Signal Corps Association 1860 ~ 1865

www.civilwarsignals.org

Signal Corps Reenactor's Service Manual

REV 1.1

Dedication

This Service Manual is dedicated to all those who have served in the US Signal Corps, Past, Present, and Future, and to all those who partake in the 1860-1865 reenactments of their heroic deeds.

Foreword

This manual is for use of The Signal Corps Association 1860 ~ 1865, SCARD membership and all Civil War Signal Reenactors. It is meant only as a guild to help new members become familiar with our organization, as well as to be a reference for our veteran members. This manual is not meant to be complete, nor does it mean that things can't change; exceptions to some rules may be made from time to time when deemed appropriate by the company commander. I really enjoyed putting this together (although I wish I had more time in doing so, ***been busy as a one-armed flagman***) and I hope you enjoy reading it. This is an ongoing "living" manual; any ideas for additions, changes, deletions are more than welcome and can be included in future additions.

Your Most Obedient Servant,
Mark C. Hageman

These men with flag in hand
Or eye to field-glass fixes, unmoved must stand,
When one false word, one swinging motion wrong,
Might change the fate of battles. Such is OUR Song.
- Adin Ballou Capron.

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Purpose/Mission

The purpose of the Signal Corps Association Reenactor's Division, S.C.A.R.D. is to provide a meeting point and an organization where people can gather to reenact the lives and trails of past members of the Signal Corps, both locally and at national events held through out the year. Our mission is to attend events where we can instruct new members of the group and the general public on how members of the Signal Corps lived, worked and played in the 1860's, as well as taking an active role in choreographing battle scenarios via period communication techniques.

Duties of All Reenactors.

While getting ready for every event, reenactors should keep in mind that they have three primary responsibilities:

1. **Setting a good example.**
   Especially the more experienced reenactors, have a lot of influence over the general overall attitude of the whole group. Each reenactor should set an example of diligence and correctness in performing military duties. This includes being fully equipped and ready to go at all times.
2. **Being a source of knowledge.**
   Where possible, reenactors should take the opportunity to train others. Previous experiences and mistakes are important learning tools for helping others grow in the hobby.
3. **Creating a fun and welcoming hobby environment.**
   The fun of the hobby and its impact on the public comes from having large numbers of reenactors together. Each new or potential new recruit is important. We need to make them feel welcome the first time they walk into our camp, as a spectator or recruit. No new recruit will stay around long if his questions aren't taken seriously or if he/she's subjected to teasing, ridicule or hazing.
4. **Greet everyone who comes into camp**
   Show them around, introduce them to others, and by all means tell them what the signal Corps is all about. Use the flags to allow them to send simple messages. Show them your living quarters. Remember- The spectators are why we are their answer their questions, make them feel welcome!

U.S. Signal Corps History

Almost since the beginning of time, there has been a means of signaling. Torches, smoke, flags, explosions, rockets, etc. have been employed, but most were difficult to learn, the equipment was too laborious to use, or difficult to manufacture in quantity to supply a large mobile army.

Albert J. Myer

Major Albert J. Myer's genius lay in his ability to devise a simple visual signal system of "*SIGNALLING*" a flag by day and a torch by night to the left or right to indicate letters that could be read by a trained soldier. His signal system met essential military requirements because it was not only militarily effective but also employed light, sturdy, and easily made equipment.
Albert James Myer was born in Newburgh, New York on September 20, 1827. He received his early education in Buffalo, New York, where he also worked as an operator in a local telegraph office. He attended Geneva College and the University of Buffalo Medical College.

Albert J. Myer

In 1854 he was commissioned Assistant Surgeon in the regular army with the rank of Lieutenant. From 1854 to about 1860, while in this position, he devoted much of his leisure time devising a system of visual signals that might be effectively employed by the Army. In 1859 Lieutenant Myer, with his assistant Lt. E.P. Alexander (*whom later became a confederate Signal Officer*) officially tested Myers' signaling system.

On June 27, 1860 the U.S. Army adopted the system of signaling and appointed Myer to be the Chief Signal Officer with the rank of Major for the newly created Signal Department. For 3 years, signals were handled somewhat experimentally by acting Signal Officers detached from all of the various units of the Army. A General order in March of 1863 created the Signal Corps and authorized officers ranging in rank from Lieutenant to Colonel and enlisted men in the grades of privates and sergeants. Signal officers and the men were sometimes mounted. It wasn't until 1864, that the men and officers were given their distinctive device- the familiar crosses flags.

Signalmen do not seem to have been distinctively dressed until late in the Civil War and probably not all by then. There were no official regulations governing the dress of signalmen until General order #88, which appeared on 22 October 1868, well after the wars end. Throughout the war signalmen served in small bodies attached to higher headquarters.

Signal Corps Association 1860-1865

The Signal Corps Association (SCA) 1860-1865 is a national group of private citizens sharing an interest in the signal and secret services of the North and South during the American Civil War. A period attired and equipped living history segment known as the Reenactor's Division also exists within SCA, as well as those furthering the study of signalists and their works known as the Research Division; hence the acronym "SCARD."

SCA provides a medium for students, researchers, historians and reenactors to investigate the signal, telegraphic and secret service developments during the War Between the States. Through signal training camps, reenactments, living history programs, visits to schools and libraries, lectures and memorial programs, SCA hopes to develop and share its archive with others through public awareness, the role and sacrifices of military and civilian telegraphers, signalmen and others who gathered, developed or conveyed intelligence communication on both sides of the conflict.

By encouraging the study of period tactical tele-communications and intelligence gathering, including codes, cryptography, aerial telegraphy (flag), electric telegraphy (wire), observation balloons, signal rockets, lights and mortars, spies, scouts, agents and secret operations, SCA seeks to perpetuate the memory of America's mid-19th century military and civilian communication pioneers and care for their monuments, markers and final resting places.

SCA and its reenactor's division have departments, detachments and or "stations" in more than 30 states. Many associates are not reenactors, but all do share an interest through the study and understanding of those who manned the telegraph key and sounder or pulled glass watch at innumerable observation posts, relaying vital dispatches via flag and torch from hills, towers, rooftops, tree platforms and the mastheads of ships.

SCA holds no meetings, has no mandatory events and collects no dues. Members are as active in the association as they have time to be. Since 1987 SCA's monthly publication, Signal Cipher, has served as the organization's official transmitter. In January 1999 it was converted from paper to cyber text. Articles, announcements and queries are submitted by you our readers and focus on signal, telegraph and secret service operations, methodology, historical personages and related subject matter.

SCARD maintains a WEB Presence at WWW.CIVILWARSIGNALS.ORG. Coupled with documentation from the bibliography and our extensive archive, SCARD will use this site for the introduction of national reenacting communication standards, which when linked with practical field instruction and examination will result in the awarding of credible and nationally recognized certification. The knowledge gained within this manual is the pre-requisite to any SCARD Certification.

For other comments concerning the site or to receive a statement regarding our Signal Corps Association Reenactor's Division mission and how you individually, or your organization, might benefit through SCARD, we encourage you to contact our Adjutant and Inspector General's Office via e-wire at: aigo@civilwarsignals.org .

We do appreciate your interest and look forward to providing you with historically accurate documentation and a vehicle to functional period communicators! 3.3.3.

Uniforms and Equipment

It would be wise to ask the advice of the company commander or another seasoned member of the unit before you go out and put your money down on an item that is inappropriate for the period or a member of the Signal Corps.

Having an authentic uniform means acquiring a complete and functional uniform. In addition to the Sack Coat, Trousers, and Leathers, make sure that shirt and shoes are appropriate to the Civil War era. In addition, most events now include guard duties and stacking arms, so a bayonet and sheath that actually work with the musket are important and should be included if you have a fire arm. Plan on bringing at least one change of shirts, underwear and socks. Socks should be heavy wool types or double pairs of the light cotton variety. A period style vest is a good idea, especially in cool or hot weather, and is a good place to keep pocket watches, ear protection and meal tickets. Other important accessories include a canteen (don't be without one), a poncho and a haversack. When the temperature drops below 50, seriously consider getting a greatcoat (or a good wool blanket) with gloves and a scarf. Finally, plan on a complete change of street clothes, especially if getting to the event involves a long car ride.

Basic Uniform (Men)

- ***Boots*** - Period style Boots or Brogans. (Engineer, or saddle boots with straps and rings cut off and dyed will pass)
- ***Socks*** - White wool can be worn inside or outside of trousers
  (White, black or any other color Cotton socks to be hidden in boots)
- ***Pants*** - military type wool sky blue wool for US & gray or sky blue for CS.
- ***Shirt*** – muslin or cotton button shirt (No plastic buttons!)
- ***Uniform Jacket*** – Wool sac coat, frock coat, or shell jacket. - navy blue for US and gray or butternut for CS.
  (You may wear any *"Army Branch"* uniform appropriate to the period.)
- ***Hats*** - You can choose from a wool Kepi or Bummer , as well as a felt slouch.
- ***Belt* & Buckle** – Black issue leather belt with "USA" stamped brass buckle and keeper.
- ***Suspenders*** – Optional, but recommended. White muslin is best.
- ***Glasses*** – *(If Needed)* Frames can be purchased at flea markets and antique stores – Generally they didn't have the nose pads at that time. We have a friend in the optical department at Wal*Mart who can have lenses made if most other stores are reluctant to do it because of how delicate many of the older frames are.
- ***Pocket Watches*** – Can be purchased from anywhere from $6.00 on up. Don't get ones with trucks, or hunting scenes on them. The ones with trains, eagles or ornamented are acceptable by the reenacting community.
- ***Canteen***- Stainless Steel- rather than tin recommended.

Basic Uniform (Women)

Below is a list of the requirements for a higher-class woman. It may seem like a lot, and it is, but do not feel that you must purchase everything at once. Most purchase clothing, starting on the outside and working in. Most won't notice if you wear knee socks instead of thigh-high stockings or modern underwear. Keep in mind, if you are handy with a needle you can save a lot of money!

- **Dress or Blouse and Skirt**
- **Corset Cover**
- **Over-the-Hoop Petticoats (1-3)**
- **Hoop**
- **Corset**

- **Under-the-Hoop Petticoat**
- **Chemise**
- **Drawers (Although only about half of Civil War women wore them!)**
- **Stockings/Garters**
- **Boots**
- **Bonnet or Cap**

Women's clothing is pretty basic, it is separated into about three age groups: approximately ages 13-25, 25-50 and 50+. Young women and girls wore newer fashions, Zouave jackets Garibaldi blouses with large puffed sleeves and light colored hairnets, if any. Older women usually wear a dress made of one fabric rather than two as younger women did. They wore broaches rather than a tie at the neck and more often wore the hair confined. If you are of high class, you will most likely want a corset and hoop for your dress, while working women or women in camp would do without for practical reasons, although lower classes did have working corsets which lack stays. Few women would wear a standard corset while doing housework.

Hair was styled to give the face a wide or round appearance, most often parted in the middle and confined at the neck. Shoulders were to slope gently "like a wine bottle" and garments were sewn accordingly, with the sleeves slightly off the shoulder. It should be noted that hairnets, or "snoods" as they are popularly called since World War II, were worn during the Civil War, but were not very common; they became more widely used after the War.

You'll probably also want a whole bunch of little extras, they really do make a difference but can be more costly than the clothing. I would also suggest that you obtain a Civil War etiquette book so you can fit in with your new Victorian friends. Pace yourself, you do not need to buy everything at once!

Unit Property

All Unit property will be taken care of better than if it were your own. They need to be in good clean operating condition for the next person to use, which may be you again. Tents are to be kept clean at all times. Clean all straw, dirt, dust, grass and bugs out of the tent when folding it up for storage or trip home. Never let a unit tent remain folded wet (This will cause mold and will start to determinate and destroy the tent in only a day or so). If it is wet – you may be required to take it home with you to be set up right away so it will dry as soon as possible. When completely dry – fold and store in a cool dry place. Store in a clean dry place. If you notice a rip or something wearing, let the Quartermaster Sgt. or officer know as soon as possible.

Travel to and From Events

Try to meet others on time so there is no delay in the convoy to and from the event. Have a form of communications with you (FRS – Family Radio System or Cell Phones– And share your numbers amongst your pards, *BEFORE* you take to the road). Have money ready for tolls, food, and gas. It is of the utmost importance for the Company Clerk & Commander to know what time you are planning on arriving and leaving the event if not traveling via convoy.

Camp Set-up, Tear Down

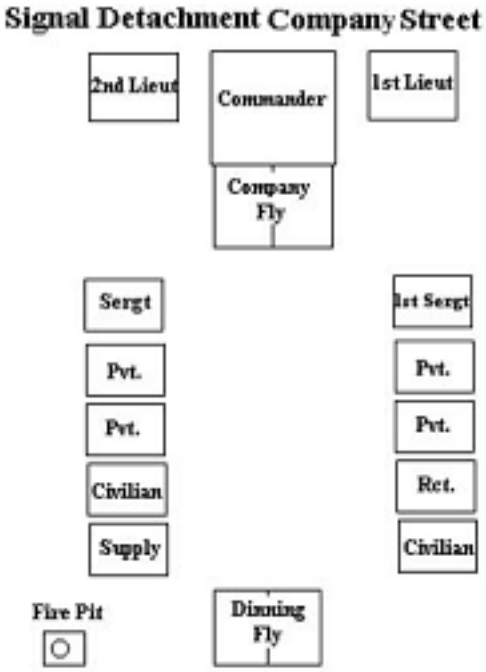
Even though Civil War troops were issued shelter halves and just rolled up in them on the ground, most reenactors have a complete tent. This includes two shelter halves (they button together), and two end flaps or a standard A-Frame style tent. It should be water repellent and can be purchased that way. While a poncho or gum blanket can be used as a ground cloth, a separate ground cloth is more convenient. It should be waterproof and free of holes. It should cover the whole tent floor for better, drier storage inside the tent. Wooden tent pegs are light, cheap and easy to replace. Purchased metal tent pegs are re-usable and by far a better solution. It is advisable to mark them uniquely as yours, to avoid being mixed with others. Uprights and ridgepoles can be made from any reasonably straight

branches and they should be peeled. They should be no heavier than necessary. It's easier to use straight uprights and lash the ridgepole in place. Forked uprights are hard to find and tend to split. An alternative, and one adopted by many, is using 2” x 2” pine boards, sanded and cut to length. They are reusable and easily assembled. Asks a seasoned member for instructions on some of the alternatives, they will be happy to assist. For those who can't sleep on straw, or get to events after its gone, backpack or self-inflating mattresses or layers of carpet padding can be covered by an old sheet sewn into a bag. This, on a ground cloth, with two or three blankets will be warm enough in most weather. Another often overlooked item is a travel toilet kit with a personal selection of items like soap, shampoo, toothpaste and brush, contact lens gear, spare glasses, allergy medicine, prescriptions, aspirin, toilet paper and other personal items, in a water tight pouch. It should be small enough to hide in a haversack or small bag. Things to avoid include large chairs and bed frames. The Civil War soldier did not carry large amounts of tin or ironware. Small stools, canvas buckets and lanterns are acceptable. Hatchets are ok for tent pegs; small wooden frame saws work best for collecting firewood, especially at large events where firewood is limited.

Camp Layout

The Company Commander has the final word on where tents will go.

Regulations describe a company street arrangement with dog tents along each side with a common cook fire and an officer’s tent at one end and the Color Line at the other. This general arrangement is common in reenacting. Individual cook fires are not used (and weren't used then) and just waste firewood. Occasionally camping is campaign style with no set company streets and an emphasis on informal shelters. Whatever the case, try to avoid anthills, gullies or other obvious rain water collection sites, hillsides, roots and rocks. Police your immediate area incessantly. When a spectator walks through your camp, it blows it when you’re holding a can of Coke! Keep all inaccuracies hidden. Store your rifle hanging from your ridgepole at night. This keeps it dry and out of the way. Keep spare shirts in your bedroll. It's easier to put your tent up over your bedding then it is to drag it in there after it's up. Tie your upright poles to your ridgepoles, and keep the open button part of the ridge down, and away from the wind. De-Farb the inside of your tent and leave it open when weather permits, this adds to the authentic look and feel of the camp and invites questions from the public. Always close and tie your tent closed when leaving camp for any reason.



Set-up,

Everyone will participate in setting up the Company Street or camp.

At most events, amenities like firewood water and straw end up in short supply chiefly because people take more than they need. Don't you be one of those! There is no reason to have more firewood than you need so that someone doesn't have enough, and you have a large supply left over. If you have more wood or straw than you can use, put some back, there is probably someone who is going without and can use it. In most military camps, only one fire per Company Street is allowed. It is a waste to keep a large fire going all the time, especially if no-one is going to be there, or you are going to bed, besides it is dangerous. If you are the first one at an event- find who's in charge and where the wood, water, straw and headquarters are located and start gathering supplies for the company. Once an authorized member of our unit arrives the Company Street will be established. Help set-up all tents first as directed. Dig the cook fire pit and start the company fire. Always carry some matches and fire starters. Water supplies tend to run low especially in hot weather and when water buffaloes are hard to get at. Use only what you need for cooking, cleaning and drinking. But do not be afraid to drink to much water, remember the "return with an empty canteen" rule. Soaking a handkerchief and putting it under your hat, will help keep you cool. Soldiers could also wear a vest instead of their sack coat, but remember; it is considered improper to be seen in just your shirt and suspenders. Straw for bedding also runs low. If you take whole bales for yourself, one for your bed, one to sit on, etc., someone will not get any. Use enough only enough to make a comfortable bed, and return unused bales to the stockpile. A final word about port-a-johns. Be prepared in case paper runs out. Keep some in a zip-lock baggy or some other inconspicuous watertight container. Mind your manners; remember that a lot of other people have to use these facilities. The general rule has always been that the cleanliness of the port-a-johns are directly related to the urgency of their need. Remember those who will follow you in.

Tents

The company commander’s tent and fly are the first tents to go up because all other tents will guide off of his tent. All tents will be set up on the company street before you start putting your equipment in your tent and making it your home. A stringer is to be run to keep tents straight and in line when setting up. The front two corners are to be on the stringer line run and should be the first two stakes put in, the back two corners secondly. All tents are to be put up prior to adding additional side stakes. Wall tents and Flys are to be put up in the same manner. Corner ropes are to be placed at a 45-degree angle to insure full pull and strength on the structure. Tent stakes are to be placed in the ground at 45-degree angles as well (away from the tent), again to ensure strength of hold. Test stake should be checked daily (more often in high winds) to ensure that they are not working out of the ground, which can cause a tent to drop unexpectedly.

Equipment

Shovels, Axes, Hatchets, Picks, hammers, water buckets, Telegraph key and sounders, wire, etc should be stored in the supply tent or within the responsible individual’s tent until needed.

Fire Pit

Picks, Shovels, Hatchets and axes are available to dig a fire pit. You should cut the sod into squares or rectangles and flip them over around the pit so they are dirt side up. This will help prevent the fire from spreading and it leaves the camp area as you found it when you put out your fires and re-sod the area.

A filled water bucket or pail should be by the fire at all times. It is wise to wet the grass around the fire from time to time. Food, eggshells or trash of any kind should be put in a trash bag and not in the fire.

FIREPITS WILL ONLY BE DUG IN ASSIGNED/AUTHORIZED AREAS. Only *one (1)* fire pit will be dug per company street and should measure no larger than 2' x 3'. Children must be under the supervision of a parent or guardian. Adults taking responsibility for someone else's children must have such permission in writing. The Company Clerk for the duration of the event should retain such permission.

NO LITTERING! YOU should leave areas in a better condition than found.

It is recommended that a full water bucket be kept adjacent to campfires at all times. No one will place any material into fire pits OTHER THAN FIREWOOD. This includes trash, soda cans, etc. All trash and litter should be kept in trash bags out of sight until the end of the event. **Carbonated beverage cans in particular will not be stored or consumed in the area of any fire pit. AN UNOPENED CAN ACCIDENTALLY DROPPED INTO A FIRE PIT CAN BECOME A BOMB THAT CAN CAUSE SERIOUS INJURY OR DEATH TO ANYONE IN THE IMMEDIATE AREA.** All non-period containers or packages will be kept out of sight in tents and specifically away from campfires.

At no time should anyone be building cooking or resting around the fire with any powder in their possession, including but not limited to cartridge or cap boxes. Signal Flags and/or Lantern, torch fuel should never be stored, left or displayed near the fire pit.

The Fire Pit will be set down wind from the company street, and as close to the cook tent and Cook Fly, when possible. (The washing area will always be located near the cook fly away from the camping area, located to avoid foot traffic of other re-enactors or camp visitors)

What would an encampment be without a campfire? Most of our weekends have the traditional campfire and many of our members take great joy and pride in the creation of a cook fire/campfire. Here are some tips and ideas on building a successful campfire:

1) Start with **DRY** kindling, small twigs and such.
2) Fire starters, paper, etc help get it started. DO NOT USE LEAVES - Too Smokey.
3) A common and easy form is to use the TEEPEE method. Start with a few strong branches forming a frame for a teepee.
4) Fill the center and edges with paper or other fire starter.
5) Build up the fire using small twigs, dry bark, shavings, etc.
6) Make sure you do not smother the fire! Leave room for air to feed the fire.
7) Save the larger wood to feed to the fire once it gets going.
8) Use logs last to maintain the fire.
9) Don't add too many logs too fast or you smother the fire or grow it too fast causing you to have to move back.

PLEASE, don't throw metal, glass, or other items, which do not burn into a fire. Also, plastic puts toxic fumes and chemicals into the air - PLEASE DO NOT BURN PLASTICS OR STYROFOAM. Fuels such as light fluid, gas, lamp oil, etc. should not be used to start a fire. Serious injury or explosions can result.

Remember that fire is destructive if not controlled. Make sure that you follow the safety guidelines below. Many areas do not permit use of fallen trees and branches, check before using any fallen wood that its use is permitted. Use as little gathered wood as possible. Use the Event supplied wood or consider bringing in your own firewood. Use the driest, least green materials available.

CAMPFIRE RULES OF SAFETY:

1. Dig a pit away from overhanging branches and down wind of the company street, nearest to the cook tent/fly.
2. Circle the pit with the sod removed or rocks.
3. Clear a 5-foot area around the pit. (Rack)
4. Stack extra wood upwind and away from the/any fire. Place a small amount to keep dry in the supply tent incase of rain.
5. After lighting, do not discard the match until cold.
6. Never leave the cook fire/campfire unattended.
7. Always Keep a full bucket of water and shovel nearby.

How to build a campfire even in the rain:

Fire needs 3 elements to survive: Fuel, Air, and Heat. This is known as the "Combustion Triangle". Deprive a fire of any one of the elements and it dies. Water does two things; it deprives a fire of oxygen and it cools the temperature to below the combustion point of the fuel being used.

Our job is to create a campfire when everything in the environment appears to be wet. Notice that the operative word is "APPEARS". Even after a rainstorm there is tinder and firewood that is dry. Knowing where to look and what to look for are the keys to success.

Let's start with tinder. Look around your site for fir trees. The smaller lower branches that have died as a result of being denied sunlight by the larger upper branches are the first choice. The same branches that shielded these dead branches from sunlight have probably shielded them from the rain. These smaller branches are usually dry and will break off in your fingers. Collect a good amount of these. Take a little extra time to fray and shred these with your knife or fingers. Also look for dry grass under these trees. Look for birch trees as the bark is impregnated with oil and will not absorb moisture. Bird nests and wasp nests (unoccupied of course) are also good sources of tinder. The wasp nests look like brown golf balls and the unoccupied ones are usually found on the ground. The bird nests are a little trickier and you will have to look for them. Also you can use a piece of cloth from a shirt or other article of clothing if necessary. Do not overlook the contents of your wallet. All those useless business cards burn very nicely.

The next step is kindling. Look for trees known as "Dead Falls". These are trees that have fallen and are now in various stages of decay. Locate one that has been down for a while; strip off the outer bark, and cut chunks out of the rotting trunk. This will burn fast, so gather as much as you can. The larger branches can also be stripped of bark and the wood below used. Do not forget to look under and around these "Dead Falls" for wood that has been protected from the moisture. As well as the wood buried under the wood pile may be very dry, being sheltered.

Another tip to be mindful of- when foraging for dry wood is: look for pine trees. Many of these trees will have a sticky sap running down the bark. Collect this sap or pitch. It acts as an accelerant for your fire.

Before you start a fire make sure you have collected enough fuel to keep it burning for a length of time. Whatever you collect, protect it from getting wet with pieces of bark, stones, or place them, with permission, in an area within the supply tent.

Firewood is the main staple of any fire. Here again, the "Dead Falls" are your best bet. You can use logs up to 3 feet in diameter. Even if you cannot cut them into a usable length, just strip the bark off them and insert the end into the fire. As the log burns, just keep pushing it into the fire.

Building the Fire- There are 2 ways to start a fire in a wet environment. The first is to create a bed for the kindling to rest on. This is a very simple operation. Choose 2 sticks about 1 foot long and about 1 inch in diameter. Lay them parallel to one another. Loosely stack kindling in 3 layers on top of these base sticks. Alternate the direction of these layers (i.e. the first layer at right angles to the base, the next layer parallel to the base and the third layer again at right angles). Next place your tinder material underneath this stack. There should be openings at either end of the base. This opening will also serve as a vent for the fire once it is started.

The other method of building a fire is to place the tinder in the center and construct a Tee Pee around it with the kindling you have collected.

Igniting the Fire – Here too, there are several methods of accomplishing this task. Hopefully you came into this experience prepared. If you brought a disposable lighter, waterproof matches, or have book matches that are not wet, simply light the tinder. Once the fire is burning add small pieces of wood a few at a time from your kindling stock. Be careful not to add too much as this might smother the fire. Gradually increase the size of the wood until the fire is burning. Only add the larger logs after the fire is firmly established.

If you are totally unprepared and have no matches or a disposable lighter you can use a bow and drill. This method is the most versatile as the materials to make one are easily found wherever trees grow. However, this method is far from easy and it should be learned thoroughly before you attempt it. I attempted this once. It took me the better part of a day to get a fire going using this method.

Use the bellows to blow on the embers and increase the heat of the fire; hence, more flame and fire.

General Camp Esthetics

Once set up the camp shook take on the look of a period Civil War Camp. No modern items should be out or showing. Can or bottled Liquids should be transferred to a cup if in view of the public or other units.

Tear Down Procedures

You may change back into Civilian clothes after you get permission from the company commander and only after other units have also changed. We should not be the first to change.

Post Event Cleanup (when you get home)

One of the most important things to do after any event is putting things away ready to go for the next event. Take special care to clean and preserve the rifle, especially the barrel, the bore and the percussion cone. Remove all visible rust and wipe lightly with oil or other preservative. At least once a year, disassemble and inspect all the major assemblies and stock. Renew the stock finish and remove all rust. Dry clean or wash uniform items, shirts, socks and vests. Cold-water wash in Woolite followed by drip dry is acceptable for wool items. Even if they appear to be clean, uniforms should be cleaned every two or three events. Inspect your uniform for loose or missing buttons, small rips and tears as well as general wear. Make repairs as needed, so you can start planning on the dreaded replacement parts. Consider donating old but repairable or ill-fitting uniform pieces to the company for loaning to new recruits, or notify the company clerk of their availability and size incase they are needed.

Leather items, including boots, should be cleaned of visible dirt. If they've gotten wet, they should be coated with neat's-foot oil or other preservative. This is also the time to fill cap and cartridge boxes and to make more rounds if the supply is getting low. Metal items such as cooking gear and even the bayonet, should be dried, washed and any rust removed with steel wool. Be careful not to rub through the outer layer of galvanizing in your cookware, this would leave the bare tin underneath to rust very quickly. Pushing a long thin strip of rag into the bottom and hang it upside down can dry out canteens. Replace the rag strip when it becomes soaked.

Eating utensils and cookware should be given a through cleaning. Run through your dishwasher before packing away for the next event. Although we do our best at the events, small amounts of grease, food matter etc. may not have been totally removed and will only grow wee-beasties packed away dirty.

Tents should be opened, aired and cleaned of any grass, mud or insects. Store in a cool dry area. Verify they are dry before folding-up; mold has its way of growing before you know it. Check all ridgepoles for splinters or cracks and repair or replace as needed.

Take an inventory of everything you have so you may develop a checklist of what to bring to the next event, nothing worse than forgetting that new belt you just purchased. Learn for your experience, if you didn't need it, don't expect to need it; don't bring it. (But don't forget the "I wish I had it" scenario).

Take a few minutes to reflect on the weekend's event. Write a few short paragraphs in a book, event name, directions, who attended, who you met, what you saw, likes and dislikes, favorite moments, embarrassing moments, least favorite moments, what you accomplished, what you wish you accomplished, etc. This is a great way to build your reenacting history, remember good times and friends, as well as a guide to planning future events.

Camp Life

Procurement of Supplies (wood, water, straw etc.)

If not beforehand, once the camp is set up and all things are put away – wood, straw, and water should be procured and stored.

Procurement of Rations (Food supplied, Purchased, or personally carried)

If the event is supplying rations – the Quartermaster Sgt or Officer will see the company clerk to get a head count so they can procure the proper number of rations for the unit. They will be taken to the supply tent and items that are perishable will be placed in the unit coolers. Ice in the coolers must be monitored and should never allowed to become depleted.

Period Dress and Etiquette

Period dress, etiquette, and manor will be adhered to throughout the event. If for some reason you need to change, permission from the company commander is needed.

As re-enactors, we must recognize that this is, after all, first and foremost a hobby. Admittedly it is an engaging hobby, one that consumes many of our thoughts and much of our "disposable" income, but it is still a hobby. We believe it to be a most serious hobby, though, and vastly different from most others. Our hobby seeks to reasonably portray life among the troops as it was during the Great War Between the States.

We find ourselves philosophically fixed between two extreme schools of approach to this hobby. On the one extreme, there are those referred to as "hard-cores", or "hyper-accuratists". Folks in that camp conduct inspections of wool weights and cotton thread counts right down to their participants' skivvies. They seek to attain some measure of personal and corporate nobility by "enjoying" the same suffering that they believe their ancestors did. They are the Northerners too proud to don the gray wool because they (or their ancestors, or both) were born in a Union state, and the Southerners too proud to don the blue because they (or their ancestors, or both) were born in a Confederate state, both somehow thinking that they dishonor their heritage by wearing the colors of good men who took up arms against their home state or against their own ancestors. Hyper-accuratists scorn the ice chest hidden in the tent, preferring to eat sheep's head apples and runty vegetables when they can find them, and to cook un-refrigerated meat and endure a weekend of stomach cramps and worse "*For The Cause*". They glory in avoiding deodorants and soap and water for the period of the re-enactment, some choosing to rub ashes and dirt on their faces to "look real".

On the other extreme, there are those known in re-enacting circles as "Farbs". Farbs are so-called, some say, because their sobriquet is a derivative of the German "farben" which means to make or to manufacture; others contend that the term stems from the phrase, "far be it from me to criticize, but look at that..." These people are self-made Union or Confederate soldiers, wearing modern-day sunglasses, wristwatches, eyeglasses and the like as they exercise their impression of soldiers of the period. They are content to wear their gray polyester work trousers and gray work shirt with their name tag stitches removed, and any old-looking hat when they are Confederate soldiers; and they wear pretty much anything blue when they are Union soldiers. Wearing their kepis backwards on the battlefield and adopting the manner of "rappers", or rehearsing old Monty Python catch phrases or parts of skits are not uncommon among them both when the camp is closed to spectators, and when they take the field before hundreds or thousands of spectators. Their cars and trucks would remain in camp if event sponsors would allow them. They all too often disregard the direction of their officers and fail to maintain the orderly behavior in drill and

on the field which would have been common during the War, displaying not an independent spirit but an undisciplined, unruly, and rude spirit. Sadly, many of these men misrepresent the South exclusively in their impressions, having the mistaken idea that Confederate soldiers were all barefoot, unruly and drunken hillbillies, hicks, and coon-asses whooping and hollering their way through the War.

Both of those positions are faulty, in our view. The "hyper-accuratists" are so swept up in their attempt to achieve what they believe to be absolute authenticity that they miss the primary point of the exercise. They are not unlike the scribes and Pharisees of the New Testament who would strain out a gnat and swallow a camel; their adherence to the law was for the outward appearance of piety, for they were "whited sepulchers", whitewashed tombs filled with dead men's bones. So it is with this group, for if they were truly so dedicated to absolute historical accuracy, their ranks would be peopled with few men above 5'4" tall, and most of them would necessarily have to be, to a large degree, of Scottish descent. They would refuse to participate in any event which took place on anything other than a battlefield over which men fought during the War. Most of their ranks would automatically be decimated because they would have to cull members out in order to maintain the proper average age levels, for the War Between the States was waged mainly with the lives of young men, as most wars are. Yet in re-enacting, many of us come to it later in life, and it is no less true of the "hyper-accuratist" school of thought.

Farbs, on the other hand, are really in the wrong hobby in the estimation of many. The hobby they really seem to want is either paint ball wars or re-enacting the Viet Nam War, but there are so many more boys to play with in Civil War re-enacting that they just cannot pass it up. They have a marginal interest in history, as demonstrated in their dress and their approach to re-enacting. They want to wear the romantic costumes and neglect the discipline, which attends the uniform. Military etiquette is an essential element of re-enacting if the re-enacting is to be done passably well.

What we seek is found somewhere in the middle of all of that. We believe in an authentic "look" and "feel" to all that we do. We will not check wool weights or thread counts. We do insist that the look be correct, however, and that uniform standards of the 1860's be met. We love our ice chests, but we love them hidden in the supply tent to preserve the look and feel of the period. In all that we do, we seek to make the experience as real as we are able and yet remember that this is also fun. History is important to us, beginning with the histories of The Signal Corps and continuing down to the very events in which we participate. Enjoying ourselves is also important to us, and we should never neglect that.

Part of the fun of recreating that period is knowing, not only the drills of the troops whom we seek to portray, but also their conduct in and out of camp. While not every rule of the day may always be followed, there are many which are critical to a minimally correct impression as well as a smoothly run and enjoyable encampment.

Army Regulations, ca 1860

1. The utmost attention will be paid by commanders of companies as to the cleanliness of their men, as to their persons, clothing, arms, accoutrements, and equipments; and also to their tents.
2. Where conveniences for bathing are to be had, the men should bathe once or twice a week. The feet are to be washed at least twice a week, and the hair kept short and the beard kept neatly trimmed.
3. Non-commissioned officers in command of squads will be held more immediately responsible that their men observe what is prescribed above; namely, that they wash their hands and faces daily; that they brush or comb their heads; and that those who are on duty put their arms, accoutrements, dress, and so forth in the best order.
4. On all occasions except fatigue and when out of quarters, the coat, vest or jacket shall be buttoned or hooked at the collar.
5. Officers at their stations, in camp, or in garrison will always wear their proper uniforms.
6. All inferiors are required to obey strictly, and to execute with alacrity and good faith, the lawful orders of the superiors appointed over them.
7. Authority is to be exercised with firmness, but with kindness and justice to inferiors. Punishments shall be strictly conformable to the Articles of War.

8. Superiors of every grade are forbidden to injure those under them by tyrannical or capricious conduct, or by abusive language.
9. It is enjoined upon all officers to be cautious in reproving non-commissioned officers in the presence or hearing of enlisted men lest the non-commissioned officers' authority be weakened.
10. Courtesy among soldiers is indispensable to discipline. Respect to superiors will not be confined to obedience on duty, but will be extended to all occasions. It is always the duty of the inferior to accost or to offer first the customary salutation, and of the superiors to return such complimentary notice. The customary salutation is to salute.
11. Sergeants with muskets will salute by bringing the left hand across the body so as to strike the musket near the right shoulder. Corporals out of ranks and privates not serving as sentries will carry their muskets at a shoulder as sergeants and salute in like manner.
12. When a soldier without arms (or with side-arms only) meets an officer, he is to raise his right hand to the right side of the visor of his cap, palm to the front and elbow raised as high as the shoulder; looking at the same time in a respectful and soldier-like manner at the officer, who will return the compliment thus offered.
13. A non-commissioned officer or soldier seated and without particular occupation will rise on the approach of an officer and make the customary salutation. If standing, he will turn toward the officer for the purpose of offering the same salutation. If the parties remain in the same place or on the same ground, such compliments need not be repeated.
14. It is equally the duty of non-commissioned officers and soldiers at all times and in all situations to pay the proper compliments to officers of the Navy and Marines; and to officers of other regiments, when in uniform, as to the officers of their own particular regiments and corps.
15. An officer, non-commissioned officer or soldier shall indicate respect for women when passing by them in public by touching the brim of the cap in the manner of a salute, or removing the hat.

Saluting

As reflected by the Army Regulations, which we have numbered 10 through 15, the customary salutation to a superior or a lady was to salute in one fashion or another. The form of the salute is, of course, conditioned upon the context of the occasion and the state of activity of the subordinate person. All of that is explained satisfactorily in the Army Regulations included in this document.

The salute for the period is for a soldier without arms (or with sidearm only) to initiate the salute by raising the right hand to the right side of the visor of his kepi or hat. The right hand is to be positioned so that the palm of the hand faces forward, and the elbow is level with the shoulder. At all times, the soldier is to maintain a facial expression, which is as respectful and soldier-like as possible. The officer will return the courtesy with a salute, and the soldier may complete the salute by lowering his hand from his visor to his side.

When a soldier encounters an officer when that soldier is not in formation, he should salute when he is approximately six feet from the officer, and the officer will return the courtesy in like manner. Once the officer has either completed his own salute or walked past the soldier, the soldier may then complete his salute.

The same is true when the soldier is at his leisure in the camp. When an officer makes his way through camp, it is common military etiquette to have the first soldier who sights the officer to declare "Officer in the camp!. At that notice, the practice is for the other soldiers within hearing in the camp to come to attention and salute. Once the officer has either completed his own salute in response to their salute, or has walked past the soldier, the soldier may then complete his salute. In the event that the officer does not make a comment or give a command, such as "As you were" or "At ease", the soldiers are then free to resume the activities (or inactivity) in which they were engaged prior to the appearance of the officer.

Particular attention should be paid to the manner of saluting when hands are occupied with legitimate military tasks. Rarely is a soldier excused from saluting

All too often, the courtesy, which should be extended to ladies, is neglected. In Army

Regulation 15, proper military etiquette would dictate that any soldier or officer encountering a lady should touch the brim of his hat in the manner of a salute, or remove his cover in her presence. It is not necessary to exchange greetings or comments with the lady, but it is necessary to acknowledge the presence of those of the fairer sex to whom respect and admiration are due, without regard to their station in life. There is some dispute as to whether it is appropriate to greet ladies unknown to one, as it is improper for ladies to greet those strange to the lady unless requiring aid of some sort from anyone at hand. Therefore, our recommendation is to avoid the promiscuous habit of greeting all ladies with a salute unless first acknowledged or engaged by the lady.

Tents – When you have set up your tent you should strive to have a display for the public and unit members to see as they walk by. Keep your tent fly open and all modern items hidden. Close your tent when you need privacy or when you are leaving camp. If you will be leaving the area for a while you should tie the flaps of your tent off. If you need to visit with someone it is courteous to knock on the upright pole and wait for an answer before peeking in.

Inspections- These are completed most often at morning roll call and prior to marching/ going to battle. Most are relatively informal inspections to verify the troops have all accruements required such as a full canteen proper jacket etc. More formal inspections may be called for at any time and may also include inspections of troop tents as well as company tents, Company Street, etc. as the need arises. The NCO in charge, or any commissioned officer of the may call inspections.

Reveille – Is usually sounded by a bugle at or around 6:00 am to 7:30 am depending on the event and the day. When you hear it you should get out of your bed and get dressed, as you will be required to fall out for a roll call formation within 15 minutes or so.

Roll Call – Is called after Reveille by the First Sergeant - it is a means of the army to see who is back in camp and ready for duty for that day. You will stand in formation and wait until your name is called. When it is you should respond by saying "Here Sergeant". The sergeant checks the names of those there and not there and places them in his book. He will then go to the Company clerk and inform him how many people are available for duties for that day. The sergeant will then transfer his numbers to a morning report for the company commander to see, sign and pass on to headquarters. Every enlisted man is expected to be up, dressed and in attendance on time.

Duty Roster – There are various functions or duties that need to be carried out at an event. Water needs to be gotten for cooking and washing, wood needs to be secured to be sure we have enough for cooking and campfires etc. Your name will be taken from the roll call book and placed on list duties that need to be performed that day. We will try to be as fair about it as possible – We will try to make sure you don't have the same duty again until others have also gone through the cycle. If you see your name on the roster – go do what you need to do before you have to be told to do it… If you see we need more wood or water etc and you have nothing to do – go and get some even if your name is not on the roster. The camp will run smoother that way.

FOOD

Even if free meals are promised, or you are told food will be available to purchase, try and take enough food for meals and snacks for the whole weekend. All food should be easy to prepare and easy to clean up. Breakfast, especially, is a meal where it is better to eat in a hurry before things start to happen. Cornbread and hardtack can be made at home so they're ready to eat. Instant coffee or fruit drink can be mixed with hot or cold water. Instant oatmeal can be mixed with nuts, coconut, or can be the flavored kind. Snacks, include peanuts (goober peas), granola bars, and trail mix hidden in a small cloth bag. Fresh fruits and vegetables like apples, carrots and celery can be carried in a haversack. For lunch or dinner, potatoes and corn can be cooked in the coals. Soak corn in the husk in water for half an hour first. Hard-boiled eggs can be brought from home or boiled in the fire, as can "ramen noodles." Canned hams have more real meat than bacon, are precooked and have less grease. Slice and cook on a stick or in a skillet. Avoid the following,

because of long preparation time or water intensive cleanup: pancakes, fried potatoes and onions, any raw meat and most canned foods.

Be sure to have your event food money in the hands of the Company Clerk or Cook before or as soon as you arrive at the battle reenactment. This is the most important part in this area. At larger events where we have a large group attending the "out-of-pocket" expense for food can be quite expensive for one individual to bear. Please have your food money turned in as far in advance as possible.

