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The Second Amendment

A WELL REGULATED MILITIA, BEING NECESSARY TO THE SECURITY OF A FREE STATE,
THE RIGHT OF THE PEOPLE TO KEEP AND BEAR ARMS, SHALL NOT BE INFRINGED.

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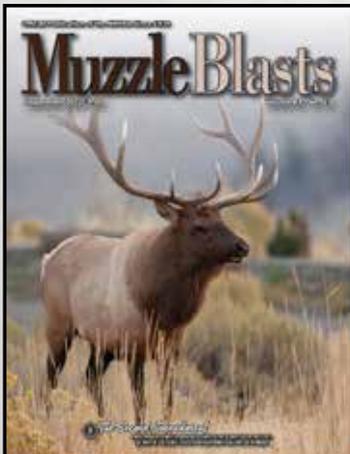
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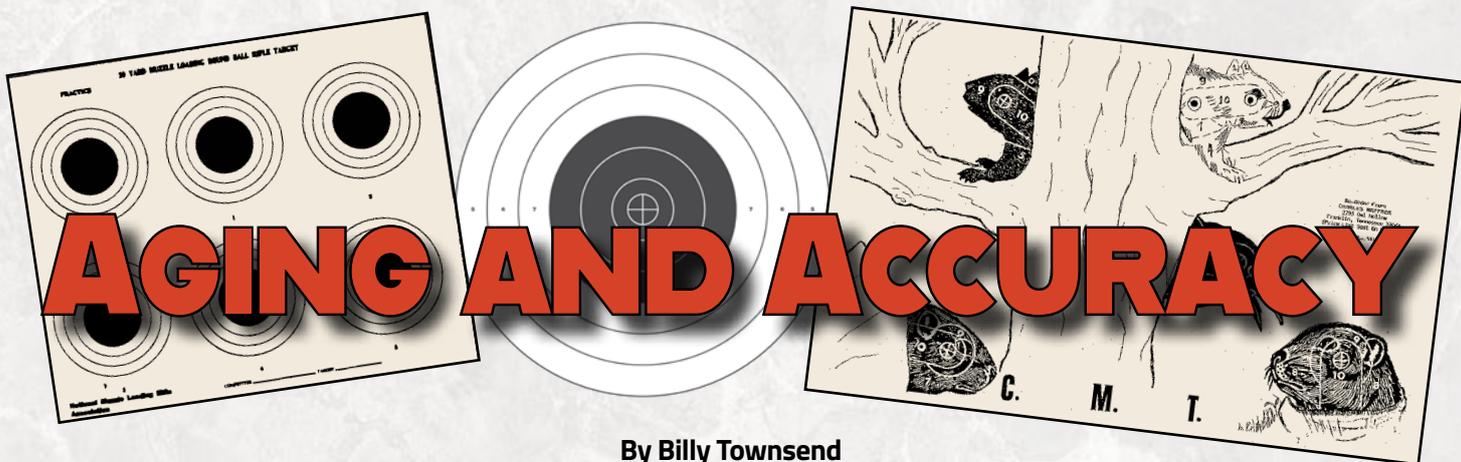
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AGING AND ACCURACY

By Billy Townsend

Like me, a lot of the members of the National Muzzle Loading Rifle Association are getting a bit older. When I reached my seventh decade I sought ways to stay in the shooting game and be more competitive. I modified my offhand position using bone support instead of aging muscles and modified rifles to suit the new position. Perhaps some of the older readers can profit from my experience.

I happened upon a book called *The New Position Rifle Shooting* by Col. Bill Pullum & Dr. Frank Hanenkrat. I did some more reading in various books on accurate shooting and rifle design and checked the NMLRA Rules. I then changed the way I build my target rifles and the way I hold them. Below are some opinions based upon my research and experimentation. Read this article then spend some time dry-firing and check for yourself. If the position helps my older friends, don't tell the young guys about this article. We are just trying to keep up.

I looked at the positions in the Pullum & Hanenkrat book and compared the photos with muzzleloading shooters using traditionally designed rifles. Modern smokeless precision target shooters use bone support and rifles with adjustable stocks in the offhand position. Most of our traditional style rifles call on support by muscles in the offhand position. Analysis revealed that we do not fit the rifles to our bodies but we fit our bodies to the traditional designs. Older folks don't have the muscles, endurance and control that we did when we were younger. NMLRA Rules 5630 and 5660 do not allow for radical target styles and adjustable stocks. What can we do within the rules that might help us older folks?

