, a distance of 4 miles. During this movement, I was in communication with Captain Daniels, but the rapid movements of our forces prevented sending many messages; but from our points of observation much valuable information was furnished the commanding officers, for which we received their personal thanks...

The following are some of the communication sent and received:

July 9

General Merritt:

A battery of the enemy is visible on the crest of the hill. I can also see bayonets, indicating that it is supported by infantry. No cavalry visible except pickets.

McCreary,
Signal Officer.

July 10

General Merritt:

Three squadrons of rebel cavalry have passed to our right, and are concealed behind the woods. We have not any skirmishers in that direction.

McCreary,
Signal Officer.

To Commander of the Right:

Cease firing in our front. Captain McCreary, signal officer, reports three squadrons of cavalry passing to your right. Throw out skirmishers, and keep a sharp lookout to prevent being flanked.

Merritt,
General

General Howard wishes to know anything relative to the enemy's movements in front.

T. R. Clark

All quiet. Enemy are throwing up earthworks near Antietam Creek.

McCreary.

Our cavalry are retiring from the right. The enemy's cavalry and infantry are advancing on the left.

Daniels.

July 13

Captain Nicodemus:

The enemy are reported by a citizen from within their lines to have broken up their camps, and to be moving all their wagon trains toward Falling Waters.

Respectfully, your obedient servant,

W. G. McCreary,

Captain, Signal Corps, U.S. Army.

[O.R., XXVII, Part I, pp. 211-213]

**Report of Capt. Lemuel B. Norton, Chief Signal Officer,
Army of the Potomac**

In summing up the operations of the signal corps of this army for the month and a half herein recorded, I find that sixty-seven signal stations of observation and communication were occupied, eight signal telegraph lines established, and seventeen extra reconnaissances made.

I have stated as concisely as possible the amount and character of the work performed. When it failed in a signal point of view it has been noted; but of the real value of the information obtained by the corps and the importance of other services rendered, the commanding general and the corps commanders are best able to judge...

During the late movements of the army, 3 signal officers and 6 flagmen were captured by the enemy. The only reported injuries were those of 2 flagmen slightly wounded at the battle of Gettysburg. [O.R., XXVII, Part I, p. 206]

This is the last stop of the tour. The quickest way back to Gettysburg is to go back to **FREDERICK** on **ALT 40**. Take **HWY 15** north to **GETTYSBURG**.

EPILOGUE

There is room for considerable discussion about the importance of the communications provided by the Signal Corps during the Gettysburg Campaign. Historians have criticized the accuracy and timeliness of the reports transmitted from Little Round Top and almost no significance has been given to the intelligence provided by the signal stations during the closing portions of the campaign. It is difficult to evaluate the significance of events without being influenced by the legends of the battle. Warren was the "Savior of Little Round Top" and the fact that signal parties were reporting Confederate troops in the woods west of Little Round Top as early as 1145 has received little attention.

The Signal Corps did make significant contributions to the success of the Army of the Potomac at Gettysburg. Lieut. Jerome provided valuable intelligence to Brig. Gen. Buford on 1 July as well as warning Maj. Gen. Howard's headquarters on Cemetery Hill of the attack of Rodes' division on the Union right. Jerome provided the first information to the Army headquarters that the Confederates were west of Little Round Top. It is well recognized that the occupation of Little Round Top by the Signal Corps was the reason for Longstreet's countermarch and the resulting

delay of his attack on the Union left. It is important to note that the decision to occupy Little Round Top was made by various signal officers and not directed by field commanders. What the result would have been if Longstreet's attack had not been delayed has been the subject of much conjecture.

At the time of the Gettysburg Campaign, the commanders were still learning to use the intelligence which was being provided by the signal stations. There was a tendency not to take the information at face value, possibly for good reasons. As was pointed out in the guide, there had been a problem with exaggerated reports from signal officers and the lack of action on the part of the headquarters to the Little Round Top reports may be a reflection of that fact. There is reason to believe that the intelligence messages received from Little Round Top influenced Meade's decision to send Warren to investigate the left.

A good example of a signal report having a direct impact on the action is Capt. McCreary's message to Brig. Gen. Merritt which was described at Stop 13. Merritt not only acted upon the intelligence provided by the Signal Corps, he used flag signal communications to convey the resulting order to his subordinate commander.

