

# STANDARD LIVING HISTORY ASSOCIATION CIVIL WAR ARTILLERY DRILL MANUAL

*(The original manual for the National Civil War Artillery Association, circa 1991)*

FROM: Instruction For Field Artillery, 1860, pp.110-117

*With Safety Modifications By:*

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and

**The Deep South Artillery Battalion**

*Final Modifications and  
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# The Living History Association, Inc.

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Dear Fellow Civil War Artillerist,

In the following pages you will find what the founders of the N.C.W.A.A. have felt is the best Civil War Artillery Drill which they can provide. It has a number of items that many drills do not contain such as checklists, and safety points with full explanations as to the reasoning behind those points.

What the drill DOES NOT CONTAIN is field evolutions with limbers and horses or field evolutions on foot as well as castromentation of camps, duties, bugle calls, etc. etc. We feel that many of these items are currently available through sutlers, The Artilleryman Magazine, or various book companies. As those of us who find information worthy of reprint or research that becomes available to fill a gap in the study of Civil War Artillery, we will then endeavor to print it in booklet form for resale. We also will make use of publications such as Artilleryman Magazine, Living History Journal, Living Historian Quarterly, and Camp Chase Gazette to bring various matters important to Artillerymen to the forefront.

This enclosed drill should not be looked at as the drill to end all drills. It is a beginning for a very new and unique organization of Civil War Artillerists. If you have A DRILL OF YOUR OWN THAT YOU HAVE BEEN USING FOR YEARS AND DO NOT WISH TO PART FROM, please submit it to our LHA Safety Officer. He will see that a team of certified inspectors go over the drill and make their comments on it. If this team recommends some minor changes, etc. and you make them, YOUR DRILL CAN BE CERTIFIED AS BEING SAFE AND/OR AUTHENTIC.

This drill and safety standards, plus the authenticity standards set forth under Artillery Certification will be the basis for certifying units as safe, competent and authentic reenactors. Actual certification can only be done through a field visit by an LHA approved field inspector. Once certified a unit will be able to use that certification as part of its resume of competence. As the organization becomes better known this certificate will be necessary to gain admittance to various reenactments and activities demanding high quality performances.

My Best,

James Dassatti



## **Two Most Important Reasons**

**1.** In firing cannons no less than two minutes should pass from the time that a gun is fired, cleaned and reloaded. This calls for the gun to be completely empty for no less than one minute and forty-five seconds before the command to advance the charge is given.

**THE TWO-MINUTE INTERVAL SHOULD BE CONSIDERED RAPID FIRE AND SHOULD BE USED VERY, VERY RARELY AND ONLY WITH THE BEST TRAINED CREW MEMBERS.**

The more PREFERRED PASSAGE OF TIME IS AT LEAST THREE MINUTES in the same sequence as above.

Many historic sites prefer five minutes between shots while the National Park Service uses a conservative ten or twenty-minute wait between shots.

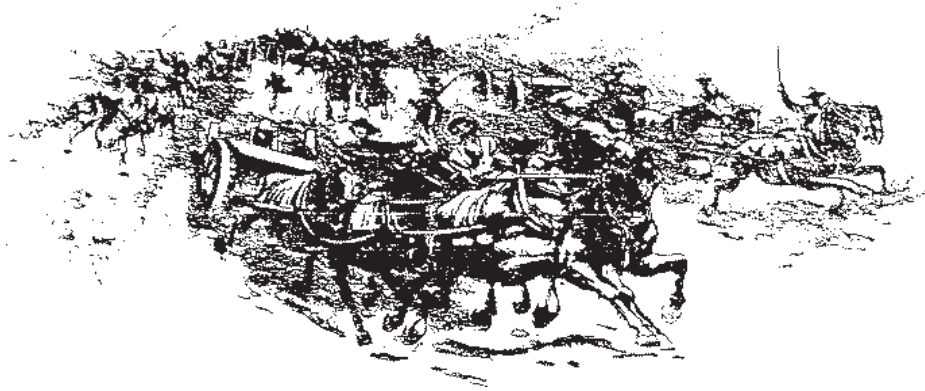
**TO RUSH THE FIRING SEQUENCE IS TO RISK INJURY.**

**2.** All gunpowder charges should be made by using a strong plastic bag or a nylon stocking into which the gunpowder is poured. (Some cannons due to bore size, vent size, or the amount of powder used have had problems with a plastic film being left on the inside of the barrel, others have complained that excess nylon has blown up into the vent. This problem seems most common among smaller caliber guns and rifles while full-scale 6pdrs & 12pdrs aren't as prone to these difficulties. If you notice this type of problem you may want to forego the use of the plastic or nylon bag and rely on a well wrapped broiler foil container.) Use no more than 4 oz of powder for every inch of bore when firing blanks. The bag should have as much air forced out of it as possible and a knot should be tied in the top leaving a little room for the powder to move around. (Nylon socks should be short socks, not long stockings.) This bag should then be rolled in at least three layers of heavy broiler foil keeping the foil as smooth and the charge as wafer like as possible. Be sure to overlap the seams and mark the top end of the charge where the bag knot is located with a magic marker, spray paint, or a like substance.

Various methods for rolling charges with photographs are available from Artilleryman Magazine and the address is below for your convenience.

**Artilleryman Magazine**  
234 Monarch Hill Rd.  
Tunbridge, VT 05077

(802) 889-5627



## School of the Piece

From: Instruction for Field Artillery, 1860, pp. 110-117.

Safety modifications have been inserted where deemed necessary. Included are illustrations for each position, and complete instructions for No.2 using the worm as part of the drill. Additions or modifications are in **bold type** to distinguish from historical text. A complete misfire drill procedure is incorporated at the end of the text.

## Loading & Firing

The piece is taken to the drill ground, unlimbered, and prepared for action; the limber in position behind the piece, and facing towards it; the end of the pole six yards from the end of the trail handspike.

For the instruction of recruits united for the service of the gun, or for competition purposes, the exercise is conducted By Detail, the instructor giving all the commands. His commands are, Load By Detail-LOAD; two, three, four: SPONGE; two, three four: RAM; two three; READY; FIRE; CEASE FIRING.

When the men are sufficiently instructed to go through the manual without detail, the commands of the instructor for that purpose are - LOAD; READY; FIRE. An officer or the chief of the piece will give the order to LOAD; COMMENCE FIRING; CEASE FIRING; or, simply, COMMENCE FIRING, and CEASE FIRING. After the command COMMENCE FIRING, the action is continued as laid down for loading without detail, until the command CEASE FIRING is given, which is repeated by the chief of the piece and the gunner.