Think of each reenactment as an endurance sports event that lasts for two days. Reenactors face physical exertion, lack of sleep, climate extremes and constant demands on their attention. All of this means, it's important to eat and drink regularly. Be sure to drink several large cups of water each day and bring your canteen back empty from each drill and battle (The empty canteen rule). Avoid sweet drinks and alcohol because of the dehydrating effect. If you do not have a canteen, get one. Stainless Steel is recommended. Wetting the cover when filling tends to keep the water cooler by evaporation wet the outside when filling on hot days. Also be sure to eat at regular intervals. Take your mess kit with you whenever you are going to eat. Dishes and eating supplies are not provided, and you must eat. Do not ignore body signs. Eat plenty of fruits and vegetables, as well as grains. Avoid salty foods of any kind. Most events are not bound to eating only authentic meals and foods. Several events offer pancake breakfasts and the like; so take advantage of these offers. A lot of people work hard to bring these amenities; our taking part shows our appreciation.

Cooking EVERYONE should share in their duties of cooking, whether it be in preparation, purchasing or actual cooking at the event. Please do not be afraid to help in this area. Cooking duties, if no volunteers apply will be assigned. If you have a specialty- speak-up! Please coordinate any cooking and volunteering for cooking with your Civilian Coordinator or Company Clerk, they will be assigning the duties as need be.

Clean-up EVERYONE will share in their duties of clean-up. Our Campsite should always look clean and tidy. If you see something "out of place" pick it up and put it away.

Dishes EVERYONE should share in their duties of dishes. It is each individual's responsibility to not only wash, but also sanitize his or her own eating utensils (i.e. cups, plates, bowls, forks, and spoons). Company cooking items, pots, pans, etc. also require washing after every use. This duty again will be assigned if no volunteers come forward. It is everyone's responsibility to take part in helping with this duty at least once every event. No one will be allowed to volunteer for this duty time and time again.

The procedure for washing will be as follows:

Two tubs of hot waste will be prepared, one soapy for washing, one not for rinse. At no time should you place a dish within these tubs, water is to be extracted by means of a cup and poured onto the item being cleaned. This Item should be scrubbed clean and the water disposed of away from the camp area and pathways of others. The item should then be rinsed to remove any soapy residue in the same fashion. Inspect the item before placing in the drying try, if it is still dirty wash it again, there is nothing worse than contracting food poisoning or even worse some type of dysentery at or from an event, especially when a little attention to detail could have prevented it.

Cool down EVERYONE who takes the field will, upon returning to camp, must go through a "cool down period". This will last for a minimum of 30 minutes where you must remove your coat, vest, hat etc. and sit in the shade and drink plenty of liquids. All members not taking the field must assist those in getting their gear off and making sure the have plenty of cool drink available. No one is to do any foraging, cleaning, cooking, or any other duty during this time period, soldiers coming of the field must be observed for any heat related problems.

Drills EVERYONE must take part in all required drills. These drills fine-tune our skills as well as providing training opportunities for new members.

Evenings- Evenings in camp are a time for relaxing, talking and sharing stories. Sometimes a star-lite walk through the camps is taken. Many events offer period style dances, which, with permission may be attended. Other times Night Signal Drills may take place. Evenings in the Signal Camp has always been a special time for all and is when the "Signal Corps Family" really comes together as a committed unit.

Leaving Camp – Just like in the "Real Army" – you need a pass to leave camp. Because the time we have to get things done at an event are short – we need to know where everyone is at and when they are scheduled to return, at all times. You will sign in and out in the sign out book when leaving and returning. No member below NCO, bearing stripes, will be allowed to leave camp alone for more than a 10-minute interval, and then only with explicate permission from the Company Clerk or Commander. When gone from camp, you must stay within visual contact, or at minimum, within earshot of their partner at all times. The only other exception is when on official company business under a direct order from the company commander.

Sutlers – Sutlers are merchants that followed the army selling their trades. They are the predecessor of your present day Wal*Mart. Most everything you need as a reenactor will be found at the sutlery. However, we have schedules that have to be met at an event both for ourselves (training, meetings etc) and for the event host (Battles, formations, drilling etc). We will make sure there will be plenty of time for you to go to the sutlers .

Most reenactors don't spend the whole weekend in military camp and most events schedules allow for some personal time. Before leaving camp, give some thought to what might take place while you're gone. There are a few things that you should always plan to be in camp for, including: All drills, inspections, parades and roll calls. If your company has orders for guard duty or other military chores, you should plan on being available to do your share. The company commander or First Sergeant should know when you would be needed. It's also a good idea to carry an appropriate timepiece during guard duty. No one will leave camp, unless; your superior has granted specific permission, and you have been provided with the appropriate pass or signed the sign-out book. Some of the most amazing time-transforming events happen at unexpected times right in camp. Reenactors that stay in civilian camp, modern camp or motels have their work cut out for them. It takes special dedication to spend the right amount of time with your company to be there for military duties, and to keep mom and the kids from feeling neglected. Try to afford the unique opportunity, as family oriented group, to allow women as well as children to participate as living historians in a military organization and encampment. (See the commanding officer for specific details). We strongly suggest that you camp within camp. Because of the drills, sometimes done at night, are an important part of what we do, and the full flavor of the reenactment experience is only diluted when members are not staying in camp. One more point about modern camping. This term is used loosely in the reenactment hobby. This usually means wherever you park, is where you camp. The facilities available are 95% of the time near the reenactors only. Modern camping, unless totally self-contained, can be very difficult.

Lanterns/Candles- Great care must be taken when handling and using lanterns and candles. Do not leave candles unattended within any tent at any time, and try and avoid using candles in tents if at all possible. The company usually purchases lamp oil for the weekend, this is done VOLENTARILY, please buy a bottle of lamp oil or the unit every now and then, to help keep a constant supply. Upon setting up all lanterns should be filled no more than half way before dark. First thing Sunday morning all lamps should be drained into the company lamp oil receptacle for use at the next event. All Lamps should be COMPLETELY drained of oil and the globes cleaned for next use before being packed away.

Battle Field

Field Procedure All field orders are to come from the Company Commander. No one individual or party is to undertake any cross line signals unless under direct order from the Company Commander. Signal Officers (Party Chief) of parties have direct responsibility for their unit and all actions taken by the men assigned. These Signal Officers of parties (Acting Signal Officers or

A.S.O./ Party Chief) are to be under direct command of the Company Commander (Chief Signal Officer or C.S.O.) at all times, and may not vary their stations, plans, or duties as directed by the C.S.O. Failure to abide by this can and will result in the loss of command (A.S.O.-status), and can be grounds for demotion in rank. It is the utmost importance that the C.S.O. be in complete control on the field and know his men's capabilities, locations, and duty instructions. As well as having the confidence that his orders will be abided by without question on the field.

Signal Party – The signal parties are created by the company commander and signal officers available based on the number of men present, the event, what is needed by the hosts, and the soldier's signaling experience. The basic 3-man unit consists of an Officer or Party Chief, a Flagman, and a Scribe. All members of a party are expected to have an accurate, synchronized, authentic style, time-piece (i.e. a pocket watch with the correct time).

Taking a "hit"- Because Signaling is used to choreograph the actions of units at an event, you are needed to fulfill the assignment – you are really working while others are playing. Because of the importance of your work, if you are a member of a working Signal Party, you may only take a hit with the permission of your Signal Officer. If you are acting as Signal infantry support with a weapon you make take a hit at any time with permission of your superior NCO or officer of the detail, or you run out of ammunition. If you have no operating function, or weapon, you may take a hit at any time. If you take a hit it is wise to drop down in a shady spot. If you must fall down in the sun, have your face to the side rather than face down Try to have your hat cover your face from the sun. It is also wise to take a hit later in the event as you may be lying there for an hour or so.

Civilians

Telegraphers - Are responsible for the working condition of their equipment. Making sure the key and sounder work and the wire is in good condition. At the event they will make sure the wire is placed in the trees or poles. Also to make sure the batteries are cleaned and charged before going to the event. Chief telegraphers should coordinate between the sides as to when they will be at station and operating.

Agents – will get a copy of the event schedule and see when they will have a time to catch the enemy out in the field for a parade or drill. They can split forces and as one is counting the field soldiers the others can go into the camp and catch the rest of the numbers. Agents should be well versed in the Telegraph and well as being able to read and send *Hand Signals* to our troops in the field. This is very useful, as our agents mingle with the spectator prior to battle, many times various enemy troop movements may be noted, which the opposing forces may be unaware. By use of hand signals from the sideline, this information can be passed to our unit in the field prior to or during battle, for relay to the Command. This can be extremely important to the out come of the day's battle, as well as showing the importance of the Signal Corps in battle reenactments.

Special care needs to be taken to hide, or conceal any code, messages, or information from entering enemy hands (i.e. concealment of sensitive documents within areas of clothing or items) Agents are always at risk of capture, enemy search, and confinement. It is imperative that the commanding officer is notified what operations are being undertaken and the length of time estimated to be completed. This is required to facilitate a negotiation for release or a rescue operation to be facilitated.

Signaling

PRINCIPLES AND METHODS OF SIGNALLING.

Signals are of two kinds, - transient and permanent. The former include those indicated by motions or by sounds; the latter, those which are held in view for any considerable length of time.

The principle underlying Maj. Myer's system, as well as all other known systems, was that of having a certain number of arbitrary, simple signs or symbols, easily distinguished the one from the other, being made to appear separately or in combination. When a meaning is attached to these signs single or combined they become signals.

The number of different kinds of signs used in a combination is called the number of elements of that signal. Thus the system of signals used by Maj. Myer in his experiments in New Mexico, and which was more generally used through the war than any other, was termed the four-element code. The combination signal 11 has one element; 1423 has four elements; 234, three elements; 1114. Two elements; and so on. A code of signals is a series or set of signals in which each sign or combination has a definite meaning.

The principles upon which all signals are based are fixed and unchangeable. The applications of these principles can be limited only by the limitations of human skill and human ingenuity. Signaling is conveying ideas by means of symbols, or conversing at a distance. Talking is the conveyance of ideals by means of vocal sounds made singly or in combination; through the written or printed page, ideas are conveyed by means of symbols called letters, either single or combined; telegraphing is conveying ideas by means of symbols, dots and dashes, variously combined; signaling as practiced by the Signal Corps is, for the most part, a method of conveying ideas by motions of a flag or torch, or by some corresponding or equivalent means.

The primary code, but not only code utilized by SCARD, is the Two- Element Code. This consists of 1's and 2's singular or in combination, to pass ideas from one station to the next.

"The method of making these signals is simple and is easily learned. They are quite distinct and are easily read. They are very plain. Every signal is, in reality, repeated twice each time it is shown. The waves to the left or right are read ' one ' or ' two,' whether the flag or torch is descending or ascending. It is necessary only to see that the signal is in motion somewhere on the right to read 'two.'

The signal apparatus is very simple. It is strong, portable, can be carried anywhere (on horse or on foot), is not liable to be damaged by an enemy's ire, or by rough handling, and it is always available and ready for use. It can 'e used in almost any situation. The signals can be seen at very considerable instances. Many devices can be used to make them visible. Such colored flags should be used as will contrast most strongly with the background against hich they are shown. The motion of the signal greatly increases its visibility. An object in motion will be seen and will attract attention, when a similar object resting produces no sensation. We recognize this fact instinctively when we wave a handkerchief, or light, to attract attention.

The signals made with the ordinary equipments, say a staff twelve feet long, and a flag four feet square, or with the torches at night, are easily read at a distance of eight miles at almost all times, except in cases of fog or rain. They are read at fifteen miles on days and nights ordinarily clear, and have been found legible at twenty-five miles. Greater distances are reported; but it is questionable if; at those distances, there is reliability."

--Myer's Manual of Signals.

Day Signals Those signals undertaken during daylight hours, in the light of day.

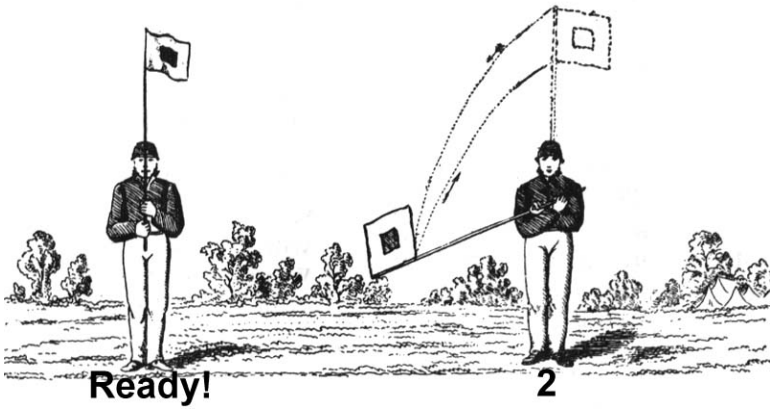
Flagging - Signals conducted by means of the flag. The Standardized SCARD approved; 2-element code with various code sheets- "D" being the standard one used most often.

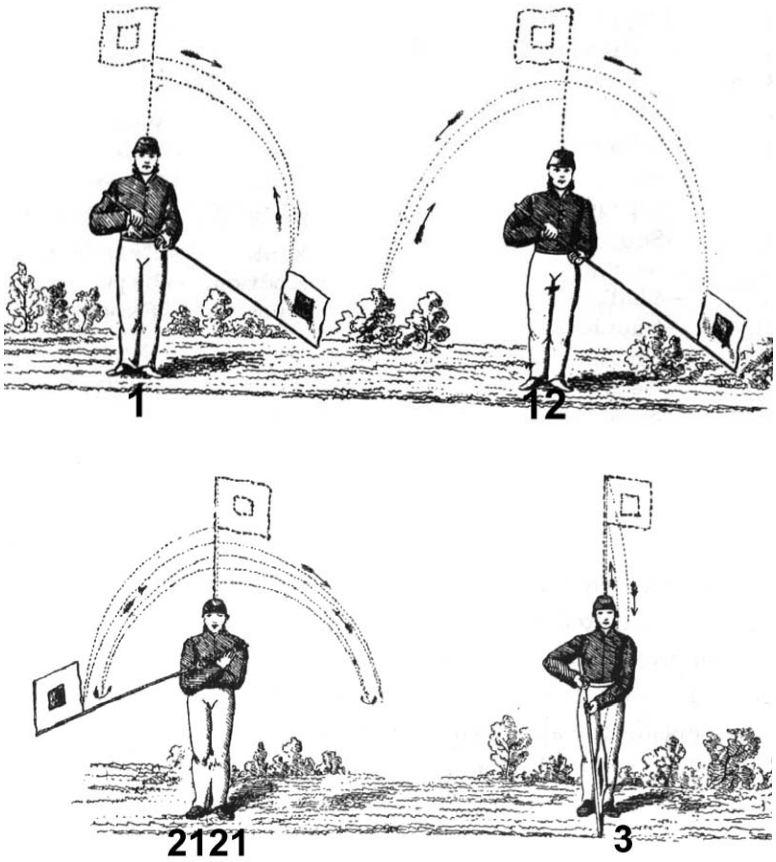
The officer (US) or Party Chief (CS) has complete command of his signal party and will be the only one authorized to send or accept messages from other stations. At no time is any other member of the signal party to send, call for attention, or answer a call without a direct order from the station signal officer/chief.

The duty of **the scribe** is to record all incoming and out going messages along with the time in the commander's signal book. If the commander holds his book for any reason the scribes are to produce and use their own field book, which is also used in drill. The scribes must also assist the flagman in all his duties and take over as flagman if for any reason, including exhaustion, in which the flagman can no longer carry out his duties efficiently. In this case the flagman will take over as scribe. The scribe will also assist the flagman when on the move, by holding onto the back of his belt to direct him out of danger, this is done to avoid any trips or stumbles and also allow the flagman to keep constant eye contact with his contact station. The scribe is to also monitor the contact signal station, along with the flagman, and report for them as soon as any delay is noticed.

The flagman is to stand in perfect view and directly in front of the station in which he is calling or monitoring at all times. He is to call for attention to the receiving station when and only when ordered to do so by the station signal officer/chief. Upon receiving attention he is to immediately come to the ready and report that, the station has responded- Ready Sir. Upon seeing the contact station calling for attention the Flagman is to immediately notify the station signal office or the scribe- Calling for attention. The officer/chief will give the command to respond, if the officer is not in the immediate vicinity the scribe will notify the officer/chief, at no time is the flagman to respond with out a direct order from the station signal officer/chief. Upon the command to respond the flagman will do so until his sees the contact station come to the ready, at which time he will also, and the message read out loud to the officer/chief and scribe. Upon receiving an error, or when sending, an error is noticed; it is the duty of the flagman alone to respond and give the error code. This is to be done immediately upon seeing or noticing one has been made. He will also call-out –Error, and hold that position until responded by the same from the contact station. The flagman must always be alert and ready. He must flag with speed, assertion, and accurately so that the contact station can read and understand the messages sent. Only with practice and drilling will the motions become second nature.

The flagman takes position facing the station with which communications is desired. To call the station (Call for attention) the flag is waved at a moderate speed left and right (1 2 1 2 1 2) or flag the number given to the station that is being called until a response is given, which will be a repeat of what has been sent to call for attention. To make a “1” the flag is waved from the vertical (ready) position to the ground at the left of the flagman; without pausing, the vertical position is the resumed. To make a “2” the flag is moved to the right in the same manner. To make a “3” the flag is waved directly in front to the ground, returning to the vertical position immediately. No pause in the flag can occur within a code, only between code phrases. For example if 121 is to be flagged, the flag would be lowered to the ground on the left raised without stopping through the upright position to the ground on the right the raised again through the upright position to the ground on the left, then back to the upright for a pause. To make the ERROR hold the flag perpendicular to the ground overhead, this position is to be held until the contact station gives a like response. To signal an address, lower the flag to the ground on the left, the sweep the flag along the ground in front of you until you reach your far right, the raise the flag swiftly to the ready.





The motions must be rapidly made, those of each combination without perceptible interval between them. Skilful handling, acquired only by practice, is necessary to prevent the entangling of the flag upon the staff. The motions must be made, in the right and left movements, so as to display the whole surface of the flag.

Where it is difficult to attract attention, two flags are sometimes used together upon the sixteen-foot staff.

The apparatus for the greatest distances is rarely used. The four-foot flags are for use in ordinary working, and should be habitually used with the twelve-foot staff. Col. Myer endeavored to make the use of the four-foot flag compulsory. The temptation was great on the part of the flagmen to substitute for it the action-flag, and thus render the transmission of messages difficult and uncertain.

In cases of exposure to the enemy's fire it was sometimes necessary to increase the length of the staff so that the signals could be seen while the flagmen was protected behind some shelter.

The two-foot or action-flag was employed in exceptional cases only. An action-flag, as its name indicates, was for use when special exposure might compel the flagman to lie down or to seek shelter, while the signals must, at the same time, be made. This flag was useful in reconnaissance near the enemy, when some fixed point being agreed upon from which to report, it could he used with little danger of attracting the attention of the opposing force. Thus it might be used in any opening among the trees, at a point previously designated, and it would thus be hidden from the enemy and he in view to the observing officers. The pre-concert is necessary to prevent the difficulty of finding the flag. The point should be so definitely fixed that there can be no misunderstanding. The stations to use action-flags should be carefully selected as established, if possible, prior to the action, and the glasses at the communicating stations should be fixed upon them. The work of the station would then be prompt and trustworthy.

When signals are to be made by flags in motion, it is necessary to take care that the flags are of bright colors, and clean; that such colors are selected as will most strongly contrast with the background against which the flags appear when viewed by the person receiving the message; that

they are of material light and smooth, gliding easily through the air, as cotton or linen stuffs, instead of bunting; that the colors are so arranged as to be pleasing to the eye, which otherwise is soon wearied.

As a rule, the following is to be observed when abbreviations of words are used. Omit their vowels and one letter of every doublet.

The following are the exceptions to this rule: -

1. When a word begins with a vowel, retain that letter.

2. Words with a consonant at the beginning and end, and a vowel or two in the middle, must be spelled in full.

3. When two or more words have the same consonants similarly located, at least one of their distinguishing vowels must be used, as "impasbl" for impassible, and "imposbl" for impossible.

4. When the omission of one letter of a doublet will form another word, both letters will be retained, as "lattr" for latter, not "latr", which would signify later.

The general order promulgating the foregoing list of abbreviations was prefaced with the suggestion that a lack of familiarity with them on he part of officers and sergeants conducting stations would be "deemed proof of neglect of duty, and of the incompetence of the delinquent."

ABBREVIATIONS

A. -After
Abt. -About
Abv -Above
Acct. -Account
Adv. -Advance
Agn. -Again
Agnst.. -Against
Amb. -Ambulance
Ambsd. -Ambuscade
Amt. -Amount
Ans. -Answer
Apr. -Appear
A. Q. -All Quiet
Ard. -Around
Art. -Artillery
Arv. -Arrive

B. -Before
Bat. -Battery
Batt. -Battalion
B.B.B. -Use Black Flag
Bhnd. -Behind
Bik. -Black
Bgn. -Begin
Bn. -Been
Bnk. -Bank
Brig. -Brigade, Brigadier
Brv. -Brave
Bst. -Best
Bt. -But
Btn. -Between
Bvt. -Brevet

C. -Can
Cal. -Calibre
Canding. -Cannonading
Canstr. -Canister
Capt. -Captain
Cav. -Cavalry
Ch. -Church
Chag. -Change
Chrg. -Charge
Civ. -Civil, Civilian
Cld. -Could
Clr. -Clear
Cmpl. -Compel
Concl. -Conceal
Co. -Company
Com. -Communication
Comy commissary
Certf. -Certify
Crtn. -Certain
Cwt. -Hundred-weight

Dbt. -Doubt
Deg. -Degree
Dist -Distance
Dk. -Dark

Delvr. -Deliver
Dept. -Department
Dft. -Defeat

Elvn. -Eleven
Elvt -Elevate

F. -For
Fd. -Ford
Fld -Field
Flnk. -Flank
Fm. -From

Gal. -Gallon
G. B. -Gun-Boat
Gd. -Good

H –Have, Has
Hd. -Head
Hd. Qrs. -Head Quarters

Impt. -Important
Irny. -Immediately

Jas. -James

Kp. -Keep

Ldd. -Loaded
Lft. -Loft
Lieut. -Lieutenant

Maj. -Major
Majty. -Majority
Manvr. -Maneuver
Mil. -Militia, Military

N. -Not
Nd. -Need
N.J. -New Jersey
Nm. -Name
Nr. -Near

Obs. -Observe
Ofcr. -Officer
Off. -Official
Oftn. -Often

Pa. -Pennsylvania
Pnt. -Point
Pntn. -Pontoon

Div. -Division
Dn. -Done
Dr. -Doctor
Dwn. -Down

Emb. -Embark
Embs -Embrasures
Eny -Enemy

Fnt. -Front
Fst -First
Ft -Fort
Fw. -Few
Fwd. -Forward

Gen. -General
Gov. -Governor
Govt. -Government

Hld. -Hold
Hr -Hear, Here
Hrd. -Heard
Hvy. -Heavy

Inft. -Infantry
Inst. -Instant

Jn. -Join
Jst. -Just

Lk. -Look
L. L. L. -Move a little to the left
Lng. -Long

Min. -Minute
Mk. -Make
Mr. -Miuter
Mv. -Move
Mxd -Mixed

Num. -Number
Nvr, -Never
Nw. -Now
N.Y. -New York

O. K. -All right
Opp. -Opposite
Ord. -Ordnance
Ovr. -Over

Psd. -Passed
Psngr. -Passenger
Pst. -Past
Pt. -Put

Q.	-Quiet	Qk.	-Quick
		Qrs.	-Quarters
R.	Are	Rprt.	-Report
Recd.	-Received	Rpt.	-Repeat
Regt.	-Regiment	Rqst.	-Request
Req.	-Requisition	R. R.	-Railroad
Rev.	-Revolution	R. R. R.	-Move a little to the right
Riv.	-River	Rvl.	-Reveal
Schnr.	-Schooner	Shl.	-Shall
Se.	-See	Shld.	-Should
Sec.	-Second	Smk.	-Smoke
Sep.	-Separate	Sn.	-Seen
Sevl.	-Several	Snd.	-Send
		Stmr.	-Steamer
T.	-The	Tm.	-Time
Thm.	-Them	Tmbr.	-Timber
Thn.	-Then	Tn.	-Train
Thr.	-Their	Trps.	-Troops
Ths.	-This	Twds.	-Towards
Tht.	-That	Twn.	-Town
Tl.	-Tell	Twr.	-Tower
Ur.	-Your	Upr.	-Upper
U	-You	Usl.	-Usual
Upn.	-Upon	Usls.	-Useless
Va.	-Virginia	Vig.	-Vigilant
Ves.	-Vessel	Vol.	-Volunteer
Vet.	-Veteran	Vt.	-Vermont
		Vy.	-Very
W.	-Word	Wl.	-Will
Wds.	-Woods	Wld.	-Would
Wgns.	-Wagons	WIk.	-Walk
Whn.	-When	Wr.	-Were
Whr.	-Where	Wrk.	-Work
Whs.	-Whose	Ws.	-Was
Wht.	-What	Wtr.	-Water
Wi.	-With	W. W. W.	-Use White Flag
Xlnt.	-Excellent	Xpdtion.	-Expedition
		Xpos.	-Expose
Y.	-Why	Ys.	-Yes
Yest.	-Yesterday	Yr.	-Year

The SIGNALS used in the field, during the War of the Rebellion, were almost always those made with flags in motion. They were made if possible with the regulation signal equipment, using a code of two or four elements.

These signals were so rapidly made, and were legible at distances so great, that others were rarely needed.

It was important that the flags should be of bright colors, and clean; that the colors should be such as would contrast most strongly with the background against which they appeared when viewed by the person receiving the message; that they should be of light, smooth material, moving easily through the air, as cotton or linen stuffs, instead of bunting.

There were, as occasion demanded, two kinds of stations, - stations of observation and stations of communication. A station of observation is one from which observations, as of an enemy or of a tract of country, are made and reported. A station of communication is for purposes of signal communication. A signal station may partake of both characters.

In selecting a signal station, a point was chosen perfectly in view of the communicating station. The flagman was placed, if possible, so as to have a background of the same color for every position in which the signals might be shown. The color of the flag should contrast as strongly as possible with that of the background. With green or dark, or most earth-colored backgrounds, the white flag was used. With a sky exposure the black flag was used; while with broken or mixed backgrounds, the red flag was usually selected. The red flag was generally used at sea, as it was exposed against a mixed background of wood, sails, sky, and water. But for general use the white flag was found to be the most satisfactory.

In 1863, Capt. Samuel T. Cushing was ordered to West Point to give instruction in signaling. The results, which followed from his instruction, must have been gratifying to Maj. Myer than to the commandant. He says; "From Washington I went to the Military Academy at West Point to introduce the system as part of the course of instruction. I reached there in July 1863, and was kept oh duty until February 1864, when I was relieved from signal duty and commenced my duty as Commissary of Subsistence. The Signal Course was a popular one at the Academy. The first class was instructed fully and I learned to be good signalists. The officers charged with the discipline of the Academy said that I had 'ruined the service,' since, by several methods not known to the officers, all the cadets could, by winking their eyes, wiping their lips, tapping on gas pipes, etc., etc., communicate information as to inspections going on, and give intelligence in section rooms as to abstruse questions, etc., etc., and consequently the cadets could engage in all sorts of rascality with less fear of detection than ever before. I thought it quite a compliment to the usefulness of the code."

Combined Service Code (Text)								***Stutter Code***			
A	11	**K**	1212	**U**	221	**1**	12221	**AA**	Answer	**PP**	Parley
B	1221	**L**	112	**V**	2111	**2**	21112	**BB**	Between	**QQ**	Quit
C	212	**M**	2112	**W**	2212	**3**	11211	**CC**	Clear	**RR**	Red Flag
D	111	**N**	22	**X**	1211	**4**	11121	**DD**	Delay	**SS**	Separate
E	21	**O**	12	**Y**	222	**5**	11112	**EE**	Equals	**TT**	Trenches
F	1112	**P**	2121	**Z**	1111	**6**	21111	**FF**	Force	**UU**	Understood
G	1122	**Q**	2122	**and**	2222	**7**	22111	**GG**	G. Charge	**VV**	Violance
H	211	**R**	122	**ing**	1121	**8**	22221	**HH**	Heavy	**WW**	Woods
I	2	**S**	121	**ed**	1222	**9**	22122	**II**	Indicate	**XX**	Excellent
J	2211	**T**	1	**tion**	2221	**0**	11111	**JJ**	Join	**YY**	Why
1	T	**211**	H	**1221**	B	**11111**	0	**KK**	Keep	**ZZ**	Hand-to-Hand
2	I	**212**	C	**1222**	ed	**11112**	5	**LL**	Leave	**and and**	
11	A	**221**	U	**2111**	V	**11121**	4	**MM**	Med. Em.	**ing ing**	
12	O	**222**	Y	**2112**	M	**11211**	3	**NN**	Near	**ed ed**	
21	E	**1111**	Z	**2121**	P	**12221**	1	**OO**	Opposite	**tion tion**	
22	N	**1112**	F	**2122**	Q	**21111**	6	**11**			**66**
111	D	**1121**	ing	**2211**	J	**21112**	2	**22**			**77**
112	L	**1122**	G	**2212**	W	**22111**	7	**33**			**88**
121	S	**1211**	X	**2221**	tion	**22122**	9	**44**	Use Smaller Flag		**99**
122	R	**1212**	K	**2222**	and	**22221**	8	**55**	Use Larger Flag		**00**

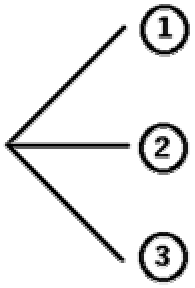
11.11.11.3	Message Received and Understood- Stand-by
11.11.11.333	Received Cease Signaling
ERROR	Flag overhead parallel to ground

3 = End Word 33 = End Sentence 333 = End Message

SENDERS Left = 1 Right = 2 Front = 3
Reverse when reading

Pre-Concerted Code			
Advance	1	End Engagement	2
Ammunition Exhausting	11	Extend	22
Artillery	12	Faster- Without Delay	21
Attack	111	**Federal**	**222**
Begin Engagement	112	Final or Last	221
Brigade	122	Fire	211
Cancel	121	Flank	212
Cavalry	1111	General	2222
Cease Fire	1112	Stop - Halt	2221
Center	1121	Identify	2212
Clear	1122	Infantry	2211
Close	1211	**Left**	**2122**
Concentrate	1212	Minutes	2121
Confederate	**1221**	Move - Proceed	2112
Division	1222	Need	2111
No	**11111**	**Open/Close Plain Text**	**22222**
Press	11112	Wait	22221
Question ???	**11121**	When	22212
Ready	11122	Yards	22211
Redirect	11211	**Yes**	**22122**
Relay or Pass	11212	Your	22121
Reinforce	11221	One (1)	22112
Renew or Resume	11222	Two (2)	22111
Repeat	**12111**	Three (3)	21222
Reply At Once	12112	Four (4)	21221
Retire or Recall	12121	Five (5)	21212
Retreat - Backup	12122	Six (6)	21211
Right	**12211**	Seven (7)	21122
Skirmishers	12212	Eight (8)	21121
Signal (s)	**12221**	Nine (9)	21112
Slower	12222	Zero (0)	21111

Paddles or Hand Signals



Attention
wave hand over head
Error
Crossing hands over head
Signature
Motion from position 1, to position 3, without pulling arm or paddle in, until position 3 is reached

Hand Signals & Paddles

Hand signals and paddles are used for fast short signals over a short distance. They are typically used by signal officers in the field when away from a station, or by agents to get information to a station.

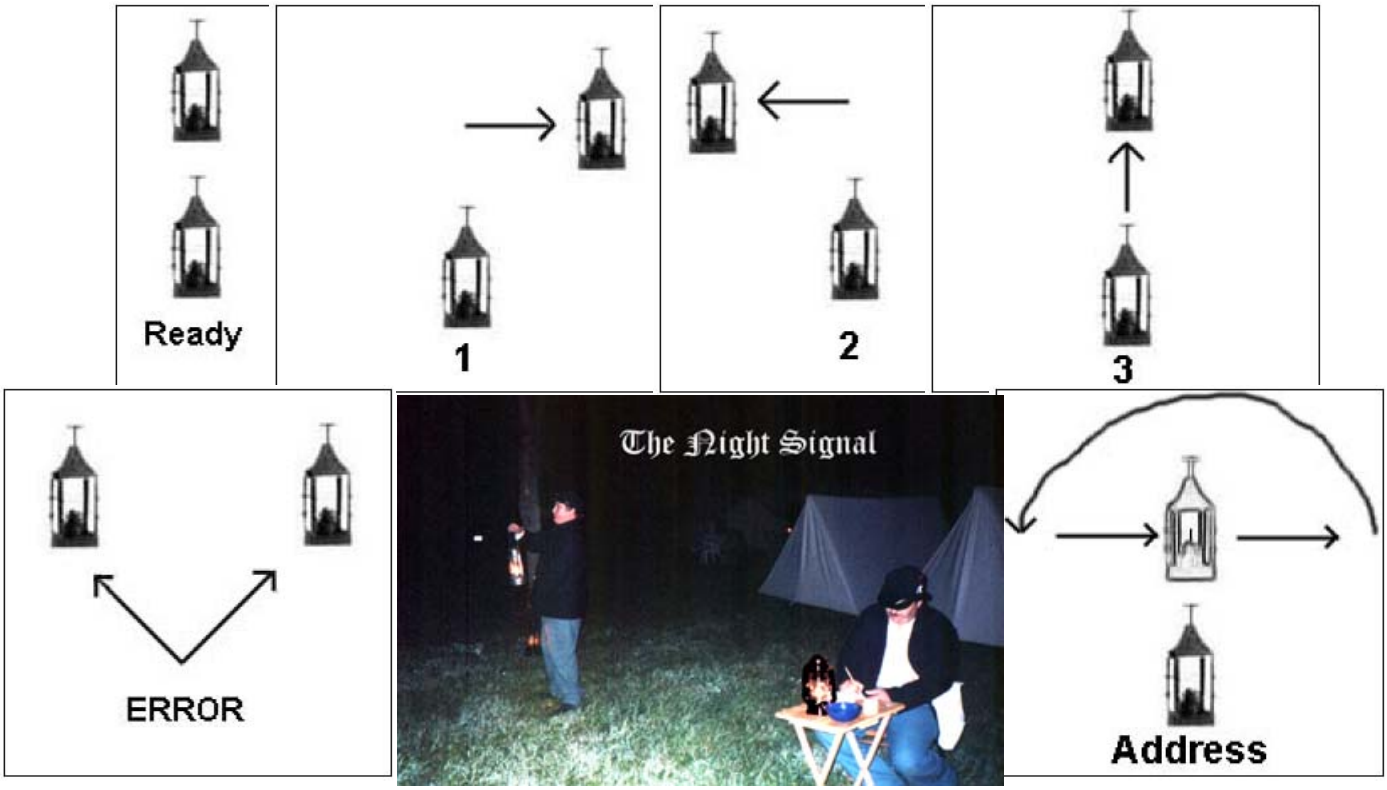
Signals are made using arm movements, with or without a paddle. In many cases your hat in your hand or some other devise to cause attention, such as a handkerchief or towel. Waving right to left over you head is the call for attention and will be responded to by the contacting station using whatever signal method is be deployed there (i.e. flags, paddles or hand signals). Holding your arm close to your body and your signaling hand or paddle at your chest makes the READY position. "1" is made by extending your arm in an upward position at a 45 degree angle to the side of your body and returning to the ready. "2" is made in the same manner only at a 90 degree angle (perpendicular to your body). "3" is made, again, in the same manner only to the lower 45 degree area. These positions are illustrated above; the area where the lines intersect to the left would be equivalent to your shoulder.

These types of signal are most often used in drilling and practice situations. Each member of a signal party should understand and be able to execute them efficiently. While in battle, at any time, one of our agents may have important information to send, when a call for attention is noticed, they must immediately notify the signal officer.

At times there may be a need to run reconnaissance, at this time it may become necessary for any member of the party to send via hand signals immediate, important information to or from the signal officer or company commander.

Night Signal- Those signals undertaken during night hours, in the dark.

Lanterns – a minimum of 3 lantern are needed by each side – 2 for signaling and one for light to record in the book. The same procedures as day flagging apply. Care needs to be taken to use lanterns. They should be filled not more than half full and care must be taken to maintain them on a level field, while signaling, to avoid spillage of any lamp oil.

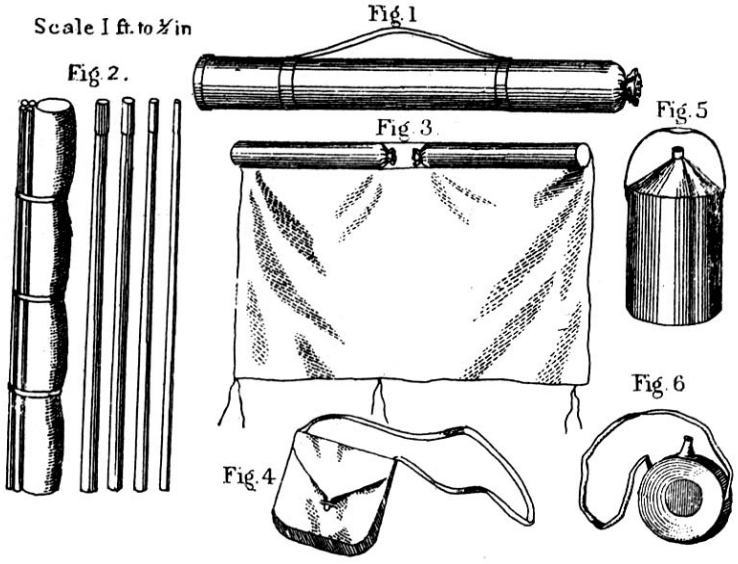


Torch – The foot and flying torches are needed. The foot torch stay stationary on the ground immediately in front of the torch man. Signals are again carried out in the same manner as day flagging. EXTREME care must be taken when using the torch not to spill the kerosene or catch the ground on fire, let alone yourself. Whenever using torches, you must be under direct supervision of a veteran signalman both experienced and certified in torch signaling. Before any torch signaling is undertaken a safety meeting must be held in the presence of the company commander.

Recording Messages - The Scribe should ask the officer for his book if he hasn't already been given it. He will find the last page written in and start a new page after that. He will write the event, the date, the day of the week and who is attending the event. He shall record the time of all incoming and out going messages and indicate as such. All message recording shall be done encode and decoded below, this goes for both out going and incoming. Pre-Concerted Sample below:

Incoming Message	***Outgoing Message***
In 10:52	***Out 10:54***
222 . 12221 . 11122 . 333	***11 . 11 . 11 . 3***
Federal Signals Ready	***Message Received***
	2112 . 222 . 12221 . 2122 . 333
	Move Federal Signals Left

Signal Apparatus



Every signal officer was presumed to have in his possession a full set of signal apparatus ready for immediate use. A regulation set of signal equipments, when packed complete, was comprised in three pieces, - the kit, the canteen, and the haversack.

The kit, or canvas signal-case (Fig. 1), contained the signal staff, flags, torch-case, torches, and wormer. These were all compactly rolled together and bound by straps, as in (Fig. 2). The canteen (Fig. 6) was made of copper, with one seam, and soldered, capable of containing one gallon of turpentine or other burning fluid. The haversack (Fig. 4) contained wicking, wind-matches, pliers, and shears for trimming torch, a small funnel for filling the torch, two flame-shades, a wind-shade, etc. The kit case, canteen and haversack were fitted with shoulder-slings or straps, by which they could he easily carried. The service can (Fig. 5) was a strong copper can, with rolled seams and hard soldered. The nozzle was fitted with a screw cap top prevent leakage. It held five gallons.

The kit-case contained -

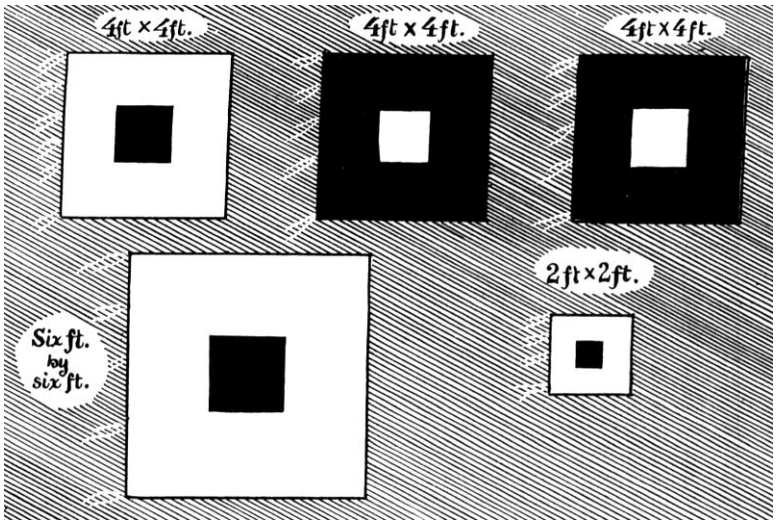
1st. The signal staff (Fig. 2), a staff of hickory, made in four joints or pieces, each four feet long, and tapering as a whole from one and one-fourth inch at the butt to one-half inch at the tip. The joints

were ferruled at the ends with brass, and fitted to he jointed together as fishing rods sometimes are. The third joint was guarded with brass for six inches at its upper end, to protect it from the flames of the torch, which was attached, when in use, to this joint. The tip or fourth joint was that to which the flag was attached for day signals. When in use, two or more joints of the staff were fitted together.

2d. The signal flags were made of cotton, linen, or some other very light and close fabric. The flags were seven in number:

1. The six-foot white, six feet square, white, having at its centre a square of red two feet square.
2. The six-foot black, with White Square in the center.
3. The four-foot white, with sixteen-inch red square at the center.
4. The four-foot black, with sixteen-inch White Square at the center.
5. The four-foot red, with sixteen-inch White Square at the center.
6. The two-foot white, with eight-inch red square at the center.
7. The two-foot red, with eight-inch White Square at the center.

All of these flags were fitted with tapes or ties by which to tie the to the staff. This was found the most simple and the best mode of attaching. The ties were one foot apart.



3rd. Torch-case (Fig. 3) and torches. The torch-case was 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 were inserted. At the opposite edge were ties. The torches were 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 the cloth.