You can surmise that Maj. Gen. Meade did appreciate the value of what the Signal Corps could contribute to command and control in that his decision to displace his headquarters from the Leister House to Power's Hill was made

only after he realized that there was a signal party on Power's Hill.

One of the benefits modern communicators can derive from an analysis of this campaign is an appreciation of the requirement for effective network management and control of signal assets. Captain Norton was not aggressive in the manner in which he directed and controlled the various signal parties. His report tells us that he intended to direct their placement on the morning of 2 July but found that they had placed themselves. The flag signal message dated 2 July from Norton to Hall (Stop 2) told Hall that Little Round Top "is a good point for observation" but did not direct him to occupy it. The individual initiative of four separate signal parties kept Little Round Top occupied as a signal station.

It is also significant that Norton directed the Fortescue party to occupy Jack's Mountain but never took action to ensure that contact was established between the field and that station. From an intelligence perspective, that was one of the biggest missed opportunities of the campaign, as you can see by observing the battlefield from the Jack's Mountain location.

Part of the problem was that during the battle the parties were still attached to the various corps and operating autonomously. That arrangement had been effective when the corps were separated during the movement to the battlefield, but once they arrived on the field the signal

parties should have become a part of a centrally controlled network. Norton had enough assets to man the key observation stations as well as maintain stations in direct support of the corps. If each corps had maintained a signal capability in support of its headquarters, they could have received intelligence directly from observation stations as well as become important assets for the command and control of the Army. In practice, corps signal parties became observation assets for the Army at the expense of the corps.

The system which Capt. Nicodemus provided the Army in the mountain gaps and Boonsborough area was significantly more effective than the one employed at Gettysburg. Nicodemus directed the employment of the signal parties and actively controlled the resulting network. He established key stations for observation and long distance communication as well as assigning signal officers to the maneuver elements. Observations made from Washington Monument and Elk Mountain were quickly transmitted to field commanders down to the division and brigade level.

Albeit there are valid criticisms of the signal support during the Gettysburg campaign, the fact remains that a number of dedicated company grade and noncommissioned officers provided a valuable service to the Army of the Potomac.

APPENDIX I
SIGNAL EQUIPMENT

The following excerpts from Col. Myer's manual describe the equipment necessary for flag signal communication. At the time of the Gettysburg campaign, the equipment described below had become standard. Several other means of communications which were included in Myer's manual including pyrotechnics, signal disks, field telegraph, etc. They are not included here because they did not figure prominently in the Gettysburg campaign. For a full description of these methods, see Myer's A Manual of Signals. He describes the flag and torch equipment as follows:

A Regulation Set of Signal Equipments, when packed complete, is comprised in three pieces:

The Kit - or canvas signal-case, containing the signal staff, flags. torch-case, torches, and wormer. These all compactly rolled together and bound by straps...

The Canteen - made of copper, with one seam, and soldered - capable of containing one half-gallon of turpentine or other burning-fluid.

The Haversack - in which are packed wicking, matches,

shears and pliers for trimming torch, a small funnel for filling the torch, and the two flame-shades, etc.

The Kit Case, Canteen, and Haversack are fitted with shoulder-slings or straps, by which they may be easily carried.

The Service Can - is a strong copper can, with rolled seams hard-soldered. The nozzle is fitted with a screw-cap, to prevent leakage. It is capable of containing five gallons of burning-fluid.

The Kit Case contains:

1st. The signal-staff - a staff of hickory, made in four joints or pieces, each 4 ft. long, and tapering as a whole from $1\frac{1}{4}$ in. at the butt to $\frac{1}{2}$ in. at the tip.

The joints are feruled at the ends with brass, and fitted to be jointed together as some fishing-rods are jointed. The third joint is guarded with brass for six inches at its upper extremity, to protect it from the flames of the torch, which is always attached to this joint.

The tip or fourth joint is that to which the flag is attached for day-signals. When in use, two or more joints of staff are fitted together.

2d. The Signal Flags - made of muslin, linen, or some other very light and close fabric. The flags are seven in number.

1. The six-foot white - six feet square, white, having its centre a block or square of red, two feet

square.