## Duties of the Chief of the Piece (Sergeant)

The chief of the piece has charge of the platoon, consisting of the cannoneers, drivers, and corporals (gunner and chief of the caisson). The equipment in his charge is one piece, two limbers, one caisson, and thirteen horses. He oversees the operation of the platoon and insures the gunner gives the proper range and direction during firing, that proper ammunition is readily available, and horses are properly stationed. (When only 5 to 8 cannoneers are present, a sergeant is not appropriate — as he will have no duties).

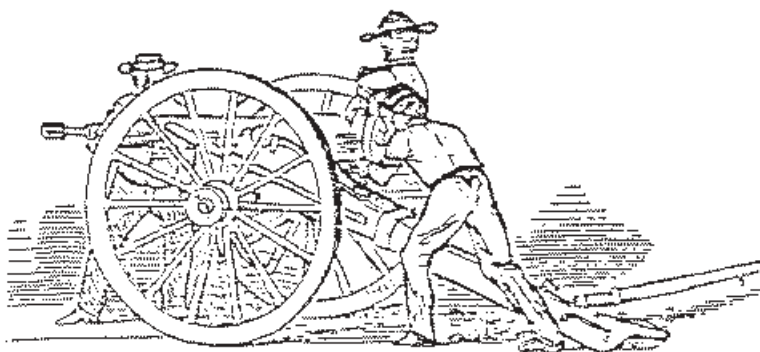
## Duties of the Gunner (Corporal)

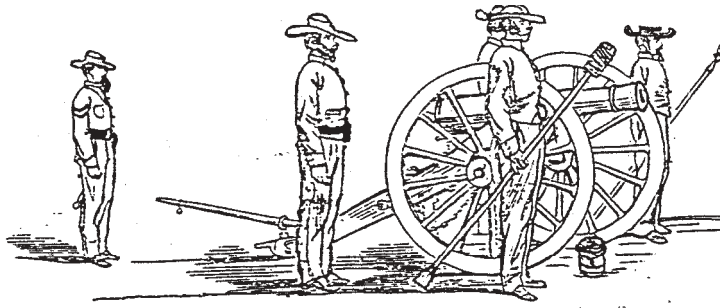
The gunner gives all executive commands for the gun in action. He is answerable to the chief of the piece that all the numbers perform their duties correctly. He communicates the orders which he receives from the section chief or chief of the piece for the kind of ammunition to be fired; sending to No.6 the time or distance for each round, when firing shells or spherical case shot. He should, when the firing is slow, see that each fuse is properly prepared, and make such corrections as are necessary; for this purpose he, as well as No.6, should be provided with a fuse-gouge.

On receiving the command, or signal to commence firing, he gives the command LOAD; takes hold of the handspike at the end with his right hand, and at the center with his left; places his knee against the left hand, bending over it, the right knee being slightly bent; looks over the top of the piece, and give the direction. He then steps to the breech to give the elevation, which he does by placing the hausse on its seat, taking hold of a handle of the elevating screw, drawing back his right foot, bending over his left knee, and sighting through the slit in the hausse.

When the piece is loaded and pointed, he removes the hausse, gives the command READY, and, stepping clear of the wheel to that side where he can best observe the effect of his shot, gives the command FIRE. As soon as the piece has been fired, he causes it to be run up to its former' place if necessary.

When the instructor, instead of giving the command COMMENCE FIRING, gives that of LOAD, the gunner repeats it, and performs the same duties as before, except that he does not command FIRE until ordered so. After the command COMMENCE FIRING is given, the action is continued by the gunner, without further commands from the instructor, until the firing is ordered to cease. When the commands are all given by the instructor, as in Loading By Detail, the gunner performs the same duties, but without repeating the commands.





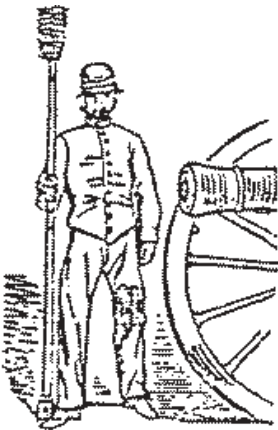
**NUMBER ONE** The instructor calls No. 1 to the right side of the piece, **insuring he is equipped with a pair of long heavy leather gloves and ear plugs**, and indicates the following parts with his hand, after naming them. The SPONGE and RAMMER: staff, sponge, rammer head, and ferrules. GUN: bore, muzzle, face, vent. He then commands:

A. **TO YOUR POSTS**

SPONGING AND RAMMING. Until the command LOAD, No.1 stands square to the front, in line with the front part of the wheels, holding the sponge about the middle of the staff in his right hand, and trailing it at an angle of 45°, sponge head up. The instructor commands:

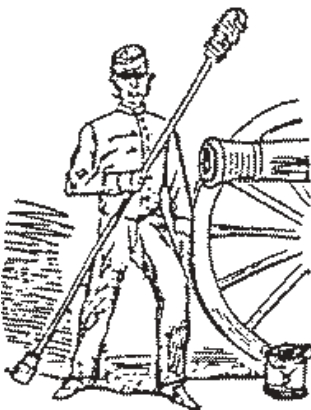
B. **BY DETAIL - LOAD**  
3 pauses; 4 motions

At this command No. 1 faces to the left, steps obliquely to the right with his right foot, without moving his left, and at the same time brings the sponge smartly to a perpendicular position by drawing his right hand up in line with the elbow. The sponge is grasped firmly in the hand, and the rammer head kept just over the right toe, the elbow close to the side.



**Two.** He steps obliquely to the left with his left foot, planting it about halfway between the piece and the wheel, and opposite the muzzle; bringing the sponge at the same time across his body to the left, so that his right hand may be opposite the middle of the body, the sponge staff being inclined at an angle of 45° across the front of it.

**Three.** He takes a side step to the right of 30 inches, and **lowers the sponge into the sponge bucket, which is beneath the muzzle. He then withdraws the sponge, brings the staff to a horizontal position while at the same time stepping backwards 15 inches with the left foot. He turns his body to the left bringing the sponge around the left horizontally until the sponge head is outside the wheel. The shaft is spun by the left hand. to remove excess water; he then steps back up to the muzzle and brings the sponge staff up horizontal with the piece, the sponge end just outside and to the left of the muzzle.**

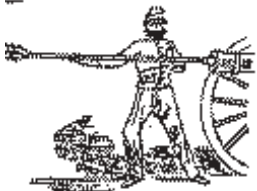
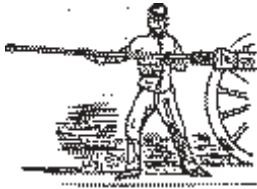


**Four.** He inserts the sponge head immediately after No.2 removes the worm then drops his left hand behind his thigh, shoulders square, feet equally turned out, straightens the right knee, and, bending over the left, forces the sponge home.

C.