The flying-torch was a copper cylinder, eighteen inches long and one and one-half inch in diameter; it was closed at the lower end, with the exception of a nozzle, through which it could be filled, and which closed with a screw cap; it was open at the wick end, and on its sides, at this end, were four fenestrae or openings, one inch long and half an inch broad, which opened into the wick, so providing that however the flame might be driven by the wind, it would find a portion of the wick exposed. The foot-torch was a copper cylinder, eighteen inches long and two inches in diameter. It was similar in its structure to the flying-torch.

The torches, prepared for use, were fitted with a wick of cotton wicking six inches long. This fitted closely. The body of the torch was then filled with turpentine or other burning-fluid. The flying-torch was attached to the staff third joint by clamp-rings and screws.

Each torch was furnished with a flame-shade,- a circular flange of thin copper two inches wide, fitting by a socket upon the torch in such a way that the flange encircled the torch. This was placed about one inch below the fenestrae or openings. The use of this shade was to prevent the flame from traveling down the sides of the torch and thus overheating it. The flame-shade was always detached when the torch was packed. Each torch was fitted with "wedge-strips" below the fenestrae; pressing it firmly down upon these could tighten the flame-shade.

A shade, called a "wind-shade," was sometimes used in high winds. It consisted of fine strips of

copper attached to a socket, and was adjusted upon the torch in the same way as the flame-shade.

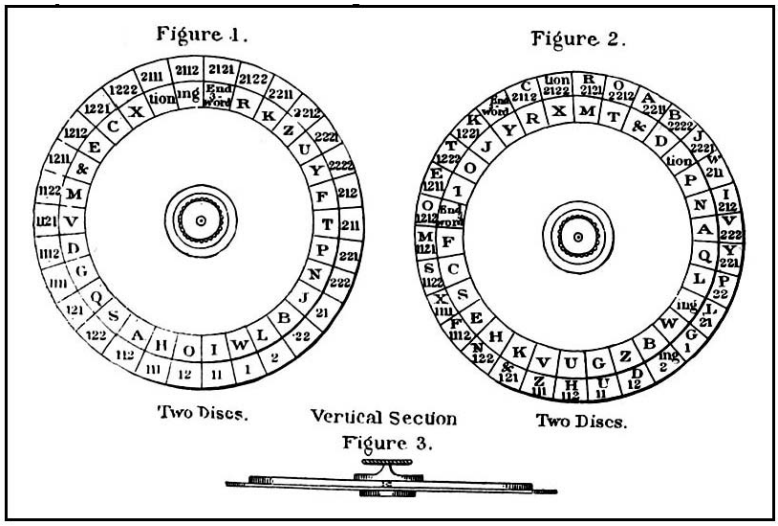
The funnel, pliers, and shears were used in filling and trimming the torch.

A screw or wormer was placed in the torch-case to be used when the wick might, by accident, be drawn so far into the torch that the pliers could not seize it.

Every kit haversack was supplied with wind-matches, so prepared with composition as to be inextinguishable by wind or rain. It was also thought desirable to have some yards of quick-match and some prepared slow-match. Cotton string or rope made a good substitute for the latter.

The cipher disk is fully described in the Agents area. Col. Myer, in his Manual, speaks of a very ingenious and valuable plan of cipher devised by Sergt. Edwin H. Hawley, of the Signal Corps. The apparatus consists of twenty-six long and narrow tablets fastened together at one end, arranged as the tablets or strips of some kinds of wooden fans are. On each tablet is inscribed an alphabet and the numeral signals for its letters, and the combinations of letters generally used. The alphabets are so arranged that the alphabet on the first strip commences with the letter A and its signal at the top of the strip; the letter B and its signal are at the top of the second strip, and so on. In enciphering a message, a countersign-word being given, the alphabets and signals upon these tablets are used, each being taken in such sequences as are indicated by the letters of the countersign-words.

For illustration: Suppose the countersign-word be Act, the word to be enciphered, Board; then the numeral signal for the letter B is sought on the tablet commencing with A, the signal for 0 is sought on the tablet commencing with C, the signal for A on the tablet commencing with T. The key-word, act – a-c-t - has now been once used; so, for the signal for the letter R, we return to the tablet commencing with A, and the signal for D is sought on the tablet commencing with C. The signal to indicate the close of a word is sought on the tablet T. The signal for the first letter of the next word is found on the tablet A; and so by repetitions of the process the message is completed.



He also calls attention to "an ingenious arrangement proposed by Private John C. Anton," who was transferred to the Signal Corps from the 30th Missouri Volunteers. The alphabets, with the numerals and abbreviations, were inscribed upon a single card. It could be easily prepared and easily destroyed.

Sergt. Francis M. Metcalf called attention to a defect in the cipher used in 1864. It was the sign or character used to indicate the end of a word. The cipher of two concentric disks could, of course, give only thirty different combinations or alphabets. It could easily be memorized. The frequent occurrence of the number attached to this sign would enable one easily to catch the key. Metcalf also invented a cipher of four concentric disks, the first and second having the letters and the third and fourth having the numbers, - fifteen on each disk. He finally discovered that it would be better to have all the letters on the inner disk, and have the thirty numbers divided among the three outer disks. This gave an almost unlimited series of combinations.

Capt. Norton forwarded the four-disk cipher to Washington. In the letter of transmittal he called attention to the objections to the use of the character ~ in the cipher in vogue, and adds: "To Sergt.

Metcalf belongs the credit of being the first to discover this very serious defect." Metcalf thought that the combinations of his disk were so nearly infinite that the objectionable character would do no serious harm. Capt. Norton, however, in the letter referred to, said: "With the character left on, it would, even with Metcalf's disk, still reveal one-third of the code," and suggested that it be left off, and some abbreviation be put in to fill the space. As thus modified it is referred to in the archives of the Bureau as "Metcalf's Disk, with Capt. Norton's Improvement."

Telegraph

General Rules

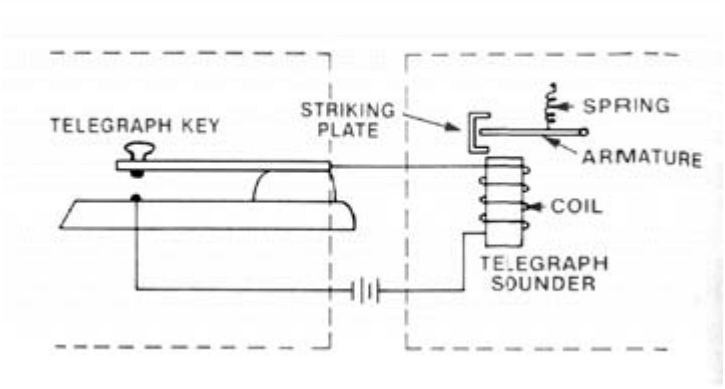
The following is some general information regarding the telegraph during the Civil War. *Under No Circumstances* should anyone set-up themselves, or allow anyone else to service, set-up, or run wire for The Corps unless they have been specifically trained, certified, and have permission or ordered to do so by the company commander.

How the Telegraph Works

The principle behind the Telegraph has existed for many years. The idea is to transmit signals based on the presence or absence of electric current. The circuit is closed or opened through use of a telegraph key. (*See diagram below*). In effect, the telegraph key is a push-button switch. When pressed down the key completes the circuit. When the operator releases the key, the spring forces it upward. This breaks the circuit.

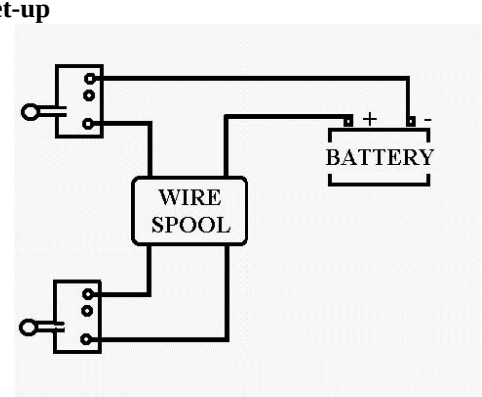
The telegraph key is connected to a device known as a sounder. The sounder contains an electromagnet. When the circuit is closed, the coil of the magnet is energized. At this time, an armature is brought down to hit a striking plate. This creates a loud click. When the coil is de-energized, a spring lifts the armature. The armature then returns to its original position.

The clicks created in the sounder are transmitted over wires. They are then reproduced on a telegraph instrument at a distant point. Patterns for making and breaking the electrical current represent letters and numbers. Messages are built from these letters and numbers.

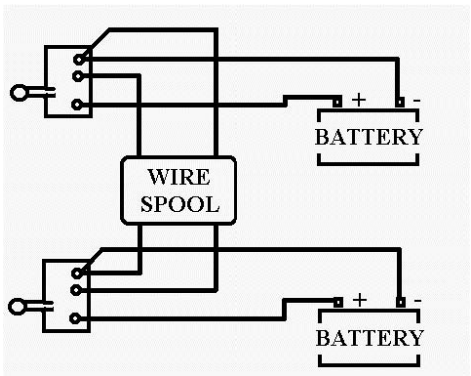


(*Telegraph Diagram*)

Set-up



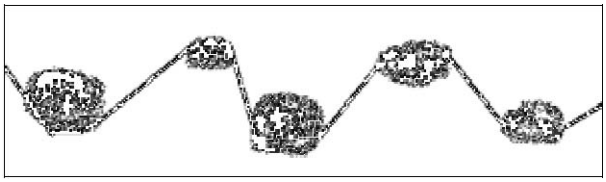
(*Single Battery Set-Up)*



(Dual Batter Set-Up)

Running Wire:

Leave enough wire in your camp so you may change locations under the fly if needed. When running the wire, be sure to "LOCK" the wires in the trees as shown below. This prevents the wire from being blown or pulled down in winds. The wire should also be placed a minimum of 20 feet off the ground at its lowest point. This provides and insures that no one can pull it down during the event. (i.e. should be high enough in all areas so that a cavalry officer can ride under with his saber drawn and held above his head). The utmost care should be given when stringing or taking down the wire to insure that the wire is not tangled upon the spool and that any kinks, or crinks are removed and prevented which can cause breaks to occur within the sheathing. The spool should be wound evenly and smoothly so that it may be set up at the next event in an efficient manner. The ultimate responsibility of the Telegraph, The Wire, Batteries and any other related equipment is held with the telegraph operators, especially the Chief Telegrapher. Should any problems arise, including the need for assistance in set up, take down and/or repair it should be addressed to the adjunct or company commander forthwith.



(Locking of Telegraph wire in the trees)

Telegraph Code The main code utilized will be the Standard Combined Military Telegraph Code, along with a predetermined pre-concerted telegraphic code. Civilian telegraph operators, at some events, may use Morse Code. I doing a complete military impression, you can utilize the military code, unless members wish, on their own to become proficient in Morse, and only after becoming certified under SCARD in the military code.

Standard Combined Military Telegraph Code:

Out Going Message

A	11	K	1212	U	211	1	12221
B	1221	L	112	V	2111	2	21112
C	212	M	2112	W	212	3	11211
D	111	N	22	X	1211	4	11121
E	21	O	12	Y	222	5	11112
F	1112	P	2121	Z	1111	6	21111
G	1122	Q	2122	AND	2222	7	22111
H	211	R	122	ING	1121	8	22221
I	2	S	121	ED	1222	9	22122
J	2211	T	1	TION	2221	0	11111

Incoming message

1	T	211	H	1221	B	11111	0
2	I	212	C	1222	ED	11112	5
11	A	221	U	2111	V	11121	4
12	O	222	Y	2112	M	11211	3
21	E	1111	Z	2121	P	12221	1
22	N	1112	F	2122	Q	2111	6
111	D	1121	ING	2211	J	21112	2
112	L	1122	G	2212	W	22111	7
121	S	1211	X	2221	TION	22122	9
122	R	1212	K	2222	AND	22221	8

11.11.11.3 message rcv'd & underst'd-st'nd by for signals
11.11.11.333 rcv'd & understood-cease signaling
3= end of word 33=end of sentence/phrase 333= end of message
444 = ERROR 22222= REPEAT
555= Attention and attention rec'd-ready

Telegraphic Pre-Concerted Code

1	Wait a Moment/Busy on other line	**30**	Finish		
2	Give precise standard time	**31**	Need reply to msg sent to you (____)		
3	Get immediate answer from (_____)	**32**	I understand that (_____)		
4	Where shall I go ahead? (to proceed with msg)	**33**	Deliver this only to whom addressed		
5	Begin (Go Ahead)	**34**	Specify time and location		
6	I am ready	**35**	Connect wires through straight		
7	Don't Know	**36**	Will the following be required?		
8	Urgent	**37**	The following schedule change		
9	Get answer sure and quick	**38**	The following is required		
10	Has (____) reached your station?	**39**	Meeting		
11	Did you get my last?	**40**	Fuel	**55**	Detachment
12	What time did (____) leave your station?	**41**	Medical Attention	**56**	Party
13	Report when (____) leaves (_____)	**42**	Infantry	**57**	Commander
14	Write more firmly	**43**	Cavalry	**58**	Adjutant
15	Separate words more	**44**	Artillery	**59**	Q-Master
16	Go Slower	**45**	Water	**60**	Chief
17	Increase speed a little	**46**	Confederate (Reb)	**61**	Morn. Returns
18	What is the trouble?	**47**	Federal (Union)	**62**	Advise
19	Adjust my instruments	**48**	Headquarters (HQ)	**63**	Question ??
20	I will see	**49**	General	**64**	Reveille
21	All right now	**50**	Division	**65**	Engagement
22	EMERGENCY- CLEAR THE LINE	**51**	Brigade	**66**	How Many ?
23	Message for all offices	**52**	Battalion	**67**	Pass the Word
24	Have you anything for me?	**53**	Regiment	**73**	Best Regards
25	Closing station until (_____) (time)	**54**	Company	(Compliments to)	
		26	Trouble on line, will investigate		
		27	Adjust your magnet		
		28	Who is at the key?		
		29	Looking for (_____)		

Recording Messages are to be recorded, in code, into the Telegraph Station Book. Upon completion of the message, it is to be decoded directly in the telegraph station codebook. Once read, the message, if applicable, should be responded to immediately, and without delay. If the message is directed to another, other than the operator, the message should be transcribed onto a military telegraph message sheet and delivered, again without delay, via a runner or messenger to the receiving party. If a response is returned, it should be sent back, once again without delay.

Recording Book	***Message Sheet***
Date: 4-July-1863 Gettysburg, Pa Telegraph Office **In : 8:45** **49. 3 . 2112 . 21 . 11 . 111 . 33 .** **General Mead,** **46 . 3 . 43 . 3 .1112 . 112 . 11 . 1212 . 1121 . 3 .** **Rebel Cavalry Flanking** **47 . 3 . 44 . 3 .12 . 22 . 3 . 112 . 21 . 1112 . 1 . 33 .** **Federal Artillery on left** **8 . 33 . 212 . 11 . 2121 . 1 . 3 . 212 . 2 . 112. 112 . 2 . 11 . 2112 . 121 . 333** **Urgent. Capt. Williams.**	**To General Mead 4-July-1863 8:45** **Rebel Cavalry Flanking Federal Artillery on left. Urgent!** **Captain Williams**

Women Telegraph Operators in the Civil War

1. Introduction - Women's Role in the Early Telegraph Industry

An aerial view of the entire telegraphic system of the United States, if such a thing had been possible in the spring of 1861, would have revealed some curious and striking things. In the West, the telegraph lines in Nevada and Nebraska were moving toward one another at a rapid rate as the transcontinental telegraph approached completion; but in the east, all along the Mason-Dixon line, the telegraph wires connecting North and South were being cut and torn down as war approached.

Since its first public demonstration in 1844, the telegraph had become an important part of American life; it was put to widespread use for news reporting, business communications, and personal notices. Over 50,000 miles of telegraph lines crisscrossed the continent in 1860. Though still in their corporate infancy, large telegraph companies like the American Telegraph Company and the Western Union were beginning to exert influence on business and politics.

In addition to creating a new industry, what we call the "telecommunications industry" today, the telegraph created a new type of technical worker - the telegraph operator. As depicted in fiction and the cinema, the telegraph operator was a solitary character, shown seated at his (or occasionally her) operating table at the local railroad depot or telegraph office, manipulating a set of mysterious-looking instruments that emitted a audible series of incomprehensible clicks.

Harper's New Monthly Magazine for August 1873 depicted a typical rural telegraph office in an illustration that appeared at the head of an article that was titled simply, "The Telegraph." No mention is made in the text of the fact that the operator shown at the key is a woman, something that would have been a familiar sight to the average reader. The equipment on the operator's table is accurately portrayed: to the left of the table is a battery box, containing two Daniell cells, which supplied local power for the station; on the table, in order from left to right, are a telegraphic relay, a telegraphic register for recording dots and dashes on paper tape, a cutoff switch for disconnecting the line during storms, and the telegraph key, used by the operator to send the clicks of Military or Morse Code. On the wall above her head is a coil of wire, which serves as a lightning arrestor; to the right is a hook, used to spindle message blanks after sending them.

The census of 1860 lists approximately 2000 men who were employed as telegraph operators. Perhaps 100 or so women were similarly employed, though it is difficult to estimate the number with any certainty, since the census of 1860 did not break down occupations by gender. Virginia Penny, whose book, *How Women Can Make Money*, was written in the early 1860's, noted that around fifty women were employed at that time in the Northeast by the New York and Boston Magnetic Telegraph

Company; it is reasonable to assume that an equal number of women were employed in other parts of the country. Women had, in fact, worked as telegraphers since the beginnings of the telegraph industry, in the late 1840s; it was one of the first technical professions open to women. One of the earliest women to have become a telegrapher, perhaps the first, was Sarah G. Bagley, founder of the Lowell Female Labor Reform Association; Bagley was already known as a newspaper editor and women's rights advocate when she became the telegraph operator in Lowell, Massachusetts, in 1846.

The railroads began to adopt the telegraph as a signaling system in the 1850's, and the telegrapher's office became a standard feature of the railroad depot. Elizabeth Cogley of Lewistown, Pennsylvania, became one of the earliest railroad telegraphers in 1855. Like many boys of the era, she had gone to work as a messenger for the Atlantic & Ohio Telegraph Company in the early 1850's, and eventually learned to telegraph. She learned the craft from Charles C. Spottswood, the previous operator, who boarded with her family. When the telegraph office was moved into the railroad depot in the winter of 1855-6, Cogley became the depot railroad operator as well.

Elizabeth Cogley (1833-1922). Telegrapher, Pennsylvania Railroad, 1856-1900

Railroad operators had to know the language of the railroads as well as the language of the telegraph. Nineteenth-century railroad telegraphers performed a function that was analogous to that of modern air traffic controllers; they had to note the exact time that a train passed the station, and transmit this information to the next station on the line. They also had to pass orders telegraphed from a central dispatcher's office to train engineers. Sometimes this involved handing orders to trains "on the fly" by holding up a train order hoop as the train sped by, as depicted on the cover of a 1935 *Railroad Magazine*.

2. Civil War-era Women Telegraphers in Non-Military Roles

Telegraphy became a critical occupation as the Civil War began; of the 2000 or so men who were employed as telegraphers in 1860, over half entered military service as members of the Union Army's Military Telegraph Corps. As male telegraphers enlisted or were drafted into the Military Telegraph Corps, women in many offices replaced them. Elizabeth Cogley's skill and seven years' experience earned her a promotion to a position at Pennsylvania Railroad headquarters in Harrisburg in 1862, where, according to her obituary, written sixty years later, "expert and reliable operators were called to meet the important demands of the service." Abbie Strubel, who studied telegraphy at a school set up by the Baltimore & Ohio Railroad in Pittsburgh in the 1860's, found her skills to be in demand as well; she was one of the earliest operators to learn to receive by sound alone. She operated for the B&O during the war, and, according to her obituary, "was credited during the Civil War with many acts of heroism," though no record of her wartime service survives.

Many put their telegraphic skills to work for the Union cause out of patriotic motives. While working as a telegraph operator in Massachusetts in 1862, Mrs. M. E. Randolph heard many messages pass over her line about the care and treatment of wounded soldiers; she volunteered to go to Camp Tyler, near Baltimore, and manage the distribution of supplies to the sick and wounded. Annette F. Telyea, a native of Kentucky, came to Readville, Massachusetts, to take charge of the telegraph office at the recruiting camp located there; she remained in charge of the station for the duration of the war.

Others turned to telegraphy as a means of support after losing a husband in the war. Hettie Ogle became a professional telegrapher after the death of her husband, Charles, who had enlisted early in the war and was killed at the siege of Richmond. She learned telegraphy at the Western Union office in Bedford, Pennsylvania, and later managed the telegraph office in Johnstown, Pennsylvania. Twenty-five years later, she became famous for her heroism at the Johnstown Flood of 1889, in which she lost her life.

In the Confederacy as well, women took charge of telegraph offices as men went off to war. Although even less is known about Confederate women operators than their Northern counterparts, it appears that women worked as telegraphers and office managers in Georgia, South Carolina, Louisiana, Florida, and Alabama during the Civil War.

3. Women as Military Telegraphers

In 1861, the telegraph had not yet seen extensive use in war. To be sure, the newly-strung wires were used to bring back news reports of battles in the Mexican War in 1848; but military leaders were not yet confident enough of the "talking wire" to send commands or intelligence via telegraph. The telegraph did see some limited use in the Crimean War in 1854; an American observer, Captain George McClellan, noted this.

In April of 1861, Secretary of War Simon Cameron asked Thomas A. Scott, Vice-President of the Pennsylvania Railroad, to come to Washington and organize the railroads in support of the war effort. Scott requested that Andrew Carnegie, the young superintendent of the Pittsburgh Division of the Pennsylvania Railroad, be given the task of organizing a military telegraph system.

Carnegie recruited many telegraphers from the Pennsylvania Railroad and other telegraph companies to serve as operators for the military system he put in place. The private telegraph companies, including the American Telegraph Company and the Western Union, provided materials and funds.

On April 12, 1861, the day on which the bombardment of Fort Sumter began, Governor Dennison of Ohio asked Anson Stager, General Superintendent of the Western Division of Western Union, to assist George McClellan, now a general, in setting up a telegraph system for use by the military. Remembering what he had seen in the Crimea, McClellan ordered Stager to set up a field telegraph system for use by the military. If commercial telegraphs were available, Stager used them; if not, he strung new military wires. Thus for the first time, the telegraph wires followed the armies wherever they went, enabling them to be commanded from afar, and enabling Washington to get intelligence in a timely fashion. Already in July 1861, McClellan's army had operational field telegraphs as it moved through western Virginia.

By spring of 1862, the military telegraph network in the North enabled McClellan to communicate directly with General Buell in Louisville, General Halleck in St. Louis, and Commodore Foote in Cairo. For the first time in military history, it became possible to coordinate military operations, spread over vast areas, from a central command site.

Operating the military telegraph system required the efforts of skilled telegraph operators. At first, a civilian telegraph operator, was simply assigned to each field unit. Conflicts quickly arose between the telegraphers, who had no use for military discipline, and the army regulars. The Signal Corps were particularly jealous of the new interlopers, whom they correctly suspected of usurping their perogatives. The army Quartermaster refused to issue supplies to the telegraphers, since they had no rank. Lower-ranking officers resented the fact that the telegraphers reported directly to the unit commander, and often were in possession of information to which they had no access. These problems were partially solved when a pseudo-military structure was set up, in which the telegraphers became members of the Military Telegraph Corps and reported to the Superintendent of Military Telegraphs, nominally a Major. Thus the telegraphers became civilians under military command; though they frequently ate, slept, and shared danger with the soldiers, they received no military benefits, such as pensions or commendations.

A few women served in the Military Telegraph Corps; their names can be found in the roster of 1079 military telegraphers, which William Rattle Plum appended to his history of the Corps, *The Military Telegraph During the Civil War in the United States*, published in 1882. The only woman telegrapher about whom Plum provided any information is Louisa E. Volker, whose intelligence activities on behalf of the Union army at Mineral Point, Missouri, put her at risk of capture during Sterling Price's invasion of Missouri in 1864.

Louisa E. Volker was born in St. Louis, Missouri, in 1838, the daughter of German immigrants, Emanuel and Emily (or Amelia) Volker. In the 1850 Census, Emanuel Volker was listed as residing in the second ward of the city of St. Louis; his occupation was given as "grocer." Louisa, then twelve years of age, had an older sister, Mary, two younger sisters, Lorinda and Sarah, and a brother,

Rudolph.

In the 1840's, Emanuel Volker had purchased land from the U.S. government in Crawford County, Pulaski County, and in the city of St. Louis. In the 1850's, he and members of his family began to buy and sell land in Washington County. Atypically for the age, the female members of the Volker family, including both Louisa and her mother Emily, participated in the land transactions. In 1858, Louisa Volker, then only twenty years of age, bought several parcels of land in Washington County from William C. Inks. In a series of complex transactions, she first transferred the property to an E. Gardner Obear and then reacquired it, selling portions of it in turn to a William Lohman in the same year. She retained ownership of several tracts of land in Mineral Point, which was located in Washington County.

Around 1860, the family relocated from St. Louis to Mineral Point. In the 1860 Census, Emanuel ("Manuel") Volker is shown as a resident of Breton Township in Washington County, Missouri; his occupation is listed as "Tavern Keeper." Louisa, now aged 22, is still shown as living with her parents. However, Mary, Lorinda, and Sarah are not shown as part of the household, and there is a new brother, Robert, aged six. Mary (or Maria) Volker had married Charles A. Snell in St. Louis in 1855; his name appears as Notary Public on several of the aforementioned land transactions. Lorinda and Sarah had also married, in 1856 and 1858 respectively.

Mineral Point was an important junction for the St. Louis and Iron Mountain Railroad, which had been built south from St. Louis to Pilot Knob, Missouri, in the late 1850's. Louisa Volker probably learned telegraphy from C. T. Barrett, the operator at the railroad depot in Mineral Point in the 1860's; why she decided to enter what was then a male-dominated field is not known. Clearly, the Volker family was fairly prosperous in the 1850's and early 1860's; thus the need for an independent income, the standard reason for women to enter the field at the time, was probably not the motivation for Louisa Volker's becoming a telegrapher. It is more likely that she was motivated by a desire for personal achievement, and a desire to put her pro-Union sentiments into action as the Civil War approached.

Sometime around the beginning of 1863, Louisa Volker became a member of the Military Telegraph Corps of the Union army. She probably volunteered for the position as Military Telegrapher, and was accepted due to the shortage of telegraph operators in the area. The only surviving written account of her work as a Military Telegrapher appears in Plum's book, *The Military Telegraph During the Civil War in the United States*, where Plum discusses the situation in southeastern Missouri in the summer of 1863:

About seven months previous, Miss Louisa E. Volker, a most estimable young lady, had relieved C. T. Barrett, operator at Mineral Point, and became at once not only the first lady operator in the corps, west of the Mississippi, but the only operatrix who had ever telegraphed on that side of the river. Entering upon duties which, heretofore, had devolved exclusively upon young men, she realized that peculiar feeling of responsibility which arises from an important but experimental trust, and hence, with all the zeal of a leader, she undertook the fulfillment of this new role of feminine usefulness in war. . .

On a former occasion, the station, six miles north of the Point was attacked by cavalry, surprising Captain Lippencott's company, which, being driven off, collected at Mineral Point. Miss Volker had previously ascertained the presence of the enemy and telegraphed to Pilot Knob the situation, and started the repairer north to mend the line if possible, which was actually accomplished during the night, she sitting by the instrument all night in expectation of an attack on Mineral Point.

Under normal civilian conditions in the big cities of the east, women operators were generally not expected to work nights, as it was not considered proper for unescorted women to be out at night; some telegraph companies even used this as a justification for preferentially hiring men. However, women operators in the West, and especially railroad operators, were frequently required to work nights, as they had to be present whenever trains passed the station.

In November 1863, while she was serving as a Military Telegrapher, Louisa Volker transferred ownership of a block of land and several lots in Mineral Point to Augustus Rauschenbach of St. Louis, who was the husband of her sister Sarah, and trustee for her mother, Emily. She may have transferred ownership of the land to prevent it from falling into the hands of the Confederates, in the event that she was captured. Her telegraphic skills made her a strategic target; Confederate raiders often kidnapped the local telegrapher when they invaded a town, and forced him or her to listen for intelligence, or even send false reports to confuse the enemy. However, her desire to protect the family's property led her to remain in Mineral Point, together with an unidentified sister, during Confederate General Sterling Price's raid into southern Missouri in September 1864.

On September 19, 1864, Price crossed over from Arkansas into Missouri at the head of a force of about 12,000 men. His plan was to capture St. Louis and Jefferson City, and install a secessionist government; he erroneously believed that the majority of the state's inhabitants were Confederate sympathizers, and would come to his support.

One of Price's primary targets was the town of Pilot Knob, which is located approximately eighty-five miles south of St. Louis. In addition to being the southern terminus of the St. Louis and Iron Mountain Railroad, Pilot Knob had Union supply depots and iron works that were considered vital to the defense of the region. Pilot Knob was defended by a Federal garrison of about 1500 men who were stationed at nearby Fort Davidson.

Union forces under the command of Major General A. J. Smith were encamped in the area of Mineral Point. Smith's primary task was to defend the railroad link against attack by Confederates, who sporadically attacked the trains. Louisa Volker found herself in a position of great strategic importance as the only telegraph operator in the vicinity. Plum's account continues:

At Mineral Point, sixty-one miles from St. Louis and twenty-five north of the Knob, a good part of General Smith's command was concentrated to meet a portion of Price's troops expected there. Smith called in his out-posts, planted his guns and awaited attack. A train laden with soldiers and refugees, including the Irondale operator, was delayed in consequence of injury done the road near the Point. The attack on the train which followed was repulsed, the track repaired, and the train saved. By this time the woods were filled with Confederates, and picket firing began. The Irondale operator relieved Miss Louisa Volker, operating at the Point, having been at her instrument continuously for two days and nights.

Price had originally intended to attack St. Louis. Sensing this, Union General W. S. Rosecrans, who commanded the Department of Missouri from headquarters in St. Louis, ordered General Smith to move in the direction of St. Louis to reinforce his position. Hearing of this, Price then made Fort Davidson, near Pilot Knob, his main target; he also began to destroy the rail and telegraph links to St. Louis, to prevent their being used to send any more reinforcements. Price sent units under General Joseph Shelby to accomplish this; by the morning of September 27, Shelby had succeeded in destroying the railroad tracks just south of Mineral Point, and in cutting the telegraph wires, thus isolating the Federal garrison at Fort Davidson. Confederate Colonel B. Frank Gordon was then ordered to attack Mineral Point. General Smith had been ordered to fall back toward St. Louis, leaving Mineral Point defenseless against attack. Plum gave this account of the invasion of Mineral Point :

At noon of the twenty-eighth, General Smith was telegraphed to fall back, and by three, P.M., the last train started. Every male citizen, fearing conscription, left also. Miss Volker and sister remained to protect their father's home from destruction. After hiding all evidences of her employment, and placing a pistol in her pocket, with a fixed purpose of defending herself and sister against violence, she overlooked the little village from her window, and discovered Confederate cavalrymen, ragged and dirty, with "lean and hungry" looks, suddenly possess the place and begin their ravenous search for food, not to mention their hunt for plunder. This rabble was composed of men, barefooted, but spurred; others clothed in gaudy-colored curtain damask; all manner of hats and caps; some in Federal uniform, and strapped to their saddles was all kinds of plunder--calico, domestic, shoes, boots, tin pans, bed quilts, etc. Men who stole blankets and clothing, and helped themselves to the edibles at the same time soon filled Volker’s house. Miss Volker now discovered the depot, tank and engine-house in flames.

Mineral Point and Coles bridges were also destroyed. By five o'clock, the enemy had all passed north, and the silence that prevailed in that deserted village was more trying than the presence of the dreaded enemy... Night approached, and darkness and imagination multiplied terrors in Volker's house, at least. The two young ladies, armed with pistol and their father's shot-gun, stood in the center of a room, still as death, listening intently. Morning brought report that St. Louis was captured. Not long after, an unfounded rumor that Indians had deluged Potosi in blood, stampeded the women and children from the Point.

The rumors were totally unfounded. Fort Davidson's defenders, under the command of Union Brigadier General Thomas Ewing Jr., successfully repulsed the first attack by the Confederates; they then slipped out of the fort and rode toward Rolla, Missouri, after blowing up the powder magazine. Price, unaware that the defenders had left, mounted a second attack at dusk on September 27, and, to his embarassment, found the fort empty when his troops entered it. Price then turned westward, and finally returned to Arkansas in December, having failed to achieve any of his strategic objectives.

Plum's account of Louisa Volker's work as a Military Telegrapher ended rather dramatically at this point; he gave no further information on Louisa Volker's life after the war. However, a search of archives in Washington County, Jefferson City, and St. Louis, Missouri, yielded information on her later activities.

During the war, Louisa Volker made the acquaintance of Thomas Hanlon Macklind, a lawyer and civil engineer in Potosi, Missouri. He had been born in Ireland and came to the United States with his parents, who settled in Pittsburgh. He was educated at the Franklin Institute as a civil engineer, and moved to Missouri in 1856, where he participated in the construction of the St. Louis and Iron Mountain Railroad. While at Potosi, he studied law, and was admitted to the bar in 1860. In 1861, he and several other pro-Union men of Potosi organized a volunteer unit, the Twelfth Missouri Cavalry of the Missouri State Militia, for defense against local Confederate sympathizers. The unit participated in several battles in southeast Missouri, and Macklind was promoted from Second Lieutenant to Captain.

In May 1865, Captain Macklind and Louisa Volker were married in St. Louis. They moved to St. Louis, where Macklind became an engineer with the Street Department. Macklind continued to be connected with the Street Department until his death in 1904. They had two sons -- William R, who was born in 1869, and Thomas V., who was born in 1880.

Louisa Macklind evidently gave up telegraphy after her marriage. However, she took an interest in a field that was just beginning to be open to women in the 1870's - stenography. Prior to the Civil War, most clerical work was performed by men, only with the employment of women by the Treasury Department during the Civil War did women begin to enter the field of general office work. It is likely that her background in telegraphy led to her interest in stenography; good penmanship, a high degree of literacy, and excellent spelling skills were basic requirements for telegraphers as well as stenographers.

Stenography consisted of taking dictation from a speaker, and then reformatting the shorthand notes into a formal business letter or memo. Stenographers replaced the earlier copyists, who were largely male; they in turn were replaced (or were supplemented) by typists. Louisa Volker not only learned stenography, but also gave free instruction to poor girls of the city.

Late in life, she began still another career that was unusual for women of the age. In 1895, at age 58, she graduated from Women's Medical College in St. Louis, and was granted a license to practice medicine. The Women's Medical College had been founded in 1892 to provide women with a means of attaining a medical education; most medical schools of the time did not admit women, as it was considered improper to teach anatomy and similar subjects to a mixed audience. The school was the subject of controversy throughout its short existence; its graduates were denied internships in St. Louis hospitals, and the school closed in 1896 due to lack of funds.

She was granted license #6720 for regular practice on May 18, 1895, and was listed in the Register of Physicians maintained by the State Board of Health. Although the St. Louis City Directory for 1902

and 1903 listed her as a practicing physician, she never practiced extensively, and most of her medical practice was devoted to charity cases.

Louisa Macklind died on May 21, 1905, at the age of 68. Her obituary appeared in the May 22 *St. Louis Post Dispatch* under the heading, "First Woman War Telegrapher Dead". Cause of death was listed as senile debility, aggravated by ulcers. She was buried in Bellefontaine Cemetery, in the same plot with her husband and parents.

Military Telegraphers, who were civilians under military command and not part of the Regular Army, sought to gain recognition for their service after the war. In particular, they wished to have their service recognized as regular military service, so that they could receive pensions and similar benefits. David Homer Bates, who had been Manager of the War Department Telegraph Office during the Civil War, was particularly instrumental in petitioning Congress to recognize the service of the Military Telegraphers. His efforts finally met with partial success in 1897 when Congress passed Senate Bill 319, "An Act for the Relief of Telegraph Operators who Served in the War of the Rebellion." However, as Bates himself noted in 1907, "The act was carefully drawn . . . to exclude us from receiving pensions." Nevertheless, former military telegraphers, including women, were recognized by this act as honorably discharged members of the United States Army.

The only female Military Telegrapher other than Louisa Volker to receive a certificate of Honorable Service under the Congressional Act of January 26, 1897, was Mary E. Smith Buell, of Norwich, New York. Nothing is known of her service during the Civil War; she is listed in Plum's roster of Military Telegraphers in *The Military Telegraph During the Civil War in the United States* as "Mary E. Smith." She lived in Norwich, New York, and was admitted to the Society of the United States Military Telegraph Corps in 1909, shortly before her death at the age of seventy-eight on May 24.

4. Researching the Lives of 19th Century Women Telegraphers

Why is the story forgotten? "Forgetting" the story of women telegraph operators was an early 20th century phenomenon. James D. Reid's 1879 history, *The Telegraph in America: Its Founders, Promoters, and Noted Men*, its title notwithstanding, provides a good account of the entry of women into the telegraph industry, and provides biographies of several noted women telegraphers. As already noted, Plum's 1882 account of the work of the Military Telegraph Corps mentions the participation of women. Sometime in the early twentieth century, however, the role of women in the telegraph industry disappeared from the written history, and telegraphy began to be constructed as an archtypally male occupation. Robert L. Thompson's 1947 work, *Wiring A Continent: The History of the Telegraph Industry in the United States 1832-1866*, considered to be the primary scholarly reference for the nineteenth-century telegraph industry, does not even mention the fact that women worked as telegraphers. Edwin Gabler's 1988 work, *The American Telegrapher: A Social History, 1860-1900* is the first twentieth century history to provide some detail about the work and lives of women telegraphers.

One reason for this is that, as in other fields of women's work, accurate records were not kept, as women were not considered to be serious workers. Corporate records on the subject are scarce. Most large companies simply did not keep centralized personnel records of their employees. This was true of the Western Union Telegraph Company, and for many railroads as well. The Western Union knew at any time how many employees it had, but to find out the names and pay rates of individual employees, one would have to go to each individual office and look at the office ledger book. Few of these ledger books survive today.

Of the few records that were generated initially, even fewer survive today. Many of the railroads destroyed personnel records during the closedowns that occurred during the cutbacks of the 1960s-1980s.

Another reason for the lack of information on telegraphers has to do with the technology itself. Telegraphy was rapidly forgotten as it was replaced by the telephone and other forms if

communications; few today understand the critical role that nineteenth-century telegraphers played in providing communications and running the railroads safely and on time.

Researching the lives of 19th century women requires an approach that is different from that used in researching the lives of their male contemporaries. Women in general left their traces in birth, death, and marriage records, while men are more commonly recorded in land transactions, court records, and military service records. The stories of Civil War - era women telegraphers can be found in the telegraphic journals and magazines of the era, and in their obituaries. Local newspapers and historical societies often provide a wealth of information about these forgotten pioneers.

Recovering Louisa Volker Macklind's story turned out to be as much an exercise in genealogy as historical research. Beginning with a single reference in Plum's *Military Telegraph During the Civil War in the United States*, the trail led to the Census of 1850 and 1860, in both of which her name appears; however, she is not listed in the 1870 Census for Missouri. I was not certain at first that she had survived the war; if she had, it was likely that she had married or left the state. A chance discovery of the marriage record of her older sister, Mary, in St. Louis in 1855 eventually brought me into contact with living descendants of that family; however, they had no knowledge of what had happened to Louisa Volker after the Civil War. A search of the Washington County land deeds revealed a mention of a land transfer between Rudolph C. Volker and a "Louisa Macklind" in 1887; since the name Macklind had turned up both in Plum's book and in correspondence with descendants of Louisa's sister Mary, it seemed possible that this was her married name. An earlier search of Missouri marriages for a "Louisa Volker" had yielded nothing; however, a search for "Macklind" yielded the marriage certificate for Thomas Macklind and Louisa "Boelker" in May 1865 (Her family name was variously spelled "Volker," "Volcker", "Voelker", and "Boelker" in the records accessed). After learning her married name, further research was largely a matter of following City Directory listings and obituaries. Her obituaries, in both the local papers and the telegraphic journals, provided information on her later activities in stenography and medicine. Since she was listed in the City Directory as a physician, it was possible to trace her medical career.

While going through the records of the Western Union Company at the Smithsonian Archives in Washington on an unrelated project, I came across a folder containing photographs of members of the Military Telegraph Corps during the Civil War. Most of the photographs were of men, and were labeled with the name of the person shown; the names were familiar to me from my reading of Plum and the *Telegrapher*. However, there was one photograph of an unidentified woman that had been taken at the Scholten studio in St. Louis, a prominent photography studio of the Civil War era. Although this photograph cannot be identified positively, it is very likely a photograph of Louisa Volker, since she was the only female Military Telegrapher associated with the city of St. Louis.

I would like to thank the Missouri researchers and genealogists who made all this research possible: Elizabeth Bailey of the State Historical Society of Missouri, who furnished me with the first Census listings; Coralee Paull of St. Louis, who researched St. Louis area resources; Alice Henson, who researched the Washington County records kept at Jefferson City; and Marie Edgar of the Mine au Breton Historical Society, who provided me with information from the records at the Washington County Courthouse in Potosi. Without their diligent work, this research would have been impossible, and Louisa Volker's fascinating story would have remained untold.

Agents/Spies

Procedures Agents should have a supply of pencils, paper, a compass, opera glasses; Women should create hiding places in their dresses, slips, and clothes.

Information – The information needed to be gathered is the number of infantry troops, the number of Cavalry horses, the number of Cannons, the names of the Units, and where the commanders and signal stations are located and information on the guard posts and accessibility into their lines as well as any other information deemed pertinent (Troop movements).

Maps – When drawing maps they should be oriented to the north. A close study of map-making of the time as well as maps of the civil war period can give you the flavor of style used in the 1860's. The more detail in the maps, the more useful they will be.

Reporting- All agents will meet with the head agent who will make a proper report from all incoming information is made. This report should encompass all information gathered in the most legible and period correct fashion.