A review of muzzleloading literature reveals a long tradition of experimentation by target shooters. There are flintlock long rifles with pistol grips, even stocks with two triggers made to be shot from the shoulder and from the prone/back position. You see all kinds of peep sights that also help aging eyes. If you can imagine some design it might already have been tried. Look at Ned Robert's *The Muzzle-Loading Cap Lock Rifle* to see some examples of target rifles. I feel that if a bit of experimentation was fine for earlier times then it should be fine for us. Experimentation is part of our history.

My efforts led me along a tortured path that did yield some personal success. My work might help someone else. Modern small bore and centerfire precision shooters can take time for careful positioning of the body and for proper breathing and mental preparation for each shot. They also can lower the rifle and start over if things don't feel right. This is what we do in muzzleloading matches. The smokeless powder guys are

allowed to shoot rifles with adjustable stocks. Since we cannot do this, my answer is to build a muzzleloading rifle that fits the shooter perfectly in the offhand position.

My research made me realize that much of our traditional stock designs are mostly about aesthetics and form but not particularly about function. Look at the excellent books by Peter Alexander and Buchele & Shumway and you will see little mention of shooter fit when recreating a longrifle. A couple of design features that are little discussed are really problematical. The features are the over dropped stock and a long length of pull (LOP).

The old saw about determining LOP by holding the rifle in the crook of the elbow just doesn't work. We do not fire our rifles from the crook of our arm! Do a little experiment. Hold your rifle a few inches in front of your shoulder then compare the control when you place the butt under your armpit. What a difference a little more leverage and better balance makes. My early long rifles hanging way out there with only muscles holding them didn't contribute to control. With my earlier rifles with long LOPs I usually released the trigger by touching the side. Not the desired straight back trigger release. Another major problem is the amount of drop at the comb for most traditional designs. Over-dropped stocks provide chin-welds, jaw-welds and even no cheek welds at all. Mount a traditionally designed long rifle with closed eyes and get a good firm cheek weld. I bet for many when you open your eye you are looking at the center of the wrist.

My current offhand position is based upon my research and experimentation which improved my hold. See Figure 1.



Fig. 1 Current offhand position.
Photo by Chris Greene

My target rifles offer a short LOP that positions the balance point of my rifle closer to my body for a better hold and better trigger control. The rifles have less drop and a thicker comb which makes it easier to get my eye centered behind the sights. I approach the firing line and establish my natural point of aim with my feet approximately perpendicular to the target. I look through the sights then shift both feet until I'm on target with the feet about shoulder width apart with toes slightly spread. I then cap or prime my rifle and when I address the target my front arm is supported with my rib cage and the forearm is aligned with my forward leg so that there is bone support straight to the ground. With practice this position is repeatable.

The rifle is held with the palm open with the bones of the wrist supporting the weight, not the muscles of the fingers or hand. This meets NMLRA Rule 5610. A deeply curved buttplate allows this type of forward arm control. This type of buttplate fits the hollow under the arm/shoulder where a nice pad of muscle lies in front of the shoulder bone when you raise your elbow. With the proper pitch angle the positioning of a curved buttplate is readily repeatable. The front bone-supported arm becomes a fulcrum and the curved buttplate tucked under your shoulder becomes the end of the lever/rifle. As you read this reach up and feel where your jawbone fits under your cheekbone. You will find a great place to fit the comb of your rifle for a firm cheek weld every time you lift a rifle. I shape my rifles to fit the plane and contour of this junction.

A firm cheek weld offers one third of a bone triangle along with the shoulder bone and the forearm bones supporting the forestock. I lean back a bit and add a slight twist to get the rifle balanced over my pelvis which is held mostly level so that my center of gravity is balanced between my feet. My trigger hand is used mostly to release the trigger. My friend Larry Hand contends that trigger control is a crucial component of accuracy. Larry has won the Offhand Flintlock championship with set triggers and the Musket Championship with a three pound trigger at the nationals at Friendship. Larry also talks about shooting when you first get a good sight picture. This is in the first few seconds after you have charged your eyes and muscles with oxygen and leveled your rifle and not hold too long. I value his advice.

If your rifle needs a firmer hold for accuracy, add this pressure straight back with the other three fingers. When you shoot, the laws of motion will force your muzzle to jump upwards if your stock has any drop at all. The line of recoil force is transferred at an angle to your shoulder. The more drop in the stock the more muzzle jump because recoil tries to go straight back in line with the bore. A well fitted buttplate, at the proper pitch angle, should fit the curve of your shoulder and help manage recoil. The proper pitch and drop also places your eye more in line with your sights.