## SPONGE

3 pauses; 4 motions



At this command No. 1 fixes his eye on the vent to see that it is closed, gives two turns to the sponge **to the left then two turns to the right**, taking great care to press it at the same time against the bottom of the bore.

**Two.** He draws out the sponge, at the same time straightening his left knee, and bending his right; seizes the staff near the sponge head with his left hand, back of the hand down, and places the sponge against the face of the piece.

**Three.** He turns the sponge by bringing his hands together in the middle of the staff, giving it a cant with each hand, throwing the sponge head over, at the same time turning his wrist, which brings the staff horizontal, and extending his hands to the ends of the staff, back of the left up, that of the other down.

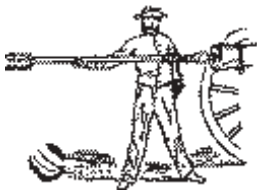
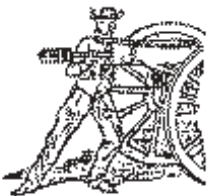
During the whole time of sponging, No. 1 keeps his eye on the vent. If at any time it is not closed, he will discontinue the maneuver, and command STOP VENT. . (No. 1 should repeat procedure 2-3 times.)

**Four.** He introduces the rammer head into the muzzle, as soon as No. 2 has inserted the charge. He drops his left hand behind his left thigh, the thumb of the right hand being extended along the shaft towards the sponge.

D.

## RAM

2 pauses; 3 motions



At this command No. 1 rams **the cartridge round** home, throwing the weight of his body with the rammer; bending over his left knee, and passing his left arm, with the elbow slightly bent, and back of the hand up, in a horizontal position over the piece, until it points in the direction of the left trunnion; the right shoulder thrown back, and the eyes cast towards the front until the cartridge is home. **In ramming. No. 1 passes his body beyond the muzzle of the piece just prior to seating the cartridge.**

**Two.** He jerks the sponge out with his right hand, allowing it to slide through the hand as far as the middle of the staff, when he grasps it firmly, all of the time making an effort to use only the right hand in extracting the rammer; eyes to his own front, and then draws the sponge close to his body, **his hands being withdrawn from the axis of the gun bore.**

**Three.** He immediately steps back outside the wheel, first with the right, then with the left foot, so that when the right foot is brought to it the right hip may be on a line with the front of the wheel. In drawing the right foot to the left, he gives the sponge a cant with his left hand, at the same time quitting it, and brings the sponge to a perpendicular position in the right hand, the rammer head resting on the right toe.

E.

## READY.



At this command, which is given as soon as **No. 1 is outside the wheel**, and the firing about to commence, No. 1 breaks well off to his left with the left foot, bending the left knee, and straightening the right leg, places the rammer head upon the wheel hub in a vertical position, and fixes his eyes on the muzzle.

The heels should be parallel to the wheel, the body erect on the haunches, and the sponge and rammer held in both hands in a vertical position, sponge-head up.

The piece having been fired, No. 1 rises on his right knee, and returns to his position, as in the third motion of RAM. At the command LOAD, he steps in and performs his duties in the same manner as before. The rammer position is a warning, "the gun is up."

F. When the loading is not By Detail, No. 1 goes through all his duties at the command LOAD, returns to his position outside the wheel, as given in the third motion of RAM; breaks off at the command READY, and at the flash of the gun rises, steps in, and performs his duties in the same manner as before. This he continues until the command CEASE FIRING is given, at which command he resumes the position: To your posts. If the sponging has been commenced when the command CEASE FIRING is given, it is completed before No. 1 resumes his post.

In sponging howitzers, No. 1 presses the sponge to the bottom of the chamber, which should be well sponged out. He wipes the bore by rubbing its whole surface, without allowing the sponge to turn in his hands.

G. REMARKS ON THE DUTIES OF NO.1. The position of the left foot will not be considered as absolute; it is given as the usual one, and may be modified according to the caliber of the piece, and height of the man. The same remarks will apply to the distance between the feet. They will be placed in such position, and at such distance from each other, as will enable the man to perform his duties with the most ease and steadiness, and at the same time exert his full strength, which will always be required after firing a few founds, especially when a new sponge is used.

One object of casting the eyes to the front whilst ramming, is to refuse the right shoulder; and to secure this object, the left hand, when it passes over the piece, is not carried further back than the direction indicated. This will keep the shoulders in a line parallel with their position, at the commencement of the movement, until the cartridge is set home, and thus guard against fatal results in case of a premature discharge.

NUMBER TWO LOADING. The instructor places No.2 on the left of the piece, **insures he is equipped with ear plugs and a pair of long heavy leather gloves**, and repeats the nomenclature as for No.1, indicating the following named objects, and explains their uses: STRAPPED SHOT: cartridge, ball, sabot; CANISTER SHOT: cartridge, canister; SHELL, OR SPHERICAL CASE SHOT: cartridge, case shot or shell, fuse; **BORE WORM: staff, worm**. He then commands:

A.

## TO YOUR POSTS

Until the command LOAD is given, No.2 remains in his position holding the worm in his left hand and trailing it at an angle of 45°, worm end up. The instructor commands:



B.

### BY DETAIL — LOAD

three pauses; four motions



No.2 faces to the right, steps obliquely to the left with his left foot, without moving his right, and at the same time brings the worm smartly to a perpendicular position by drawing his left hand up in line with the elbow. The worm is grasped firmly in the hand, and the worm staff kept just over his left toe, the elbow close to the side.



**TWO.** He steps obliquely to the right with his right foot planting it halfway between the piece and the wheel, and opposite the muzzle; bringing the worm at the same time across his body to the right, so that his left hand may be opposite the middle of the body, the worm staff being inclined at an angle of 45° across the front of it.



**THREE.** He takes a side step to the left of thirty inches and bending his knee, brings the worm to a horizontal position, extending the hands to the end of the staff, the worm head to the right, the back of his left hand up, that of his right hand down.

He inserts the worm, drops his right hand behind his thigh, shoulders square, feet equally turned out, straightens the left knee and bending over the right, forces the worm home. With both hands, he gives a minimum of two turns to the staff in the direction of the worm's gaining twist.



He draws out the worm, at the same time seizes the staff near the worm head with his right hand, back of hand down. He then draws the worm close to his body.

**FOUR.** He steps back outside the wheel first with his left, then with the right foot. In drawing the right foot to the left, he gives the worm a cant with his right hand, at the same time quitting it, and brings the worm to a perpendicular position in the left hand with the worm head up, the bottom of the shaft over the left toe.

C. He faces to the right, steps forward with the right foot and lays the worm on the ground just outside the wheel. Rising up, he faces to the left and steps inside the wheel as before and faces about. He then reaches inside No. 5's gunner haversack to remove the ammunition; the cartridge in the right, the shot in the left.