Cipher and Code Breaking

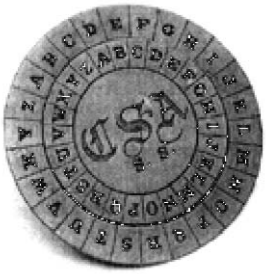
Captain William R. Plum, sat down at his desk in New Orleans with a clear mission. If he could make sense out of the jumbled message in front of him, addressed to "Gen. E. K. Smith," the Union high command could suddenly be privy to the most secret Confederate plans. The Federals might be able to crush a Rebel offensive even before it began. But everything hinged on an "if," and he turned his full attention to the paper on his desk. What on earth could "HJ OPG KWMCT" mean?

Plum was a member of one of the Civil War's least appreciated groups of military specialists: the code-crackers. They were under appreciated because, without the benefit of precedents like the breaking of the German "Enigma" and Japanese "Purple" codes in World War II, the leaders of the North and South had no idea how dramatically a good code cracker could alter a conflict's outcome. They would begin to understand as the Civil War progressed, and men like Plum gave them an occasional chance to read their enemy's mind.

The writing of codes and ciphers is called cryptography, and it is an ancient art. The fundamental principals of the art have long been understood: practicality, to allow a coded message's intended recipient to decipher it easily, and intricacy, to keep anyone else from understanding it.

The Civil War presented new challenges for cryptographers, because it was the first war in which the telegraph played an important role. The telegraph greatly increased the number of messages that could be sent and the speed at which they could travel, but the wires were not secure. At any point between the sender and receiver, an enemy agent could tap into the line and receive the message without detection. There was little that Civil War armies could do to stop the wire tappers, so they sought to minimize the danger by encoding their transmissions.

Even encrypted messages, however, were not safe, and thanks to an. art nearly as ancient as cryptography: code cracking, or cryptanalysis. Together with cryptography, it forms the field of knowledge called cryptology. Both sides in the Civil War used ciphers, and both sides tried to break their opponents' cipher with varying degrees of success.



Modern cryptologists make a distinction between codes and ciphers. Ciphers are secret messages in which individual letters in the original, or "plain," text are replaced with other letters or symbols (e.g. "Q" or "%" replaces "e"). This replacement could be generated by substitution, where the original plain text words or letters are removed and replaced, or transposition, where they are simply rearranged. A cipher can express any idea its parent language can express; the sender and receiver must merely know the system for translating the plain text into cipher text and back.

It is possible for someone to read an enciphered message without the key by deducing the system used to create it. A more secure method is a code, which replaces complete words, phrases, or longer ideas with other words, numbers, or symbols (e.g. "pumpkins" or "212" means "brigades"). A code requires both sender and receiver to have a sometimes-lengthy codebook listing words and their code equivalents. It cannot express any thought not included in the codebooks, but a well-devised code is practically impossible to read without its codebook.

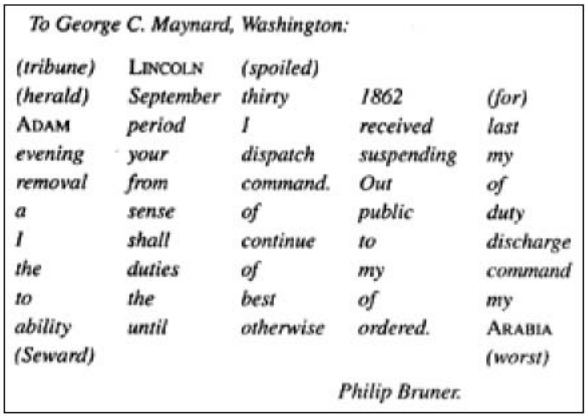
Civil War cryptography was mostly a matter of ciphers; "code" and "cipher" were used interchangeably. The Union's system incorporated some code words, but was primitive even by 19th-century standards. The Confederates used a cipher, which, though old, was relatively sophisticated. Yet, while Union telegraphers occasionally deciphered Confederate messages, the South seems to have been completely unable to crack the Union code. The relative successor failure of each side's cryptology stemmed partly from the types of secret writing they chose, and partly from their different approaches to code-breaking.

At the beginning of the war the official communications branch of the U.S. Army consisted of only one man, Major Albert J. Myer. A physician interested in cryptology, Myer had worked on a sign-language system for the deaf before the war. As a surgeon in the pre-war army he had overseen development of the wigwag system of tactical flag and lantern signaling. Myer was appointed the army's first signal officer in June 1860, and with the coming of war he was occupied with expanding the Union's flag signaling ability. He had too little time to develop a code for the newfangled telegraph.

The cipher the Union eventually adopted was prepared in 1861 by Anson Stager, general superintendent of the Western Union telegraph company, for use by his friend, Ohio Governor William Dennison. Dennison wanted a unique method of communicating with the governors of Indiana and Illinois.

The cipher Stager provided was actually a modification of one that had been used by Scottish partisans of the Duke of Argyle almost 200 years earlier. The experts of King James II of England had broken this cipher, but it is unlikely that Dennison knew this.

Early in the war, Dennison informed Major General George McClellan of Stager's cipher. McClellan, the Union armies' overall commander, adopted Stager's cipher for his own use after consulting with his intelligence advisor, Allan Pinkerton. Stager himself was appointed a captain in the Quartermaster Corps, which was responsible for maintaining the army's telegraph system. In February 1862, Stager was promoted to colonel and placed in command of the newly created U.S. Military Telegraph Service.



To George C. Maynard, Washington:

(tribune)	LINCOLN	*(spoiled)*		
(herald)	*September*	*thirty*	*1862*	*(for)*
ADAM	*period*	*I*	*received*	*last*
evening	*your*	*dispatch*	*suspending*	*my*
removal	*from*	*command.*	*Out*	*of*
a	*sense*	*of*	*public*	*duty*
I	*shall*	*continue*	*to*	*discharge*
the	*duties*	*of*	*my*	*command*
to	*the*	*best*	*of*	*my*
ability	*until*	*otherwise*	*ordered.*	ARABIA
(Seward)				*(worst)*

Philip Bruner.

The simplicity of Stager's system was its most useful characteristic. It was a transposition cipher, which simply rearranged the original words of the plain text according to a predetermined formula. The plain text was scrambled beyond recognition, but the recipient would know how to restore the words to their original order. The message was written in normal English text, but with the words laid out in a grid that had a certain number of rows and columns. The message was then broken up along the columns, which were sent out in a prearranged order.

Confederate cipher clerks would find themselves intercepting messages like this one:

TO GEORGE C. MAYNARD, WASHINGTON:

REGULARS ORDERED OF MY TO PUBLIC OUT SUSPENDING RECEIVED 1862 SPOILED THIRTY I DISPATCH COMMAND OF CONTINUE OF BEST OTHERWISE WORST ARABIA MY COMMAND DISCHARGES DUTY OF MY LAST FOR LINCOLN SEPTEMBER PERIOD YOUR PROM SENSE SHALL DUTIES THE UNTIL SEWARD ABILITY TO THE I A REMOVAL EVENING ADAM HERALD TRIBUNE.

PHILIP BRUNER.

The first word of the message is a key that conveys the pattern for deciphering the rest of the text. The Union cipher clerk who received the missive would know that the word "REGULARS" meant that he should write the message in five columns. This key word also meant that the first set of words should be written upward in the fourth column, the second set downward in the third, the third set upwards in the fifth column, then downward in the second and upward in the first. The deciphered message is shown to the left.

The words in parentheses are "nulls," meaningless words inserted at the ends of the columns to confuse enemy interceptors. The clerk would consult a list of code words to see that “LINCOLN" translated to "Louisville, Kentucky" and "ADAM" and "ARABIA" stood for Union Major Generals Henry Halleck and Don Carlos Buell, respectively. Samuel H. Beckwith had added these null and code words to Stager’s system, Union Major General Ulysses S. Grant's cipher operator.

With hindsight it seems that the Union cipher should have been easy to crack. Even an inexperienced Confed erate telegrapher would have recognized this message as a transposition cipher, because a substitution cipher would almost never result in legible English words. The presence of normal military words like "command" and "duties" indicate that the plain message had simply been rearranged in some unknown manner. But how?

The best way to find out is to start putting together words that seem to make sense. With the preceding message, the most obvious starting point is the presence of "1862," "THIRTY" and "SEPTEMBER." The Confederates would have started this way, and would certainly have recognized the familiar beginning word "REGULARS," which must have appeared on scores of intercepted Union messages.

It is hard to understand why, after such auspicious beginnings, the Confederates would have been unable to crack the Union cipher. Their failure was certainly not due to a lack of opportunity. During the course of the war the South not only tapped Union wires, but also discovered plain and enciphered versions of the same messages and, in the autumn of 1864, captured two complete Union code books. Some writers have suggested that the Confederates simply did not devote much energy to cryptanalysis because they enjoyed success with other means of intelligence gathering, such as spies and cavalry patrols. But such a theory ignores the efforts of men like telegraph operator Charles Gaston.

In the fall of 1864, Gaston was sent behind Union lines to tap into communications between Grant's headquarters and Washington. Traveling with a troop of scouts, Gaston found an isolated location at the edge of the woods east of Petersburg, Virginia. He attached his wires to a convenient Union telegraph pole and, while his scouts pretended to be innocent woodcutters, Gaston settled down to listen in on the Union army's highest-level communications.

For more than two months Gaston dutifully wrote down the enciphered messages that came over the wire and sent them on to his superiors in Richmond, Virginia, the Confederate capital. The head of the Union Army of the Potomac's counterintelligence service, Colonel George H. Sharpe, knew Confederates were operating near his telegraph lines, but because the communications traffic was never interrupted, he did nothing about it.

When the intercepted Union messages arrived in Richmond, no one seems to have known what to do with them. The Confederates had no organization dedicated to breaking Union codes. Their most skilled and experienced cryptologist was probably Edward Porter Alexander, who had helped Albert Myer develop the wigwag system before the war, and brought that system to the Confederate army in 1861. Alexander certainly had the intelligence and expertise to crack the Union cipher, but he had been promoted to brigadier general early in 1864, and was serving as General Robert E. Lee's most valued artillery officer-a position deemed more important to the Confederate cause than that of code-breaker.


E. P. Alexander

Throughout the war, intercepted Northern messages would continue to land not on the desk of an expert, but in the pages of Southern newspapers, with rewards offered for their solution.

There is no record of anyone claiming those rewards. Most historians have accepted this as proof positive that the Confederates never found a solution, but there is another possibility: that the Confederates broke the Union cipher, but

disguised the fact so the Federals would continue using it. if that were the case, though, some evidence of it should have come out after the war. None did.

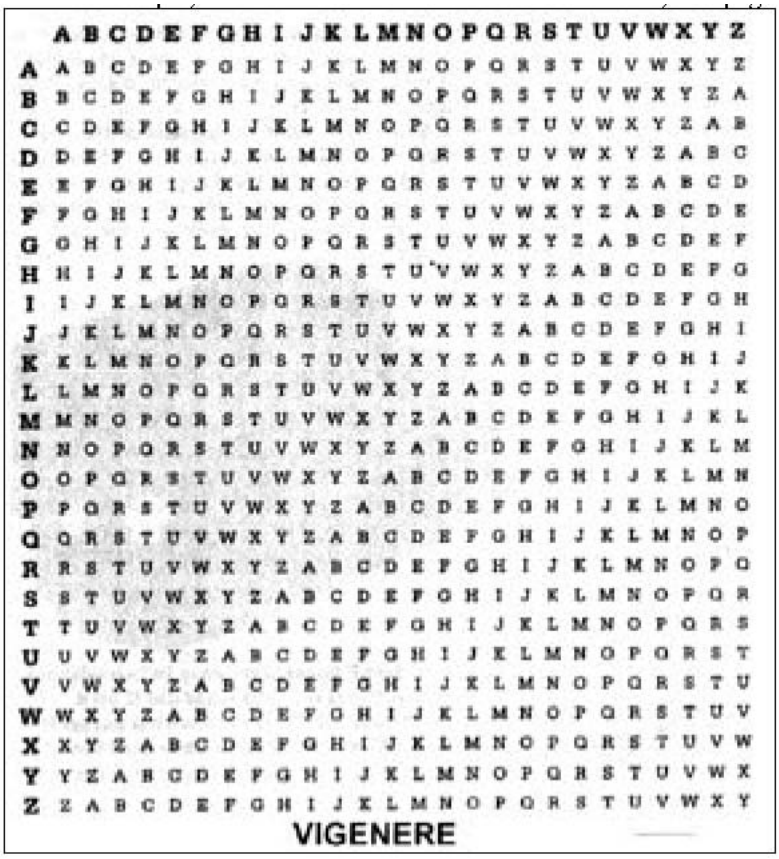
If the enciphered Union messages reaching Richmond did indeed go unsolved (as it seems they did), Gaston's efforts were for nothing-except for one fortuitous event. An officer of the Union Quartermaster Corps wired to Grant's headquarters that a herd of 3,000 head of cattle was about to be delivered to them at Coggin's Point, on the James River near Richmond. Fearing a Confederate raid, the quartermaster wanted to be sure that Grant's headquarters would send a strong escort to meet the herd. Foolishly, however, he neglected to encipher his message.

Sitting in the Virginia woods, Gaston could hardly believe his good fortune when he finally overhead a Union message he could understand. He immediately sent the message to Lee's headquarters.

At dawn on September 16, 1864, a Confederate raiding force under Major General Wade Hampton overran Union pickets and made off with the cattle. Conservative estimates indicate that the 2,486 head of cattle were enough to feed Lee's entire army for three weeks. There are even stories that some Confederate soldiers on the front lines traded their now-plentiful beef rations to Union soldiers for other food.

It seems that Gaston's lucky interception of that plain text message was as close as the Confederates ever got to penetrating the Union's secret communications. Union attempts to interpret Confederate ciphers, on the other hand, were somewhat more fruitful. At the beginning of the war, the Federals had little opportunity to intercept Confederate messages. At the same time, the Southern military had adopted a rather lackadaisical attitude toward its own secret communications, with commanders using whatever code or cipher suited their fancy.

Confederate President Jefferson Davis communicated with General Albert Sidney Johnston by means of a dictionary code, in which each word in the message was replaced by its location in the standard dictionary both men used. For example, "division" would be encoded as "265-2-10," for page 265, column 2, word 10. Johnston in turn communicated with his second-in-command, General Pierre G.T. Beauregard, with the most primitive of ciphers, the "Caesar." In the Caesar system, the letter, which sits three places beyond it in the alphabet, replaces each letter; "division" would become "GLYLVLRQ."



The lack of a standardized code and cipher system soon resulted in communications chaos. To end the confusion, the Confederacy eventually adopted a uniform cipher known as the Vigenere. Created in 1587, this substitution cipher used a tableau of staggered alphabets like the one to the left. A key word or phrase told the cipher clerk how to use the tableau to decipher the message. The Vigenere cipher had several advantages. It did not require codebooks, which an enemy could capture. Cipher clerks could easily re-create the tableau from memory and the only prior

coordination necessary between sender and receiver was the choice of a key word or phrase.

During the 1863 siege of Vicksburg, Mississippi, Union soldiers captured eight men who were trying to sneak into the city with a shipment of 200,000 percussion caps. The ringleader carried a cipher message to the city's commanding officer from General Joseph E. Johnston, commander of the Confederate Department of the West. Grant sent the message to Washington "hoping that someone there may be able to make it out." The message read:

Jackson, May 25, 1863
Lieutenant General Pemberton:
My XAFF. USLX was VVUFLSJP by the BRCYAJ, 200,000 VEGT SUAJ NERP ZIFM. It will be GFOECSZOD as they NTYMNX. Bragg MJTPHINZG a QRCMKBSE. When it DZGJX I will YOIG AS QHY NITWM do you YTIAM the 11KM YFVEY. How and where is the JSQMLGUGSFTVE. HBFY is your ROEEL. J.E. Johnston

While cipher operators in Washington were working on a solution, Vicksburg fell to the Union Army. Among the captured communications, soldiers found the following cipher message:

Gen. J.E. Johnston, Jackson:
I prefer OAAVVR. It has reference to XHVKJ QCHFF IBPZE LREQP ZWNYK to prevent PNUZE YXSWS TPJW at that point. ROEEL PSGHV ELVTZ FIUTL ILASL TLHIF NOIGT SMMLF GCCAJ D.
J.C. Pemberton

What made this find valuable was the fact that a translated version was found at the same time:

I prefer Canton. It has reference to fortifications at Yazoo City to prevent passage of river at that point. Force landed about three thousand, above mouth of river.

The Confederate key phrase for this cipher was "MANCHESTER BLUFF". Using the key phrase and the tableau, we can see how the cipher was made.

The clerk who enciphered the message began by looking for "M," the first letter of the key phrase, along the top alphabet. Re then looked for "C," the first letter of "Canton" in the plain text, along the vertical alphabet on the left side. Where the column under "M" and the row next to "C" met was the cipher letter (in this example "o"). This process is repeated (using key letter "A" and plain text letter "a") to get the next cipher letter.

The difficulty in deciphering this message without knowing the key is apparent. The first "n" in "Canton" is replaced by "A," but the second "n" is replaced by "R."

Pemberton's clerk wisely omitted word spacings to prevent anyone from guessing the plain text words by their sizes and positions. The longer stretches of cipher text are broken into five letter groups. Those precautions were rendered useless, however, when someone carelessly failed to destroy the enciphered message after translating it. With both versions in hand, operators at the military telegraph office in Washington were able to determine the message was made with a Vigenere cipher using the key phrase "MANCHBSTER BLUFF." They then applied the same key phrase to the first captured message that Grant had sent them. It worked! Evidently the Confederates were using the same key phrase for all their high level communications. After transmission errors had been corrected, the "percussion cap" message read:

Jackson, May 2S, 1863
Lieutenant General Pemberton:
My last note was captured by picket. 200,000 caps have been sent. It will be increased as they arrive. Bragg is sending a division. When it joins I will come to you. Which do you think the best route? How and where is the enemy encamped? What is your force?
JE. Johnston

Because of its position in both messages, the plain text word "force" translates to the cipher text “ROEEL” in both Johnston's and Pemberton's communications. Clues like these are prominent when a

large number of messages enciphered with the same key are intercepted.

Though this solution came too late to help Grant, it did illustrate the value of code breaking. Pemberton' s answer would have included instructions on which route Johnston's Confederate reinforcements should take, allowing Grant to set up an ambush. Grant might also have learned the location and strength of Pemberton's force with far greater accuracy than that provided by scouts or deserters (who were at that time the main sources of information about the enemy's situations and plans).

Once they knew the key phrase "MANCHESTER BLUFF" Union telegraphers assumed they would be able to read Confederate messages at will. But the Confederates, suspecting their cipher was broken, simply changed the key phrase, and the code-crackers had to start again from scratch. The flexibility of the Vigenere cipher allowed the South to continue using the same system without compromising its secret communications. The Union had learned the fundamental nature of the system, however, and careless use of it by the Confederates would result in it being broken once again.

While Charles Gaston was intercepting Union communications in Virginia in 1864, Union wiretappers were busily doing the same to Confederate messages and sending them to Captain William Plum, who was in charge of Union communications at New Orleans. It was at that time that Plum received the vitally important intercepted message addressed to "Gen. E.K. Smith"- Lieutenant General Edmund Kirby Smith commander of the Confederacy's Trans- Mississippi Department.

The campaign in the southwest was not going well for the North at that time. Smith's forces represented a dangerous unknown. They were in position to advance north into Missouri, raid the West, advance south toward New Orleans, or fight to regain a foothold on the Mississippi River's eastern bank. If someone could decipher the intercepted orders to Smith, Union strategists could prepare for Smith's next move and distribute military resources accordingly.

When Captain Plum set to work at his desk in New Orleans, this is what was printed on the page before him:

To Genl. E.K. Smith:

What are you doing to execute the instructions sent you to HCDLLVW XMWQIG KM GOEI DMWI JN VAS DGUGUHDMITD. If success will be more certain you can substitute EJFKMPG OPGEEVT KQFARLF TAG HEEPZZU BBWYPHDN OMOMNQQG. By which you may effect O TPQGEXYK above that part HJ OPG KWMCT patrolled by the ZMGRIK GGIUL CW EWBNDLXL.

Jeffn. Davis

To solve secret messages like the one that faced Plum, Union cipher clerks normally resorted to trial and error, guessing at possible key words and trying them on the cipher text. They would apply popular phrases and patriotic sayings that Confederates might use. A whole series of messages had been deciphered by using the names of Confederate generals as key words.

Plum had a large advantage with the Smith orders. The Confederates had enciphered only parts of the message, and it appeared they had left normal word divisions intact. Plum also knew from the Pemberton message that the Vegenere worked in reverse-that is, given the cipher text and the plain text, one could determine the key word. So he simply guessed at portions of the plain text.

The last part of the message mentioned patrolling. Plum felt it probably referred to gunboat patrols on the river, the only patrols likely to excite the interest of the Confederate high command. Plum assumed "that part HJ OPG KWMCT patrolled" stood for "that part of the river patrolled." The keyword that yielded that translation turned out to be "-TE VICTORY C-." A promising start, but Plum could not solve the message until he discovered the entire key phrase.

He began to examine earlier passages of the cipher text. The only phrase he could think of that would make Sense as a substitute for "O TPQGEXYK" was "a crossing," resulting in the phrase "*effect a crossing above that part of the river….*" The key for that translation was "-ORY COMPLE-." He knew he had broken it. The two fragments were consecutive; together they gave Plum the key phrase "COMPLETE VICTORY" and the solution to the message:

To Genl. EK Smith:

What are you doing to execute the instructions sent you to forward troops to east side of the Mississippi? If success will be more certain you can substitute Wharton 's cavalry command for

Waller's infantry division. By which you may effect a crossing above that part of the river patrolled by the larger class of gunboats.

Jeffn. Davis

It was the word divisions in the message to Smith that led to its decipherment. Why did the Confederate cipher clerk leave them in? There was good reason. Transmitting cipher in Morse code over telegraph wires invariably led to mistakes and garbled messages. The Vigenere cipher was more intricate than the Union ciphers, but less practical, because any missed letter could turn the message into gibberish. Smith had once spent 12 hours during the Vicksburg Campaign trying to read an error-filled message from Johnston asking for reinforcements. He finally gave up and sent his chief of staff galloping around the flank of the Union army to find out personally from Johnston what the message had been. By the time the courier got the message, Johnston's army was cut off from Smith. After that fiasco, the Confederates retained word divisions in messages to make friendly deciphering easier. Unfortunately, for them, it also eased Captain Plum's task.

The Confederacy continued to rely on the Vigenere cipher through the war's end. After the assassination of Abraham Lincoln, investigators discovered a Vigenere tableau on a piece of paper among the belongings assassin John Wilkes Booth had left behind in the National Hotel. Having found a similar tableau in the office of Confederate Secretary of War Judah P. Benjamin when Richmond fell, they accused the Confederate government of being behind the assassination plot. Their eagerness to link Confederate officials to Lincoln's killing led them to overlook an important detail: Booth's tableau was actually a variant of the Vigenere-the top alphabet beginning "ZABCD"-which would have been useless in deciphering messages created with Benjamin's tableau.

Federal code-breaking successes were not limited to unscrambling the Vigenere. Throughout the war, the Union maintained a focused effort to interpret Confederate messages. In Washington, the three most experienced cipher operators of the Union army continuously looked for solutions to whatever Confederate ciphers they could get from the field. These men were Charles A. Tinker, Albert A. Chandler, and David Homer Bates, who liked to call themselves the "Sacred Three." Though barely out of their teens, they were as familiar with different forms of cipher as anyone in the North.

Many Union generals were baffled by the work of cipher operators, but there was one important commander who took a personal interest in their work-the commander-in-chief, President Abraham Lincoln. David Bates later recalled:

"Outside the members of his cabinet and his private secretaries, none were brought into closer or more confidential relations with Lincoln than the cipher operators... for during the Civil War the President spent more of his waking hours in the War Department telegraph office than in any other place, except the White House."

The telegraph office was located on the second floor of the War Department building, next door to the White House. Lincoln kept a close watch on the daily operations of the war by personally reading the dispatches of his generals as well as whatever deciphered intercepts Tinker; chandler, and Bates could supply.

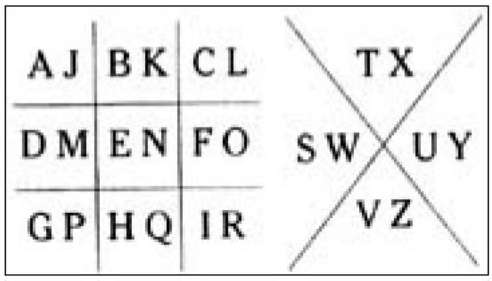
The Sacred Three's most notable feat, occured in December 1863. Postal censors in New York discovered an odd looking message addressed to an Alexander Keith in Halifax, Nova Scotia. Keith was known to be in contact with Confederate agents. The letter was sent to Washington for solution.

The Keith message used five different sets of cipher symbols, and was too short to allow effective analysis of letter frequencies, a fundamental tool of cryptanalysts. The Sacred Three were still able to decipher the message, however, because of weaknesses in its encipherment. For one thing, it was apparent that the sender had divided words with commas. Also, the first line of the message was evidently a dateline. The Union cryptographers knew where and approximately when the letter had been mailed, so they could say with reasonable certainty that the first line translated as "N.Y Dec.18, 1863."

The most important clue to the message's content, however, was the plain text fragment "reaches you," which the sender inexplicably left intact. Looking two words prior to "reaches," they noticed that the second symbol in the word and the last symbol were the same. They assumed that the word was "before," and the phrase was "before this reaches you." This gave them nine letters in one of the cipher alphabets.

Bates recognized the alphabet as a Rosicrucian, or "pigpen," cipher, which he remembered using as a price marker in his days as a stock clerk in Pittsburg, Pennsylvania. In the Rosicrucian cipher a

letter is replaced by its location in a tic-tac-toe diagram. Two letters inhabit each space:



The writer replaced each letter with the angled lines associated with it, so "S" would appear as ">."A dot within the symbol indicated the second letter, so "W" became ".>."

Once a few letters of a Rosicrucian alphabet are known, the rest can be deduced quickly. In the Keith message, the Rosicrucian alphabet deciphered to reveal the phrase "other two steamers per" followed by more cipher text in a script-like alphabet. The first word in this new alphabet was nine letters long. The second and fifth letters were the same, and the seventh and eighth were the same. The code-breakers assumed this to be the word "programme" and, using that word as a starting point, they cracked the second alphabet.

This procedure continued until, in the space of a single afternoon, the entire message was revealed:

> Hon J.P. Benjamin:
>
> Willis is here. The two steamers will leave here about Christmas. Lamar and Bowers left here via Bermuda two weeks ago. 12,000 rifled muskets came duly to hand and were shipped to Halifax as instructed. We will be able to seize the other two steamers as per programme. Trowbridge has followed the President's orders. We will have Briggs under arrest before this reaches you; cost $2,000. We want some money; how shall we draw? Bills are forwarded to Slidell and rec'ts rec'd. Write as before.
>
> J.H.C.

The solution was evidence of an important Confederate spy ring in New York City. A special cabinet meeting was called that evening and Assistant Secretary of War Charles A. Dana set out for New York to take charge of an investigation. The Union authorities were too late to do anything about the rifles, but soon a new message in the same cipher arrived. The Sacred Three quickly solved it:

Say to Memminger that Hilton will have the machines all finished and dies all cut ready for shipping by first of January. The engraving of the plates is superb.

Memminger was Confederate Secretary of the Treasury Christopher O. Memminger, and the engraved plates were for printing Confederate money! The South, which lacked much of the technology necessary to print money, had engaged engravers in New York to build presses for them.

On December 31, 1863, U.S. marshals raided the Hilton's engraving shop in lower Manhattan, capturing the machinery, plates, and several million dollars in Confederate money. Not only did the operation interfere with the South's ability to print currency, but Union spies used the plates to print counterfeit Confederate bills which, it was said, were superior in quality to genuine Southern-produced currency.

For their work in destroying the Confederate money ring, Tinker, Chandler and Bates each received a raise of $25 per month-in U.S. currency.

The Sacred Three served under the aegis of the Military Telegraph Service, led by Anson Stager. In November 1863, Stager had clashed with Signal Corps founder Albert Myer over the army's telegraph needs. As a result, Myer was relieved from his post and the Signal Corps' authority was limited to visual communications. The Military Telegraph Service was granted full control over telegraph operations.

Myer remained interested in codes, and in 1864 he published A Manual of Signals (see appendix), which contained a discussion of cryptography. Nevertheless, it was not until after the war that serious

research was made into cryptanalytic techniques and their underlying principles. Lessons learned in the Civil War led Federal authorities to devote money and personnel to the study of codes and ciphers. As a result, American cryptologists would play an important role in the conflicts of the 20th century, including both world wars and the modern "cold war." Today's cryptanalysts, armed with powerful, sophisticated computers, would make short work of any secret message from the Civil War era.

The story of Civil War code breaking is primarily a story of missed opportunities, peppered with small victories. Still, the code-breakers' efforts proved a point that one of America's premier 19th-century cryptographers, a young writer named Edgar Allan Poe, had made years before the war: "Human ingenuity cannot construct a cipher which human ingenuity cannot resolve."

Drills

Training - Training is an ongoing, never-ending process. One way we can be highly regarded is not only due to to our membership, but also to our dedication to drill and training in all aspects of signal duties. It is not be unusual to see a signal party drilling/training in night signals, while others are attending the “event dance”. Every member is required to drill at every possible opportunity to fine tune or learn new skills as well as old skills that may have eroded since their last use.

School of the Soldier

The school of the soldier is the basics for marching and moving troops from one area to the next. The following are excerpts taken from Hardee’s, a manual written in the civil war period, and well accepted in the reenacting community for use. (*Included here are basics to know*)

A typical Infantry company consists of one captain, three lieutenants, five sergeants, eight corporals, and 72 privates. The company also is divided into two platoons, numbered first and second. If the company has an odd number of riflemen, then the first platoon has the even number arid the second platoon has the odd number. Each platoon is divided into two sections numbered first and second. Each front rank soldier and the soldier behind him are one file. Files are numbered 1, 2, 3, etc. to the end of the line. Each even and odd file, consisting of four soldiers, forms “comrades-in battle.” It is important to note, signal units were to be trained and drilled in the school of the soldier but never were in number as an infantry company, therefore; their numbers were far less and the rank of corporal was not to be found.

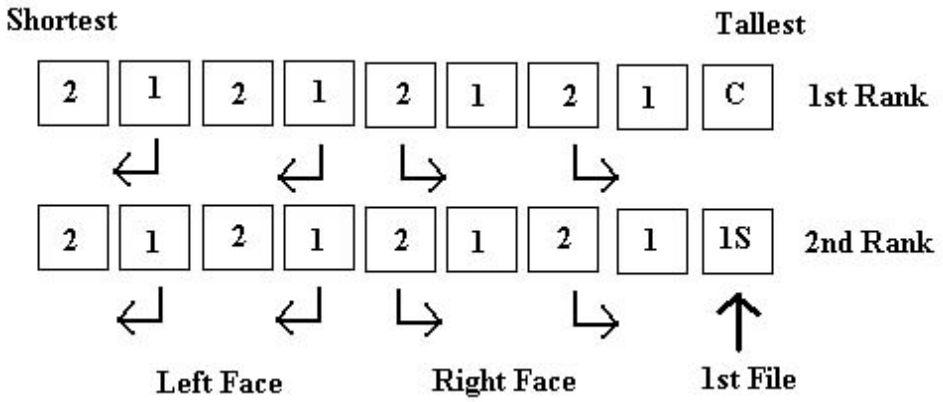
The company falls into two ranks, the second rank 13 inches behind the front rank, measured from chest to back or chest to knapsack, in the following manner: The command to form the company is "Fall In. “ The tallest soldier make up the first file. The next file to the left consists of the next two tallest soldiers and so on to the last file, which consists of the shortest soldier.

It is the responsibility of the captain to instruct the sergeants in their duties. Sergeants should be taught the School of the Soldier, School of the Company and Drill for Skirmishers. All instruction is based on the idea that they will in turn assist in instructing the private soldiers. Uniformity of instruction is of great importance.

During drill instruction, the responsibility of the captain and the first lieutenant is command leadership. The responsibility of all other officers and non-commissioned officers (NCO's) is guidance leadership. That is, the captain and the first lieutenant give commands and the others guide the company through the maneuvers.

The only commands repeated by the other officers and NCO.'s are MARCH and HALT. It is perfectly permissible for the officers and NCO's to talk to the soldiers quietly, warn them of what is coming, and talk them through it. Any extraneous talking or chit-chat in rank and file is prohibited. When drilling troops, it should be made clear and explained what is to be done before doing it.

Drill was frequently done without weapons, especially when drilling recruits. When weapons were carried, bayonets were not fixed.



The command to form the company is FALL-IN, always Fall-In at Order Arms.
After a company has formed a single or two-rank Line of Battle and has come to attention, the soldiers count by twos. The command is:

IN EACH RANK, COUNT TWOS

The count always begins at the soldier lined by the first sergeant and soldier behind him, right to left with ONE. The next file to their left counts TWO, and continues left to the end of the company. This means that each soldier is now numbered either one or two, and each soldier is in a specific place in the line. From now on, no matter what maneuver the company goes through, each individual soldier will return to his original position in a company line of battle. Every time the order to FALL-IN is given you should return to the line in the same order as the first days roll. As each soldier counts out loud in a firm and direct voice he should look to the soldier next to call until the line is completed, then look forward.

KINDS OF COMMANDS: There are three kinds of commands:

1. Caution 2. Preparatory 3. Execution

For example: 1. ATTENTION - Caution: alerts the company that a command is about to be given.
2. Company Forward - Preparatory: tells the company what they are going to do.
3. MARCH - Execution: tells the company to perform the movement called for.

(Sometimes the Caution command is not given).

From this point on only the command of execution will be printed in all capital letters. The above command would appear in the following way:

1. Company 2. Forward 3. MARCH

POSITION OF ATTENTION

The commands to come to the position of attention are:

1. Attention 2. COMPANY

In the position of Attention, the Soldier will turn feet out, body relaxed but straight, little fingers touching pants seam, palms turned forward, and the eyes striking the ground about fifteen paces to the front.

Position of Attention -FACINGS

1. Eyes 2. RIGHT

On RIGHT, the soldier turns his head gently to the right, looking along the line of eyes of the soldiers to the right. The left eye is in line with his jacket buttons.

3. FRONT

The soldier turns his head gently to the front and resumes the position of attention.

1. Eyes 2. LEFT 3. FRONT

1. Right 2. FACE

On FACE, the soldier lifts the right foot slightly and turns on the left heel. He then places the right foot next to the left.

1. Left 2. FACE

On FACE, the soldier lifts the left foot slightly and turns on his right heel. He then places the left foot next to the right.

1. About 2. FACE

On About, the soldier points his left foot straight ahead. He places the hollow of his right foot three inches behind his left foot, toes pointing to the right. On FACE, the soldier pivots on both heels until he is facing to the rear. This may require some practice.

DRESS RANKS

To DRESS RANKS, either to the right, the commands are:

1. Right 2. DRESS 3. FRONT

On DRESS, the soldier on the right end of the ranks stands still with eyes to the front. The rest of that rank does an Eyes-RIGHT, and involves to the right until they touch elbows and are in line. On FRONT, the soldiers again look to the front.

To DRESS RANKS to the left the commands are:

1. Left 2. DRESS 3. FRONT

On DRESS, the soldier on the left end of the rank stands still. The rest of that rank does an Eyes-LEFT, and moves to the left until they touch elbows and are in line. On FRONT, the soldiers again look to the front.

An officer or NCO can also align ranks by ordering files, by number, to move forward or back. The files so ordered turn their heads in the direction of the officer or NCO, move forward or back accordingly and then turn their heads back to the front.

REST

There are three modes of REST:

1. In Place 2. REST

The soldier may keep one foot in place and pivot about in position. Relaxing and in rank talking is permitted, but the line must be maintained

1. Parade 2. REST

The soldier may keep one foot in place and pivot about in position. Attention to surrounding must be kept, arms usually crossed. Talking beyond what is necessary is prohibited. This is usually performed when in front of spectators. look serious, and look mean.

1. REST

In this, the soldier may move about within the immediate area. Find shade, sit and relax. This is a chance to catch your breath and cool down. Maintain site of your unit, don't wonder off.

STEPS

There are three kinds of steps. They are Common Time, Quick Step, and Double Quick Step; also, the Run. The Run is usually used only for rallies in skirmish drill.

Common Time is instructional and may be dispensed with During the Civil War, it was used to introduce recruits to drill. It has 28-inch steps from heel-to-heel, at 90 steps per minute. After a recruit had learned to drill in Common Time, he was taught Quick Time.

Quick Time is the standard step. Its pace is 28 inches heel to heel, and has 110 steps per minute. Very few re-enactment groups march correctly at Quick Time. Most march at a faster rate.

Double Quick Time has a 33-inch step and varies between 165 to 180 steps per minute.

The commands for Quick Time are:

1. Company 2. Forward 3. MARCH

When marching at Quick Time, the distance between ranks is 16 inches.

For Double Quick Time, the command is:

1. Company 2. Forward 3. Double Quick Step 4. MARCH

If the company is already marching at the Quick Step, then the command is:

1. Company 2. Double Quick Step 3. MARCH

From the Double Quick to the Quick Step, the command is:

1. Company 2. Quick Step 3. MARCH

It is advisable to go from the Double Quick Step to Quick Time, and then halt.

When marching at Double Quick Time, the rifle can be carried at the Trail or Right Shoulder Shift. If Trail Arm is not given before Double Quick, the soldiers carry the rifle at Right Shoulder Shift. When marching at Double Quick Time, the distance between ranks is 26 inches.

ROUTE STEP

To march in Route Step the captain commands:

1. Route Step 2. MARCH

When marching at Route Step, the soldiers need not keep in step although they do maintain the 28-inch step. Arms are carried at will. To change direction the captain merely gives a verbal caution. There is no formal order. The rear rank marches 28 inches behind the front rank. When changing direction by Wheels, the rear rank closes up to 16 inches and the pivot man takes 14-inch steps. When marching at the Route Step in a column of platoon, the captain and 1st lieutenant march in the front rank of their respective platoon and the first and second sergeants step back to the rear ranks.

To resume marching at a cadenced step, the captain first orders:

1. Shoulder-ARMS 1. Quick time, 2. MARCH

The command to mark time is:

1. Mark time 2. MARCH

On MARCH, which can be given when either foot is approaching the ground, the soldiers will halt, raising and lowering their feet in place and maintaining their same cadence as when advancing.

The command to change step is:

1. Change step 2. MARCH

On MARCH, which is given when either foot is approaching the ground, the soldier will bring the foot which is to the rear up beside the front foot and then step off with the front foot again

To halt the company, the command is:

1. Company 2. HALT

The command HALT may be given on either foot. If HALT is given when the right foot is on the ground, then the soldier stops on the left foot. If HALT is given when the left foot is on the ground, the soldier stops on the right foot. On HALT, the rear rank closes up to 13 inches distance automatically.

The first sergeant is responsible for keeping the company in step. To do this, he shouts:

ONE-TWO, ONE-TWO. On the count of ONE, the left foot should hit the ground. On two, the left foot should leave the ground. Any officer or NCO who notices a soldier out of step may call his name and say: To the STEP.

The command to march backwards is:

1. Company 2. Backwards 3. MARCH

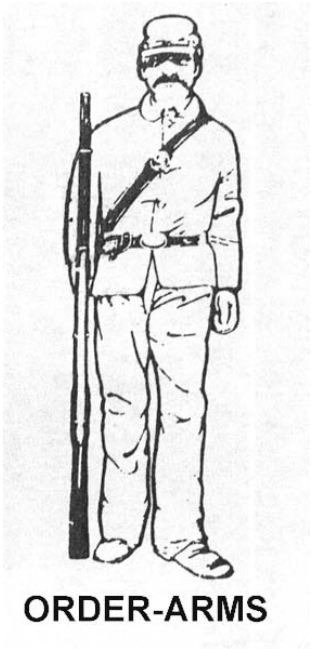
On MARCH, the soldier steps back with the left foot 14 inches. The step is measured from heel-to-heel, and is always in Quick Time.

The command HALT can be given on either foot. When given, the foot in front should be brought back beside the foot in back.

Various other commands, such as wheels, can and will be drilled and executed but have been left out due to its length of explanation. Drills on event grounds, with the above basics, will prepare a recruit as well as a seasoned veteran for these higher-level maneuvers.

Manual of Arms

There are a few things to remember about Civil War Manual of Arms. One is that it is different from the modern. Although some of the commands are the same, most of the positions are different. Another is that with a few exceptions, you must return to Shoulder-ARMS before going to another position. The Manual of Arms is done only in Open Ranks. Finally, Hardee's states that the Manual of Arms is done in separate motions, and each motion is done in a set time. For simplicity, this has been dispensed with this part of the instruction. Although this instruction is given for the musket/rifle the same position, in most cases will be the same for those carrying the signal flags and should be carried out in the same manner with the flagstaff.

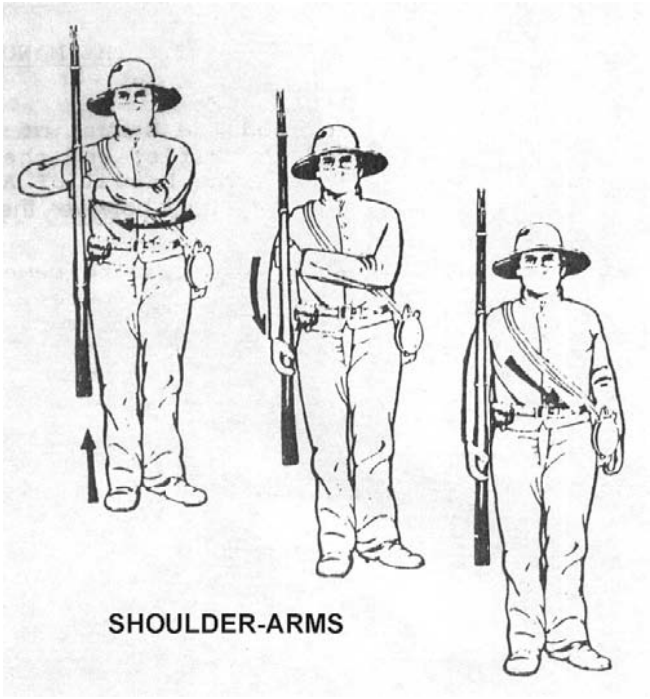

ORDER-ARMS

ORDER ARMS

The body is in the position of attention. The right arm is at the side, the right hand gripping the rifle, fingers forward. The rifle butt is beside the right foot, barrel vertical and along the hollow of the right shoulder. The muzzle is about two inches from the shoulder.

