Properly Cleaning Your Rifle and Musket In The Field and After The Event

By Ralph Yerby Ray

The last thing a reenactor wants to do after a battle is to clean their flintlock, but it is one of the most important chores we have to do.

There are countless methods to clean a flintlock, some are better than others and I would like to share the method that I do while in the field. This isn't the cleaning I do when I get home, that cleaning is much more detailed and intensive as I removed the barrel from the stock and clean the trigger assembly as well.

If you or someone you know has a different way and it works for you, that's great. However, if you experience hang-fires and misfires, or your final cleaning patch is still showing rust or fouling, you may want to reconsider your cleaning methods.

Nothing is as frustrating as being in a battle and experiencing misfire after misfire. Novices chalk misfires up to the "unreliable nature of muzzle loaders", but in reality, the problem is a poor cleaning regiment. Specifically, not getting all the fouling cleaned out of the breech and flash channel of the gun.

It takes more than water and patches to properly clean a flintlock.

Black powder residue mixed with oil makes tar. The pressures from firing the gun can blow this wet crud back into the touchhole. This obstructs the flash channel, the flame from the pan doesn't reach the powder charge, and the gun won't fire.

You will need the following items to adequately clean your flintlock in the field:

- A cleaning jag that fits your ramrod and is the appropriate size for the bore
- Bore scrapper
- Cotton patches that are sized for the bore and not too thick
- Hot Water
- Oil
- Bear Grease (mixture of olive oil and beeswax) Ration of 3:1
- Toothbrush

Screwdrivers that fit your screws
Soft cotton rag
Toothpicks
Liquid Soap

Regarding Water…Either hot or cold just flushing through the barrel simply does not remove all of the fouling. It may remove enough to get a few shots off but the remaining fouling that is left is going to absorb oil and environmental moisture. I prefer hot water, really close to boiling, as I like for it to dry with the heat. The hot water heats the metal up and once the water is removed, the heat dries the metal…it ain't rocket science.

After finding a comfortable spot and a cold drink, I first remove the flint and leather pad that holds it to the jaws. I set them aside and then I remove the lock and let it soak in soapy water.

Next, I then insert a toothpick into the touchhole and pour soapy water down the barrel. I try my best to fill it up and then I set the gun aside to let it soak. I now scrub all of the parts and crevasses of the lock with a toothbrush. I dunk it back in the soapy water several times as I want the lock as clean as possible.

Once I feel that it is clean, I will set it aside and let it dry in the air. I now return to the barrel as I pour out the nasty water and replace it with soapy water. I then wet a patch and use the ramrod and cleaning jag to scrub the barrel out. I will pour this water out and do this process over and over till the patch comes out clean. If you use close to boiling water, you will not need to send a dry patch down to dry out the barrel. The heat will evaporate the water.

Resist the urge to send a dry patch down the barrel to dry it out. I have seen patches, jags and ramrods get stuck. To minimize this issue, use thin cotton cleaning patches that are close to the bore diameter.

Second, make sure the patch is wet. Never send a dry patch down the barrel. Too much patch material causes it to get stuck and hang the rod up.

Once the barrel is dry, I send a slightly oiled patch down the barrel to prevent rust. I use Ballistol as I like how it is water based and will evaporate and leave an oily film that does not gum up the black powder when it is poured in for the next firing.

I take my brush and cloth and use soapy water to wipe down the stock and barrel to remove fouling and powder residue. I then take a cloth with "Bear Grease" or Ballistol and wipe down the wood and steel to protect it. I do the same for the lock and use a drop of oil on the moving parts of the interior and exterior of the lock. Be careful not to get Ballistol, Bear Grease or oil on the frizzen as it will keep the flint from sparking when fired.

If you do get oil on the frizzen, use alcohol to clean it or hold a match and quickly burn off the oil.

I use Bear grease (something I make from olive oil and beeswax) to wipe down the wood and steel parts.

I also use it on the threads of all screws as I feel this keeps them from freezing to other metal parts if I get caught out in the rain and can't dry by flintlock off.

I use a breech face scraper when I suspect there is a lot of fouling built up in my custom-built flintlocks as I know they do not have a patent breech (more on this later).

Still not firing on every pull of the trigger?