2. The six-foot black - six feet square, black, having at its centre a block or square of white, two feet square.

3. The four-foot white - four feet square, white, having at its centre a block, red, sixteen inches square.

4. The four-foot black - four feet square, black, having at centre a block, white, sixteen inches square.

5. The four-foot red - four feet square, red, having at centre a block, white, sixteen inches square.

6. The two-foot white-two feet square, white, having at centre a block of red, eight inches square.

7. The two-foot red - two feet square, red, having at its centre a block of white, eight inches square.

All of these flags are fitted with tapes or ties, by which to tie them to the staff. This is found the most simple and the best mode of attaching. Two tapes, six inches long and sewed together at the tie-edge of the flag, make a tie. The ties are one foot apart.

3d. Torch Case and Torches.

The Torch Case is a piece of rubber cloth about three feet long by two feet six inches broad, fitted on one side with pouches, in which the torches are inserted.

At the opposite edge are ties. The torches are packed by being placed in the pouches, with the case then rolled around them so as to envelop them in two or

three folds of cloth. The ties retain the package in this form.

The Flying Torch - is a copper cylinder, eighteen inches long and one and one-half inch in diameter; it is closed at one end, with the exception of a nozzle, through which it can be filled, and which closes with a screw-cap; it is open at the wick end, and on its sides, at this end, are four fenestra or openings, one inch long, half an inch broad, which open into the wick, so providing that however the flame may be driven by the wind, it will find a portion of the wick exposed.

The Foot Torch - is a copper cylinder, eighteen inches long and two inches in diameter. It is similar in its structure to the flying torch.

The torches are trimmed by fitting into the mouth a wick of cotton wicking six inches long. This must fit closely. The body of the torch is then filled with turpentine or other burning-fluid, as petroleum, etc. The flying torch attaches to the staff "third-joint" by clamp-rings and screws.

Flame Shades. - Each torch is fitted, when in use, with a flame shade - a ring of thin copper, two inches wide, and fitting by a socket upon the torch in such a way that the ring projects on all sides. This is placed about one inch below the fenestra or openings. The use of this shade is to prevent the flame from

travelling down the side of the torch and thus over-heating it. The flame-shade is always detached when the torch is packed. Each torch is fitted with "wedge strips" below the fenestra; the flame-shade can be tightened by pressing it firmly down upon these.

A shade, called a Wind Shade, is sometimes used in high winds. It consists of fine strips of copper attached to a socket, and is adjusted upon the torch in the same way as the flame-shade.

The Funnel, Pliers, and Shears are used for filling and trimming the torch.

A screw or wormer is placed in the torch-case to be used when the wick may, by accident, be drawn so far into the tube of the torch that it cannot be seized by the pliers... [Albert J. Myer, A Manual of Signals, New York, D. Van Nostrand, 1866, pp. 175-177.]

A good maintenance program for signal equipment was a concern during the Civil War as it is today. The following excerpt from Col. Myer's manual demonstrates his concern that the equipment must be properly maintained.

The senior officer on a station, or with any party, is primarily responsible for the condition of all the apparatus; and it is his duty to see, each day, that the whole equipment is ready for instant service. Officers should be held responsible with their

commissions for the proper discharge of this duty; and each set should be placed in charge of an enlisted man, who will be held responsible with his pay for its condition; precisely as, in the case of other branches of the service, each soldier is responsible for the proper condition of his equipments.

Whenever particular sets of apparatus are to be habitually used for signals in the field, that apparatus should be cared for with scrupulous exactness. Defects in the apparatus not only annoy the signalist himself, sending the message, but they more annoy the person to whom messages are, for this cause, imperfectly sent. A courteous regard for the rights of others ought, of itself, to prevent any officer from thus inflicting on another the consequences of his own carelessness.

Neglect of apparatus is a matter for discipline. Daily inspections should insure that the telescopes, etc., are clean and in perfect order... [Albert J. Myer, A Manual of Signals, New York, D. Van Nostrand, 1866, pp. 205-206.]