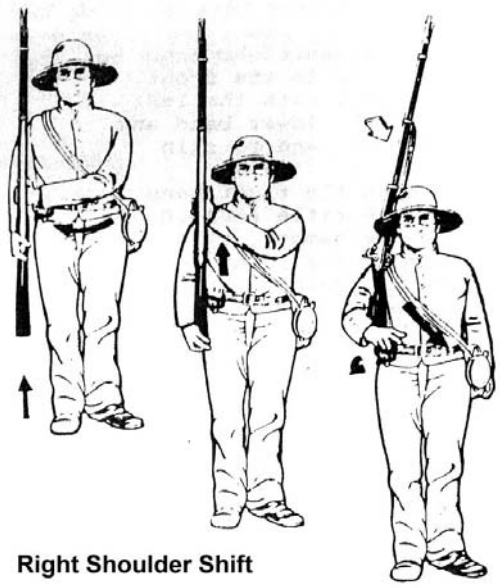
SHOULDER ARMS

Raise rifle with the right hand until the hand is level with the chest. Grasp rifle with the left hand just below the right. Lower the right hand and grasp the trigger guard with the thumb and forefinger, the last three fingers behind the stock. The right arm is extended beside the body. The rifle is vertical and resting on the small of the shoulder. Drop left hand to the side. Most drill is done at SHOULDER-ARMS



RIGHT SHOULDER SHIFT- ARMS

Grasp the rifle with the left hand between the lower band and sight. Raise the left hand to shoulder level. With the right hand grasp the butt, the thumb and first two fingers on the stock, the last two fingers on the butt plate. Drop the left hand to the side and raise the rifle with the right hand, lock plate up. Right shoulder shift-ARMS is used for extended marching.

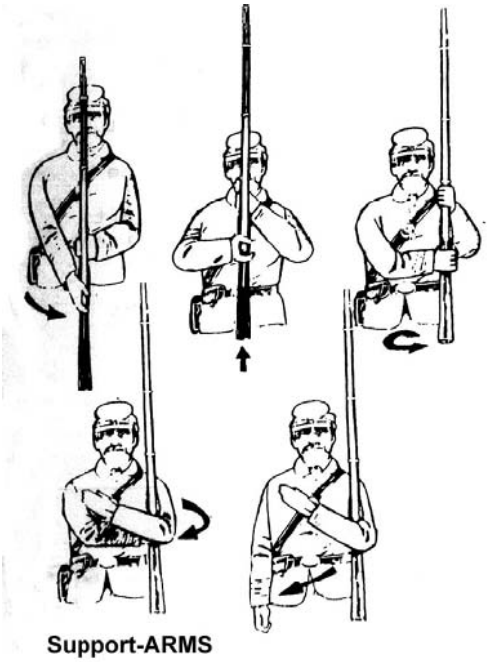


SHOULDER- ARMS

Drop the right arm to the side of the body with the barrel against the body. Simultaneously grasp the rifle with the left hand between the lower band and sight. With the right hand grasp the trigger guard and lower rifle to the position of shoulder-ARMS. Raise the left hand, palm against the rifle, up to shoulder level. This presses the rifle against the small of the shoulder. Then drop the left hand to the side.

SUPPORT- ARMS

With the right hand bring rifle to the front. Grasp rifle with the left hand at the lower band and raise left hand to shin level. With the right hand grasp the rifle four inches below the hammer, turn the barrel to the front and place it against the left shoulder. Place the left palm on chest. Support the rifle by resting the hammer on the crook of the arm and pressing the rifle to the shoulder. Drop the right hand to your side.


Support-ARMS

An optional movement at the position of Support-ARMS is REST. It works as follows: The company is standing at Support-ARMS. The one word command is given:

1. REST

At this command, the soldier brings the right hand quickly up to and grasps the small of the stock. At this time, the soldiers need not remain silent nor maintain the position of attention. At the command:

1. Attention 2. COMPANY the soldier resumes the position of Support-ARMS.

To return to Shoulder-ARMS, grasp the rifle at the small of the stock with the right hand. With the left hand, grasp it at the lower band. Bring the rifle to the Shoulder-ARMS position with both hands. Grasp the trigger guard with the right hand. Raise the left palm on the rifle to shoulder level, and then drop to side.

PRESENT-ARMS

With the right hand, bring the rifle to the front. Grasp the rifle with the left hand halfway between lower band and the sight, thumbs up. The left forearm is horizontal. Grasp the small of the stock with the right hand below and against the trigger guard.

To return to Shoulder-ARMS, use both hands to bring the rifle to the Shoulder-ARMS position. With the right hand, grasp the trigger guard. Raise the left palm up, the rifle to shoulder level, and then drop it to the left side.

SECURE-ARMS

Bring the rifle to the front with the right hand. Grasp the rifle with the left hand at the lower band, and raise it to chin level. Grasp the small of the stock with the right hand.
Turn the barrel to the front and bring the rifle opposite the left shoulder, the butt against the hip. The left hand remains at the lower band, thumb extended on rammer.
Invert the rifle, placing the trigger guard under the left arm. The left hand remains in the same position with the thumb pressing on the rammer. Drop the right hand to the side.

To return to Shoulder-ARMS, raise the rifle vertically to the barrel up position with the left hand. With the right hand, grasp the rifle at the small of the stock. Go to Shoulder-ARMS in the same manner as from Support-ARMS, which was explained previously.

ARMS-AT WILL

The soldier may carry rifle on either shoulder, holding it with one or both hands. The barrel is elevated.

TRAIL-ARMS

Perform Order-ARMS, but do not let rifle slide to the ground. Tilt muzzles forward, the butt to the rear and about four inches from the ground. Hardee's specifically states that the rear rank soldiers not touch the front rank soldiers with their bayonets.

GROUND-ARMS

On ARMS, turn rifle with the right hand so that the barrel is to the left. At the same time reach behind the back with the left hand and grasp the cartridge box. Step forward with the left foot and lay rifle on ground. Lock plate up, butt next to right toe. Rise up, letting go of cartridge box, and assume position of attention.

RAISE-ARMS

Grasp cartridge box as before. At the same time, step forward with left foot and grasp rifle with right hand. Raise rifle and assume ORDER-ARMS.

INSPECTION-ARMS

Bring rifle to LOAD position. Place rammer in barrel. Then assume position of Order-ARMS. When the inspector is in front of the soldier, the soldier raises the rifle with the right hand. He then grasps the rifle with his left hand, between the lower band and the sight, and raises his left hand to chin level, lock to the front. The barrel is in front of left eye. The right hand is dropped to the side.

The inspector may take the rifle with his right hand. When the inspector does take it, the soldier drops his arms to his side. When the inspector is finished, the soldier takes it back with his right hand, and returns to Order-ARMS.

When the inspector passes on, the soldier brings the rifle to the LOAD position. He then returns rammer and resumes Order-ARMS.

If the inspector does not take the rifle, but passes on, the soldier brings his rifle to LOAD and returns rammer. He then resumes Order-ARMS.

SPRING-RAMMERS

During the Civil War, the rammer was placed in the barrel and bounced (sprung) in the barrel. If the barrel rang, then the rifle was unloaded. If a "*clunk*" sound was heard, the rifle was loaded.

On RAMMER, bring rifle to LOAD and place rammer in barrel. Then resume Order-ARMS. The inspector can then spring rammer or request the soldier to do so. After the inspector passes on, the soldier goes to LOAD, returns rammer and then resumes Order-ARMS.

BREAK RANKS-MARCH

Break ranks is equivalent to the modern DISMISSED. The soldiers are free to leave the immediate area and go about their other duties, or, are considered now off duty. Break ranks is always given with the company at attention.

On MARCH, the soldiers step out of ranks. Hardee's does not indicate that the soldiers first face right or left.

Weapons

SAFETY IS EVERY PARTICIPANT'S RESPONSIBILITY!

While unit officers and NCO's are held responsible for the actions of their unit members, it still remains that EVERY UNIT MEMBER ACT AS A RESPONSIBLE ADULT!

It takes two mistakes to make an accident.
Someone doing something they shouldn't and someone not paying attention.

Every Unit will have appointed a unit safety NCO/OFFICER. At a Detachment or Party level, an experienced Sergeant or other unit commander authorized person for the company will fill this position.

It is the duty of the appointed NCO/OFFICER of the unit to actively and vigorously supervise the Safety Programs and Regulations set forth by the individual unit's affiliation and the sponsor's of the event being attended. Specific duties during an event will include, but are not limited to the following:

- Full-time duty of overall supervision of safety during the event. This includes safety supervision of the unit during maneuvers from at or behind the firing line on the field
- Ensuring that company commanders and/or sergeants *conduct safety briefings checklist prior to marching each day.*
- Spot checking of cartridges and firearms during safety inspections. (Canteens should also be checked all should be encouraged to see that their troops drink at least a full canteen of water particularly on hot days.)
- Ensuring that accident/incident reports are promptly submitted as may be required.

All participants must be 16 years of age or older to carry any weapon, i.e., rifle, musket, carbine, pistol or edged weapon, on the battlefield at living histories or battle re-enactments. Participants between the ages of 16 up to 18 years of age must have parental consent in writing and/or a parent present on the field in order to take part in events. Parental consent must be filed with Company Clerk with a copy forwarded to the Unit Commander. Participants between the ages of 11 and 16 may serve in a signal party, as musicians, and where permitted by event sponsors, i.e. assist hospital stewards, run messages, etc. *THEY MAY NOT BE COMBATANTS!* 7. NO gunfire in camps unless on order of authorized officers. Anyone found under the influence of alcohol will not be allowed to take arms or enter battles. The use of illegal drugs is prohibited. Any such incidents will be reported to local authorities. All signalists participating in any event WILL have a *FULL CANTEEN* of water with them and carry said canteen on their persons during *ALL* drill periods, marches and battles. It is recommended that all personnel drink at least a full canteen of water *prior to marching* during hot weather events. This practice has greatly reduced the incidence of heat-related injuries. No-one will carry *glass bottles* of water in lieu of a canteen. Plastic bottles inside the haversack may be acceptable, as long as it is kept out of sight.

THE WEARING OF EAR PROTECTION IS ENCOURAGED IN THE FORM OF A MODERN EAR PLUG WITH A SMALL BIT OF COTTON AFFIXED TO THE OUTER AREA IN ORDER TO SIMULATE SOMETHING A SOLDIER OF THE PERIOD MAY HAVE USED.

WEAPON SAFETY

- Weapons will be inspected for safety by the COMPANY COMMANDER AND/OR COMPANY SAFETY OFFICER/NCO prior to each event.
- NO modern firearms OF ANY KIND, rifle, pistol or shotgun are allowed.
- NO Hawken, Zouave, Kentucky, Plains or Flintlock firearms are allowed.
- Infantry rifles will be 3 banded percussion Springfields or Enfields ONLY.
  - Exceptions to these rules would be units that carried breechloaders historically.
  - Sidearm are to be carried by Officers/NCO's only. Units that document the issue of pistols to enlisted personnel may carry such. HOWEVER, THEY WILL NOT BE LOADED.
  - NO LIVE AMMUNITION IS PERMITTED AT ANT TIME ON SITE! Cartridges must be of lightweight paper, in period style. NO penny wrappers, staples, wonder wads, etc. as these become projectiles if loaded!!
  - Recommended loading charges are:

    54-58 cal - load 60 grains maximum.
    69 cal - load 80-90 grains
    carbines - load 60 grains
    pistols - load 30 grains

Experience has shown that any excessive powder is simply blown out the barrel unburned and wasted, creating a potential safety hazard.

- *FIREARMS WILL NEVER BE AIMED DIRECTLY AT ANY PERSON OR ANIMAL!*
- Firearms will not be discharged at a range inside 25 yards. Inside 40 yards, ALL FIRINGS WILL BE ELEVATED so as not to endanger any combatant or animal. Use "Rule of Thumb" to establish range.
- NO gunfire in camps unless on orders of authorized officers.
- Fingers should be kept OFF the trigger and outside the trigger guard when moving. DON'T PLACE YOUR FINGER ON THE TRIGGER UNTIL YOU ARE READY TO FIRE!
- Fouled muskets will be taken 20 paces to the rear of the line of fire. The unit sergeant/safety NCO will be notified to clear.
- Ramrods *WILL NOT* be drawn on the battlefield, as they become projectiles if left in the barrel. ONLY the safety NCO may draw a ramrod to check a firearm on the field or as ordered to do so in inspection.
- Tompions will be left in camp. Any tompion found during safety inspections will be taken and given to your overall commander. You may reclaim it after the event.
- No participant under the age of 16 years will be allowed to carry or fire a firearm or serve on a cannon crew.
- NO sheath knives will be worn or carried into battle.
- Bayonets will not be fixed except for drill demonstrations or stacking of arms.
- FIREWORKS, of any type are prohibited.
- When at "Rest", DO NOT place your hand(s) at any time over the muzzle of a rifle, loaded or unloaded. An accidental discharge could cause severe injury.
- If it is necessary to recover from the "Aim" position, lower the hammer from the full cock position by placing the "crook" of the thumb over the hammer spur and gently bringing the hammer to "half-cock". Be especially observant of the position of the muzzle.
- At the conclusion of "live" firing in the field prior to return to camp at the end of the day, ALL firearms *(including officers' revolvers)* will be primed and discharged on command to insure that no unburned powder remains in firing chambers.
- During loading of the rifle-musket, the hammer SHOULD LEFT IN "FIRED" POSITION *with a musket cap in place while charging with powder*. This precludes the possibility of air coming in through the nipple, mixing with a spark left in the barrel and causing a premature discharge as powder is being poured down the barrel. Failure to adhere to this procedure is one of the chief causes of flashes and subsequent burns during loading!
- When in formation, rear rank soldiers must keep the first and second bands of their muskets aligned with the first rank soldiers' shoulders and ***most importantly*** *must not step back when firing* as this will move their musket muzzles too close to the first rank troops.
- Firearms should ALWAYS be discharged before taking a "Hit".
- Show respect for our individual units! Taking of Colors will not be done unless agreed upon prior to battle. Units desiring such a portrayal must agree and overall Union and Confederate Commanders must be made aware and agree to such actions. (This includes the capture of enemy Signal Flags).
- At no time should a spectator be allowed to handle or examine any weapon, unless under direct supervision of the Safety Officer/NCO or Company commander.

MUSKET SAFETY INSPECTION POINTS

At inspection arms, ramrod should be inserted in barrel with button end down. It should strike the bottom of the breech plug with a clear, metallic "ring". If the ramrod sticks or makes a dull thud, it is an indication of dirt, corrosion or lead rings in the bore. Run the ramrod slowly up the bore angling it to touch the inside of the barrel to check for residue build-up in the bore. The Springfield ramrod should protrude no more than 1/4" from the muzzle due to its longer barrel. Enfield ramrod threads should protrude no more than 1/4" or to the extent of the threads due to its shorter barrel. If the ramrod extends excessively from the muzzle, then there may be an obstruction in the breech. *Any musket suspected to have an obstruction in the bore will not be used at all during the event and will be removed from camp.* Muskets that are dirty will be excluded from the event until cleaned under the supervision of a qualified NCO. It is recommended that

any musket used for live fire NOT be used for reenacting due to the possibility of lead rings forming in the breech area during live fire and then becoming a projectile during blank fire. Any musket used for live fire should be carefully inspected for lead ring formation either with a bore light or by careful probing with the ramrod.

The nipple area should then be inspected. The nipple should be fully seated into the bolster. If a nipple appears to be not fully seated, it should be checked with a nipple wrench. The nipple must screw fully into the bolster with no undue resistance. A nipple that does not screw in fully is indicative of cross threading. One that is loose may indicate an improper or loose thread. *Any musket with a nipple or bolster that is questionable will not be allowed on the field and will be removed from camp.* The nipple area should be bright and clean, free from all dirt and powder residue. The clean-out screw on the 1861 Springfield must be fully seated into the bolster.

The musket lock should then be checked to insure that the half-cock notch is operable. Any musket that fires from the half-cock position will be excluded from the event and removed from camp. Under no circumstances should the hammer be struck forward with the heel of the hand by the inspecting officer or in any manner tampered with. Even pressure only should be applied to test the half cock position, at the same time checking for side-to-side play.

The musket hammer must solidly engage in the full cock position with no play in the lock work. Any musket that does not properly function in the full cock position will not be used in the event and will be removed from camp. The face of the hammer should be inspected to insure an even strike on the nipple. A solid circle indicates a solid strike where a crescent or figure-eight mark indicates an off-center strike, possibly resulting in cap fragments breaking off on impact *creating a severe hazard to the eyes!*
Musket stocks should be inspected for substantial structural cracks. Any musket with stock cracks that could pose a safety hazard may not be used in the event and will be removed from camp.

The musket should be returned to the soldier in the half cock position.
Any repairs made to a musket must be cleared with the unit First Sergeant who will then determine if the subject arm will be allowed on the field. Any musket which fails any of the above standards or is any manner questionable from a safety standpoint will not be used in the event and will be removed from camp to avoid any possibility of its ending up on the field.

Once a unit has completed musket safety inspections, an elevated volley will be fired to insure that nothing that can become a projectile remains in the bore of any musket prior to marching for battle.

After safety inspection of each individual musket has been completed by unit personnel, muskets will then be capped off and fired under supervision of the company commander and/or first sergeant as follows:

- The second rank will be faced about, muskets held at a 45 degree angle to the ground with the muzzle aimed at a leaf or blade of grass. Order will be given to prime and to fire by file with unit officers and NCO's observing each musket muzzle as the piece is fired to ensure that the percussion cap blast moves the leaf, thereby indicating that the flash channel is clear.
- After capping off, the second rank will again face about to its original position. Order will then be given to load and fire by file, with unit officers and NCO's again observing each musket to ensure that each piece has functioned properly. The point of this exercise is to ensure that *there is no potential projectile in the bore of any musket carried onto the field.*
- Only after this procedure has been followed will a unit be permitted to march for battle.
- This musket safety inspection procedure will be accomplished *prior to or during dress parade each day of an event.*

BREECHLOADING CARBINE SAFETY INSPECTION POINTS
(These procedures also apply to all single-shot breech-loading rifles.)

At inspection arms, the bore will be visually inspected for obstructions. After inspecting the bore, the inspecting officer should then close the breech and check the nipple area. The nipple should be fully seated into the breechblock. If a nipple does not appear to be fully seated, it should be checked with a nipple wrench. The nipple must screw fully into the breechblock with no undue resistance. A nipple that does not screw in fully is indicative of cross threading. One that is loose may indicate an improper or loose thread. *Any carbine with a nipple or breechblock that is questionable will not be allowed on the field.* The nipple area should be bright and clean, free from all dirt and residue.

The carbine should then be checked to insure that the half-cock notch is operable. Any carbine that fires from the half-cock position will be excluded from the event and removed from camp. Under no circumstances should the hammer be struck forward with the heel of the hand by the inspecting officer or in any manner tampered with. Even pressures only should be applied to test the half-cock position, at the same time checking for side-to-side play.

The carbine hammer must solidly engage in the full cock position with no play in the lock work. Any breech-loading carbine that does not properly function in the full cock position will not be used in the event and will be removed from camp. The face of the hammer should be inspected to insure an even strike on the nipple. A solid circle indicates a solid strike on the nipple where a crescent or figure-eight mark indicates an off-center strike, possible resulting in cap fragments breaking off on impact *creating a severe hazard to the eyes!*

Carbine stocks should be inspected for substantial structural cracks. Any arm with stock cracks that could pose a safety hazard may not be used in the event and will be removed from camp.

The carbine should be returned to the soldier in the half cock position.

Any repairs made to a breech-loading carbine must be cleared with the unit First Sergeant who will then determine if the subject arm will be allowed on the field. Any arm which fails any of the above standards or is any manner questionable from a safety standpoint will not be used in the event and will be removed from camp to avoid any possibility of its ending up on the field.

Once unit safety inspection has been completed, carbines will be capped off by file under supervision of the company commander and/or first sergeant. Carbines will be held at a 45-degree angle to the ground with the muzzle aimed at a leaf or blade of grass. Order will be given to prime and fire-by-fire, with unit officers and NCO's observing each carbine muzzle as the piece is fired to insure that the percussion cap blast moves the leaf, thereby insuring that the flash channel is clear.

Only after this procedure has been followed will a unit equipped with breech-loading carbines be permitted to march for battle.

This carbine safety inspection procedure will be accomplished *prior to or during dress parade each day of an event.*

REVOLVER SAFETY INSPECTION POINTS

At inspection arms, the revolver will be presented unloaded to the inspecting officer in the half-cock position with the muzzle in the vertical position.

The inspecting officer will first check the barrel with a cleaning rod or dowel of the appropriate length to insure that the bore is clear.

The revolver cylinder should then be checked to insure that none of the chambers are loaded. Any revolver presented for inspection in a loaded condition will be returned to the owner who will be instructed to discharge the piece in a safe manner and at a safe distance before returning for further inspection.

After insuring that the cylinder chambers are clear, the revolver will then be checked to insure that no live percussion caps are on the nipples.

The revolver will be returned to the soldier in the half-cock position with the muzzle up.

Only after this procedure has been followed will a unit be allowed to march for battle.

This revolver safety inspection procedure will be accomplished *prior to or during dress parade each day of an event.*

HAND TO HAND AND CLOSE COMBAT

While there is to be no unauthorized hand-to-hand combat, the following guidelines are for safe "close quarters combat" when opposing units meet on the field.

- Musket butts should not be raised above waist level.
- Muskets should be held at "present arms" position for the defensive and "port arms" for the offensive.
- Lunging with musket muzzles is prohibited.
- Pistols must not be discharged at close quarters.
- Sabers should be used with sheaths at close quarters.
- No Lunging or Charging with Signal Flags is prohibited.

INCIDENT PROTOCOL

SCARD, in keeping with its position on the Civil War Reenactors Liaison Committee has agreed to participate with the other major living history/re-enacting organizations in implementing a protocol to provide a standard procedure for accident/incident reporting. For the purposes of the incident protocol, all references to Company Commander, Battalion Commander and Brigade Commander will assume the involvement of the requisite Unit Safety Officer/NCO.

- At the call for ***"MEDIC"***, only the qualified medical personnel, i.e. Doctor, Nurse or EMT will respond. ***"MEDIC" is the word for a real emergency***.
- Each unit will maintain a roster of qualified medical personnel within its ranks and at each attended event, submit a list of those personnel in attendance to the Adjutant therefore allowing their rapid deployment in the event of a real emergency.

GOALS

- To establish a guideline for implementation of medical assistance and positive action in the event re-enactors suffer injuries during engagements and encampments.
- In cases where gross misconduct has been the cause of the injury, to determine the facts underlying the injury, identify the responsible individuals(s) and identify witnesses to the incident.
- To make every re-enactor aware that he or she is *personally responsible for his or her conduct* with fellow re-enactors and the public.
- To determine the manner in which an injury occurred for the purpose of avoiding unjustified accusations and animosity if the re-enacting community.
- To assure property owners and event organizers that responsible parties will be identified by name and unit in case litigation is pursued by the injured party, thereby providing them with added protection to the standard waiver.

INCIDENT PROTOCOL PROCEDURE.

- Upon discovery of an injury, the nearest re-enactors will sound the call “MEDIC”.
- Signal Parties will immediately initiate the “MEDICAL EMERGENCY” code and protocol “2112-2112” and assist in communications to bring emergency personnel to the injury location, as well as inform them of the extent and injury type via period signals.
- The first Company Commanders to respond, or higher ranking officer who happens to precede them, will determine the seriousness of the injury and make a preliminary determination as to its cause. IF ANY OFFICER PRESENT, INCLUDING NCO'S WHO ARE COMMANDING COMPANIES AT THE TIME, deem the cause to have been the result of gross misconduct, he will alert the nearest Battalion Commander, regardless of uniform color (North or South).
- Once the alert has been sent to the Battalion Commander, the commanders of those companies in the vicinity of the injured re-enactor will assemble their units in the immediate area. These officers will then question their soldiers to determine if any witnessed the injury or were the cause of the injury. Those who were witness to the injury or were the cause of the injury will then be questioned as to what they witnessed or experienced.
- The officer who alerts (ALERTING OFFICER) the Battalion Commander will see to it that all present company commanders reform their companies. It is this officer's duty to use his best effort to ensure that all re-enactors present immediately reform on their companies. This officer may enlist any fellow officers or NCO's on site, regardless of uniform, for whatever reasonable assistance necessary of perform this task. AN OFFICER IS NOT TO UNDERTAKE THIS TASK IF THE INJURED PARTY IS A MEMBER OF HIS UNIT. The next officer present should assume the task. The purpose here is to maintain order among the companies and to prevent straggling by those who may be responsible parties and/or witnesses to the injury.
- As the above procedures are in progress, every effort should be made to notify those medical professionals identified in the re-enactor ranks as well as the local medical support services and to insure that the location of the injured re-enactor is communicated to them. The alerting officer or the injured party's commander will see to it that this is accomplished quickly.

- The alerting officer and company commanders will report their initial findings to the Battalion Commander who arrives first on the scene. IF, in the opinion of the Battalion Commander, the cause of the injury and/or identities of the responsible parties cannot be determined from these reports, the BATTALION COMMANDER will give the alarm to cease ALL fighting and movement on the field.
- The Battalion Commander will then immediately undertake whatever additional investigation he deems necessary and work together with fellow battalion commanders, overall commanders and event organizers to determine the cause for the injury and the identity of the responsible re-enactor(s).
- Upon reasonable determination of the identity of the responsible re-enactor(s), their names, addresses and units will be obtained from them directly or through their company commanders and provided to the event organizers and injured re-enactor or his company commander. NOTE: It is not necessary for the Battalion Commander to be absolutely certain of the identity (ies) of the responsible re-enactor (s) if, after thorough investigation, evidence reveals the likely of the re-enactor (s) or company or battalion from which the misconduct originated.
- At all times, it is the responsibility of the Company Commander of the injured re-enactor to keep his Battalion Commander informed of that re-enactor's medical status. The Battalion Commander will, in turn, keep his Brigade Commander so apprised, who will, in turn, pass the information up the chain of command for the event.

Weekend-long reenactments, with two battles and drill, can use 100 rounds. Plan ahead and bring enough for the whole weekend. There won't be time to make any. Take enough caps too. Other reenactors don't appreciate someone who always has to "borrow."

A field cleaning kit for your musket in a small cloth bag is a must. Rifles should be cleaned each night in the field to make sure they're reliable the next day. The kit should include a small bottle of oil, a cleaning jag, and a rag that can be torn into patches. It should also include some small squares of bicycle inner tube to plug the nipple along with a spare nipple, a nipple wrench, and a nipple pick. Some reenactors have acquired collapsible cleaning rods that can fit into a haversack.

Finally, state law requires firearms to be transported by car in a secure carrying case. It should belong enough for the rifle-standard cases are too short- and it should tie, zip or buckle shut. In addition to state law, the case is needed to protect the rifle from travel damage in the car's trunk or back seat.

Rifle Care

At a typical weekend reenactment, a Saturday night cleaning is highly recommended to make sure you can "repel the evil hoard of Rebs" on Sunday. Use a field cleaning kit, and do the following: 1. Plug the nipple and fill the barrel with boiling water and rinse. Do this several times until the water runs clear. 2. Remove the plug, point the nipple down, and dry the barrel out with some cloth patches. This step also forces some of the water out through the nipple to clean out the vent. 3. After the patches come out dry, (it will take a few), oil the inside of the barrel with another patch soaked with oil. 4. Finally, wipe down the stock and metal parts with oil.

Caps & Powder - are the only thing to put in the gun – No live rounds at all.

Rolling Rounds – Rounds are to only be filled when a safety NCO is there or another designated NCO.

Storage – Live rounds should be stored in a clean dry metal container

Rank

In today’s army, the rank of non-commissioned officers is displayed with the point of the chevron facing up. During the Civil War, the chevrons pointed downward, except in the Marines, whose chevrons pointed up then as they do today. The chevrons or "stripes" worn on the sleeves of the jackets or coats of non-commissioned officers were essentially the same for both the Union and the

Confederate armies. Although there were some differences, the differences are adequately obscure in the context of re-enacting as to do no one harm by omitting to deal with them here.

However, identifying the respective ranks of Union and Confederate commissioned officers is not so easy a task, and can be confusing. One primary difference between the two lies in the location of the rank insignia, for the Union officers' rank was displayed on shoulder straps. The Confederate officer displayed his rank in specific on his collar, and in general on his sleeve.

Location of the rank insignia would not be confusing in itself if the designations of rank were the same, but they are not. A second lieutenant in the Union army had a shoulder strap whose field was blank; the Confederate second lieutenant had a collar insignia, which was a single bar; the single bar, however, on the shoulder strap of a Union officer told everyone that he was a first lieutenant. Two horizontal bars on the collar of the Confederate officer announced that he was a first lieutenant, but two bars on the Union office meant that he was a captain. When the Union officer displayed leaves or an eagle as rank, the Confederate officer's corresponding rank became a series of stars.

The three stars recognized a lieutenant general in the Union army on his shoulder straps. Three stars on the collar of a Confederate officer proclaimed that the man was a colonel. That is, of course, unless there were wreaths encircling the stars, in which case the Confederate officer was a general - any rank of general. All of this was complicated by the propensity of some generals, Robert E. Lee included, to wear the three stars without the encircling wreaths, which then indicated that that man was a colonel - unless you knew better.

For these reasons, we have found it important to include the ranks of non-commissioned and non-commissioned officers. We have elected not to include the contrafoil found on many officers' kepis for this single reason: the braiding, or contrafoil, found on the sleeves of Confederate officers' uniforms is the same pattern of braiding for rank designation found on the kepis. The easiest way to remember the contrafoil "key" to rank is this: one braid width is a second or first lieutenant; two braids side-by-side in the pattern designates a captain or major; a pattern which uses three braids wide is for a lieutenant colonel or colonel; and four braids wide tells you that he is a general.

RANK

Note: Within the Signal Corps (1861-1865) there has been no proof, as of yet, of anyone within the Corps holding the rank of Corporal. The next rank past Private of the first Class (above crossed flags on the left shoulder) would be Bvt. or Lance Sergeant (wearing the crossed flags upon both right and left shoulders)

(Signal Flag Patch)
Pvt. of the First Class

SCARD advocates rank of recruit, Private, Private First Class (Signal Flag Patch on left shoulder), Lance/Bvt. Sergeant (Signal Flag Patch both shoulders), Sergeant (Signal Flag Patch above chevrons), 2nd Lieutenant, 1st Lieutenant, and Captain (No Signal Flag Arm Patch on Officers). All above the rank of private should be "certified" via SCARD certification program for competency.
(See Certification Service Manual or ask your unit commander)

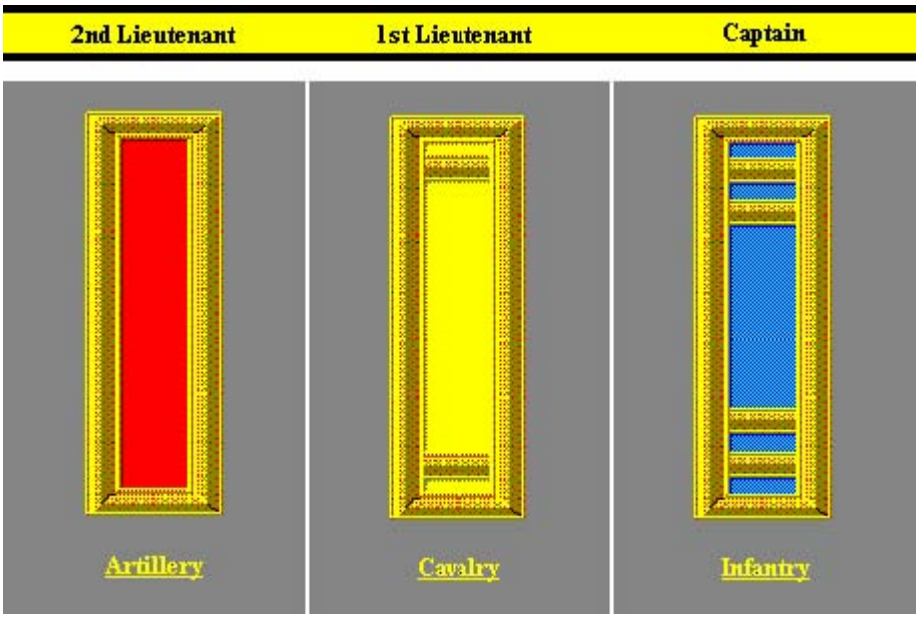

Ordnance Sergeant

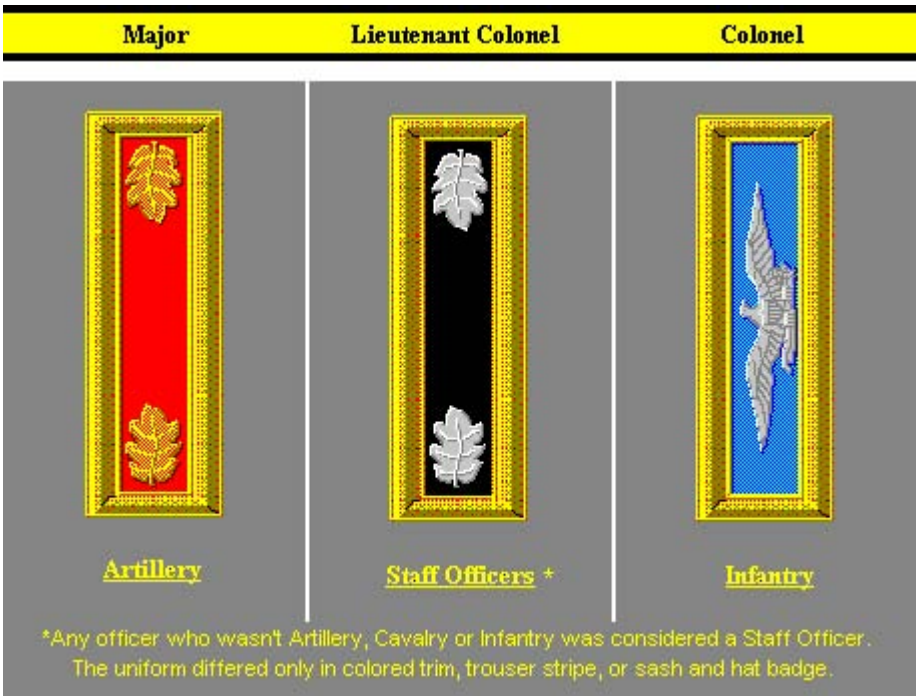

Quartermaster Sergeant


Sergeant Major

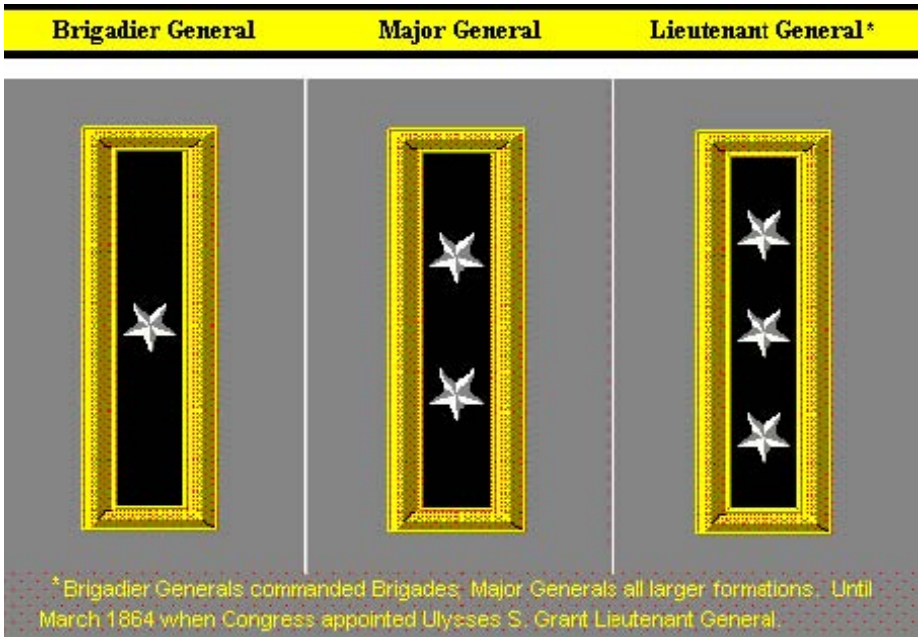

First Sergeant

FERDERAL RANK

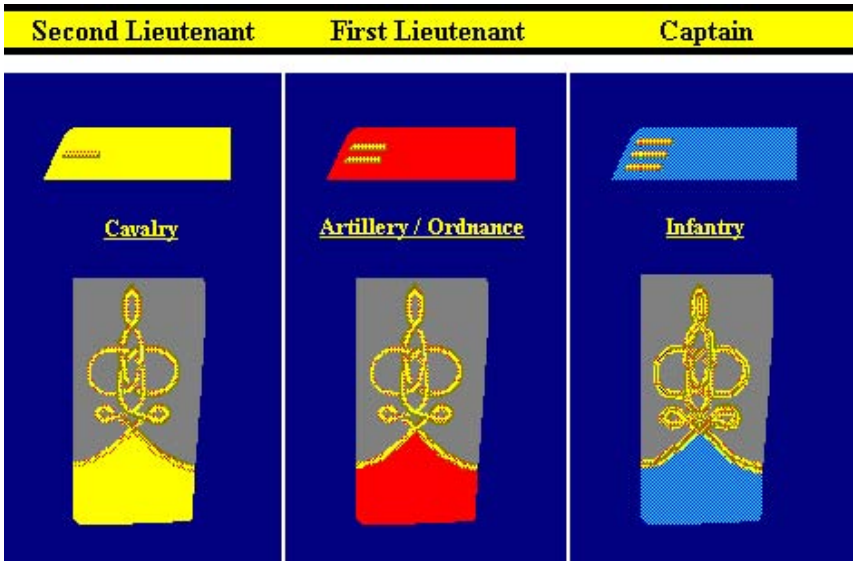


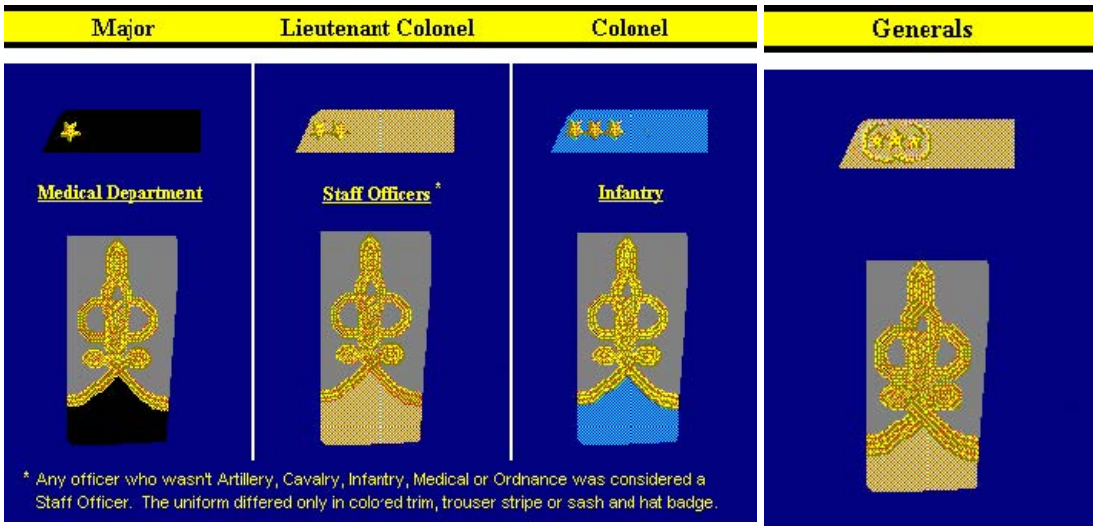


RED= Artillery BLUE= Infantry YELLOW= Cavalry BLACK= Staff Officer



CONFEDERATE RANK





More than simply recognizing the various rank insignia, it is important to understand the appropriate behavior before superior officers. Regulations 6 through 15 of the **Army Regulations, ca 1860** (listed earlier here) deal with the behavior of soldiers, non-commissioned officers, and officers.

By the end of the War end in 1865, there were some twenty-nine enlisted categories in all branches, with but eight types of insignia of grade denoted by chevrons or other distinctive markings. For the Federal soldiers, those were worn on both sleeves of the uniform.

Some may be recognized as owning rank such as "brevet captain". Brevet rank was a temporary and often honorary commission which enabled the person so promoted to wear the uniform appropriate to the rank and collect the pay attendant to that rank, while remaining listed in official lists with the lower rank held prior to being brevetted.

The Revised Regulations for the Army of the United States, dated 1861, spell out clearly the Federal requirements for showing rank through Shoulder Straps.

Shoulder Straps

1540. *For a Colonel* - the same size as for a Major-General, and bordered in like manner with an embroidery of gold; a silver-embroidered spread eagle on the center of the strap, two inches between the tips of the wings, having in the right talon an olive-branch, and in the left of a bundle of arrows; an escutcheon on the breast, as represented in the arms of the United States; cloth of the strap as follows: for the *General Staff and Staff Corps* - dark blue; *Artillery* - scarlet; *Infantry* - light or sky blue; *Cavalry* - yellow.
1541. *For a Lieutenant-Colonel* - the same as for a Colonel, according to corps, omitting the eagle, and introducing a silver-embroidered leaf at each end, each leaf extending seven-eighths of an inch from the end border of the strap.
1542. *For a Major* - the same as for a Colonel, according to corps, omitting the eagle, and introducing a gold-embroidered leaf at each end, each leaf extending seven-eighths of an inch from the end border of the straps.
1543. *For a Captain* - the same as for a Colonel, according to corps, omitting the eagle, and introducing at each end two gold-embroidered bars of the same width as the border, placed parallel to the ends of the strap; the distance between them and from the border equal to the width of the border.
1544. *For a First Lieutenant* - the same as for a Colonel, according to corps, omitting the eagle, and introducing at each end one gold-embroidered bar of the same width as the border, placed parallel at the ends of the strap, at a distance from the border equal to its width.
1545. *For a Second Lieutenant* - the same as for a Colonel, according to corps, omitting the eagle.
1546. *For a Brevet Second Lieutenant* - the same as for a Second Lieutenant.