If you are still having hang-fires and misfires after you have cleaned your flintlock, you missed a key area that is notorious for collecting the "black tar" combination of oil and black powder. Most flintlocks have a vent liner in the breech, a cone shaped opening on its inside, that is designed to allow more of the main powder charge to come into closer contact with the hot gasses of the burning prime. This is supposed to make for a faster lock time. What actually happens is the cone collects powder fouling into the recess and the cleaning patch on the cleaning jag could not wipe it clear. You might get a few shots off and then your flintlock stops firing. If you pick the vent, you are just poking a hole through the gunk that might last a shot or two. This problem is easy to identify as there will be wet crud that has been blown out of the vent and into the pan.

In my experience, putting the breech of the barrel into a bucket of hot soapy water and pumping it in and out with a patch on the cleaning jag was just not getting all the fouling out of the nooks and crannies. That fouling remained in the gun and collected the oil I was using to protect the barrel from rust. The oil mixed with the fouling and left a tar like crud in the guns. Sooner or later that crud builds up until it obstructs the flash channel and you get hang-fires and misfires. You may temporally remove some of that obstruction by clearing the vent with a pick and get the gun to fire but the root of the problem (the fouling) remains to cause another obstruction after a few more shots.

The answer to this problem is to use a black powder solvent that softens the fouling better than soap and water, an understanding of the peculiar nooks and crannies in each gun and finding brushes and tools the right shape and size to loosen it so it could be flushed out of the gun.
Remember that thing about oil and black powder fouling making tar? There is nothing better than a good gun oil to prevent rust and I recommend its use. Just remember to wipe it out of the bore before you load the gun. A cleaning patch saturated with rubbing alcohol will remove the last traces of it. We also ought to get in the habit of flashing the pan two or three times before we go into battle or do a firing demonstration as that will also burn the oil out of the breech show that the flash channel is clear.

Muskets are much easier to clean than rifles.

A word on mass produced rifles…Some like Pedersoli and Traditions have a patent breech, which is like a small cup behind the barrel where the touch hole enters. Obviously, a typical patch jag will not enter this area. Flushing water through the barrel will remove some, but not all of that fouling. That remaining fouling can cause all kinds of headaches and frustrations if not cleaned out.
By trial and error, I discovered that a .38 caliber pistol brush fits nicely into the patent breech chamber of my .50 caliber Pedersoli. This smaller diameter brush removes all of the gunk that normal swabbing of patches miss.

Last but not least you will need to check that the flint is sharp and not loose in the jaws of the cock. Proper cleaning to remove all traces of fouling will prevent 95

percent of hang-fires and misfires. In my experience the remaining 5 percent are caused by mistakes in the loading process and mechanical problems.

Flintlocks are not inherently unreliable, they are as reliable as the care you take in their loading and cleaning.

Cleaning after the "Campaign"

Flintlocks are not very efficient. I have read something like 3-10% of a load can remain in the barrel. This crud attracts moisture and the chemical properties promote rust and corrosion. This crud also retains moisture and can really wreak havoc on your expensive investment.

Running a few patches down the barrel isn't going to clean it. It takes less than thirty minutes to clean one effectively.

250 years ago, as well as now, we want the gun to go bang when we pull the trigger. Flintlocks do not have to be considered unreliable if three things are treated as canons:

1. Have a properly shaped/sized flint that is sharp
2. Prime our pan correctly
3. Have a clean gun

The people we portray gambled their lives on their weapons and I will wager that they were very keen on keeping their guns clean. Whether it is hunting for food, defending your home from natives, or fending off your enemy, your gun has to fire.

A word or two on safety. You will be working with very hot water so use caution. Wear eye protection too as you don't want this crud in your eyes.

Tools Needed:

Quart of boiling water
"Bear Grease"
Gun Oil / Ballistol
Cleaning Patches (at least a dozen)
Pin Tool
Screw driver(s)

Dish detergent
Old gallon can
Old Toothbrush
Spring Vise
Cleaning Rod
Cleaning jag

None of these tools are optional. Go ahead and invest in a spring vise and make your own pin tool. A pin tool is basically a "punch" to push the pins from the stock. Having one that is made for your weapon is imperative as it will keep you from splintering the wood with the wrong size.