As soon as the sponge is withdrawn by No. 1, he faces about and places the ammunition into the muzzle, taking care that the seam of the cartridge does not come under the vent and then steps back, faces to the right and retrieves the worm with the left hand. He then faces to the left assuming the position of attention; the staff being perpendicular touching the left toe.

D.

### READY

At this command No.2 two breaks well off to his right with his right foot, bending the right knee, and straightening the left leg; the body erect on the haunches, and fixes his eyes on the muzzle. At the same time he brings the worm across his chest with left hand, grasping it with the right hand, holding it horizontal to the ground, with the worm head to his right.

The piece having been fired, No.2 rises on his left leg bringing the worm staff to a vertical position in the left hand, the staff resting on the left foot and remains facing the piece until he hears the command LOAD or CEASE FIRING. **At either command he inserts the worm to remove fouling from the bore then immediately** returns to the position TO YOUR POST.

NUMBER THREE SERVING THE VENT. The instructor places No.3 on the right of the piece, indicates the following objects, and explains their uses: TUBE POUCH; THUMB STALL; PRIMING WIRE; **VENT BRUSH**; GUNNERS' GIMLET; FRICTION PRIMER; LANYARD: lanyard hook; VENT: vent field; BREECH: cascable, knob, and neck of cascable. He then commands:

A **TO YOUR POSTS.**

No.3 stands in line with the knob of the cascable, covering No. 1, the priming wire **and vent brush** in his right hand, the thumb stall on the left thumb, the tube pouch fastened to the waist.

B. **LOAD.**

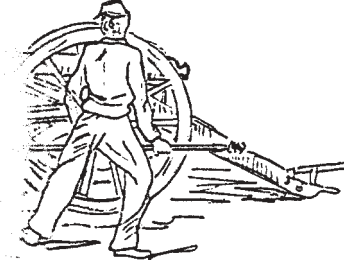
At this command he steps to his left, **inserts and removes the vent brush from the vent (Prior to the worm or sponge being inserted)**, wipes the vent field with the thumb stall, which he then holds pressed upon the vent, keeping his elbow raised; his fingers on the left side of the piece, so as to allow the gunner to point over his thumb; the right hand on the tube pouch. After the piece is **charged and the rammer removed from the bore by No. 1**, he jumps to the end of the trail handspike, and, seizing it with both hands, prepares to move it to the right or left, on a signal from the gunner, who taps the right of the trail for a movement to the left, and the left of the trail for a movement to the right. As soon as the piece is pointed, the gunner raises both hands as a signal to No.3, who then resumes the position to your posts.

C. **READY.**

At this command, he pricks the cartridge **with the priming wire with one stroke of his left hand, the left arm fully extended. He then steps to his right, clear of the wheel, and resumes the position To Your Post.** At the command LOAD, serves vent as before.

No. 3 should be careful to keep the vent closed from the time the sponge enters the muzzle until **the rammer is removed by No. 1.**

NUMBER FOUR FIRING. The instructor places No. 4 on the left of the piece, equips him with a tube pouch, and repeats the nomenclature as for No. 3. He then commands:

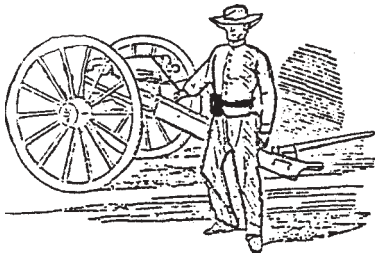


## TO YOUR POSTS.

A. No.4 stands in line with the knob of the cascable, and covering No. 2.

B. **LOAD.** At this command, No. 4 inserts the lanyard hook into the ring of a primer, and stands fast.

C. **READY.** At this command, he steps in with the right foot, drops the tube in the vent, takes the lanyard in his right hand, moves to the rear so far as to keep the lanyard slack, but capable of being stretched, without altering his position, which should be clear of the wheel, left foot broken to the left and rear.



D. **FIRE.** No. 4 **turns his head to the left and** pulls the lanyard briskly and firmly, passing the hand, back up, in a downward direction to the rear, so as to keep the lanyard hook from flying back in the direction of the face. **After the piece discharges, he returns to the position of To Your Post.**

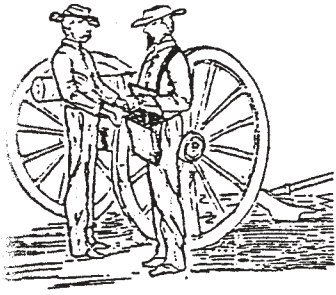
At the command, Cease firing, No. 4 secures his lanyard, **and returns to the position of To Your Post.**

No. 3, as well as No. 4, should be equipped with a tube pouch, furnished with friction primers and lanyards. In the absence of No. 4, immediately after pricking the cartridge, No. 3 prepares and inserts a tube, steps to his post, faces away from the vent, breaks to his rear with the right foot, and at the command FIRE, discharges the piece with the left hand in the same manner No. 4 uses his right. He then resumes his post, and tends the vent as before.

NUMBERS 5,6,7 SERVING AMMUNITION. The instructor stations No. 5, covering the left wheel, 5 yards in rear of it, and No. 7 in rear or near the left limber wheel; No. 6 is stationed in rear of the limber chest, and issues the ammunition. He is provided with a fuse-gouge, and prepares the shell and spherical case shot according to the distance or time ordered, before delivering it to No. 5.

A. **TO CUT THE FUSE.** Place the projectile between the knees, fuse uppermost, and support it with the left hand. Holding the fuse-gouge in the right hand, place the left corner of its edge close to, and on the right of the graduated mark indicating the time desired; then cut away gradually until the composition is exposed for a length about equal to the width of the gouge. Great care must be taken not to expose the composition to the left of the proper graduation mark, and to this end particularly avoid commencing to cut too close to the desired mark; for after the composition is once exposed it is very easy to pare away from the left, if the time has not been accurately cut. When time permits, it is well to expose the composition fully, either by cutting the opening larger, towards the right, or (with shells only) by cutting another opening to the right of the first. It is in all cases better to enlarge the first opening, and always by extending it towards the right.

Care must be taken not to cut the fuses more rapidly than the demand for shells and shrapnel shot requires.



B. At the command LOAD, No. 5 walks to the ammunition chest, receives from No. 7 or No. 6 a single round, the shot in the right hand, the cartridge in his left hand **and places them in his haversack; he then** takes it to the piece and delivers it to No. 2; returns immediately for another round, and then halts at his post until the piece is fired. In firing shells or spherical case, he exhibits the fuze to the gunner before delivering the charge to No. 2.