1547. *For a Medical Cadet* - a strip of gold lace three inches long, half an inch wide, placed in the middle of a strap of green cloth three and three-quarter inches long by one and one-quarter inches wide.
1548. The shoulder-strap will be worn whenever the epaulette is not.

Regulations for the Federal Army dealt with hat trimmings as well as shoulder straps. From the Revised Regulations for the Army of the United States, dated 1861, the regulations for trimmings for the artillerymen of the Regular Army were:

Trimmings

1479. *For General Officers* - gold cord, with acorn-shaped ends. The brim of the hat looped up on the right side, and fastened with an eagle attached to the side of the hat; three black ostrich- feathers on the left side; a gold-embroidered wreath in front, on black velvet ground, encircling the letters **U.S**. in silver, old English characters.

1486. *For Officers of Artillery* - the same as for the General Staff, except the ornament in front, which will be gold-embroidered cross-cannon, on black velvet ground, with the number of the regiment in silver at the intersection of the cross-cannon.

1488. *For Enlisted Men*, except companies of Light Artillery - the same as for officers of the respective corps, except that there will be but one feather, the cord will of worsted, of the same color as that of the facing of the corps, three-sixteenths of an inch in diameter, running three times through a slide of the same material, and terminating with two tassels, not less than two inches long, on the side of the hat opposite the feather. The insignia of corps, in brass, in front of the hat, corresponding with those prescribed for officers, with the number of regiment, five-eighths of an inch long, in brass, and letter of company, one inch, in brass, arranged over insignia.

1490. All the trimmings of the hat are to be made so that they can be detached; but the eagle, badge of corps, and letter of company, are to be always worn. 1491. For companies of Artillery equipped as Light Artillery, the old pattern uniform cap, with red horsehair plume, cord and tassel.

1492. Officers of the General Staff, and Staff Corps, may wear, at their option, a light French chapeau, either stiff crown or flat, according to the pattern deposited in the Adjutant-General's office. Officers below the rank of field officers to wear but two feathers.

Acquiring/Maintaining Rank

You must be active in the unit to keep your rank. Rank cannot be given or held by those who do not pass certification or do not take and qualify during annual camps of instruction. Under special circumstances this requirement may be wave for up to one year at the discretion of the individual company commander.

Camp of Instruction

Background - During the Civil War, candidates, hand picked from the various services, were sent for training and qualifications testing to a Signal Camp of Instruction. Here the candidates were weeded-out, those qualifying then certified and accepted into the corps for duty. Only the brightest, intelligent, and enthusiastic candidates were accepted.

On 29th of August 1861, Lieut. Samuel T. Cushing was ordered to "put the signal party in Camp of Instruction at Red Hill, Georgetown, to-morrow. The camp will be formed under your direction, and the officers and men will, with the exception of Capt. Ent, be in my absence under your control. You will make the necessary requisitions for supplies as in charge of signal partv. Such articles as are for issue to officer's, as horses and saddles, I will receipt for." This order came from Maj. Myer, who remained with Gen. McClellan at the headquarters' of the newly formed Army of the Potomac.

HDQRS. SIGNAL CAMP OF INSTRUCTION,
Aug. 31,1861.

General Orders No. 1.

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 allowed to be absent at a time, nor more than five privates. All passes 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 bouts are announced for the different rollcalls:

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

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

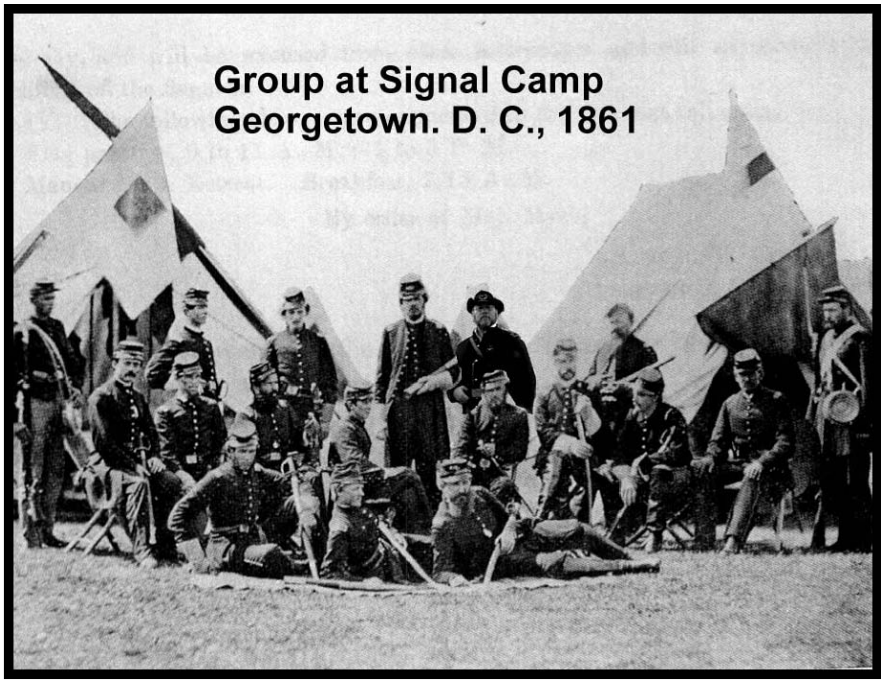
V. Until further orders a guard of six men arid two non-commissioned officers will be detailed for the party, mounting at retreat.

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 officers 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.

By order of Maj. Myer,
SAMUEL T. CUSHING,
Assistant S O. in Charge.



Purpose – This is a time of the year is set aside to train new members in all aspects of signaling so that SCARD members are the most efficient, proficient and reliable signal reenactors in the country. It is also a time for existing members to re-certify, helping train new recruits and those young privates entering the Corps. It also provides an opportunity to show your support to the unit and your fellow members, as well as support the rank you held for the past reenacting season.

Testing/SCARD Certification SCARD, The Signal Corps Association Reenactors Division offers certification in all aspects of Signal Corps related duties on a national basis. This affords our unit, officers and men to be the most qualified and knowledgeable on authentic signaling procedures and protocol. It also allows the unit to instantaneously communicate with other SCARD signal units throughout the country and world, without actually having trained directly with them. Being that the Certification is constant, procedures and protocol set, both units can work in unison, without flaw, both cross line (Fed to Reb) and interline (flanking parties). It also allows for precise precision on relaying messages, both day and night. This certification, along with learning, practice, and instructing also determines individuals' abilities. This, depending upon individual units protocols may count towards possible rank advancement, as well as, maintaining an individuals' rank within the unit.

Scenarios These are small acting's taken place in or out of camp that relate directly to the lives of Civil Wars Soldiers.

Purpose The number one purpose is to HAVE FUN. The other is to act out, for the public, or us tiny little aspects of what life was like for those involved.

Examples This can be as simple as a card game or playing dice to pass the time. It can also be very involved, and include many people including those in other units, such as capturing and interrogating a confederate spy.

Authorization to Proceed- Whenever a scenario is to be enacted, small or large, be sure that what you are going to do is indeed period correct. Make sure that those involved understand what is being portrayed and what is being accomplished and how. When unsure, always get permission from the company commander before initiating or taking part in any scenario. Under no circumstances should any scenario involve any foul language, sexually explicit, or ethnic themes, nor should any ever be inferred into them.

Public Education

When military camps are open to the public, a quality first person impression will add to their sense of history and result in positive memories that will last for a long time. However, only practice and attention to detail can achieve this. Physical appearance should reflect actual living conditions and be free from anachronisms, like wristwatches, modern eyeglasses and cigarettes. An often-overlooked feature is your personal knowledge of political and economic issues, progress of the war and details of everyday life that civil war soldiers would have known about. This kind of expertise takes some time to accumulate but is important. It's this kind of information that the public is likely to have and judge you by your accuracy. If you don't know something, don't pretend too, ask a fellow reenactor. Last on the list are the details such as figures of personal speech common to the civil war soldier, or the contents of haversacks or pockets. Most events are not geared to doing strip searches to see how accurate you are down to your underwear, but you don't want to pull out Bic lighter, and light a cigarette while convincing a spectator that you're camped there as part of the defenses around Washington in 1861.

In Camp- Try to have your tent with the flaps open and set up with a display of what might be found in a tent so the public can look in and perhaps take a picture. If they have a question – try to answer it politely and in a Civil War period manner.

On the Field- Always act gentlemen like, you are not only representing SCARD and your individual unit, but also those who fought for the US Military. Many in the audience are great Civil War Buffs, educators, ancestors of actual soldiers, or those just getting started in their quest for Civil War knowledge. Each of us can leave them with an impression of grander for our hobby, and what we are accomplishing. This is what keeps them coming back for more, and our hosts providing us with a battlefield in which to reenact, always respect this.

At the Event (in town etc.) When in the town, always stop and provide time to answer questions of the public, pose for pictures, loan the kid your hat for a pose. This is what its all about, this is why they came…FUN. Invite them back to camp to see a signal demonstration, and by all means let them know you are with SCARD. When compliments from the paying public reach the host about Corps unit, only good things follow.

Public Demonstrations- Public demonstrations with hands-on signaling to event spectators should be promoted and undertaken by all members within the unit. As spectators enter our camp they, again should be greeted pleasantly and afforded the opportunity to learn what we do and what we are all about. Breakout the flags and let them give it a try. On occasion we may be asked by event hosts or coordinators to put on a demonstration of signal use to the public, again, everyone should take part, and jump at the opportunity to show our expertise to all in attendance.
The Signal Corps, just might be the high-light of the entire event!

After Battle Reports

All officers, Agents, and Telegraphers will be required to submit an after battle report to the company commander upon completion of each event. These reports should be written in period style and outline all happenings of the event. The company commander will then summarize these reports into one official, period style report and forward to the Adjunct General for inclusion onto the SCARD official records and web site. A copy should also be forwarded via E-Wire to all members in attendance for their personal files. (This helps all our members to know both the good and the bad that's happening- if not only WHATS happening in the reenacting community-event-by-event)

An Example of an official period style commanders After-Battle report is as follows:
(*Authored by Mr. Walt Mathers Fort McHenry Spring Event 2002)*

HD-QTRS. SIGNAL DETACHMENT
Fort McHenry, Baltimore Harbor, Maryland
April 30th, 1864.
To: Colonel Thom. Downes, 8th. OVI
Fort McHenry, Baltimore Harbor
Commanding

Colonel Downes:

I have the honor to hand you herewith a report of the operations of that portion of the Signal Corps Association Re-enactors' Division (SCARD), which was placed on active service upon the various forts and encampments within Baltimore Harbor during April 26th through the 28th., instant.

In accordance with Special Order No. 238 dated April 16th., 1864, Signal Bureau, Washington, DC, I reported for duty as directed. The signal detachment raised for service was comprised of the First Section, New York Signal department and the Head-Quarters Signal Detachment from Georgetown, District of Columbia. The composite detachment, once formed, had an opportunity to test its efficiency and make itself useful, to some extent, in the following manner:

Upon the detachment's arrival at Whetstone Point, Friday the 26th, instant, an electric telegraph wire was constructed from the Baltimore and Ohio's railhead at Locust Point into Fort McHenry's interior. A few days prior to constructing the telegraph line, parties were sent out in advance of reporting to reconnoiter various prominent locations. This was pursued in order to ensure that wire and aerial communications could connect the headquarters of the commandant at Fort McHenry with those of Captain Bopp, USN, commanding USS Constellation, now situated at the Pratt and Light

Street dock and also with our forces currently occupying Fort Federal Hill and Camp Patterson Park. Two parties of three flagmen each were sent by steam launch early on the morning of April 27th in to Baltimore for the purpose of establishing stations both at Fort Federal Hill and from the stern of the Sloop-of-War Constellation. This portion of the operation was placed under the command of Captain M. C. Williams, 1st Section, New York Signal Detachment, SCARD.

By 9 am on the 27th six telegraph operators had reported as ordered to Fort McHenry and the B & O R.R. Locust Point Station and were placed in such offices and picket posts as prescribed by Superintendent J. L. Wilson in his circular of the 31st ultimo.

Under the suggestion and guidance of the Colonel commanding Fort McHenry, two signal parties were placed on the parade grounds and "at the ready" to serve any communication needs required during the tactical demonstrations commencing at one o'clock on the afternoon of the 27th. The signals for this demonstrations were relay'd under the direction of Head-Quarters Signal Detachment Chief, 2nd Lieutenant Douglas Oakes, and insomuch as whatever orders for troop maneuvering was required during the public presentation, it was provided by Lieut. Oakes.

Immediately upon the conclusion of the public tactical demonstration, a party of five signalists at Fort McHenry was gotten underway orders to occupy the position high atop Hempstead Hill and near Camp Patterson Park.

At approximately the same time that the Fort McHenry signal party embarked from Whetstone Point, both parties of Captain Williams had reached the Ann Street Wharf in Fells Point. Captain Williams once more ordered his detachment split into two halves, he returning to Fort McHenry by launch while the other portion proceeded on foot to Camp Patterson Park.

Lieutenant Oakes' party, coming from Fort McHenry, reached Camp Patterson Park in advance of the party ordered to march there from the Warf at Fells Point by Captain Williams. Upon arrival, Captain Oakes arranged his party at the highest position and trained his telescope to the south-west in the direction of Fort McHenry. During the time the two signal parties occupied the hights at Hempstead Hill artillery practice ranging was conducted between that point and Fort McHenry. The entire affair lasted just under three hours.

The parties from Camp Patterson Park rejoined the main body of signal troops at Fort

McHenry a short time following the sounding of retreat on the evening of the 27th. The combined signal detachments were precluded from conducting night torch operations due to the onset of inclement weather.

Operations on Sunday, April 30th., were hampered by strong winds, heavy seas and intermittent rain squalls, thus curtailing additional visual signal operations. Likewise, thunderstorms in the area hampered the effectual working of the telegraph lines into the Fort and its evirons. The signal detachment subsequently boarded cars of the B&O R. R. for Washington City on the following day and arrived at Signal Camp of Instruction, Georgetown, D. C. on the afternoon of the 29th.

I wish to personally place upon the record that the signalmen lately attached to the Fort McHenry Garrison are worthy of commendations as they were constantly employed with travelling to and fro and mounting their distant stations that the various commands not want for communications at any time such could be offer'd. This may indeed have been the first time that aerial telegraphy was occurring simultaneously throughout Baltimore Harbour.

I have the honour to be, Sir, very respectfully, your obedient servant,

Walter F. Mathers
Act'g Chief Signal Officer
Middle Military District

Hints and Tips when reenacting

- Drinks lots of water at an event. When going out into the field fill your canteen and drink all of it before you return to prevent heat exhaustion.
- Eat plenty of fruits to keep your digestive system functioning properly over the weekend.
- Take off all outer gear when returning from battle including shoes and socks if you are overheated. Get in the shade.
- Wear long socks with your boots so your legs aren't chaffed.
- If metal (Guns and pans) are left out in the sun – you can be sure it is probably hot and you might get burned.
- Wear gloves and use the lid lifters near the fire.
- If you get burned – immediately cool down the surface with ice or cold water to reduce the degree of burn.
- Use bug spray on the area where you are camping before you place your tent down (Bug spray removes water and fire proofing),
- You can keep warmer in your sleeping bag if you place a sheet inside it.
- Bring a pillow for a better night sleep
- Don't touch your tent in the rain, as it will start to leak from capillary action.
- Bring a small a sewing kit to sew on buttons and fix your uniform.
- Don't leave your uniform parts under the Captain Tent Fly (He will sell them if found)
- Pick up all trash around your tent and others.
- Mark or label your clothes, equipment and eating dishes and utensils

Signal Corps Song

"The Bonnie White Flag That Bears the Crimson Square"
Tune: "The Bonnie Blue Flag"

There is a flag as yet unsung,
A banner bright and fair,
It moves in waves of right and left,
That banner in the air.
The wise may look, the scholar con,
The wondering urchin stare,
But naught can make of The Bonnie White Flag
That Bears The Crimson Square.

CHORUS: Hurrah! Hurrah!
For the Signal Corps, hurrah,
Hurrah for The Bonnie White Flag
That Bears The Crimson Square.

To comrades true, far, far away,
Who watch with anxious eye,
These secret signs an import bear
When waved against the sky.
As quick as thought, as swift as light,
Those airy symbols there,
Are caught and read from The Bonnie White Flag
That Bears The Crimson Square.

CHORUS: Hurrah! Hurrah!
For the Signal Corps, hurrah,
Hurrah for The Bonnie White Flag
That Bears The Crimson Square.

When armèd hosts in serried ranks
Sweep forward to the fray,
The signal flag is waving there
To point the victorious way,
From hill to hill, from crag to crag,
The wingèd words to bear
That gave a name to The Bonnie White Flag
That Bears The Crimson Square.

CHORUS: Hurrah! Hurrah!
For the Signal Corps, hurrah,
Hurrah for The Bonnie White Flag
That Bears The Crimson Square.

When night draws o'er the wearied earth
Her cloak of sable hue,
And bids us dream of home and friends,
The soldiers staunch and true.
'Tis then the torch that's burning bright,
Tells by its meteor glare
That we're on watch with The Bonnie White Flag
That Bears The Crimson Square.

CHORUS: Hurrah! Hurrah!
For the Signal Corps, hurrah,
Hurrah for The Bonnie White Flag
That Bears The Crimson Square.

Then let us hope when war is o'er
And great, and good, and free,
We stand and boast ourselves with truth
A model confederacy,
That midst war's recollections oft
We too may claim a share,
As we fondly think of The Bonnie White Flag
That Bears The Crimson Square.

Union Corps Song

"While there's life there is hope," do not murmur.
For life's but a span at the best;
And a soldier's couch and fare, boys,
We'll enjoy while hope fires our breast.
Then a song and a glass we'll fill now,
And drink our success in this war;
Not forgetting a drop in the cup, boys,
For the health of the "SIGNAL CORPS."
When the cannon first sounded the onset,
And the flag which we loved then first fell,
How we rushed to defend It "*en masse*," boys,
Let future historians tell.
Then wave your wand. In good token,
Tho' it cost you the last of your gore;
We'll drink full success to the nation,
And a health to the "SIGNAL CORPS."
With numerals as well as with words, boys,
We'll join in liberation and song;
May the ties which now bind us ne'er sever,
Nor death decimate this gay throng.
May our signals be signs of affection,
Should we meet when we've ended the war;
When a comrade waves his wand, boys.
Remember the old "SIGNAL CORPS."

Where the waves of old ocean dash on
The coast of European domain;
Come friends to defend our good cause, boys,
As friends may we always remain;
Each hand and each heart now united,
No matter which state or what shore,
And while there's a drop in thecup, boys,
Let us drink to the "SIGNAL CORPS."
Thrown together by fate for Instruction,
A glass for the friends we met here;
'Tis, but meet we should drink in good bumpers,
Our thanks for their kindness and care.
Like us drawn together by fortune,
As comrades in arms in the war,
They will drink as hearty as we, boys,
The success of the "SIGNAL CORPS."
To the mind who has thus Interwoven,
These numhers in system and form;
In behalf of ourselves and the nation,
Our thanks and good wishes conform.
May his life be protected in battle,
And success give her smile all the more;
For it is he who has brought us together,
Then to him and his "SIGNAL CORPS."

One more cheer, and our song is ended,
A cheer for the" Stripes and Stars;"
For the army who fight to protect it,
And the shrine of our patron "Mars."
Good luck to the HEAD OF THE ARMY,
And our friends far away from the war;
So fill up your glasses once more, boys,
And we'll drink to the "SIGNAL CORPS."

Misc Information

Although much of this may have been stated within this manual, it warrants re-stating here.

- Refer any problems or issues (other than minor problems) to your commanding officer. This refers to any problems or issues that arise from fellow reenactors, event hosts or the public. As well as any personal or impressional issues at anytime during the event.
- Although rank, and superior officers should be respected, many of us reenact with our family members, older adults, and minor children. Respecting our elders should always be rule number one.
- Never remove the ramrod from a musket (loaded or not) on the battlefield for any reason unless specifically ordered by a commanding officer.
- Always respect the privacy and property of your fellow reenactors.
- Drunkenness and Drug Use is strictly forbidden and can result in you being asked to leave the event.
- At no time should you speak above a low whisper after taps. Respect the quite hours of others who are asleep awaiting the excitement of the next day's activities.

The Signal Corps Family

Many of us have other family members reenacting with them, in our unit. You would protect your brother, your sister, your mother, your father, and your child because you are in a family. Yourself and our members along with their families are now members of our family, our "Signal Corps Family". The ranking officier acts as the father, the head of this family. Other members of rank, are our older brothers and sisters at the event. As it was stated before when we go to an event as a unit, we also go as a family. We are the best because it is the only thing we do as reenactors and because we are a family. We are here to reenact and have fun together because we are a family. We try to make sure no one gets hurt or gets into any trouble because we are a family. We stick up for and protect our own – because you are our family.

Summary/Conclusion

This guide was created to assist you in getting up to speed in the reenacting Signal Community. It was written especially for you from the knowledge of many old time reenactors. It is knowledge learned over many years of reenacting at Local and National events, and is willfully being handed down to you so you don't make the same mistakes as many reenactors have in the past. Read it over carefully and then reread it so you can pass it on, to assist the new guy or lady joining the unit after you.

APPENDIX A FIRST AID

First Aid is everyone's responsibility. To be prepared to react confidently and without wasting time in either a life-threatening situation or a minor accident, we suggest you study this guide before an emergency occurs. It has been carefully prepared to offer you basic emergency information, with topics listed below for quick and easy reference. It is vital that you keep emergency telephone numbers on-hand so that they are available for immediate use. It is also important that you keep your medical supplies in a safe and convenient place where you can find them when needed. Remember, it is important to remain calm and use common sense in any emergency situation. For Medical Emergencies, Seek Professional Help

Assessing The Situation

What to Treat First

1. **Don't panic**. You will be able to assess the situation more effectively. Remember, psychological support is also important.

2. **Remember the ABCs of Life Support: A**irways open – Open and maintain victim's airway. **B**reathing restored – If victim is not breathing, begin rescue breathing techniques immediately. **C**irculation maintained – If no pulse is present, get assistance from a person certified in cardiopulmonary resuscitation (CPR) techniques. REMEMBER, to be able to perform CPR effectively, it is essential to be properly trained.

3. **Check for bleeding.** Apply direct pressure and elevate injured limb.

4. **Look for signs of shock and broken bones (fractures).**

5. **Check for emergency medical identification on the victim.**

6. **Get professional medical help quickly.** Know emergency numbers, such as 0 or 911. Telephone appropriate authorities (rescue squad, ambulance, police, poison control center or fire department) and describe the problem. Be sure to give your name, location and the number of persons involved.

7. **Loosen any clothing** that may restrict victim's breathing or interfere with circulation.

8. **Never give an unconscious person anything by mouth.**

9. **DO NOT move injured persons** unless situation is life-threatening. Keep victim still, quiet and warm (except heat exhaustion and sunstroke). Victims with broken bones (fractures) should not be moved until a splint has been properly applied.

Burns & Scalds

CAUTION DO NOT clean burns or break blisters. DO NOT remove any clothing that sticks to burn. DO NOT apply grease, ointment or medication to a severe burn. DO NOT use cotton or material with loose fibers to cover burns. **TREATMENT First degree burns –** redness or discoloration of skin surface; mild swelling and pain.

1. Apply cool, wet cloths or immerse in water. DO NOT use ice.

2. Blot gently; apply a dry, sterile pad if necessary.

3. Usually medical treatment is not necessary; however, if severe symptoms exist, call for professional medical help. Be alert for signs of shock.

Second degree burns – deep burn with red or mottled appearance; blisters; considerable pain and swelling; skin surface appears wet. See treatment for first degree burns. If arms and legs are affected, elevate above heart level. Burns may be deep and potentially serious, requiring medical treatment depending on extent and location. Be alert for signs of shock and infection. **Third degree burns –** deep tissue destruction with a white or charred appearance; no pain. Call for professional medical help immediately. Be alert for signs of shock.

Cuts & Scrapes

BEFORE INITIATING ANY FIRST AID TO CONTROL BLEEDING, BE SURE TO WEAR HEALTH CARE GLOVES TO AVOID CONTACT OF THE VICTIM'S BLOOD WITH YOUR SKIN.

1. **CLEAN**... wound and surrounding area gently with mild soap and rinse. Blot dry with sterile pad or clean dressing.
2. **TREAT**... to protect against contamination.
3. **PROTECT**... and cover to absorb fluids and prevent further contamination. (Handle only the edges of sterile pads or dressings.) Secure with first aid tape to help keep out dirt and germs.

Splinters

Slender Pieces of Wood, Bone, Glass or Metal Objects that Lodge In or Under Skin

SYMPTOMS May Include: Pain, redness, swelling

TREATMENT

1. First wash your hands thoroughly, then gently wash affected area with mild soap and water.

2. Sterilize needle or tweezers by boiling for 10 minutes; wipe with a sterile pad before use.

3. Loosen skin around splinter with needle; use tweezers to remove splinter. If splinter breaks or is deeply lodged, consult professional medical help.

4. Cover with adhesive bandage or sterile pad, if necessary.

Stings

CAUTION In highly sensitive persons, do not wait for symptoms to appear. Get professional medical help immediately. If breathing difficulties occur, start rescue breathing techniques; if pulse is absent, begin CPR.

SIGNS Signs of allergic reaction may include: Nausea; severe swelling; breathing difficulties; bluish face, lips and fingernails; shock or unconsciousness.

TREATMENT

1. For mild or moderate symptoms, wash with soap and cold water. Remove stinger or venom sac with tweezers or by gently scraping with fingernail (DO NOT squeeze).

2. For multiple stings, soak affected area in cool bath. Add one tablespoon of baking soda per quart of water.

Bleeding

BEFORE INITIATING ANY FIRST AID TO CONTROL BLEEDING, BE SURE TO WEAR HEALTH CARE GLOVES TO AVOID CONTACT OF THE VICTIM'S BLOOD WITH YOUR SKIN.

TREATMENT

1. **Act quickly.** Have victim lie down. Elevate injured limb higher than heart unless you suspect a broken bone.

2. **Control bleeding by applying direct pressure on the wound** with a sterile pad or clean cloth.

3. **If bleeding is controlled by direct pressure,** bandage firmly to protect wound. Check pulse to be sure bandage is not too tight.

4. **If bleeding is not controlled by use of direct pressure,** apply a tourniquet only as a last resort.

5. Call for professional medical help immediately.

6. **If you are bleeding and have no one to help you,** call for professional medical help. Lie down, so your body weight applies pressure to the bleeding site.

Breathing Problems

ESTABLISH NON-RESPONSIVENESS AND ACTIVATE EMERGENCY MEDICAL SERVICES (EMS) OR CALL FOR HELP. SYMPTOMS May include: Shortness of breath, dizziness, chest pain, rapid pulse, bluish-purple skin color, dilated pupils, unconsciousness.

TREATMENT For victim who has stopped breathing:

1. Lay victim flat on back. Tilt the head back with one hand to open airway, while placing two fingers of the other hand under the chin.

2. Clear airway, using your fingers in a hooked fashion to remove any solid or liquid obstructions.

3. Look, listen, and feel for respiratory movement for 5 seconds. If breathing is absent, pinch victim's nostrils closed, take a deep breath, completely cover victim's mouth, and give two slow, full breaths.

4. Check for carotid pulse in neck and for signs of breathing.

5. If pulse is present: For adults – continue rescue breathing at a rate of one strong every five seconds. Re-check for pulse and breathing every twelve breaths. For infants and small children – breathe shallow breaths at a rate of one every three seconds or 20 per minute.

6. If pulse is not present, begin Cardiopulmonary Resuscitation (CPR).

For adults...

Exert enough pressure to depress the breastplate 1 1/2 to 2 inches. Continue compressions at a rate of "one and two and..." Every fifteen compressions should be followed with a pause by two rescue breaths.

For children...

Use the heel of only one hand to depress the breastplate 1 to 1 1/2 inches. Continue compressions at a rate of 100 per minute "one, two, three..." Every five compressions should be followed without a pause by one rescue breath.

For infants... Use only fingertips. Apply moderate pressure to depress breastplate 1/2 to 3/4 inches. Continue compressions at a rate of at least 100 per minute. Every five compressions (3 seconds) should be followed without a pause by one rescue breath.

Broken Bone (Fracture)

Break or Crack in a Bone

SYMPTOMS May include: The victim hearing or feeling the bone break; area tender to touch with pain in one spot; swelling noted around suspected fracture; limb in an unnatural position; painful movement; abnormal motion; loss of function; grating sensation; discoloration of affected area.

TREATMENT

1. Keep victim warm and still, treat for shock if necessary. **DO NOT move victim until a splint has been applied** unless there is danger of a life-threatening emergency.

2. **If bone is suspected to be broken but does not pierce the skin** (closed fracture), splint the

limb before the victim is moved, immobilizing the joint above and below the suspected fracture site.

3. **If broken bone pierces the skin** (open or compound fracture), apply pressure to appropriate pressure point to control bleeding. DO NOT try to straighten limb, return it to a natural position, or replace bone fragments. DO NOT touch or clean the wound. Secure a sterile pad or clean cloth firmly in place over the wound and tie with strong bandages or cloth strips.

4. If victim **must** be moved, apply a splint to prevent further damage. Use anything that will keep the broken bones from moving, including broomsticks, boards or rolled magazines. Pad splints with cotton, clothes or clean cloths tied firmly (but not tightly) in place. If victim complains of numbness, loosen splint.

5. Get professional medical help immediately.

Chemical Burns

TREATMENT

1. Remove contaminated clothing.
2. Flush burned area with cool water for at least 5 minutes.
3. Treat as you would any major or minor burn.
4. If eye has been burned:

   A. Immediately flood face, inside of eyelid and eye with cool running water for at least 15 minutes. Turn head so water does not drain into uninjured eye. Lift eyelid away from eye so the inside of lid can also be washed.

   B. If eye has been burned by a dry chemical, lift any loose particles off the eye with the corner of a sterile pad or clean cloth. C. Cover both eyes with dry sterile pads, clean cloths, or eye pads; bandage in place.

5. Consult professional medical help.

Choking, Airway Obstruction

Partial Obstruction with Good Air Exchange

SYMPTOMS
May include: Forceful cough with wheezing sounds between coughs.

TREATMENT
Encourage victim to cough as long as good air exchange continues. DO NOT interfere with attempts to expel object.

Partial or Complete Airway Obstruction in Conscious Victim with Poor Air Exchange

SYMPTOMS
May include: Weak cough; high-pitched crowing noises during inhalation; inability to breathe, cough or speak; gesture of clutching neck between thumb and index finger; exaggerated breathing efforts; dusky or bluish skin color.

TREATMENT
For Adult Victim
If victim is standing or sitting:
1. Stand slightly behind victim.
2. Place your arms around victim's waist; place your fist, thumb side in, against victim's abdomen, slightly above the navel and below the rib margins.
3. Grasp fist with your other hand and exert a quick upward thrust. Repeat (five times in a rapid succession) if necessary (Heimlich Maneuver or manual thrust.)

Complete Airway Obstruction in Unconscious Victim

1. Activate EMS system first. Follow breathing problems section

Penetrating Objects
Such as Sticks or Pieces of Metal Protruding from Body

SYMPTOMS
May include: Profuse bleeding; swelling and redness of injured tissue.

CAUTION: DO NOT remove penetrating object.

TREATMENT
1. Get professional medical help immediately.
2 A. If victim is fixed to object (impaled), cut it off at a safe distance from skin. Immobilize object with thick dressings made from sterile pads or clean cloths secured in place with first aid tape, a belt or a bandage.
   B. If object is protruding from victim, DO NOT move it. Immobilize object with thick dressings made from sterile pads or clean cloths secured in place with first aid tape, a belt or a bandage. Do not apply bandage so tightly that breathing is restricted.
3. If object penetrates chest and victim complains of discomfort or pressure, quickly loosen bandage on one side and reseal. Watch carefully for recurrence. Repeat procedure if necessary.
4. If breathing problems develop, begin rescue breathing techniques immediately.
5. Treat for shock.

Poisoning

CALL 911, YOUR LOCAL FIRST AID SQUAD, OR POISON CONTROL CENTER IMMEDIATELY, BEFORE ADMINISTERING FIRST AID.

TREATMENT
1. DO NOT give any other first aid if victim is unconscious or is having convulsions. Begin rescue breathing techniques or CPR if necessary. If victim is convulsing, protect from further injury; loosen tight clothing if possible.
2. If professional medical help cannot be reached immediately:
   A. DO NOT induce vomiting if poison is unknown, a corrosive substance (i.e., acid, cleaning fluid, lye, drain cleaner), or a petroleum product (i.e., gasoline, turpentine, paint thinner, lighter fluid). DO NOT use activated charcoal.
   B. Induce vomiting if poison is known and is not a corrosive substance or petroleum product. To induce vomiting: Give adult one ounce of syrup of ipecac (1/2 ounce for child) followed by four or five glasses of water. If victim has vomited, follow with one ounce of powdered, activated charcoal in water, if available.
3. Take poison container (or vomitus if poison is unknown) with victim to the hospital.

Severed Body Parts (Avulsion)
Tissue is Partially or Completely cut or Torn from Body

CAUTION
Wrap the detached part of the body in something clean, and send it to the hospital with the victim so that it may be reattached if possible. Ice may be used to keep the detached part cool; however, prevent it from direct contact with ice and/or from freezing.

TREATMENT
1. Stop the bleeding immediately.
2. Treat for shock if necessary. If breathing problems are present, begin rescue breathing techniques.
3. If wound is not deep or is not bleeding severely, gently cleanse with mild soap and warm water. Cover with a sterile dressing or clean cloth and bandage.
4. Get professional medical help immediately.

Shock
Disturbance in the Circulation of the Blood That Can Upset All Body Functions

CAUTION
Shock is a dangerous condition and can be fatal. Expect some degree of shock in any emergency. DO NOT give anything by mouth.

SYMPTOMS
May include: Unusual weakness or faintness; cold, pale, clammy skin; rapid, weak pulse; shallow, irregular breathing; chills; nausea; unconsciousness.

TREATMENT
1. Treat known cause of shock as quickly as possible (i.e., breathing difficulties, bleeding, severe pain).
2. Maintain an open airway. If victim vomits, gently turn head to side.
3. Keep victim warm and lying flat. (In cases of head or chest injuries, with no chance of broken neck or back, elevate head and shoulders 10 inches higher than feet if possible.)
4. Get professional medical help immediately.
5. DO NOT give anything by mouth.

Sprains
Injury to Soft Tissue Surrounding Joint Due to Wrenching or Laceration of Ligaments, Muscles, Tendons or Blood Vessels

SYMPTOMS
May include: Painful movement, swelling, discoloration and tenderness around injured joint.

CAUTION
Victim may have a broken bone (fracture) and should be examined by a medical professional.

TREATMENT
1. If ankle or knee is affected, do not allow victim to walk. Loosen or remove shoe; elevate leg.
2. Protect skin with thin towel or cloth. Then apply cold, wet compresses or cold packs to affected area. Never pack joint in ice or immerse in icy water.
3. Consult professional medical assistance for further treatment if necessary.

Transporting An Injured Person

If injury involves neck or back, DO NOT move victim unless absolutely necessary. Call for professional medical help.

If victim must be pulled to safety, move body lengthwise, not sideways. If possible, slide a coat or blanket under the victim:
A. Carefully turn victim toward you and slip a half-rolled blanket under back.
B. Turn victim on side over blanket, unroll, and return victim onto back.
C. Drag victim head first, keeping back as straight as possible.

If victim must be lifted:
A. Support each part of the body. Position a person at victim's head to provide additional stability. Use a board, shutter, table top or other firm surface to keep body as level as possible.

Unconsciousness
Victim Is Not Mentally Aware; Does Not Respond To Sensory Stimuli, Such As Sound Or Light

TREATMENT
1. Call for professional medical help.
2. DO NOT move victim or give anything by mouth.

3. Keep victim warm; loosen any tight clothing.
4. Maintain an open airway. If breathing difficulties develop, begin rescue breathing techniques immediately.
5. Check for emergency medical identification tag to help determine cause of unconsciousness.

Wounds (Severe)

Breaks in Skin or Mucus Membrane (Open) or Injuries to Underlying Tissue Breaks in Skin (Closed)

CAUTION
Some wounds, such as small cuts or minor scrapes, require only simple first aid measures; others, however, require immediate first aid followed by professional medical treatment.

Before treating any serious incision, abrasion or laceration with extensive bleeding, act quickly to control bleeding. Get professional medical help immediately.

Any wound can become contaminated and infected.

Cold Exposure

TREATMENT
1. Move victim into warm room as soon as possible.
2. Be alert for breathing difficulties; start rescue breathing techniques if necessary.
3. Remove wet or frozen clothing. Immediately rewarm victim by wrapping in blankets **or** placing in tub of warm, **not hot,** water. Dry victim thoroughly after bath.
4. Give victim hot liquids to drink, **only** if conscious (not alcohol).
5. Follow treatment for frostbite.
6. Consult professional medical help if indicated.

Frostbite

CAUTION
DO NOT break blisters, rub affected area, or apply heat lamps or hot water bottles. DO NOT attempt rapid thawing if refreezing is a possibility.

TREATMENT
1. Warm affected areas as quickly as possible by covering with clothing and blankets or immersing frozen part in warm, not hot, water. If frostbitten area has been thawed and refrozen, then warm at room temperature.
2. Discontinue warming techniques as soon as affected area becomes flushed. Expect swelling and pain after thawing. Victim may require an analgesic.
3. Gently exercise affected area after it has been rewarmed.
4. DO NOT apply dressings or clothing unless transportation is required for medical help. If fingers or toes are affected, separate with sterile pads or clean cloths.
5. Elevate frostbitten areas, but not higher than heart.
6. Get professional medical help.

Heat Exhaustion (Heat Prostration)

SYMPTOMS
May include: Fatigue; irritability; headache; faintness; weak, rapid pulse; shallow breathing; cold, clammy skin; profuse perspiration.

TREATMENT
1. Instruct victim to lie down in a cool, shaded area or an air-conditioned room. Elevate feet.
2. Massage legs toward heart.
3. Only if victim is conscious, give cool water or electrolyte solution every 15 minutes until victim recovers.
4. Use caution when letting victim first sit up, even after feeling recovered.

Sunburn

TREATMENT
1. Treat for first or second degree burns.
2. Treat for shock if necessary.
3. Cool victim as rapidly as possible by applying cool, damp cloths or immersing in cool, not cold, water.
4. Give victim fluids to drink.
5. Get professional medical help immediately for severe cases.

Sunstroke (Heat Stroke)

SYMPTOMS
May include: Extremely high body temperature (106°F or higher); hot, red, dry skin; absence of sweating; rapid pulse; convulsions; unconsciousness.

CAUTION
Sunstroke is a life-threatening emergency.

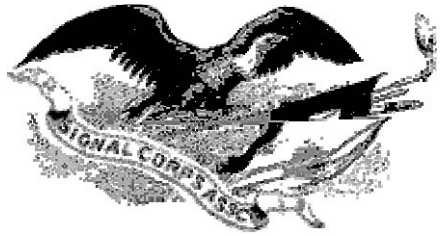
TREATMENT
1. Get professional medical help immediately.
2. Lower body temperature quickly by placing victim in partially filled tub of cool, not cold, water (avoid over-cooling). Briskly sponge victim's body until temperature is reduced; then towel dry. If tub is not available, wrap victim in cold, wet sheets in well-ventilated room or use fans and air conditioners until body temperature is reduced.
3. DO NOT give stimulating beverages, such as coffee, tea, or soda.

PHYSICAL FITNESS

It is recommended that each member of the Signal Corps, maintain a level of physical fitness due to the sometimes-strenuous nature of re-enacting and the harsh field environments sometimes encountered. Commanders have a responsibility to know the medical conditions of their commands and must consider keeping those with heart, respiratory conditions or those who are obese from participating in more strenuous events. Each member's program should fit his or her comfort level. An example of a simple, but effective program might be as follows, two to three time a week: 10 to 20 pushups, 10 to 20 sit-ups, Jog and or walk 2 miles.

APPENDIX B

Manual of Signals- 1864



A Manual of Signals: For The Use Of Signal Officers In The Field
Washington, D.C., 1864

FIELD SIGNALS

1. "Signals of One Element. --- Signals of this kind are not much used for general purposes. Their employment is almost always to convey one or a few preconcerted messages. For signals of this class, one thing or indication is to be used, and it is not to be considered as varied, through it may seem to vary, in any signal. To mark the close of each complete signal, there must of course be a pause of time, or a pause-signal.

2. A good illustration of signals of this kind, is found in the striking of a clock, when twelve different hours are indicated by the same and single sound, repeated the proper number of times to suit each hour. If in the striking of any hour, this sound varies so as to make two or three different notes even, this difference of sound effects, in no way, the meaning of the signal.

3. Signals of this kind, may be used in the field, as where one rocket is thrown up to indicate any one message, two rockets a second message, three rockets a third message; and thus on to any given number.

4. Or a light may be shown a certain number of times, as a candle shown at a window, and then removed to stand for "one" or the first message; shown twice for "two," or the second message; three times for "three," or the third message; and thus on. Or, in a field or in a boat, a lantern may be kept lighted in a pail, and hoisted out of the pail and returned to it to make each flash. Or a lantern may be shown from behind a fence, or any kind of screen. In these illustrations, the appearance of the lights is the signal. Each complete signal may be shown by a wave of the light, or any other sign, as the pause-signal. Or guns may be fired the required number of times for any signal.