Bear Grease….
I make and sell my own version of this. It is a mixture of 3 parts olive oil and one-part beeswax (3:1) ratio. This can be used on leather, wood, iron, steel and human skin. It won't hurt anything but do keep it off the face of the frizzen.

Using a product like this will extend the life of your weapon, knife or what ever you use it on.

Two centuries ago they used grease from a bear to accomplish the same thing. I have had some of it in the past and it smells so bad. My blend does not have a bad odor and will not go rancid.

Now to cleaning….
The first step I do in cleaning at the house is to start my water to boil. I have an old tea kettle that I use, and I boil about a quart of water per gun that I plan on cleaning. I use boiling water as I feel it cleans better, but it also dries faster and will prevent rust from forming. Naturally, you have to use precaution as the water is hot and the barrel and lock will heat up and burn you as well. I have a "left hand" leather glove in my kit (I am right handed) that I use to hold the barrel while I clean it.

While I wait for the water to boil I start the disassembly of the weapon. I first remove the lock screws and set the lock aside. I then remove the tang screw and then the pins or keys that hold the barrel to the stock.

I know there are some of you who have never removed their barrel from the stock. It cam be done safely and with little to no damage if done with a pin tool that is the same diameter of your stock pins. Find one or make one as this tool is indispensable. Do take care not to lose the pins as they are little and like to roll around.

Set the stock aside in a safe place as they can be fragile with the barrel out.

Once the water is hot, I place a toothpick in the touch-hole of the barrel. This will prevent the water from flowing out. I place a drop of dish detergent down the barrel and then slowly fill the barrel up with the hot water. Once it is filled, I place it aside for the water and soap to loosen the residual powder and gunk in the barrel.

While the barrel is soaking, I work on the lock. I take the flint and flint pad out of the jaws and I remove the flash guard. This is optional, but I like to get it clean. To remove the flashguard I highly recommend the use of a spring vise as it will not damage the frizzen spring.

I know place the disassembled lock, frizzen, flash guard, frizzen spring, lock bolts, tang screw, jaw screw and upper lock jaw in the plastic dish. I add a little soap and fill with hot water. I let this soak.

While everything is soaking I take some of the water and wipe the stock down in the area of the lock as there is some powder residue there. I wipe out the barrel channel. I then remove the trigger, usually there is a screw or pin holding it in place. I take a little bit of my “grease” and apply it liberally to the barrel channel as I feel this will help slow down any rust from forming in that confined area.

I wipe the trigger off and apply a little oil to the moving parts and use my oil cloth to wipe the entire assembly down. I then reinstall it in the stock with the trigger guard.

I now return to the lock and take a tooth brush and scrub the face and rear of the lock to remove any residue. I place close attention to the pan and the area around where the frizzen pivots. Once clean, I dry each part in the plastic dish and place them on a cotton cloth to dry.

Once everything is dried, it does not take long with the hot water, I apply oil to the moving parts of the lockplate. Just a drop around the sear, bridle, and tumbler. I then wipe everything down with my oil cloth except the face of the frizzen. You do not want to get oil on the face of the frizzen as that will impede spark.

I now reassemble the lock. One thing that I do is to "dip" all of the bolts (machine threaded screws) into my "grease" as I feel that will keep them from seizing when I disassemble the next time.

Now I turn my attention to the barrel. I turn the barrel upside down and remove the toothpick and let the filthy water pour out the muzzle. I then replace the toothpick an refill the barrel and slosh it around and then pour it out again. I might do this again if the water comes out dark.

I have an old gallon tin can that I set the breech of the barrel in and fill it with enough water to completely submerge the touchhole. I add a little soap to this water. If you have a rifle that has a long tang, be very careful as some of the tangs are thin and you can bend it doing this. I now place a wet cleaning patch on my jag and run it up and down the barrel.

This creates a vacuum which draws the water in and out of the touch hole. You can "suck" water all the way up to the muzzle. This is by far the best method to really get a grimy gun clean.

I do this a handful of times and you will see the water starts to come out of the touch hole clear. If you are using boiling water the interior of the barrel will dry quickly. This process agitates the gunk that has softened from soaking and allows it to leave the interior.

I then remove the barrel from the bucket and allow the barrel to dry for a few seconds. The hot water really does evaporate fast.