APPENDIX II

SIGNAL CAMP OF INSTRUCTION

Lieut. Samuel T. Cushing was designated as the first commandant of the Signal Camp of Instruction and served in that position until 1862 when he was sent to West Point to establish a signal course at the Military Academy. The following order establishes the routine of the newly established school:

**Initial order of Lieut. Samuel T. Cushing, Assistant
Signal Officer in Charge, Signal Camp of Instruction**

Hdqrs. Signal Camp of Instruction

General Orders No. 1.

Aug. 31, 1861

I. This camp will be known as the Signal Camp of Instruction, near Georgetown, D.C.

II. All officers and soldiers attached to this detachment will be required to remain in camp unless authorized specially to be absent. No passes will be granted except in the most urgent cases, and not more than four officers will be granted by the Signal Major, or, in his absence, by Lieut. Cushing, Assistant Signal Officer, on recommendation of Capt. Ent, 6th Pennsylvania Reserve Corps.

III. The non-commissioned officers and privates of

this command will be under the charge of Sergt. McVay, Co. D., 2d Infantry. He will be obeyed and respected accordingly.

IV. Until further orders, the following hours are announced for the different roll-calls:

Reveille, daybreak.	Dinner, 12.30 P.M.
Police of Camp, immediately after Reveille.	Flag practice, 1 to 2. Flag Practice, 3 to 4.
Flag practice, 6 to 7 A.M.	Retreat (Inspection), sunset.
Breakfast, 7.30.	Tattoo, 9 P.M.
Flag practice, 9 to 10.	Taps, 9.20.
Manual Drill, 10 to 11.	

Such further drills as may be necessary will be announced from time to time, as occasion may demand.

V. Until further orders a guard of six men and two non-commissioned officers will be detailed for the party, mounting at retreat.

VI. An inspection of arms and tents will take place at retreat, when every soldier will be expected to have his arms and accoutrements in perfect order. The tents of the commissioned officers will be inspected at the same time.

VII. It is particularly enjoined upon all officer and soldiers to devote as much time as possible to the study of their different duties, in order that the party may be prepared immediately for service.

VIII. Attention to minute details argues a good state of discipline. In future all soldiers must salute all officers, and in all cases the proper distinction must be observed between officers and men.

IX. Corp. George McGown, Co. C., 2d Infantry, is hereby appointed Quartermaster-Sergeant of this party.

By order of Maj. Myer.

Samuel T. Cushing,

Assistant S.O. in Charge.

[J. Willard Brown, Signal Corps, U.S.A. in the War of the Rebellion, New York, Arno Press, 1974, pp. 55-56.]

Lieutenant Cushing describes life at the camp:

Reminiscences of Lieut. Samuel T. Cushing, Assistant Signal Officer in Charge, Signal Camp of Instruction

Early in September the business of instruction commenced. The different Pennsylvania Reserve officers were made instructors, and wand practice was begun. This was followed by flag practice at short distances. Then horses were obtained and the distances were increased. Day and night practice went on; the countersign signals were adopted.

It was a pleasant camp; each officer was interested in the duties, and there were no petty jealousies or bad feeling. It began to look like business when the

details commenced; first, for the Port Royal Expedition, then the detail for Gen. Buell, and then the Burnside Expedition.

The camp continued until March, 1862, when the Army of the Potomac took the field. The officers and men at that time in camp were then divided as equally as could be into parties, and each reported to the Corps commanders, while a reserve was held at the headquarters under the direct command of Maj. Myer.

The establishment and management of the camp had been attended with great deal of difficulty. Constant demands were made by all other branches of service for camp equipage, horses, saddles, and arms, and it was with the utmost difficulty that I could obtain for the little camp the articles required. The Corps had done nothing and was looked upon as a chimera, no one believing in it, and it was only by the most obstinate persistency that I could get my requisitions approved and afterward filled.

The members were collected from all points of the compass, - from Michigan and Maine, California and New Hampshire. Each private came armed with a descriptive list upon which to draw his pay and clothing. I do not think that more than three were made out correctly. Correspondence with each company commander corrected this and the men were finally paid. Those who were present at the camp will recollect the varied uniforms,

Zouave and others, worn by the various members...

[Samuel T. Cushing, as quoted in J. Willard Brown,
Signal Corps, U.S.A. in the War of the Rebellion, New
York, Arno Press, 1974, pp. 58-59.]