5. Now, in any of these signals, which are to depend upon the number of times a light is shown, or the number of times a gun is fired, no difference is, of course, made, if the light changes, or if there is difference of sound in different reports of the gun; for it is remembered only one element is used, and that the signal depends solely upon the number of repetitions of that element; for instance a white light shown twice, would stand for message number "two." A white light shown, and then a red light, making two in all, would also stand for "two." So the preconcert being that only one element is to be used in a set of signals, they may be made to seem much varied. Signals of one element, when used in the field are generally for instances as this: to fire two guns to indicate a completion of a military movement: to throw up three rockets, or one rocket; to announce that a portion of the army is to move. Of course several such messages can be arranged in one code.

6. Signals of Two Elements. --- The army code of signals, or rather the system of signals, used in the army; for there is no code, the letter signals changing often, sometimes, in a day, is of two elements. It will now, after.2 the preceding instructions, be readily understood by this term that, whatever the devices adopted, or to whatever sense the signals may be addressed, or however complicated they may appear, the fact remains that, the signal exhibited, has in it no more than two elements, and if not a single signal is,

when analyzed, only some arrangement of "ones" and "twos." Nearly all plans of signals of electric telegraphs, as used in Europe, are signals of two elements. The elements of the signals generally used in this country, are more numerous.

7. The systematizing of signals, using the bases of two elements, admits of such illimitable applications at once so much more simple and more numerous, than any other, that is seems best adapted to universal use. That signals could be made with two elements, has probably been known form very early antiquity by studies of the subject. The first systems recorded, seem to have been based upon this plan. To understand its practical use in the field, take an alphabet of two elements, devised by the given rule; as, for instance,

- A is one, two, or 1 2.
- B is one, two, two, one, or 1 2 2 1.
- C is two, one, two or 2 1 2.
- D is one, one, one 1 1 1; and so on, combinations of "ones" and "twos."

8. To make Day Signals,--- there being furnished the regular set of signal equipments, a flagman standing, holds in his hands a plain signal staff, eight or twelve feet long, having a signal flag attached at its upper extremity. There are one position and two motions. These are styled the First Position and the First or Second Motion.

9. The first motion is when the flag is held vertically above the head of the flagman, the butt of the flag staff at the height of the waist, and grasped by both hands, the hands separated form each other about eighteen inches. The flag being in this position, the first motion is to wave the flag to the ground on the left-hand side of the flag-bearer, and to instantly return it to the first position.

10. The second motion is to wave the flag to the ground on the right-hand side of the flagman, and instantly return it to the first position. The first motion is known for the signal "one," and is indicated by the numeral 1. The second motion is known for the signal "two," and is indicated by the numeral 2: these motions, ordered by the command, briskly given, "one," which causes the left hand motion; and "two" for the right hand motion.

11. To make the signal 11 or "one-one," or "eleven," the flag being at the first position, the first motion is made, and instantly repeated, the flag then stopping at the first or vertical position. To make 11, or "one---one--- one," or "one hundred and eleven," the first motion is thrice repeated. In this manner for any number of "ones" following each other.

12. To make 22, or "two---two," or "twenty-two," the flag being at the first position, the second motion is twice made; that is, the flag is waved quickly twice to the right. It then stops at the first, or vertical position.

13. To make 222, or "two---two---two," or "two hundred and twenty two," the flag is waved three times to the right; then stopping at the first or vertical position; and thus for any number of "twos" following each other.

14. To make 12, or "one---two," or "twelve," the flag being in the first position, the first motion is made, and is followed instantly by the second motion, without allowing the flag to pause at the vertical positions between the motions; that is, the flag is waved quickly once to the left ("one"), and without stopping, once to the right ("two").

15. On the completion of the second motion, the flag stops at the vertical position. To make 121, once to the left. It then stops. To make 1221, the flag is waved once to the left, twice to the right, and again to the left (left, right, right, left).

16. All combinations of "one" and "two" are made in this manner. The flag must not be allowed to stop between the motions of any signals. When the flag stops in a vertical position, it indicates that a signal is completed; or this is the pause-signal. Thus a pause is made at the close of each letter-signal. Waving the flag directly to the ground in front, and instantly bringing it again to the first position indicate the end of a word. This signal is called "three" or "five" or "front." To indicate a clause of a sentence, two "fronts" are made. To indicate the close of a message, three "fronts."

17. Signals by Two Elements may be reduced to the greatest simplicity for day uses. Thus, a handkerchief or hat held in the hand above the head, waved to the left for "one," to the right for "two," and lowered for "five," is legible. A handkerchief on a stick, or any white or light cloth tied to a gun may be used; or any cloth or any kind of a pole is apparatus sufficient. Or a man, standing fast, throws out his left foot for "one," and his right foot for "two," representing these proper numbers in succession. He drops both arms for the end of a word. Or, having a fixed place to start from, a man walks a pace or two to the left for "one," as many to the right for "two," and makes a sign at a fixed point to show the end of a word. Or, standing in view, a man touches any two things with a cane --- as a drum and a barrel. He touches the drum for "one," the barrel for "two." He waves the cane to indicate the end of a word. Or men, places in line three or four at a time, may be made to represent letters. The men with coats on may be ones, those with their coats off "twos."

18. Strips of any kind of two-colored cloth may be sent up on the halyards of a common flag-staff, to represent any letter-signal or numeral-signal; and these can be arranged by being shown one after the other for messages; to be telegraphed in words; or for codes of message-signals by the rules before given.

19. Codes of signals, like the Naval flag-codes, may be thus prepared when masts or flag-staffs must be used; or, when it is desirable that a signal, as from an invested fort, should be hoisted and kept flying in order that friendly scouts, anywhere in sight, at any time of the day may be able to see and read the message, or copy the signal in numbers for the information of the relieving General, who may possess the key. Simple codes may be arranged in this manner between ships and the shore. It as easy, however, to telegraph a message, knows the rules, as to hoist the flags.

20. To make Night-Signals. --- The flagman is equipped with a signal staff bearing fixed at its upper extremity, a lighted torch. This torch is called the flying-light, because the motions are made with it. At the flagman's feet, and in front of him, is a placed a second lighted torch. This is called a foot-light. This is a stationary, and is given a point of reference, or fixed point, in relation to which the motions of the flying-light are made. There are one position and two motions.

21. The first position is when the torch is held vertically above the head, the butt of the staff at the height of the waist, and grasped by both hands, the hands separated form each other about eighteen inches. The torch being in this position, the first motion is to wave it to the ground on the left-hand side of the torch-bearer, and to instantly return it to the first position.

22. The second motion is to move the torch to the ground on the right-hand side of the torch-bearer, and instantly return it to the first position. The first motion is known for the signal "one," and is indicated by the numeral 1. The second motion is known for the signal "two," and is indicated by the numeral 2.

23. The signal-letters of the alphabet, and the words of messages are then formed as for day signals. To make "front," or "three," the torch is swung to the ground directly in front, and is instantly raised again to the first position. 2. When the torch becomes exhausted, and it is necessary to refill it, to signal message: stop to fill torch, the flying torch is waved to the left until the staff is horizontal, and is there held. The torch is then extinguished, refilled, lighted again at the foot-light, and returned to the first position. This indicates that the sending of the message is to be continued.

25. To call attention, the torch is swung continually from side to side, passing over the head from right to left, and left to right, until this signal is seen and acknowledged.

26. To acknowledge signals as seen, or messages as received, the torch is waved to the left, two waves at a time, three times. Then once to the front; or, as the signal is recorded, "11,11,5." These signals have the advantage; they are capable of universal application. The mode of making them is very simple and is very easily learned. They are distinct, and easily read. They are very plain. Each signal is, in reality, repeated twice each time it is shown. Thus to wave to the left is read "one;" whether the torch is descending or ascending. It is only necessary to see that the torch is in motion somewhere on the left to read "one." In the same way it is only. Necessary to note that the torch is waving on the right to read "two." The chances of seeing the signals are greatly increased.

27. The signals are made very simple apparatus. It is strong, portable, can be carried anywhere (on horse or on foot), is not liable to be damaged by an enemy's firing, or rough handling, and is always available and ready for use. It can be used in almost any situation. The signals can be seen at very considerable distances. Avail can be had of many devices to make them visible. Thus the flags can contrast most strongly with the back ground against which they are visible.

28. The motion of the signal is a valuable auxiliary of its visibility, this motion of the signal object or light producing a long and marked impression upon the retina of the eye. A thing in motion can always be seen and attract attention. when a similar object resting produces no sensation. We recognize this fact instinctively when we wave a handkerchief, or other article, to attract attention. It is never held still for this purpose, and would be ineffective if it were.

29. The signals made with the ordinary equipment, say a staff twelve feet long, and a flag four feet square, or with the torches at night, are easily legible at a distance of eight miles at almost all times, except in cases of fog and rain. They are read at fifteen miles on days and nights ordinarily clear, and have been legible at twenty-five miles. Greater distances are reported; but it is questionable if, at those distances, there is reliability.

30. Signals of Two Elements, made with other Apparatus. --- Let a b be an upright staff projecting as through the roof of a house, or though the side on which the ball b can be moved up and down, as by halyards, or by a light iron rod sliding in a groove in an upright. Let c b, be a short fixed rod, bearing the stationary ball c, to indicate the point of rest, or reference. Then the position of the signal ball (plate XXX), is the position of rest and for signals.

31. To call attention, the ball b is moved up and down continually above and below the point of reference, until the signal is acknowledged. The acknowledgment of signals is to make the signal "11. 11. 11. 5," and stop. To make "one," let the ball be slid up above the point of reference (b), and then instantly returned to r. To make "two," the ball is run below the point of reference (to c), and returns to r. Thus to make 121 ("one-two-one"), the ball is run up to b ("one"), then down to c (two), then up to b ("one"), and rests to indicate the close of the signal.

32. Thus is one position and two motions, as before described. The first position is with both balls stationary at r, or the point of reference. The first motion is to move the signal ball b to a certain point of reference, and then return to that point. This is the signal "one." The second motion is to run the signal ball b a certain distance below the point of reference (r), and to then return to that point. The ball resting at the point of reference indicates a pause, or stop-signal.

33. To make 221 ("two-two-one"), the ball is run down twice below the point of reference, and then, without stopping, is run up once above it. It then returns, and rests at the point of reference.

34. The signal "three," or close of a word, is made by what is called a half motion of the ball; i.e. moving it with a sudden motion above and then below the point of reference. Returning, to rest at the initial point.

35. To mark a clause, two of these half motions are made. To end a message, three are made.

36. To make night signals, lanterns may be substituted for two balls. These lanterns may be of the same color. It is better, however, if the fixed lantern be of a different color than the moving light. The signal motions for night signals, are similar to those of the day signals.

37. The general rules for making the letters of the alphabet, conventional signals, words and sentences, similarly apply to the motions and the meaning made with these balls as to the motions and the meanings made with the signal flag.

38. The length of the movement, which it is most convenient to give to the signal ball, is about that of the arm above the marker ball to make the "ones," and about the same length below to make the "twos."

39. To work the ball, the signal-man, standing under the deck or roof, if that is desirable, holds grasped in his right hand, and at height of the shoulder, the handle of the signal rod, as at r, (plate XXX). This is the first position.

40. The signal ball is now at r, the point of reference. To make the first motion, "one," the right arm, the hand still grasping the handle, is quickly extended its full length above the head, and instantly returned to the first position.

41. To make "two," the hand and arm are extended the full length of the arm below the shoulder, and then returned to the first position.

42. To make "five," or "three," the pause-signal, a short, quick movement is made above and below the shoulder with the hand holding the rod.

43. To make "one-one" or 11, the hand and rod-handle is carried twice above the shoulder at arm's-length. To make "two-two," or 22, the hand and rod-handle are carried twice below the shoulder at arm's length. To make "one-two," or 12, the hand and rod-handle are carried once at arm's-length above the shoulder; then, without stopping once at arm's-length below the shoulder. They then rest at the first-position."

TO WORK SIGNALS IN THE FIELD

44. "To select a Signal Station.---The signals used in the field, Army of the U.S., are almost always those made with flags and the regulation signal equipment. Discs, although not visible at such great distances, may be used whenever the occasion requires it.

45. To select a signal station, choose a point perfectly in view of the communicating station; fix the exact position in which the flag-man is to stand: so arrange, if possible, that he will have behind him, when viewed from the communicating station, a background of the same color for every position in which the signals may be shown.

46. The color of the background of a station is that of the earth or sky, against which the signals made seem to be displayed when viewed from the communicating station. For this purpose take the direction of the communicating station, and by going in front of your station, examine the position from that direction; ascertain whether the communicating station is higher, lower, or on a level with your own. If it is higher, the back ground for your signals, viewed thence, will be the color of the fields, woods, etc., behind and lower than your flag-man. If it is lower, your backgrounds will be the color of grounds, etc., behind and lying higher than your flag-man. If the stations are of equal elevation, then the background for your signals will be that directly behind the flag-man.

47. Do not presume the background is of the color of the fields near you. It may be that of the woods a long distance, sometimes miles, behind your station. If your station is on a house or an eminence, it is still very possible, that there are higher grounds somewhere behind it.

48. The color of backgrounds is generally dark. Sky-exposure backgrounds are rare. They are not often found at long ranges on land. They cannot be had except on the exact crest of ridges or lands which bound the horizon of view from the other station, or on the precise apex of mountains, etc. At short ranges, they may, of course, be had by working on the tops of very high buildings, steeples, etc.

49. Unless certain of the color of the back ground, it is safe to presume it is not the sky, and that it is not light. It is a rule always to use the white or red flag until the color of the background is determined. The best backgrounds are darkly colored, as green fields or woods.

50. Place the flagman so that his signals shall appear displayed upon one of these backgrounds if possible.

51. If the position is narrow, and the flag-man can be placed in no other, notice whether the back ground is broken: that is whether in part of its motion the flag, or other signal, displays on light and in part on dark back ground; as if, for instance, for half of its motion it shows against the trees, and for the other half against a white house; or if, for part of the motion, it shows against the sky, and for the rest, against trees.

52. The background being determined, the choice of flags is fixed. The color of the flag must contrast as strongly as possible with that of the background. This is important. Upon this contrast, the legibility of the signals often depends.

53. With green or dark, or any earth-colored backgrounds, the white flag must be used. With a sky exposure, the black flag must be used. With broken, or mixed backgrounds, the red flag must be used. The red flag, or signal, is that to be generally used at sea, as on vessels where, in part of its motion, the flag exposes against the wood work, or rigging, or sails, of the vessel; and in part against the sky or water. It is well also to try the red flag when snow may form part of the background. For general uses, the white flag, or signal, will be found best. It can be used in nine instances out of ten.

54. When the stations have commenced communicating, each can announce the color of the flag which can be best seen at the other. This can be done as soon as communication has commenced, each station telling the other to use the white, or the red, or the black flag, or to try different flags, until the best is found.

55. When it is difficult to attract attention, two flags ought to be shown on the staff at the same time. If there is doubt as to the color of the background on which they are displaying, these flags ought to be of different colors; as a white and a red. When the background is certainly dark, they ought to be both white. If the background is light, dark flags ought to be used.

56. Sometimes, when it is very difficult to send a message from a station, as happens occasionally, when detached clouds are passing the sun, and dark, moving shadows are thus thrown on the earth, the messages can be sent if the signals are made only while the sun is shining on the flag. This is particularly the case so long as the sun is in any part of its course only a little in front of the flag, and its light can be reflected.

57. Those days are best for the transmission of messages in which the atmosphere is clear, but the sun is covered with clouds. The light is then generally diffused. It is on such days that messages have been read at the longest distances.

58. On days of sunshine, the sun shining upon a flag, of course increases its visibility. The sun shining behind a flag does not render it more distinct.

59. To Locate Stations.---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.

60. 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.

61. This second point should be one not only visible from the initial point, but one also probably in view from positions beyond it. At the first point not 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, towards 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.

62. 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 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 towards 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 intermediate stations by finding other a better points at which to locate some of them.

63. Should an officer, while establishing a line, and before it is completed find, on reaching any station, that he is able to communicate over any of the intermediate stations between himself and the first, he will notify the unnecessary station of the fact: not, however, until he has both received and sent messages over it to some other station.

64. Upon receiving this information, the officers at the needless station will, after notifying the stations near them of their purpose, abandon their own station and proceed to the station next in advance, or to that one which has given the information. The officer who has been temporarily stationed there will, on their arrival, join the marching party, which will meanwhile have been pushed forward to continue the line.

65. In locating stations, and in opening communication between them, an officer will sometimes find himself in a position whence some other station ought to be visible, but finds his view shut off by trees or bushes near him. In this case, the tallest tree should be climbed. If the other station is in view from the tree-top, its attention can be attracted, and a temporary communication be opened, by signals made by the flag, or other signal, displayed in the tree-top. The flag-man may then secure himself in the tree with a belt or rope. The officer fixes his own position at some other place in the same tree, and rests his telescope among its branches; or what is better, ascends another tree for this purpose: as the first is opt to be so shaken by the motions of the flag-man, as to disturb the vision through the telescope.

66. It sometimes occurs in locating signal stations, that it can only be known that signal station will be opened in some part of the country overlooked from a given station; or that an officer has been sent in a certain direction, and that he will try, from some point in that direction, to open signal communication. It is well then to have some distinctive and very visible signals to attract attention.

67. To mark position anywhere in an overlooked country by day, smokes may be made. Puffs of smoke, made by firing powder loosely poured upon the ground from cannon cartridges, can be seen at very great distances. These puffs may, to be distinctive, be varied in number. There should always be a pre-arranged code as to the number of puffs to be shown.

68. A station which has difficulty in making itself visible, will be apt to be discovered if it is moved too near where artillery is firing, the attention of the observer being drawn by the report and the smoke of the guns. A dense white smoke, visible at a long distance, can be made with dampened straw or hay. A fire should first be set well burning, and then large arms' full of the dampened straw, or arms' full of leafy branches, be thrown suddenly and well spread upon it. Cannon cartridges, with which to make smoke-puffs, can be easily carried on horseback; and can be fired with a train or other slow-match. Before a smoke-puff of any kind is made, the largest white and red flags ought to be displayed upon the signal flag-staff, and kept in motion, swinging from side to side, near the point from which the smoke rises, while it is rising, and for some time after, in order that the glass, at the observing station, turned upon the smoke, may find the flag thus moving in its field of view.

69. When the attempt to attract the attention of the observing station is to be long continued, a large flag will be fastened to a second staff, and kept hoisted in some prominent position; the pole being fastened as in the corner of a fence, or to a stake driven into the ground.

70. Moving stations are those which may be opened anywhere at points not pre-determined. They are so called, to distinguish them from stations "fixed" by pre-concert. Moving stations must always be as prominently placed as is possible: as on hill-tops; in the centre of open fields; near marked houses,--the more apt to attract attention the better. It should be kept constantly in view, to always thus locate a moving station near something which is likely to attract attention from the observing station.

71. Officers upon signal stations will, if expecting signals anywhere, and habitually without especial orders, closely examine, from time to time, every prominent point within signal distance, to see if signal communication is from any quarter attempted. With this view, they will study the vicinity of all houses, spires, peaks, hill-tops, broad, open fields in the midst of woodlands (an open field commanding a view of a known fixed station, is a spot always to be selected in a forest, on which to establish a moving station); the banks of rivers, prominent trees, etc.

72. The vicinity of smokes of any kind, seen at any time, must be most carefully scrutinized. At night all fire-lights, or brilliant lights of any kind, are to be examined. A signal-fire, made like any other fire, and meant to attract attention, is sometimes flashed to distinguish it from other fires. This is done by causing two men to hold a blanket spread before it; that is, between it and the observing station, and to raise and lower this blanket every two seconds. This is ordered in this wise: "one-two-up;" "one-two-down;" and continue. The intermittent light, thus made, is easily distinguished.

73. The powder from cannon cartridges, poured loosely on the ground, and fired at night, makes an intense white flash almost certain to attract attention. Two or three cartridges may be employed together, and fired at one flash, to increase the volume of light. Rockets and roman candles are very useful. Composition lights, such as the Coston signal lights, or the common red, white, or green composition lights are also useful. They will attract attention at distances of six or eight miles.

74. Red lights are preferable to any other, for the reason that they show distinct among campfires, or other lights, and cannot be confounded with them. The volume of light may be increased for great distances by emptying the composition from several lights together, and thus firing it. Any kind of colored composition light may be agreed upon to be shown as a pre-concerted signal by which all friendly signal officers: as, for instance, those serving with a single army or a single corps, may indicate their position at night. During the whole time that these attention signals are making, by day or by night, the calling, or moving station, must watch closely with the telescope the station called; nor should the watch be relaxed, at any time, until communication is fairly opened.

75. It can never be known at what moment the observing station may first have sight of, or be ready to reply to, the signal seen. Should the effort of the calling or moving station be successful, and attract the attention of the observing station, the observing or fixed station ought to reply at once with signals of recognition and a brief message: as "I see you," etc.; or, if it is practicable, it should make a signal similar to that seen: as answering smoke by smoke; a rocket by a rocket; composition lights by composition lights; or in fine, making some marked signal which shall announce to the moving station the fact that its position is noted.

76. The observing station should take care to keep a signal flag flying all the time, to afford a marked point to the moving station, and to indicate that an officer is on duty and at the glass. The stations having recognized each the position of the other, telegraphic communication will be had without difficulty. It should always be borne in mind by an officer on signal duty, that it is very possible his own signals may be seen and read by the officer with whom he wished to communicate, though it may be impossible for him to find the exact position of that officer; or having found it, it may be impossible for him to read the signals made to him, owing to defect of light, or smoke, or glare, or haze.

77. It is a rule, therefore, always to send any important message, or any information it is wished to convey, the sending station being in a position, as nearly as it can be judged, whence the signals ought to be seen by the other station. There is a chance, also, that some third station may receive the message, and the information be thus available. This is, or course, not to be considered as a final sending of the message, a message never being considered as sent, by signals, until it is clearly acknowledged by signals. This plan may, however, be sometimes useful.

78. There are also, sometimes, intervals of two or three hours when the position of the sun, or a peculiar haze or light, makes one of two communicating stations almost invisible, while the other is thence seen more clearly than is usual. Now the visible station ought not to waste this time, but to send forward its

messages with great care and distinctness, numbering the words, etc. This should not be attempted, however, unless the sending station is, while sending, always able to see at least the signals of recognition or "to repeat," made at the close of each message by the receiving station. As soon as mutual communication is had again, full inquiry can be made as to the receipt of the messages thus sent.

79. So one officer may find himself so close to the enemy that he dare not respond to any signals, yet may perfectly read those made from another station. It may be important to send information by signals to an officer thus situated without caring to wait for his reply. There are other possible cases in which messages may be sent when it is known that they cannot be either acknowledged or answered by signals. A station may sometimes receive many messages when the messages sent by it cannot be read.

80. It frequently happens that the signal of recognition, "message understood," and of "repeat, message not understood;" which two signals are sufficient to insure the correct reception of messages; can be seen, made by a station, when no consecutive signals made by that station are visible. Or a conventional signal, as a puff of smoke, may be agreed upon to indicate, "messages understood," before the signal parties separate. Two puffs might mean, "repeat;" or any other signal may be adopted.

81. On the same principle, an officer calling a station with his flag, and being without reply, or with such replies only as he is unable to read, continuing to call, may interpose messages; for his flag is as visible and as likely to attract attention while sending a message, as while simply waving for attention. Thus such a message as this may be transmitted: "I cannot see you. Am going to the top of the mountain;" or, "Can't see you. Look for me on the steeple;" or, "Can't see you. Go to open field on crest of ridge," etc.; or, "Can't see you. Enemy are coming by this," etc.

82. This rule applies to night signals when, sometimes, one station distinctly sees the signals of another, but cannot reply with signals of the same kind, because the apparatus is broken, or the supply of fluid for the lights is exhausted. It, in such a case, a station is called, it replies by burning a signal light, or by throwing up a rocket, or by making a camp fire flash, or by flashing gun-powder: the message may then be sent.

83. If it is correctly received, the disabled station shows two flashes, or throws up two rockets, or displays two lights. If the message is not correctly received, only a single flash, or rocket, or light, is shown. This indicates that the message must be repeated. A station can hardly be so disabled but that an experienced officer will be able to make this much of recognition. It is hardly possible he should be without some kind of light that can be seen, or the power to make some one of the numberless styles of signals.

84. A station should never be located in a camp, or among tents, or where the white canvas of tents can form the back ground of signals viewed from the other station. The passage of squads of men in an encampment, the smoke from the numerous cook-fires, the dust thrown up by marching troops or trains, the curiosity of persons not attached to the station, render the camp the most unsuitable locality for a signal station.

85. The difficulties are increased, at night, by the glare of the numerous fires apt to be kindled between the communicating stations, the smoke that then more heavily than in the day, rests over the quarters, and the almost impossibility of distinguishing, at great distances, the signal-torches or lights from the changing-lights of the encampment. Every precaution should be taken to avoid these annoyances.

86. The point chosen ought to be one sufficiently near the headquarters of the General Commanding, but out side of camp, and on one side of it, on some clearly visible spot, and with as few encampments between it and the communicating station as possible. It is always advisable to avoid working over en encampment, if it is near and on nearly the same level as the station. The smoke and dust which constantly arise from a camp, are serious obstacles to successful working.

87. Red lights or rockets must be kept at encampment stations, to mark the exact position of that station, if the communicating station is very far distant, and the officers at it thus liable to be confused by the number of lights and fires at the encampment. This will be found to be often the case, when the stations are located among the camps of a grand army."

TO WORK SIGNALS IN THE FIELD

88. "Cavalry Raids" ---When the presence of a cavalry force is heard of in the vicinity of an army, or as moving through any section of the country, a signal party should at once be sent to follow it as closely as they may, to report upon its movements, and to annoy it by indicating its position to such of our troops as may be in pursuit.

89. These signal parties fire, at different times, at night, rockets or roman candles, to show the general direction in which the enemy may be. During the day, cartridge-puffs or heavy smokes should be raised, for the same purpose.

90. To this end of attracting attention and directing the march of friendly troops upon the enemy, if there is a known chance to capture or destroy them, hay-stacks, wood-piles, or out-buildings, ought to be fired (using proper judgment), anywhere they may be found in the country lying near the line of the enemy's march; the officer ordering the firing, giving a certificate to the owners, that the property was fired for Government uses.

91. The firing of these signals, of any kind, must follow the track of the enemy from place to place. It is the object to thus mark his course that preparations may be made in his advance to intercept him, or that troops in pursuit may know in what direction to march or to concentrate. So in front of an enemy, presumed to be advancing on any roads, small signal parties should be sent out on every road. These parties are to fall back, firing signals, raising smokes, or kindling fires, as the enemy advances.

92. Some of the parties ought to conceal themselves near the roads, to gain all the information they can before reporting; others to wait, with the signals ready to be fired, and only light them when the foe drives them from their position. Thus a cartridge-puff may be raised at the last moment it is safe to remain at a station.

93. A few daring men can thus cause infinite annoyance to an enemy, whose success is often depending on the secrecy of his movements. In all cases of this kind, a dominant station or stations, must be chosen somewhere, from which the signals made, in any part of the country, can at once be noted and reported, and whence reports must frequently go to the senior commander in the vicinity, and to the General Commanding. A constant watch must be kept from this position; and signals seen, in any part of the country, must be at once reported as to the distance, kind, and direction.

94. If communication is to be between ships in a bay or river, the officers will consult together, if possible, before parting, as to the place at which the ships will probably be, the color of the flags it will be best to use, and in what direction, by compass, the vessels will be from each other. They will consider, also, whether signals will be preferably made from the decks or the rigging, as the "tops," and whether the make of the land or river bank, is such that it is likely the hulls of the vessels will be hidden from each other, as by rising grounds or by trees. It is possible this will be the case. It will be considered, also, whether the masts will show above the trees, and how much of them will show. To ascertain this point, the officers should, together, ascend the rigging and estimate the height of the obstacles in the direction in which it is supposed the signalling will be necessary.

95. When vessels, co-operating with land forces, are to go into action, the post of the signal officer is on the "fore," or in the "maintop." A signal flag should always be kept flying from some prominent position on every vessel carrying a signal officer. Signal officers, serving with troops, or on other vessels, can thus know with what ships it is possible to have verbal communication.

96. The officers at each signal station must take care that a look-out through the glass, is kept at each station so constantly that no signal can be shown, at any time, at the communicating station, for more than ten minutes without receiving an answer. For this reason, when not at the glass himself, he will cause his men, or any one on duty at the station, to keep a regular "glass-watch," assigning the men by turns, and fixing particular hours for each, that responsibility for neglect may be easily traced. These details will relieve each other every two or four hours, day and night.

97. The watchmen on duty must be seated at the glass; and before assuming his station must, with the aid of the soldier last on duty, make certain that he knows the exact position of the observed station, and that it is plainly in the field of the glass. This precaution is particularly necessary at night, when the least movement of the glass may have thrown the station out of view. All land marks being then invisible, there is nothing by which to detect the error; and signals might be long shown in vain at one station, while the glass not bearing upon them is attentively watched at the other.

98. Torches.---As a general rule, if stations are not more than ten miles distant, the regulation torch-light, shown in motion at one, will be seen with the naked eye, or the marine glass, at the other, as a light sufficiently strong to attract attention.

99. Establishing Signal Stations.---When high winds interfere with the proper display of flags, or other signals, at any position, the signal station there ought to be established in the lee of a grove, or sheltered by a house or hill. It will sometimes happen that, signals made from a given position, cannot be seen; while, near that position, is a point at which a sky-exposure, or other advantage, can be had, which will make the signals there visible. In such case, the receiving station should direct the sending station where to place the flag man. This may be done by the usual signal of the codes prepared for the purpose, or by an especial message.

100. When the color of a signal flag to be used at any station has been determined upon, and the flag-man has been placed, it may yet be necessary to decide, whether there are any obstacles to a clear vision existing between the stations. For this purpose, view the station to which communication is to be had, from the sending station, with a telescope; first from a position close to the ground, at the feet of the flag-man, and then from two other points, close to the ground: one on his right, and one on his left, and at a distance from him, equal to the length of the signal staff to which the flag is attached. If, from these three points, the position of the telescope at the other station, or the whole position on which the flag-man there stands, can be seen, it is certain that every signal made at the first station can be seen at the other.

101. Similar precautions to determine this point should be had at both; such precautions are particularly called for at night. Bushes or high grass near it often hides the foot-torch, lying close to the ground,, and night-signals are thus made unintelligible. Signaling should never be commenced at night, at any station until, with the head as near the ground and in the place at which the foot-torch will be, the receiving station has been observed, and made sure, that the foot-light shown at the first, will be plainly visible there.

102. When a station is occupied and worked during the day, all preparations for night signals, such as filling the torches, properly placing them, determining that, when lighted, they will be in view of the other, etc., should be made before dark. When this is impossible, as when the station is first reached at night, it may be held, that it is fair to presume, that any point at one station from which fires or foot-lights known to be at the other are visible, is in proper view from that station.

103. Glasses--When a signal station is to communicate with two or more stations, a telescope should be firmly fixed, bearing on each, and so far apart that the reader at one will not be in danger of disturbing the reader at the other by his movements. At permanent stations, the fixed telescopes should not be removed from their supports when signalling has ceased for a time, unless it may be necessary to clean them; but they should be kept in position carefully covered to protect them from the weather.

104. When the atmosphere is ladened with moisture, the object and other glasses of the telescope being cold, sometimes condense it, and become covered with a thin film or mist; this is especially likely to happen at night. It should always be suspected when, while the might seems clear and lights can be seen with the naked eye, they are seen with difficulty with the glass.

105. To remedy this, the glass ought to be thoroughly warmed at a fire, or with a lamp, and made so warm as to retain its heat while it is being used to receive messages. The eye-glass of the telescope is sometimes obscured by the moisture of the breath condensing upon it while the eye is at the glass; this ought to be carefully guarded against.

106. Telescopes ought never be allowed to fall into the hands of the enemy. Officers, on dangerous stations, ought to conceal their glasses when not in use. When a glass is to be hidden for precaution, the object lens, or one joint of the telescope, should be hidden separately from the body of the telescope. A single joint or one lens is so small an object, that it can be concealed almost beyond the possibility of discovery. If an officer is in danger of capture, and there are no means of concealment, the telescope glasses must be shattered or rendered worthless rather than surrendered.

107. If, for any reason, telescopes have not been fixed on communicating stations during the day, they must be fixed and adjusted before dark. After dark, land-marks are lost to view, and distant stations are discovered with difficulty. The glass must have in its field the exact point at which night signals are to appear, and must so remain, properly sheltered, until morning. The neglect of this care often causes much trouble.

108. The telescope should always, when possible, be first placed in rest and properly adjusted in some sheltered or shaded position, and in one as convenient as attainable, before communication is opened, for after communication is opened, important messages may come so rapidly, that the glass cannot be abandoned, and the station must be worked for hours with much of discomfort and even of suffering, on the part of the reading officer.

109. To adjust a telescope to its proper focus, view with it some object with well defined outlines at a distance of about half a mile, lengthening or shortening the eye-glass joint until the object is seen with the sharpest distinctness. To adjust a glass at night, fix it upon some brilliant star.

110. Glasses which are to be used in the field, should have plainly marked upon one of the eye-glass slides a focus mark, so that they may be adjusted at any time without an especial adjustment in every case.

111. Telescopes, as a general rule, absorb light in proportion, as their magnifying power is great. The most powerful glasses are therefore to be used for minute observations on the clearest days, or where there is a strong light upon the observed object. When the light is fading, or there is little light upon the observed object, the clearer view will be had by those glasses of low magnifying power. When telescopes are fitted with a double adjusting focus, the short focus is to be used, where the light is dim, the long focus where the light is strong.

112. Old newspapers furnish the best material with which to clean lenses. The pieces to be selected should be free from grit or anything to scratch the glass. Soft paper is better than chamois skin. The telescope glasses ought to be kept scrupulously clean. If the glass is to be carried in the rain, a leather cap must always cover the eye-piece end. Without this precaution, the glass will be filled with water, and may be ruined.

113. Binocular glasses (marine glasses) have, with a low magnifying power, an extensive field of view, and give much light. They are for use in observation of extensive movements, where large tracts of country must be taken in one field of view, or in sweeping the landscape in view, to find the tents of the enemy, his wagons, etc., or other objects to be afterwards more closely examined with the telescope. They are employed on shipboard, or in boats, where the rolling motion interferes with the use of the telescopes. They are used for observations to be made on horseback, or in hasty examinations made on foot or in trees, and generally for all observations not critical, or those to be made under circumstances where the telescope cannot be conveniently handled.

114. The marine glass ought to be held by both hands when in use; and to steady it, the arms ought to be kept close to the body. In following a moving object, to keep it in the field of view, the head ought to be turned with the glass. For reading signals at short ranges, as say, up to five miles, these glasses are better than the telescope. Signals have been frequently read with glasses of this description at the distance of ten miles.

115. When reading messages through the telescope, or observing any object intently in bad weather, cover the head with a blanket, or the cape of an overcoat, or any dark covering, extending this covering over all the telescope except the object glass: particularly do this when exposed to a dazzling light, or the sun's heat, or in windy weather. The covering shuts out from view all objects near the observer, and thus enables the faculties to be concentrated, and, at the same time, it protects the eye from the disturbing light, the winds, particles floating in the air, etc.

116. It should be practiced to use both eyes open at the telescope. This can be readily done. The method is more comfortable than to use but one eye, and by it is prevented much of that weariness and injury to the eyes that often follow if they are overstrained, or too much labor is thrown upon them.

117. To find any small object, as a signal-man or flag near any known position, or to fix the telescope upon it, mark, with the naked eye, some prominent land-mark, or object near which the smaller object is supposed to be, place that telescope carefully adjusted in rest, then sight over the glass upon the marking object near which the smaller object is supposed to be, place the telescope carefully adjusted in rest, then sight over the glass upon the marking object, as sight is taken over a gun-barrel; if the eye, the object being thus covered, is now placed at the eye-glass of the telescope, the prominent or marking object will be found in the field of view. It will be easy then to scan the country near the marker until the smaller object is found. This practice is often necessary at night, when only a point of light is seen, far off through the darkness, and the telescope must be turned upon it.

118. When the compass bearing of the object to be sought for is known, the telescope, adjusted and placed in rest, may be aligned by a line drawn with the proper compass-bearing. Commencing then with the view at the horizon, the telescope is moved lightly from side to side, taking in, each time, fresh fields of view a little nearer the observer, until the whole country shall have been observed from the horizon to quite near the station.

119. When the general direction only of an object can be given, and it is to be sought for, the whole landscape in that direction to the horizon, is to be divided into sections by imaginary lines, the limits of these sections being bounded between visible land marks through which the bounding lines are supposed to pass. Each section is then to be scrutinized, little by little, until the glass has been passed over every spot. The search can hardly fail to be successful. It must be systematic.

120. Practice should be had in the use of the telescope held in the hands without rest, in rapidly bringing objects in the field of view, and in the habit of examining an object or point thoroughly, yet quickly. Observations can often be made with such rests as the shoulder of a man, over the back of a saddled horse, or with a cane resting on the ground and held in the hand that steadies the telescope. Very great quickness in the bringing of objects within the field of view can be soon acquired. The eye becomes educated to a remarkable keenness of vision by continual practice.

121. When observations are made with the telescope, or when messages are being received by it by signals, nothing must be taken for granted, and nothing considered as seen, until it has been positively in view, and so clearly as not to admit of doubt. Never presume to anticipate what signals will follow from those already made. A signal must never be considered, or announced as read, until it has been actually seen. Carefully watch the communicating station, until the last signals are made, and be very certain, before ceasing to watch, that the signal for the end of a message has been distinctly given.

122. The telescope on a signal station should always be fixed. The glass stand or support may be a heap of stones, two saddles lashed together, a temporary tripod of sticks, a post, a stump, fence, anything furnishing a steady rest. Blankets, thickly folded, or any cloth, as an overcoat, a cushion or a pillow, placed under the glass, almost entirely prevent vibration. Stones, or other heavy bodies, ought to be placed on and about the glass, in order to secure it in its place and to steady it. The brass telescope holder, fitted to screw into trees or other wooden supports, is very useful.

123. Trees, having branches and leaves, are apt to be shaken by the wind; for this reason, a fence corner, a stump, or solitary post, or rock should be chosen in preference. It is important so to construct a support, as

to allow the person at the glass a comfortable position when reading, and it should be firm enough to withstand any ordinary gust of wind, or other slight disturbing cause. At a post or fixed station, it is well to construct a permanent glass-stand, and to shelter it with a good tent or sentry-box."

CARE OF SIGNAL APPARATUS

124. "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 signallist himself, sending the message, but they more annoy the person to whom messages are, for this cause, imperfectly sent. A decent, courteous regard for the rights of others ought, of itself, to prevent any person from inflicting on another the consequences of his own carelessness.

125. Neglect of apparatus is a matter for discipline. Daily inspections should insure that the telescopes, etc., are clean and in perfect order. If the common field sets of the army are to be used, the torches must be each morning cleaned: they can be scoured with ashes, or washed with turpentine. The torch wicks must be examined, trimmed, and renewed. They must be made tighter by adding new threads to them, if they seem too loose; and this can be judged to be the case, if there is even a slight dropping of turpentine; or they must be loosened by lessening their size, if so tight that the fluid cannot readily flow through them, to feed the flame. The torch screws and catches must be examined, and the torches prepared, in every part, for the labor of the coming night. The torch is not to be filled, however, during the day.

126. The flags must be examined, each by itself. If there are rents or loosened ties, they must be washed and dried. A clean-washed flag is seen and read with ease, where flags, dusty and dingy with use, are invisible. Signal flags in use, should be habitually washed each week. The joints and bands of the staff must be scoured and tightened if loose, or carefully fitted again if any shifting or springing has been noticed. Rivets must be reclinched if started. The staff itself ought to be cleaned and scraped.

127. The copper cans and the service canteens are to be examined and filled. They must be cleaned; and if there is a leakage, it must be temporarily stopped. Steps should be taken to turn in any article thus damaged to the depot. If the leather in the top screws of either the canteens or cans is worn or loosened, it must be replaced. The carrying straps and buckles of the canvas case and of the canteens must be examined, and the binding-straps counted to render certain that none are lost.

128. 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 must 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 equipment's.

129. When the apparatus is to be packed, the torches must be perfectly emptied of any fluid they contain, or the flags and other portions of the set may be ruined by its leakage.

130. To carry Apparatus in the Field.---On marches, the whole set of apparatus, packed, may sometimes be carried in an ambulance. This ought never to be done, however, unless the officer is dismounted and traveling in the ambulance.

131. A signal officer, mounted, and serving with troops, ought never to permit himself to be, at any time, without his glasses and signal equipment's, his compass, message book, or map. No matter for what purpose he is moving, or how little chance there may seem for his particular duty, the occasion may, at any instant arise, when the power to communicate a few sentences would be invaluable. On reconnaissance's, or when examining a tract of country for signal points for stations, this precaution is to be always observed.

132. The following is a convenient way in which to carry the equipment on horseback: the large or first joint is taken from the set and is not carried; the three other joints of the staff, jointed together, are carried, like a lance, the butt of the staff resting in a lance-socket at the stirrup; the staff being carried on the right

side of the body of the horseman, mounted, and slung behind the right arm, with the arm passing through the leather strap or lance sling which accompanies each set. The torches, flags, and the remaining articles of the signal set, neatly rolled together, and placed in the canvas case, and strapped across the horse, either in front of or behind the saddle. This package bends easily to fit itself to the saddle. The canteen is carried on the left side of the horse, strapped close to the saddle, and the bottom of the canteen is strapped down, so that it can have no motion.

133. To carry a flag flying when mounted, as in changing stations, or at any time when it is desired the progress of the party should be watched, attach the four-foot flag to the staff, and have the staff then carried, slung as a lance, as described above; or let it be carried upright, the staff held in the hand, and the butt placed in the lance rest.

REPEATING SIGNALS TO VERIFY MESSAGES

134. It may happen, that very important messages received by signals must be verified by repeating, at the receiving station, signal by signal, each signal used by the transmitting station in conveying the message. There can be no error in signals thus verified, and the correct reception of the message is made certain.

135. In the verification, each signal must be repeated by the receiving station, as soon as it is made at the sending station.