C. Ammunition pouches **or gunner's haversacks** are used by Nos. 5 and 7, hung from the left shoulder to the right side; the round is placed in the pouch by No. 6 or No. 7 so that the cartridge will be to the front. When it is brought up No. 5 holds open the pouch, and No. 2 takes out the round with both hands. In rapid firing, with round shot and canister, Nos. 5 and 7 may alternate in delivering the charges to No. 2, especially when the ammunition is used direct from the caisson. At the command CEASE FIRING, No. 5 carries the round back to No. 6.

D. No. 6 will be careful not to raise the lid unnecessarily. It should be kept closed when possible. In firing shells and case shot, he prepares each fuse as directed, assisted when necessary by No. 7. He gives No. 5 the time or distance of the fuse with each round issued, who reports to the gunner before delivering it to No. 2. At the command CEASE FIRING, he carefully replaces the ammunition in the chest, and secures the lid.



# Misfire Drill

A. Despite the procedures and drill a crew follows, an equipment failure or a human error can cause the piece to misfire. When this occurs, the piece will have to be reprimed. The following are instructions on how to **SAFELY** reprime the piece with built-in precautionary measures to reduce the possibility of injury.

The Gunner commands:

**“DO NOT ADVANCE! THE PRIMER HAS FAILED!”**

B. The cannoneers remain in their **READY** position. The Gunner informs his chief of the piece or section chief then removes his timepiece and insures that a **MINIMUM** of 60 seconds has elapsed. When the time has elapsed, the Gunner commands:

**“REPRIME!”**

C. The cannoneers remain in their **READY** position except Nos. 2 and 4 as noted below:

1. No.2 lays aside the worm, comes to attention, and receives a priming wire from No.4. He then steps inside the wheel refusing his body to the muzzle by brushing his abdomen against the wheel, and, when reaching the axle, does a left face. With his left gloved hand, he removes the spent primer, and wipes the vent.
2. No.2 then takes the priming wire in the left hand, placing the shaft of the wire, point down, between the ring and middle finger with the palm up. (NOTE: The fingers are **NEVER** inserted into the ring or hoop of the priming wire.)
3. No.2 inserts the wire in the vent and repunctures the cartridge with two **GLANCING** blows to the top of the priming wire with his left hand. He then removes the wire by grasping the straight portion of the wire between the middle and ring fingers of his left hand, again palm up, and lifts up quickly.
4. No.2 then receives from No.4 a new friction primer attached to the lanyard over the top of the left wheel and returns the priming wire. No.2 inserts the primer into the vent with his left hand and then holds the lanyard with the side of his left hand against the barrel, away from, but near the vent.
5. No.4 extends the lanyard by moving to his position to fire the piece. Once No.4 has removed the slack from the lanyard and is ready, he indicates to No.2 with a nod of his head that he is ready.
6. No.2 after receiving the nod from No.4, moves back outside the piece in the same manner he came inside the wheels, retrieves his worm and returns to his **READY** position.
7. The gunner insures that all cannoneers are in their **READY** position **BEFORE** giving the command:

**FIRE!**

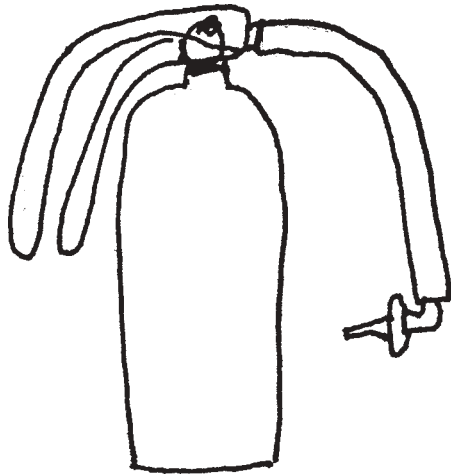
D. If the piece does not fire on the third attempt, the above procedure shall be followed again; however, the vent shall be flooded (in place of repuncturing the cartridge) and the charge withdrawn by the worm after the cartridge has been sufficiently soaked.

At any time deemed prudent by the Gunner or the Chief of the Piece, the cannoneers may be ordered to leave their post and fall-in in front of the limber.

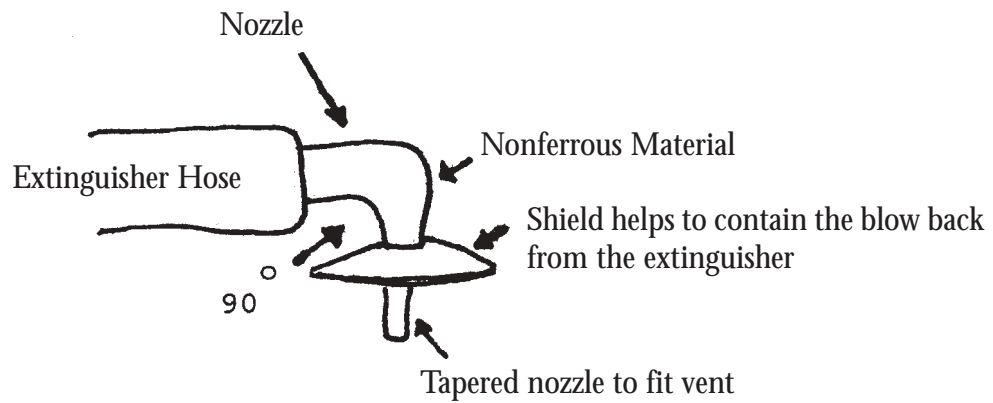
E. These directions should be followed to the letter. There have been occasions where the above practices have been necessarily implemented due to a faulty primer. Not following this procedure following a misfire could cause injury due to a hang-fire.

(Once a piece cannot be reprimed and the bore must be flooded the preferred method is to first flood the vent with as much water as possible and then to flood the muzzle without standing in front of the muzzle. Once this is done a period of thirty minutes is needed for the water to soak the charge Obviously this can shut down a gun for the entire demonstration or battle. On the next page is a quick easy and very safe way to deal with a misfire which takes much less time by the use of a fire extinguisher. Artillerists should remember that a misfire is your most dangerous enemy.)