Resist the urge to run a dry patch down the barrel with a tight-fitting jag. It will get stuck and be a headache. If you feel compelled to run a dry patch, use a much smaller jag or a cleaning patch "loop" that secures the patch to the rod.

My final patch down the barrel will be one of either oil or Ballistol to protect the interior of the barrel from rust. Please resist the temptation to run a dry patch down the barrel. Dry patches tend to get stuck and can be a bear to remove. Rifles are more prone to this, but a musket or fowler can be a
problem as well.

I now take my toothbrush and scrub the exterior of the barrel around the touch hole to remove any residue there.

I take the oil cloth and wipe the exterior of the barrel to protect it as well.

I now reassemble the weapon.

Once it is reassembled, I wipe the entire weapon down with the exclusion of the face of the frizzen with a dab of my grease. A little goes a long ways. It is safe to use on the wood, brass, and steel. This needs to be done every time the gun is used as it will protect the wood from the environment as well as prevent any flash rusting on the steel.

That is all there is to cleaning after returning from the field.

Learn to Knap your Flint

Good flints are getting harder to come by and like everything else, they are going up in price. Instead of chucking one that is not sparking well, we ought to try and see if we can make the old flint perform better.

A word of safety. Do I have to say that you need to do this while unloaded. Think about it, you are striking a piece of flint with a piece of steel. Sooner or later you are going to get a spark. If there is a charge in the pan and powder down the barrel you are going to have an accidental discharge. Even if the pan is empty do you want to risk the chance of a stray spark going into the touchhole and igniting the main charge? Keep in mind too that you are also working with flint which when sharp, can be like a

razor blade.

What to use? You can use the back side of a knife, your turnscrew (screw driver), knapping hammer, or anything else that is handy and made of steel or brass.

I have used all of the above and typically will grab my belt knife and use it in the field.

It takes a little practice to sharpen a flint by knapping. I do it right in the lock of the musket or rifle. I put the rifle on full cock and then hold it off the tumbler with my thumb. I tap across the edge, flaking it a little bit and dressing the edge. I then put the rifle on half cock and pull the frizzen down to see if I need to adjust the flint in the hammer. I like the flint to have about a 1/16" clearance on the frizzen. If that's not the case I adjust the flint until it is there. I knap the flint as it sets in the jaws.

To get a feel for this I like to place my finger under the flint, so I can feel how hard I must strike it to get the edge to flake off. Be careful as it will be sharp as a razor.

One of the goals is to lose a minimum amount of flint from the edge and this will extend the life of the flint so to speak.

The second goal is to keep the edge of the flint as straight and parallel with the face of the frizzen, so you don't gouge the frizzen the next time you fire the gun. Keeping it parallel will allow the flint to cut across the entire width of the frizzen, creating a volume of sparks to insure consistent ignition of your priming powder.

You are not done. Check to make sure that your frizzen screw is tight. You do not want your flint falling out when you go into battle. Knapping the flint can loosen it and it will fall out, trust me.
A thought on flint orientation. Some people like to use the flint with the bevel side up and others like the bevel side down. I do not think there is a universal rule so just do It the way that your firelock likes.
Some guns are more picky than others and the flint has to be positioned “just so” for it to go bang.

What do you pad your jaws with?

Keeping a flint secure in your jaws is important. First, the flint has to be aligned to the frizzen so it does not “dig” into it but instead, shaves steel off of the frizzen. Second, you do not want it cutting into your barrel.

You can use two types of “pads” to secure the flint to the jaws. A thin lead sheet or a piece of leather.

Muskets typically use a thin lead strip that conforms to the flint and snugs down well. I have a few of these for my Long Land pattern Bess and bought them from a sutler. I have tried to hammer a lead ball down but cannot get it right. Good luck with that. If you use lead just be sure to really use a good turnscrew to tighten the top jaw down so it grabs the lead and holds fast.

Rifles can use the thin lead or a thin piece of supple leather. I check my leather each day of use to make sure it has not dried out and loosened. There is nothing as aggravating as your flint falling out when you need it the most. The key to success with leather is to use your “Bear Grease” on the leather pad to keep it supple so it will compress and hold the flint in the jaws securely.

I happen to have a good supply of very thin leather and will cut some pads for you if needed.