136. The signallists and their signal men, at each station, face each other, the signal men, standing each with his flag and staff in the first position for signals. The chief of each of the corresponding stations has his glass fixed upon the opposite station, and takes his post at the glass. The sending of the message is commenced. As the chief, at the receiving station, notices each signal completed by the sending station, he orders that signal at his own station. The chief, at the sending station, pauses after each signal of the message made at his own station, until he has noted that signal repeated correctly at the receiving station.

137. The signal-element numbers, made at each station, must be identical. The signals used may be different, provided their value is understood. Thus, if "one-two" is made at one station, "one-two" must be repeated at the other, though the elements "one" and "two," may be indicated at one station by different signals from the indications of the same numbers at the other station. The messages thus transmitted, signal by signal, the sender pausing after each signal, until he sees a similar signal shown, complete and correct, at the receiving station. That his own signal has been seen and noted is then certain.

138. A record is kept at each station of the signals shown at the other. This record must agree with the record of message sent. This practice of repeating signals was habitual when semaphores were much employed for telegraphing. It is used with advantage in may instances with field signals, particularly with all those kind of signals which are made by position.

139. There are three styles of repetition: one is to repeat each elementary signal of each letter combination as it is made. Thus, to transmit and repeat the signal combination "one-two-one" (121), one is made and is seen repeated at the other station; then two is made, and this is seen repeated; then one is made, and is seen repeated. In this case, no signal element is made until the repetition of the preceding element is certain. The second style is to repeat each letter combination complete. As in the instance of "one-two-one", this combination is made without stop, and is then repeated.

140. Both of these modes are applicable to field uses. The first is tedious and rarely ever used. Correctness is sufficiently insured by repeating the letter combinations complete, letter-by-letter, or a message may be repeated word-by-word, or sentence-by-sentence, or the whole message sent is remembered as to its words, and repeated back from the receiving station, showing the same number of words. The occasions for such exactness as requires the trouble of repetition, must be determined by the commanding officers, or by the chiefs of stations dispatching the message."

TO DEVISE SIGNAL CODES

141. "Two parties, each perfectly conversant with the principles of signals, coming in view of each other, can converse by signals, though there may be no pre-concert as to any particular code, or even as to the number of elements to be used in the code they will then devise, and none as to the particular signals they will use.

142. This is done as follows: one party, having attracted the attention of the other, as by waving his handkerchief or his arms, or running continually to the right or left of a fixed position sees, by an answering signal, that he is noticed. This answering signal is made by repeating some sign in couplets, as by waving the handkerchief twice to the left at a time, for a number of times, or by making short runs, two at a time, to the left of any fixed position, or by any sign; only it must be repeated twice at a time, with a pause between each repetition.

143. These double signals are always signals of recognition. The first party seeing this answer, acknowledges it by making signs of some kind of twos. These signs must be of the kind he intends to use in the conversation to follow. He then makes, slowly and very distinctly, six times, the signal, whatever it may be, he wishes to have read as "one," or the first element, and stands at rest. This is carefully noted by the second party, as the signal he is to read as "one," or the first element. The first party then makes, slowly and distinctly, six times, the signal he wishes read as "two," or the second element, and again pauses and stands at rest. This is noted by the second party, as before, to be read as "two," or the second element. The first party now makes, three times, the signal he intends to use for the "pause-signal," or end of a word, and stops. It will be seen, that two elements and a pause-signal have been indicated.

144. These are sufficient with which to construct a code. The second party, having distinctly seen and noted these signals made, now makes the signal of recognition as before, then pauses and stands at rest, then makes, in his turn, six times, the signal he intends to use as "one," or first element, then pauses, then makes, six times, the signal he intends to use as "two," or second element, then pauses, then makes, three times, the signal he intends shall be his pause-signal. If possible, the signals made by the second party must be, for each, some numbered element-signals, similar to those used by the first party. When this is not possible, any other signals may be used.

145. The more simple and distinct the signals the better. Each party now knows the number of elements the other party proposes to use, the elementary signals by which those elements are to be indicated, and the pause-signal. In this case of illustration, two elements have been indicated. The parties can now converse by an alphabetic code of two elements mutually known to them, using these indicated signals in their proper places for the elements of that code. But if there has been no agreed alphabetic code, then to converse, these further rules are used. The first party shows a signal alphabet; that is, he makes slowly, with pauses between them, any twenty-six different combinations of the signal elements he has shown. These combinations are to stand for the twenty-six letters of the alphabet.

146. If the combinations are to be of motion-signals, the motions must follow each other without perceptible pause between them, until each letter combination is complete: there must be a pause of time to evince that this letter is finished. If the combinations are to be of stationary signals, each letter-combination must be a pause of time to evince that this letter is finished. If the combinations are to be of stationary signals, each letter-combination must be indicated as completed by making the pause-signal before commencing the next letter. Time must, in any case, be allowed for each letter, to permit it to be noted by the observer. The second party notes down these twenty-six letter-combinations, one by one, with his pencil, each in the order in which it is made, writing for each element signal shown its proper number, as the twenty-six letters of the alphabet follow each other in their usual sequence. So the record might stand as thus: a is 21, b is 22, c is 12; and so on, to the letter z.

147. If the receiver doubts the signal for any letter, he makes signals for the sender to stop, and then makes, with his own signals, as they have been before agreed upon, the element-numbers of last letter correctly received. The sender now commences again at this last letter, and repeats that of which there has been doubt. The first party having thus sent the whole alphabet, which it is his intention to use, makes the signal

for completed message; that is, three pause-signals together, and awaits the reply. The second party, having clearly seen and correctly noted, in figures, each letter signal of this alphabet, now makes the recognition-signal, to indicate that he has understood it; and then, in his turn, using his own signals, he makes the twenty-six combinations he has received, and in the same order he has received and noted them; that is, in the usual order of sequence of the letters of the alphabet. He closes with the signal for completed message. To this, the first party replies with the signal for "signal seen and understood," and the word "correct." The second party, noting this message, replies with signals for "signals seen and understood," and the word "correct."

148. The parties have now exchanged the alphabet, and have verified it. They have given to each other the combinations to be used for each letter, and the signals to indicate these combinations. Of course messages, of any kind, can now be transmitted.

149. In this illustration, the alphabetic-code has been supposed to be of two elements; for the reason that this is most commonly used, is the most simple, and can be so invariably applied. If the parties are to use the ordinary signal flag, it will be now readily understood how they can, without any alphabet, code, or pre-concert open, at any time, communication.

150. Alphabetic-codes, of any number of elements, may be formed whenever skilled signallists are visible to each other, by processes similar to the one described. This being the rule: that, so long as the signallist makes each signal six times, he is indicating the elementary signals he intends to use; and these elementary-signals are designated by the observer as the first, second, third, fourth, and so on, elements, according to the order of the sequence in which they are exhibited one after the other. The alphabets are then devised, to consist of two, three, four, or more elements, as the case may be. The pause-signal alone is made three times; and when it is made, it indicates that all the elementary-signals, to be used in the alphabet it is proposed to devise, have been shown.

151. Thus, if two different signals are shown, each six times, and are followed by a pause-signal, made thrice, it is indicated that the alphabet to follow will be of two elements. If three distinct signals are shown, each six times, and are followed by a pause-signal, made thrice, the alphabet is to be of three elements; if four distinct signals are made, each six times, and are followed by a pause-signal, made thrice, the alphabet is to be of four elements; and thus on for any number of elements.

152. This power of extemporizing alphabetic-codes of signals, of any order, and with any kind of signals, without pre-concert, other than acknowledge of general rules, and the possibility of so opening, at any time, anywhere, telegraphic communication between persons who may never have met, and may never meet more nearly than they are when thus conversing by signals, may be of use in a thousand contingencies of the service. For military uses, it has this advantage: that, if the parties are in sight of each other and at liberty, and can be protected, no human power can prevent their communication. It is available for beleaguered forts or cities, or vessels in distress, when communication cannot be had by boats; between any persons who, for duty or for pleasure, may wish to communicate at a long distance. Of course, it can be used with any apparatus or any mode of making signals, which has been described, or is conceivable. It can be used with day or with night signals, or with signals by sound.

153. With these rules known, the alphabet, and the dictionary of any language, given messages may be sent, and those may converse whose different nationalities would render conversation, by speech, impossible. The signal alphabets being once agreed upon, by the rules just given, each signallist finds, in the signals seen by him, and standing for letters and words, the letters and phrases of his own language; and when he signals in return, he makes, with his signals, the letters and the words of the language of his correspondent. An American, in distress, might thus signal intelligible messages on the coast of Russia, or of France, to the natives of those countries. Or two foreigners, coming in sight of each other, might converse, understandingly, by messages thus written in the air: for to signal by aerial signals, is virtually to write letters in the air, when neither of them would be able to comprehend the spoken pronunciation of the words that had been thus transmitted. The dream of a universal language is perhaps as nearly realized by these simple devices, as in any way hitherto suggested.

STATIONARY AND PERMANENT SIGNALS

154. It is sometimes necessary to use permanent instead of transient signals, or signals made by placing objects in positions instead of in motion. This may be done to deceive an enemy who, having some clue to signals by motion, is entirely thrown off by permanent signals, or signals by position, though the signals made may be in reality identical when reduced to their elements and their combinations; or the change may be to rest men who are wearied by the labor of motion-signals; or the position may be such that signals of position are, for some reason, preferable.

155. The rules for making signals by position, are the same as those which have been given for making signals by motion; only instead of 2, 3, 4, 5, etc., motions, each of which stands for an elementary-signal, there are 2, 3, 4, 5; and so on, positions which may stand for an elementary-signal, the signal object being to make each element placed in that position which indicates the proper number for that element, and there held until it has been recognized. In making signals by position, it is customary for each receiving station to repeat each position-signal as soon as it is observed, and at the sending station each signal, when made, is kept in position until it is thus recognized.

156. In rapid working, it is not absolutely necessary that this should be done. It is sometimes the case, that signals, by position, can be better hidden from the enemy, that those by motion, and that, for this reason, the signallist is less exposed to an enemy's fire while making them. A practiced signallist, should accustom himself, by considering supposable emergencies, and by devising plans of signalling for each emergency, and by practice in the field, when this is possible, to render available for signalling, all kinds of common things by which he finds himself surrounded; and to practice, using these things and conversing with signal codes of different numbers of elements, orders, and classes of signals, with transient and permanent signals, and in the use of ciphers, until he has made himself so skillful that he can, at any time, devise a mode of conversation, and carry on that conversation in such a way, that an enemy cannot decipher it.

157. Permanent signals may be used with semaphores, made on a flag-staff, or with the most simple structure and of work. The human figure, light clad, so as to show prominently on a dark ground, or when exposed against the sky, makes, with its movable arms, one of the best semaphores. Thus a man, with his coat off, is an upright with two movable and jointed arms. There is hardly any kind of position-signals, but can be made by placing the arms of this man in different positions. This human semaphore is visible, and the signals made by it are legible, with a good telescope, for a number of miles. To make the signals more distinct at a great distance, white discs, or flags, brilliantly colored staves, or any showy object, may be held in the hands."

POSITION OF FLAGMEN

158. The position of a flagman, transmitting a message, must be exactly facing the point to which the message is being sent; and this must be the case, whatever the style or character of the signal he is using. Signals, of whatever description, made by the flagman, must also be exactly shown on his right and left. In other cases, they will not be clearly displayed to the observer. To determine this exact position, a line, direct to the other station, should be sighted, as over a straight rod for instance, and a line following this direction should be marked on the ground in front of the signal man. A line drawn at right angles with this line should extend on each side of the signalman. If the common signal equipment is to be used, a marking stake should be drawn on the line in front of the flagman, and twelve feet distant from him; and a similar marker should be placed at the same distance on the side lines on either side.

159. All signals must be made with reference to the directions indicated by these stakes. These lines must be established by daylight, if possible. The use of the markers, secure the most perfect display of the signals by day, and is even more manifestly valuable at night, when the communicating station becomes invisible. The flagman has three other guides, by which to determine the proper direction in which his signals must be shown.

160. A signal-man, transmitting messages, should always be placed a little in advance of the person at the glass, in order that errors made in forming any signal may be noticed and corrected.

161. When signals are made with torches and the ordinary apparatus, at night, the signal-man must stand immediately behind the foot-light, a relates to the other station, and the flying-light be so handled that when brought to the front and lowered to the ground, as to make pause-signals. Its flame, observed from the communicating station, will seem to mingle with the foot-light. When large, common fires are burning at or near the station at night, care must be taken that they are so placed as not to confound the view of the torch-signals, or other lights that may be shown. The signalman must be placed well to one side of the fire, and his signals must be displayed out of the line of sight from the fire to the communicating station.

162. The light of large fires, burning near, will often interfere, at night, with the use of the glass. The best location for the glass is, in these circumstances, in advance of the fire. The signalman; making either day or night-signals, ought to be placed a little in advance of, and to one side of the officer at the glass in charge of the station.

163. Care must be taken to so place the signalman that the glare of the torches or lights will not interfere with the use of the telescope.

ATTEMPTS TO ATTRACT THE ATTENTION OF A STATION

164. In order to be persistent should never be abandoned, until every device has been exhausted; and they should be renewed and continued at different hours of the day and night. It must always be remembered, that attempts which have failed, may have failed because the observer's attention has been drawn in another direction, and that the effort may, at any other moment, be a success, if the observing glass chances to bear on the calling signals.

165. When a station is found, fix the telescope steadily upon it, and keep it observed while signals are made for its attention. As soon as it is perceived, and the attention is gained, signal its number, or call or answer any signals it may make.

166. Communicating stations should always arrange a few pre-concerted signals for either day or night use. These signals should be of such character as this: "Wait a moment." "I see you, but cannot reply." "Cease signalling: will call you soon." This will prevent the sometimes-occurring annoyance of calling a station for hours when the signals, though seen cannot, for some reason, be answered.

167. A signallist, observing from an elevated station, and finding his own view of the communicating station uninterrupted, may be led to imagine that the station on which he stands, is more prominently visible, from the communicating station, than is the case in fact. Thus a person viewing, from the top of a house, may think the whole house is in view from the observing station, when in fact nothing but the roof can be thence seen. To determine whether any station is clearly in view from any other, the observing station must be viewed from the ground, and from different positions close to the station. If the station can be well seen from these different points, that form which the observations are made must of course be plainly visible.

168. When any station has signalled all the messages on hand, the signal to cease signalling must invariable be made. When nothing more is to be for the time sent from either station, both will make the "cease signalling" signal. The observer, or officer, must never leave his station, or cease to watch the communicating station, until both stations have exchanged this signal. It must never be presumed that a station has ceased to work until it has announced this fact by signal.

169. Stations ceasing to work for a short time only, will display a flag flying, and stationary. This is a signal that the communicating station may be called at any moment. So long as this signal is made, an observer will be kept at the glass.

170. When a number of stations are in view from one dominant station, some preconcerted signal, as a rocket, a red light, or some peculiar flag or torch-signal, or cartridge-puff, should be agreed upon as a signal for general attention. Upon noticing this signal, all the stations reply, and then observe the dominant

station. This plan is useful when two or more stations can at the same time read the signals from the prominent station, and thus together receive any information to be transmitted from it.

171. When a number of stations are working in concert, certain fixed hours of the day and night should be named by proper authority for the especial exchange of messages; at which hours, each station may be certain that those on duty at every other station will be observant and ready for business.

172. All persons on duty should make it a point to be faithfully at their posts at these hours, even if communication may seem to be impossible.

173. It will be found sometimes possible to signal between elevated peaks, when all the landscape of the lower country is deeply buried in fog; and, conversely, a peak will sometimes be wrapped in clouds, when lower down the view is unobstructed. In the former case, messages may be sent by ascending to mountain summits and in the latter case, by descending so as to be below the cloud stratum.

174. When two stations are communicating at dusk, or when it is growing dark, and a light is shown at the receiving station, it is a signal to the sending station to use thereafter torches, or lights instead of flags. A light similarly shown at dawn and then extinguished, or a flag then displayed, indicated to the sending station, to cease using lights and to commence using day signals.

175. While the message is being transmitted by signals, the sending station should constantly observe the receiving station with the telescope, in order that any signals there made to stop the transmission of the message may be instantly seen. These stop signals may be made necessary by any accident at the receiving station. For instance, the telescope there may be thrown out of adjustment, or the connection of the message may have been lost, or by numerous other causes which will render a brief cessation of the signalling desirable.

176. A signal to stop, should be at once recognized by the sending station, and the further sending of the message must be suspended until the receiving station again announces its readiness for work. Stop-signals, of this character, cause much loss of time, and should never, unless absolutely necessary, be made by a receiving station. If part of a message is lost, it is better to receive the remainder, and to then ask for the repetition of the missing portion.

177. In sending very lengthy messages, the precaution should be observed to cease signalling from time to time, and to inquire form the receiving station, if the forgoing has been correctly received. This inquiry may be made by any signal, to which the receiver replies by the usual signal, of message understood, or by other preconcerted signal, as the case may be.

178. Signals in the field are generally made by a signalman;, who, previously drilled, makes each signal by order. These orders, "calling off signals," must be uttered with careful distinctness and precision. A pause is made after each letter combination. When a message is lengthy, a longer pause is made at the end of each sentence, to allow the sentence to be written down by the receiver. Messages must be grammatically correct, and be correctly spelled. The receiver is sometimes confounded by signals made for a word so spelled that it is not recognizable.

179. The presence of visitors, other than official, should not be encouraged at signal stations of any importance. In an enemy's country, visitors are generally spies, who come under various pretenses, the most innocent, to gather information as to what precise points are in view from the station in order that the enemy may avoid them, and such other items of useful intelligence as they may glean from unsuspecting officers. Visitors should never by allowed to tamper with glasses, to examine messages, or to do any act by which the enemy may gain unnecessary knowledge.

180. It is sometimes necessary for stations to change positions while working. In this case, the observing station should carefully watch the flag of the moving station, which must be carried flying, in order that it may be readily traced to the new situation. A movement of a station sometimes becomes necessary at the request of a communicating station, to improve the back ground, or the view of the moved station. These

movements are often for a few yards only. In such case, the moving station, carrying its own flag flying, must carefully watch the flag of the observing station, which is kept in view in order that it may be so watched, and the movement must be instantly stopped at a signal from the observing station, which indicates when the moving flag has reached the precise position desired.

181. When stations are certainly in sight of each other, preparations for continued work should be carefully made before the transmission of official messages is commenced.

182. Officers will always avail themselves of proper precautions to locate their men and themselves in unexposed positions. When in an exposed position, officers and men will lie down, except while transmitting messages. The flag will be kept flying, to indicate the position of the station to those who may be seeking for it, and to the other signal stations with which it may be in communication.

183. When there is danger of capture, all messages or important papers must be destroyed.

184. When there is any trouble about the visibility of signals, the largest and brightest flags, or other signals, should at once be used. It will often happen, that after working thus for a short time, the signallist, becoming accustomed to the range, will work successfully with smaller signals.

185. When, at the receiving station, it is noticed that a change in the color of the signals shown at the sending station would render them more visible, the fact should be immediately stated. When there is any question as to the color of signals to be shown at the different stations, each station should indicate to the other that color most distinctly visible from its own point of view.

186. Each signallist should have a particular signal by which he can be known.

187. This signal may be that for any letter or letters of the alphabet. It is known as the "officers signature, or call." It serves to distinguish him, and any message sent by him, and for the correctness of which he is to be held responsible.

188. By it is also designated the station at which the officer commands. A call, or particular signal, is in like manner generally assigned for each station, to distinguish that station from others.

189. Whenever these particular calls are seen signalled, it is known that the attention of the officers or the station is desired. The officer or the station should at once respond, making at the close of the response, this same particular signal by which they are identified. The calling station, or officer, should give his own call or signal. There is thus established between the parties a mutual knowledge as to the parties with which each is in communication.

190. There are times when it will be necessary to read messages, while it is known that the signalman is facing away from the reader. In this case, the messages will be easily legible, if it is remembered that each signal will appear to the reader to be precisely the reverse of that which is made by the signal-man; thus all those signals displayed on the right will seem to the reader to be shown on the left, while those actually made on the left of the signal-man, will seem to be made on his right. Recalling this fact, it will be as easy to read the signals made at any station from the rear of that station as it is from its front.

191. When working at night with the common signal equipment of the army, the foot-torch is to be filled as often as it becomes exhausted, without stopping signals or extinguishing its light. While transmitting a message, if it becomes necessary to fill the flying torch, drop the torch to the left, extinguish and fill it in that position, and then light it again a the foot torch; bring it, thus lighted, vertically above the head, which is the signal that the message is to proceed and go on as before. To thus drop the flying-torch at any time to the left and there extinguish it, is a signal that the working has been stopped in order to fill that torch. When a stop is made to fill a torch, it should be at the end of a word or a sentence.

192. It should be observed with care that the wicks of the signal torches are properly adjusted. If the wicks are too tight, the torch will not burn well. If they are too loose, the turpentine will escape, and it will burn

too violently. The wick of a flying-torch is properly trimmed when the flame of the burning torch seems to be about three inches in diameter.

193. When a flying-torch becomes too much heated while working—a fact which will be known by the singing sound and increased size of the flame---the working must stop for a few minutes, and the torch be held up, the signal staff being kept perpendicular until the flame has diminished to a proper size. A flying-torch should be filled, on the average, every fifteen minutes. If the torch is not kept well filled, it will continue to burn, but the wick will be reduced to a cinder; one wick, properly managed and with care to keep the torch well filled while in use, will last for a week.

194. When the wind blows from such a direction as by driving back the flame of the foot-torch to render the light of that torch indistinct when viewed from the communicating station, so place the torch as to bring the wind-shade upon it in direct opposition to the wind; and if this should not suffice, build behind the torch a screen, about two feet high and two feet long, of stones, earth, boards, or any other material, so that while the foot-torch is in front of the screen, and in view of the communicating station, its flame will be in the dead air, caused by and in front of the screen.

195. In cases of emergency, torches may be constructed of pitch pine, old cordage, canvas, rags, or other material, saturated with tar, or with any combustible fluid. Fire-brands, or any lights, will answer the purpose. With the preceding instructions of the manual, the signallist need hardly have in question the devises to be used. Any light that can be visible with any other as a point of reference, will afford sufficient means by which to transmit signal messages in any variety of code of signals.

196. Communicating stations ought not, when it can be avoided, to be located exactly on an east and west line, or the line of the apparent course of the sun. That station which is in the direction, from which the sun shines in any part of its course, is very liable to seem to be enveloped in a haze, and the telescope, if turned upon it, is filled with a dazzling light.

197. The landscape is often seen as perfectly clear and signals are plainly visible in every direction, excepting towards the rising or setting sun. There is a bright haze. It is better; therefore, that the line of the stations should obliquely cross the apparent course of the sun, and care should be taken to so arrange them. If that cannot be done, the stations lying in the apparent course of the sun, should be so located that they may have a sky exposure when viewed from the communicating station. This obviates, to a very great extent, the difficulty of sun haze; and wherever that difficulty exists, resort should at any time, be had to secure such an exposure for the obscured station.

198. In the same way, when there are temporary interruptions, as often happens from clouds passing the sun, a sky-exposure secured for the obscured, will render all signals, there displayed legible.

199. Signal stations should always be chosen as much elevated from the ground as possible, when there is difficulty about smoke or haze or dust. The vibration 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 house-top, when it is almost impossible so to 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.

200. The greatest elevation should invariably be sought. In the cool night air, the smoke and dust of the day lie close to the ground, filling the hollows and obscuring low lands, while the higher points emerge in view like islands. So, too the elevated points are free, to a great extent, from heavy moving mists and the malaria of unhealthy locations. There are these advantages, aside form their better location, for working. By careful selection 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."

REPEATING MESSAGES

201. Transient signals are so rapidly made, that they are repeated with difficulty. Permanent signals are repeated with precision. Where repetitions is to be habitual over long lines, some of the simple semaphores, once of common use, afford perhaps the most rapid and available means for communication. They have been improved by long experience to a degree, which renders them almost perfect. For ordinary ranges, and for common military uses, any of the different manual codes, heretofore described, are always available. Permanent semaphores need not be used except for convenience, or when a long line is to be worked continuously with a feeble force.

202. When a message is to be repeated over a line of stations, either by transient or permanent signals, a warning signal is first given, in order that there may be proper attention at the intermediate stations before commencing the message. This warning may be a message as thus: "repeat to" (naming the town). This warning is sent, from station to station, until it reaches the station named; this station replies by a concerted signal of "ready, " and each immediate station, repeating this signal back to the first station, stands ready to repeat the message which the first station commences to forward, signal by signal, at once on receiving the ready signal.

203. The intermediate stations repeating each signal letter and number as fast as they are received, as, for instance, was a message about to be sent from Washington to Frederick, the officer at Washington would first send over the signal line the warning "repeat to Frederick." This warning is repeated from station to station. On receiving it, the officer at Frederick, makes the ready signal, which signal is repeated back, from station to station, to Washington. Each station then stands ready to repeat the signal message, which is to follow. On securing the ready signal, the officer at Washington sends forward the communication, each station repeating each letter and number in its turn as it receives them.

204. When a message is being thus repeated through a number of signal stations, the officer at each station will call the proper number for each letter, and pause as he receives them, to his flagman, who, placed facing from the sending station and towards the station next in line, makes each signal in its proper order. Each officer, after signalling from his station each letter and pause, waits until he sees it repeated at the next station before he signals another.

205. The advantages of permanent signals have become apparent, for a permanent signal may be kept in view until it is repeated with certain correctness. All signals made at the repeating station will appear to the observers at the sending station reversed. When permanent signals are used, each sending station keeps its signal in view until that signal has been repeated at the next station, when it resumes the position ready, and waits the next signal from the station of departure.

206. Long lines of signal stations, with a small military force at each, being thus each in communication with the other, may constitute picket lines of great length and importance for holding and keeping under observation lines of communication, rivers, or extensive tracts of country liable to incursion or to be ravaged by predatory bands of the enemy, each station, having the power of communicating with those on either side of it, has virtually thus the advantage of their support, and no one can be attacked without the enemy being exposed to the concentration of forces called for by signals from different stations.

207. On river lines, where the protection of commerce is of importance, such stations afford at once shelter to the moving vessels, are able to warn them while at a distance of danger as of the location of the enemy upon the banks, or in case of attack to call to their assistance the vessels of war assigned to the duty of patrolling the stream. In the great river courses of this county, the advantage of picket lines of this description, guarding our rivers passing hostile territory, cannot be over estimated."

TRANSMISSION OF REPORTS

208. "It is essential that the reports of signal officers should be transmitted with rapidity. To gain time should be a chief consideration. The reports are generally of a character relating to facts actually

transpiring, and if they are not known to the proper authorities at once, they are useless. For this reason, minute arrangements ought always to be made beforehand, that the report may come by signals, from the post of observation, at once to the headquarters of the General commanding, if possible. The reporting officer must also, at his discretion, dispatch written reports, with maps giving full information. There should never be delay. The report should go by messenger at any time, rather than incur the risk of losing value by detention.

209. When, as on the field of battle some times happens, or in minor advances, etc., the report is of local importance only, and action on it would probably be taken by immediate commanders, copies of the report ought to be sent quickly to the nearest regimental, brigade, division, and corps commanders. Care must be taken to sign the report clearly, with the name and rank of the sender.

210. A copy of each report should be kept. The chief signal officer of the army at general headquarters, must be furnished daily with a copy of each report for the information of the Generals commanding. It is the duty of these officers to make, every evening, from all the detached reports which have reached them, a consolidated report from all information of any kind which has been received at their offices during the day, the chiefs with the corps, basing their reports on those of their subordinate officers, and the chief at headquarters consolidating for his reports those received from the chiefs of corps. The corps chief, submits his report to the corps commander, and sends a copy to general headquarters. The chief with the army, submits his own to the chief of staff, or to the General commanding.

211. All chief signal officers, in submitting their reports, give their views in reference to the accuracy of its parts. The reliability of the reporting officer, the concurrence of statements coming form officers observing at different parts of the line; the opportunities for correct observation had at different signal stations, and reporting other facts within their knowledge, by which the value of the report may be judged.

212. The consolidated report from each chief signal officer of corps should be sent in to general headquarters before the chief signal officer of the army makes his general report, and should be accompanied by outline maps, if possible. In this manner, the General commanding has before him, each night, a summary of all the information gained by the Signal Corps during the day, and can estimate its value by comparison with information from other branches of the service.

213. To render his reports accurate, complete, and really valuable, should be the aim of every officer, and to this end, the hours of leisure which come so often on stations of observation, should be devoted to the reading of works on general reconnaissance, the practice of map-sketching, and those companion studies of the military art which must go to make the education of any really valuable officer. The student will soon find his reward in the satisfaction to himself with which he renders his reports, and the higher satisfaction of the approval they are certain to elicit from his superior officers. There are open to none, broader fields to usefulness, than to the signal officers of the army.

LINES OF SIGNALS

214. At the beginning of the war, the use of signals was almost unknown. Telegraphs were novel in armies, not practically well understood by our soldiers, and not provided for in organization. Very little was known of the principles of telegraphic communication. It was not known how simply signals could be made, and at what great distances they were legible. The duty was experimental.

215. This want of general knowledge was simply because attention had not been directed to the subject. In the progress of the war, the use of signals has greatly developed itself. Signal stations may be really picket posts on long lines. If each little post is fortified, a line may thus be held in the immediate presence of the enemy.

216. A river passing through an enemy's country, with commerce upon it liable to interruption by guerrilla attacks, or by forces of the enemy can, by the establishment of small fortified signal stations, garrisoned and communicating, say at a distance of nine or ten miles apart, be virtually picketed and be made safe for commerce. This has been proposed in case of the Mississippi.

217. So when an army has for its duty only to watch a certain line, by a judicious arrangement of signal posts upon that line, it can be made almost impossible for the enemy to pass it without encountering concentrated forces. A heavy force lying back of the line of signal posts, and ready to move in whatever direction it may be notified, it would be impossible to destroy one of these little posts before information could be given to the others neighboring.

218. The uses of signals upon the field of battle, daily develop themselves. All the dominant points near a field of battle should be occupied by signal officers. Combined land and naval operations should never be undertaken without properly instructed signalmen.

219. When the Generals of our armies, and the officers commanding fleets, shall have become acquainted with the power of signals, the facility they give to operations, and the ease with which they can be used, thousands of applications will be found which are not now thought of. Each chief signal officer should consider it his duty to cause the subject of those duties, and their value, to be comprehended by the general officers with whom he is serving, and each chief should see that every post in his department, which might be liable at any time to be isolated, is furnished with equipments, code, and instructions to use it.

220. The issue of these notes will render this easily practicable. Similar provisions ought to be made for co-operating naval vessels, and the chief of each department, under instructions from the central office, should be held responsible that no detriment happens to the service from any want of communication between the different branches. It is to give general knowledge of this kind that these notes are partially intended."

APPENDIX C

WHY DO WE REENACT ?

What is the answer to this question?

Have you ever been to a Civil War reenactment and wondered what it was *really* like to have fought on those bloody fields nearly 150 years ago? Did you ever ask yourself: how did the uniforms feel, were the shoes uncomfortable, was the musket heavy, what was the food like? What did it feel like to march for miles and miles without rest, food or water? What were the emotions felt by those brave men? Oh yes, your history books and teachers told you about the War Between the States, our Civil War, but still...*something is missing.* You know what General Lee and General Grant did. You know that General Stuart was a master in the saddle and that General Sherman was one of the first to comprehend the concept of total war, but still... *something is missing.* Your books and teachers did not tell you much about how the average man lived, fought and died during these most historic times. What was it *really* like for him? Who was this man who believed so strongly in his cause that he was willing to leave his family possibly never to return? What did he feel? What were his thoughts? Continue on, my good friend, and I shall attempt to explain something of what this most unusual man, the "*Common Infantry Soldier*" felt while in the battle line. The man who has aroused your interest was an average person from a small town or village, maybe from a city. Some could read, but many could not. Very possible he was a deeply religious person. He was a son, a father, a husband, a cousin, a friend. He loved and was loved. Above and beyond all this, he was the *most important man in the war.* Was he a Confederate relative of yours from a farm in Virginia, Georgia or Alabama? Maybe he was a Federal ancestor from a small village in New England or a farm in Pennsylvania? He fought at Shiloh or First Bull Run where they thought the war would last only a month. He fought again at Sharpsburg and was awash in the sea of dead at the Sunken Road. Still, he fought on at Gettyburg where he lost members of his family. He was there at the Wilderness where he could not see past a few yards in front of his lines. He experienced Chickamauga, Spotsylvania, Cold Harbor, Fredericksburg, and the trenches at Petersburg where he stacked up the enemy's dead like cord wood and buried his friends and family. Finally one spring day he found himself at Appomattox or Bentonville, where it all ended after four long agonizing years. We are who we are and where we are today because of this man, and thousands like him. Our great nation was built on the bodies of these men. Let us never forget them...NEVER!! We as reenactors or living historians attempt to replicate the lives and times of those men and women who participated in this most horrific struggle. We do not glorify war, we glorify *them*, we make no political statements, those issues were settled 135 years ago. We do not bleed or die as *they* did, but merely attempt to breathe a bit of life into the history so clinically recorded of *their* deeds and lives. We do this for you, the spectators, and for ourselves, to feel those "magic moments". But most of all we do it for *them*, to honor the tremendous sacrifice *they* made for their cause. Join us now as we travel to an imaginary battlefield and experience for yourself what it was like for the common soldier in a battle line.

Why Reenact? For spectators, reenacting brings the past back to like in a vivid way. Reenacting has the ability to dramatically remind viewers that real people were once involved in great historical events that are often recalled today only in old books, fading signs, and dusty museum exhibits. Reenacting can wake people up to the reality and significance of their own past, and such improved public awareness often translates into increased support for important historical preservation efforts going on today.

For Reenactors, reenacting satisfies a deep personal curiosity about the past. The interest that a Reenactor has in history can be related to the traditional academic world of documents and artifacts, but is not identical. While reading an account of a Civil War Campaign, for instance, a Reenactor will ***know*** what if feels like to march for many dusty or muddy miles on hard leather soles; He will ***know*** how (and why!) a soldier welcomes his campfire and coffee at the end of the day, and he will ***know*** the incredible noise and confusion of a black powder skirmish. This intimate revelation often "brings home" the documentary record in a striking fashion, and the direct experience is one highly valued by Reenactors.

Reenacting is fun. No doubt about it. At least for most of us it is. Most of the time, but what is reenacting about? Well, to each man it is something different. Civil War Reenacting is something that can be best characterized by the individual.
Many years ago, when I was first getting interested in this hobby, a reenactor in the Midwest summed it up quite well. He said:

This hobby covers everything. You get to camp, if you like camping. You get to spend the weekend with your family and friends. You learn and live history, so if you are into history, you'll appreciate this. If you like acting, well, you get to ham it up in front of the audience at battle time. You get to wear uniforms and pretend you are in the army. THERE is something here.... at least one thing that appeals to everyone.

For many, too, I might add, there is the honor paid to civil war ancestors. A few may assume that each reenactor has the same goal for the weekend. It would be foolish to think so, for as there may be 500 men at a reenactment, so will there be 500 different reasons that each is there. Each man, given his degree of impression, will find his meaning through the reenactment. To each his own; to all, the cause for as the army comes together on Saturday afternoon for the spectacular battle, each impression will be fulfilled.

A NOTE ABOUT GETTING INTO REENACTING FOR THE NEW RECRUIT
If you are considering getting into this hobby, please read this. We welcome and want your participation, but we have a few suggestions.

#1 TRY BEFORE YOU BUY Reenacting is an expensive hobby and can be very expensive. We do not recommend that you invest in anything until you try a weekend as a reenactor. Most groups will outfit potential recruits for a weekend. We have seen too many instances where a person spends the $1000 or so to get outfitted, then realizes the first weekend out that they don't like it.

#2 YOU DON'T HAVE TO BUY EVERYTHING AT ONCE Consider buying used items when appropriate. We joke that we can always spot the new reenactors; they are the ones with brand new uniforms and a collection of the most expensive and often unnecessary items in tow. The necessities--clothing , canteen and weaponry are all one needs to consider at first. The longer you are in this hobby, then the more items you will collect. I guarantee it.

#3 SHOP AT FIRST ONLY WITH A VETERAN REENACTOR I am not knocking sutlers, but they are those guys with eyes shaped like dollar signs that love nothing more than a new recruit with a fat wallet. When purchasing items, if you are not sure of the necessity or authenticity, ask someone who knows.

#4 DON'T WORRY--HAVE FUN Reenactment groups are good about taking care of each other. If you have questions, ask. If you have an opinion or a need, speak up. Also, it is important to find a group whose philosophy towards reenacting matches yours. You will find more enjoyment of your weekend that way.

CONFIDENTIAL -- SCA -- MCW -- NO. 1 D

Combined Service Code (Text)

A	11	**K**	1212	**U**	221	**1**	12221
B	1221	**L**	112	**V**	2111	**2**	21112
C	212	**M**	2112	**W**	2212	**3**	11211
D	111	**N**	22	**X**	1211	**4**	11121
E	21	**O**	12	**Y**	222	**5**	11112
F	1112	**P**	2121	**Z**	1111	**6**	21111
G	1122	**Q**	2122	**and**	2222	**7**	22111
H	211	**R**	122	**ing**	1121	**8**	22221
I	2	**S**	121	**ed**	1222	**9**	22122
J	2211	**T**	1	**tion**	2221	**0**	11111

1	T	**211**	H	**1221**	B	**11111**	0
2	I	**212**	C	**1222**	ed	**11112**	5
11	A	**221**	U	**2111**	V	**11121**	4
12	O	**222**	Y	**2112**	M	**11211**	3
21	E	**1111**	Z	**2121**	P	**12221**	1
22	N	**1112**	F	**2122**	Q	**21111**	6
111	D	**1121**	ing	**2211**	J	**21112**	2
112	L	**1122**	G	**2212**	W	**22111**	7
121	S	**1211**	X	**2221**	tion	**22122**	9
122	R	**1212**	K	**2222**	and	**22221**	8

Stutter Code

AA	Answer	**PP**	Parley
BB	Between	**QQ**	Quit
CC	Clear	**RR**	Red Flag
DD	Delay	**SS**	Separate
EE	Equals	**TT**	Trenches
FF	Force	**UU**	Understood
GG	G. Charge	**VV**	Violance
HH	Heavy	**WW**	Woods
II	Indicate	**XX**	Excellent
JJ	Join	**YY**	Why
KK	Keep	**ZZ**	Hand-to-Hand
LL	Leave	**and and**	
MM	Med. Em.	**ing ing**	
NN	Near	**ed ed**	
OO	Opposite	**tion tion**	

11		**66**	
22		**77**	
33		**88**	
44	Use Smaller Flag	**99**	
55	Use Larger Flag	**00**	

W.W.W.	Use White Flag
B.B.B.	Use Black Flag
R.R.R.	Move Right A Bit
L.L.L.	Move Left A Bit

11.11.11.3	Message Received and Understood- Stand-by
11.11.11.333	Received Cease Signaling
ERROR	Flag overhead parallel to ground

SENDERS Left = 1 Right = 2 Front = 3

3 = End Word 33 = End Sentence 333 = End Message

Pre-Concerted Code

Advance	1	End Engagement	2
Ammunition Exhausting	11	Extend	22
Artillery	12	Faster- Without Delay	21
Attack	111	**Federal**	**222**
Begin Engagement	112	Final or Last	221
Brigade	122	Fire	211
Cancel	121	Flank	212
Cavalry	1111	General	2222
Cease Fire	1112	Stop - Halt	2221
Center	1121	Identify	2212
Clear	1122	Infantry	2211
Close	1211	**Left**	**2122**
Concentrate	1212	Minutes	2121
Confederate	**1221**	Move - Proceed	2112
Division	1222	Need	2111
No	**11111**	**Open/Close Plain Text**	**22222**
Press	11112	Wait	22221
Question ???	**11121**	When	22212
Ready	11122	Yards	22211
Redirect	11211	**Yes**	**22122**
Relay or Pass	11212	Your	22121
Reinforce	11221	One (1)	22112
Renew or Resume	11222	Two (2)	22111
Repeat	**12111**	Three (3)	21222
Reply At Once	12112	Four (4)	21221
Retire or Recall	12121	Five (5)	21212
Retreat - Backup	12122	Six (6)	21211
Right	**12211**	Seven (7)	21122
Skirmishers	12212	Eight (8)	21121
Signal (s)	**12221**	Nine (9)	21112
Slower	12222	Zero (0)	21111

Medical Emergency Code (MM) 2112-2112

11	Injury Is At My Location
12	I Will Go To Injury
21	Injury Is To My Left
22	Injury Is To My Right
211	Injury Is To My Front
212	Injury Is To My Rear
221	Open Plain Text Code
222	Close Plain Text Code
Head	
111	Eyes
112	Face
121	Ears
122	Head (None of the above)
Body	
1211	Neck
1212	Back
1221	Chest
1222	Abdomin / Organs
Limbs	
2111	Upper Leg
2112	Lower Leg / Foot
2121	Upper Arm
2122	Lower Arm / Hand
Condition	
2211	Conscious / Alert
2212	Unconscious / Unresponsive
2221	Resporatory Distress
2222	Arterial / Venous Bleeding

(*) Separate ALL Groups with a "3"
End With "33"
Resend Until Acknowledged

3 Element Code

Middle Numbers

	1's		2's		3's	
1's	A	111	J	211	S	311
	B	112	K	212	T	312
	C	113	L	213	U	313
2's	D	121	M	221	V	321
	E	122	N	222	W	322
	F	123	O	223	X	323
3's	G	131	P	231	Y	331
	H	132	Q	232	Z	332
	I	133	R	233	END	333

(By Middle Numbers)

Paddles or Hand Signals

1. ***Attention*** wave hand over head
Error Crossing hands over head
2. ***Signature*** Motion from position 1, to position 3, without pulling arm or paddle in, until position 3 is reached
3.

Commanders Address List

Federal / Union Addresses	Confederate / Rebel Addresses
1	2
11	22
12	21
111	221
112	222
121	211
122	212
1111	2221
1112	2222
1121	2211
1122	2212
1211	2121
1212	2122
1221	2111
1222	2112

11111	21111
11112	21112
11121	21121
11122	21122
11211	21211
11212	21212
11221	21221
11222	21222
12111	22111
12112	22112
12121	22121
12122	22122
12211	22211
12212	22212
12221	22221
12222	22222