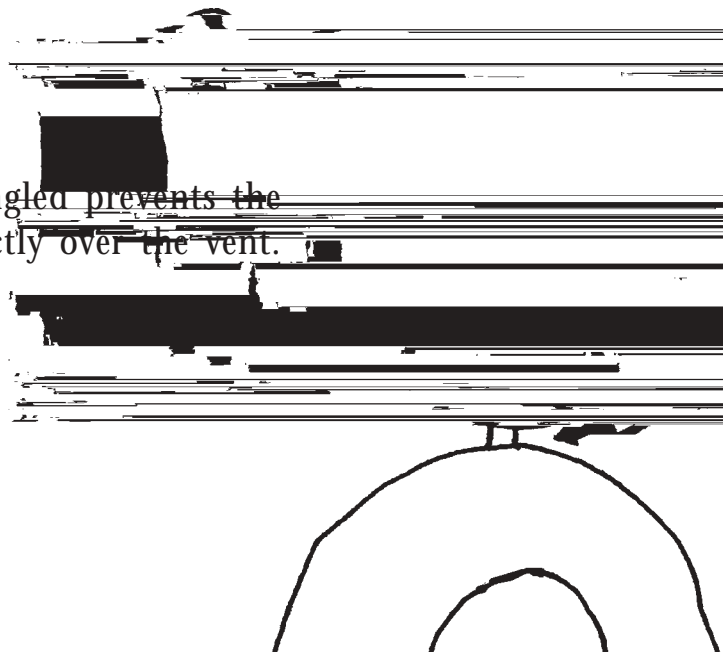
# Misfire Procedure Using A Fire Extinguisher



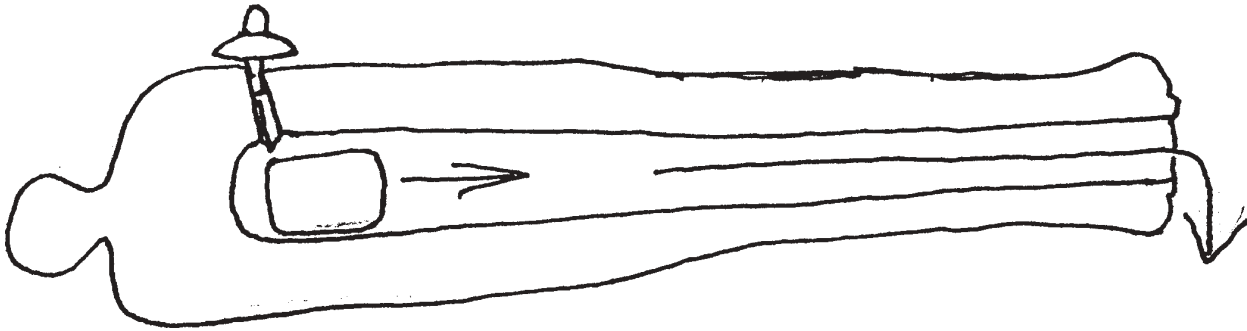
Fire extinguisher should be of the type that can handle any type of fire (CO<sub>2</sub>) having a flexible hose to the nozzle.



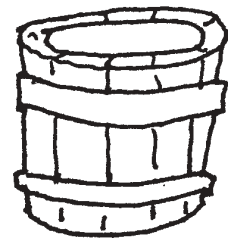
Nozzle being angled prevents the need to be directly over the vent.



Shooting a blast of the extinguisher fluid into the vent will cool the vent and muzzle as well as propel the charge out the end of the muzzle. This will extinguish all sparks and literally freeze the charge.



Once charge is out submerge in water to be disposed of.



Water Bucket

After procedure has been followed the gun can be cleared and put back into service.



## Clarification of Drill and Safety Tips

### I. Wet Sponge, Ram, Signal When Gun Is Up Wet Sponge:

This is one of the most important jobs in the entire artillery crew and the number one man has to remember that his arms, eyes, and very life may depend on how well he does his job. REMEMBER: Dip the sponge head in water, shake off excess water, insert sponge until it reaches the back of the breech, rotate at least two times in a clockwise direction, withdraw sponge and check for debris. Cartridge material many times will fall on the ground, lie at the end of the muzzle or be attached to the end of the sponge. This debris should be picked off the sponge or end of the muzzle and be discarded. Reinsert the sponge to the back of the breech and rotate in a counter clockwise direction, again withdrawing the sponge and checking for debris. The procedure should be repeated until the No.1 man is confident in his own mind that the gun is clean. His life may depend on that certainty. When the No.1 man is sponging the piece he should make sure that the No. 3 man is holding his vent stall firmly over the vent. A good seal on the vent is very apparent as when the No. 1 man withdraws the sponge a suction is heard in the muzzle that many times results in a "WHUMP" sound as the sponge clears the barrel. This means that you are creating a vacuum in the muzzle that allows the sponge to suck out all the debris, sparks, and oxygen that is in the barrel. This cannot be attained without proper stalling of the vent.

It is also important to note that all of this activity will do you no good at all if your sponge is faulty. Therefore make sure that your Sponge head is made of heavy yet somewhat loose weave of carpet, or layers of sheep skin wool, even several layers of heavy socks will work (although less preferred). The sponge end shaft must be completely covered with the above material, i.e. butt end and sides. Also the fit of the sponge to the bore must be tight enough so that the No. 1 man must apply pressure to get the sponge down the barrel. The butt end should be slightly domed to fit into the back of the breech; thereby the sponging material will scour out the entire breech.

Ramming: The preferred method is to have the No. 1 man use one hand only at all times while ramming and while withdrawing the rammer. Regardless of which hand the No. 1 man may choose to ram with he should always keep a flat palm with his thumb pointed away from the muzzle. He should also extend his arm as much as possible so as to keep as much of his body out of harms way as possible. NEVER LOOK DIRECTLY INTO THE MUZZLE ITS A GREAT WAY TO LOOSE YOUR EYES!

Suggestion: Before the charge reaches the back of the breech thrust the rammer and release, step between the wheel and the tube facing to the rear of the piece, bringing the entire body behind the line of the muzzle, count slowly to five, withdraw rammer a short distance (8-10 inches) and tap the charge to make sure it has seated. Withdraw rammer and return to your post for firing opposite the wheel hub. Place the rammer head on the wheel hub with the rammer in a vertical position. This is a signal to opposing infantry that the gun is up. As the command READY is given the No. 1 man should step away from the wheel removing the rammer from the hub.

The No. 1 man should always make sure that while he is ramming the charge that the No. 3 man is properly venting the gun. Otherwise, the vent will become an air passage while the rammer will act as the arm of a bellows. If a spark is in the breech, not venting the gun will push oxygen on the spark making it glow and igniting the rammed charge on impact with the rear of the breech. By venting the gun a vacuum is created pushing air away from any sparks that may still be in the breech from faulty sponging. Proper venting in itself will extinguish sparks!

There are several types of rammers available for use to make the No. 1 mans job a safer one. The worst type is the standard army issue of the civil War having a round block head. If a charge goes off during the ramming process several things can happen. Explosion at the exact time when the rammer is seated firmly on the charge in the rear of the barrel usually results in the rammer being fired several hundred yards in the air in one piece. It also can result in throwing the No. 1 man several feet in the air with some severe burns. There is a chance that the evenness of the impact will allow the No. 1 man to escape without much other injury. Since the time to seat a charge is small most accidents occur while inserting the charge or while withdrawing the rammer. An accident at that point is very dangerous because in almost all cases the rammer shaft shatters creating flying shrapnel. The round block rammer head exits the muzzle on a less even path and can strike the No. 1 mans extended ramming arm either shattering it or severing it completely. The block form of the standard army issue rammer makes it that much more of a dangerous projectile.

A safer rammer to use as well as an authentic rammer that was actually used in the civil War is the Mississippi Rammer. This rammer is basically the same as the standard army issue except that the head is tapered in a long even taper to form an expanded shaft for a ram. Should the gun fire prematurely this rammer has a better chance of merely sliding through the hands of the No. 1 man and exiting harmlessly down range. If the shaft breaks the design of the rammer might allow it to glance off anything it hits and thereby do less damage.

The last type of rammer is a French Rammer. This rammer has no sponge head but rather is a rammer head mounted on the end of a 180 degree curved shaft. This rammer was brought by the French to the U.S. during the Revolutionary War. It is not terribly authentic for the Civil War period (although some were used) but it is the safest of all the rammer types. It basically allows the No. 1 man to ram and remain behind the end of the muzzle flash area at all times. If the gun goes off prematurely he may get a few burns and a good scare but that's about it. The French Rammer is also good in a misfire situation as it is the only safe rammer with which you can safely reseal a charge. Without a French Rammer

**16** the NCWAA never suggests that you reseal a misfired charge.



## **II. Worm, Dry Sponge, Insert Charge.**

**Worm:** The worm of the Civil War was a standard size, i.e. 3". The NCWAA strongly recommends that each gun crew have a worm made for the size of their gun i.e. Ordinance Rifles and 10pdr Parrots, 3" worms, 6pdrs a 3.57" worm, 12pdr Napoleon a 4.67" worm. Also be sure that the points are fixed so that they will in fact pick up debris in the barrel. The idea is to blanket the inside of the barrel with a tool that will adequately clean it, hence a need for variant sizes.

**Remember:** Insert the worm and rotate twice so that the head will pick up foil and debris from the expended charge. Withdraw and repeat until satisfied that all debris has been removed.

**Dry Sponge:** This operation is an optional one based on your own philosophy. It is an operation generally performed by an extra member of the crew or by the No. 2 man just after the No. 1 man finishes sponging with the "wet sponge". The dry sponge is just that "DRY". It is performed in the same manner as sponging but with a separate and dry sponge. The purpose is to prevent a water build up in the barrel. A puddle of water can form in the barrel and this same puddle can cause some of the gunpowder from expended charges to lie in the puddle unignited. After several rounds the powder builds up and could ignite a new charge prematurely. Hence there is a need to keep from having a water build up in the barrel.

The dry sponge, being "dry" cleans out any excess water. Those who feel dry sponging is a worthless procedure usually make the argument that after ten rounds are fired the dry sponge in fact is no longer dry, but rather has now become a wet sponge. On the other hand, this being the case it must mean that there is in fact excess water in the barrel of these weapons without the dry sponging. The important thing to remember is that it takes a good amount of water to extinguish the remnants of expended charges, but that excess water build up can also be dangerous. If you don't dry sponge then lift the trail of your piece every 5-10 rounds and get the water out. Also be aware that the inside of the gun barrel may be uneven and a natural puddling area could exist in the barrel itself. Beware of excess water!

**Inserting The Charge:** The man placing the charge in the barrel should be aware of how the charges were made. Do they have a plastic bag or nylon bag inside? Where is the seam of aluminum foil located? Are there three layers of broiler foil on the charge? At which end of the charge is the knot in the bag located? This should be marked with a magic marker, etc. so that the knot end is always facing out of the muzzle upon insertion. This will allow for the least amount of build up in the barrel.

**Remember:** Place the charge in the muzzle making sure the knotted end of the charge is facing out.

## **III. Brushing Vent, Stalling Vent, Picking and Priming Charge**

**Brushing the Vent:** Be sure that the brush is in good condition and that the brush is the proper size for the vent, i.e. a snug fit. **Remember:** Brushing the vent must be done before worming or sponging.

**Stalling the Vent:** A snug fitting thumb stall is required and during the procedure no air should pass through the vent. If air does pass through the vent the entire loading procedure has been ruined and must begin at step one, i.e. brush vent, worm, and sponge. The No. 3 man must stall the vent from the worming procedure through to the time the charge is rammed and the No. 1 man is totally clear of the muzzle. Should his stall seal be broken at any time during the procedure he will be endangering the life of the No.1 man due to a potential premature firing as well as the loss of his own thumb from blow back in the vent. **AT NO TIME SHOULD ANY INDIVIDUAL PLACE ANY PART OF HIS BODY (PARTICULARLY HIS EYES) OVER THE VENT OTHER THAN YOUR THUMB WITH A PROPER STALL UPON IT.**

**Picking Charge:** A non-ferris pick that punctures charge yet doesn't hit bottom of the breech. Can be done by No. 3 or No. 4 man depending on procedure used. The above drill calls for the No. 3 man for this duty.

**Priming:** This should be done with the use of a friction primer. In the event that powder is used and ignition is made through use of a linstock the powder used to prime with must be contained either in a cartridge of not more than 120 grains of powder or through use of a small straw squib filled with powder also not exceeding 120 grains of powder.

**Remember:** When priming the No. 4 man attaches the lanyard and moves away from the gun. He must be very careful not to trip and set off the gun before everyone is ready. Once the No. 4 man is hooked up to the primer he should side step away in a manner so as not to cross his legs and fall. Everyone should be outside the wheelbase before the gun goes off. When live firing a misstep will set off the gun and the recoil of the gun could injure crew members by rolling back on them. The danger in reenactment firing is not as great, as without a projectile the cannon should not be using enough gunpowder to recoil.

A procedure that can be used in reenactment firing which cuts down on the lanyard mans movement is as follows:

No. 4 man hands primer and hook of lanyard to No. 3 man who holds them until the No. 4 man is in position. No. 3 hooks lanyard to primer, puts the primer in the vent and steps outside the wheel base and to his post.

Again, this practice cannot be used for live firing and if your crew does a lot of shoots and reenactments each year we suggest you use only the method described in the previous drill manual. This will elevate any confusion.

**Linstock:** When using a linstock the No. 3 man always primes the piece. The No. 4 man holds the linstock and stays to the right rear of the piece to be away from the path of the No. 5 man. When the order is given the No. 4 man can either advance and fire the piece or hand the linstock to the No. 3 man and he will fire the piece.

#### IV. Charge Transport, Tending Chest, Command.

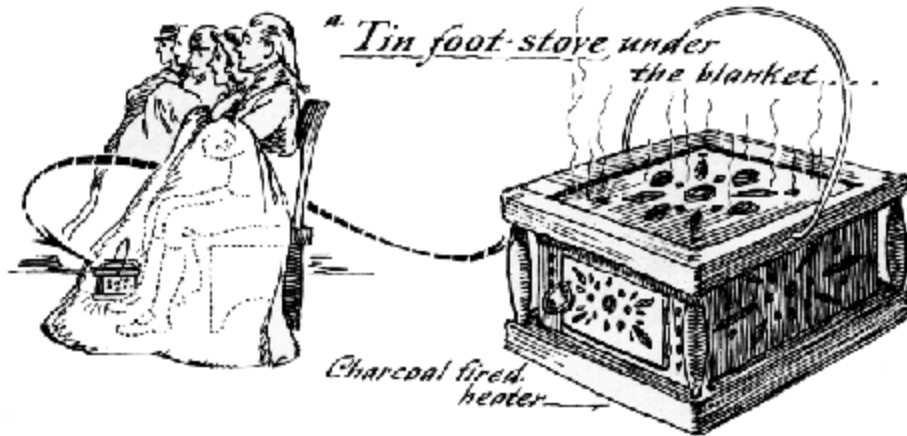
Transport Charge: The No. 5 man transports the charge in a large leather haversack making sure that the charge does not have any ruptured areas. He should keep a note pad marking the number of rounds expended.

Tending Chest: The No. 6 & 7 men should tend the chest, cut fuse, dispense charges, etc. They should also have a form that shows the date of today's firing exercise, the place and time, the number of rounds in the chest at the opening of the exercise, the approximate size of each round and above all the number of rounds expended. These men should also be qualified to take the place of any of the other crewmembers. They must also make sure that no one; spectators or reenactors, come within twenty-five feet of the powder chest. If anyone other than authorized personnel enter the area of the powder chest the command of cease-fire will be given and the powder chest will be locked and all activity will be halted until the unauthorized personnel are removed.

Command: The Gunner commands and is responsible for the actions of his men as well as for the safety of spectators in the surrounding area. He must always remember that safety out weighs authenticity at all times. He should also have a first aid kit prepared with a tourniquet, eyewash, burn medicine etc. that can be placed nearby.

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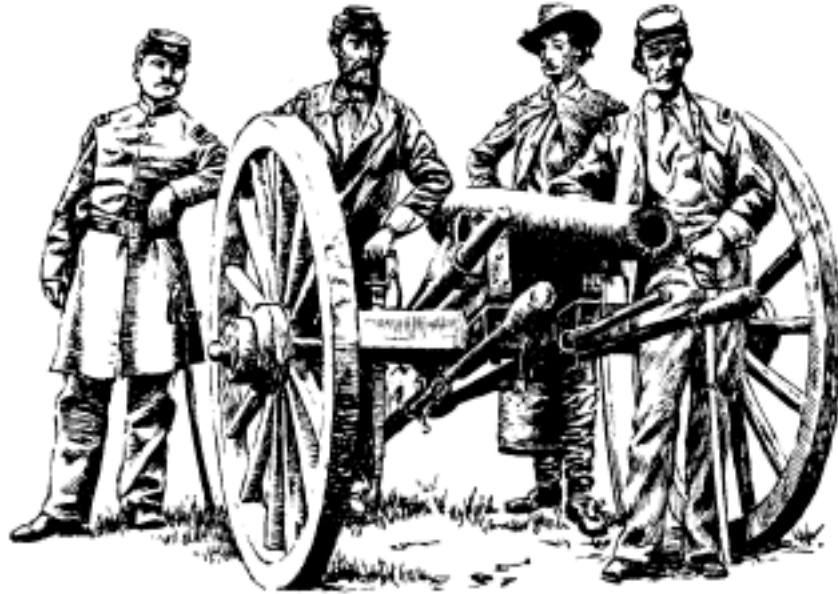
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# Additional Items to Consider

The below are merely suggestions based on long years of experience.

1. When putting your own organization together as a battery or platoon of Civil War Artillery look into incorporating as a nonprofit corporation in your state. There may be certain benefits to doing so depending on what your goals are. Many times small grants are available to such groups for various projects.
2. As you form your "group" be sure to make up a standard operating procedure that spells out what administrative officers you have i.e. President, Vice President, Treasurer, Secretary, or perhaps Commander, vice Commander, Adjutant, etc. A commander can be a sergeant! Above all spell out each position and exactly what each job positions responsibilities are. Then, if you are a good leader, you'll realize you've only created a guide to follow and you must remain flexible in its execution depending on each person's availability and competence. Flexible means that you use everyone's God given talents as best you can, work around the problems, and accomplish each situation successfully and safely.
3. Take into account that the ladies and children of the families of your group's soldiers will have a lot to offer in terms of rounding out your units portrayal. They are your connection with the 19<sup>th</sup> Century civilian world and they will have a lot to offer as an interpretation of history and as workers to make the group successful. Also there will be those who will want to join your organization as male civilian impressionists. Do not discourage them. With some encouragement they may develop a characterization that might rival that of the rest of the group i.e. undertaker, photographer, reporter, etc. In small local encampments these members will be a valued asset.
4. It is highly suggested that the unit keep a set of powder records (see manual) and a set of membership attendance records that reflect the training that each individual has accomplished. Also minutes of each meeting should be kept and these records should be a part of those minutes.
5. Some units require their membership to accomplish certain things before attaining full membership. These include attending a specific number of drills, taking a verbal or written test, attending an artillery school, being a certain age, is obedient to orders, etc., etc.
6. Most all units have maintenance requirements for their cannons. All N.C.W.A.A. certified cannons must be well maintained having good clean bores, lack of pitting, good liners where needed, sturdy wood carriage that is well painted, and a good vent. The same applies to implements. Each gunner should have a list of the implements needed to fire his cannon and be sure that all implements are properly cared for and that they arrive at the demonstration field with the piece.
7. Many groups have an accident procedure that spells out what each person is to do in the event of an accident as well as where the nearest first aid station is located or the position of the Battery's own first aid kit. When an accident occurs in the field artillery it can be a very serious situation and what you are going to do about it should not be left to the last minute.
8. Some organizations appoint a specific person to be a safety officer for a particular event. That job is a combination of watching for mistakes by the gun crew to watching for spectators in an unsafe place or in the process of an unsafe activity. The Safety Officer has absolute authority to shut down all demonstration activities until the unsafe situation is corrected. In most units every man is required to be safety conscious and can stop all activities by yelling, "CEASE FIRE". The idea of also having a specific safety officer is just that much more precaution that can be taken. Safety Officers can also be the most knowledgeable person on a gun crew and with that in mind they can step directly onto a gun crew that has a specific problem such as a misfire and solve it for them or give close instruction to correct the problem.
9. A good unit always checks its firing area allowing enough space for opposing troops, making sure you won't break nearby house windows, being sure the spectators are in a safe position and that news photographers are well controlled. Also make sure you know where the nearest first aid can be gotten.

# Your Civil War safety manual has arrived



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