The amount of muzzle jump variation depends on a consistent placement of the forward hand, pressure on the buttplate and cheek weld. Our muzzleloaders are very susceptible to muzzle jump because of slow lock times and the amount of time spent by the bullet in our long barrels. Army Marksman Unit Coaches Col. Bill Pullum and Dr. Frank Hanenkratz summarized accurate shooting this way in *Successful Shooting* "The First Fundamental: To achieve accuracy you must hold

the gun exactly the same way each time." ¹ "The Second Fundamental: To shoot accurately you must hold the gun steady while firing." ² An offhand position based upon bone structure will help you achieve those two fundamentals.

You can use part or all of the elements of this position with your long rifle. The cheek weld will not work with an over dropped design. Several of my friends use a strap on leather cheekpad to give them a firm cheek weld. Another aid for my aging friends is some form of aid for our eyes are not what they once were.

Just as our muscular reaction has slowed our eye reaction has slowed. Our pupils no longer react as quickly as they once did. They also do not have the depth- of-field they once had. I now sight through an aperture on my shooting glasses in open sight matches. (Fig 2). Several commercial products are available which increase your depth of field and sight clarity. Punch a hole in a piece of paper and peep through it at your sights. If it helps try a remedy; my remedy is a piece of black electrical tape with a hole formed with a leather punch. Experimentation will yield the proper aperture size and placement on your shooting glasses. I now also use a much thicker front blade and rear notch width. A one-eighth inch wide front blade and a deep one-tenth inch wide notch work for me.



Fig. 2 Shooting bifocals with an electrical tape aperture and wide sights for old eyes.

A bone supported position offers a lot of control for elevation. Major changes in elevation to get on target can be made with moving your arm up or down on the rib cage or minor shifts in the degree of lean. Minor shifts can also be made with adding or subtracting the air in your last half-breath.

If you have a rifle, or possibly a shotgun, that feels right using the position described above you have a pattern for your next muzzleloading rifle. I ended up building a "try" rifle. (Fig. 3). I will inlet a barrel with sights and cut the stock to approximate shape. I made it so that I could adjust it for LOP, trigger reach, buttstock pitch, cheekpiece height and offset to position the center of my eye directly behind the sights. I used two air rifle adjustable cheekpiece risers on the buttstock LOP and cheekpiece height and fabricated two slides for cheekpiece offset. I added a commercial adjustable buttplate set for stock drop with a swivel for pitch angle.

I fit the try rifle to myself then lay it on a piece of paper and mark a line showing the line of sights, the trigger and grip

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Fig. 3 My adjustable "try" rifle.



Fig. 4 Modified Gibbs rifle has an altered Schuetzen buttplate from Track of the Wolf and deep thumb groove and palm swell for a better hand position. Rifle. LOP 12 3/4 in. Balance point 23 in. from center of buttplate.



Fig. 5 Semi-traditional halfstock that holds well. LOP 12 1/2 Balance point 21 inches.



Fig. 6 Altered traditional design for better offhand shooting. Rifle has 1/2 lb. of lead in patchbox for better balance, less drop and thicker comb for good cheek weld.

location, the cheekpiece placement and the buttplate location and pitch. Then I connect all the measurements with a straight edge and a French curve template to form a pleasing design then cut the pattern out.

When I am building a rifle for myself I inlet the barrel and add the intended sights. The barrel and touchhole determines the placement of the lock and trigger which then determines the LOP. The line of sights dictates the drop and comb height and buttplate placement. I lay the pattern on the stock blank below the line of sights and mark and band-saw the blank to shape. Next I have to go to work and cut the stock contours. The last stock work I do is to rasp, file and sand the comb to fit my cheek exactly behind my sights. Figures 4 and 5 show a couple of my rifles that are used in "Any Metallic Sight" matches. I also built them so the peep sight can be removed for "Open Sight" matches. The modified Gibbs design has a front set trigger to position my finger for a straight back release. The black triangles indicate balance points.

If you don't like target rifle styles I used my same try rifle buttstock dimensions for an altered Bucks County style rifle. (Fig. # 6) The drop is lessened and the comb is higher and thickened to place my eye behind the sights with a firm cheek weld. The rifle also converts from percussion to flint using L&R locks. This type of modified design might help with your sense of aesthetics. A few of my suggestions might get your scores up to where they used to be. Shooters of long ago surely weren't adverse to experimentation so why should we stick so tightly to conventions that might not work for us older folks?

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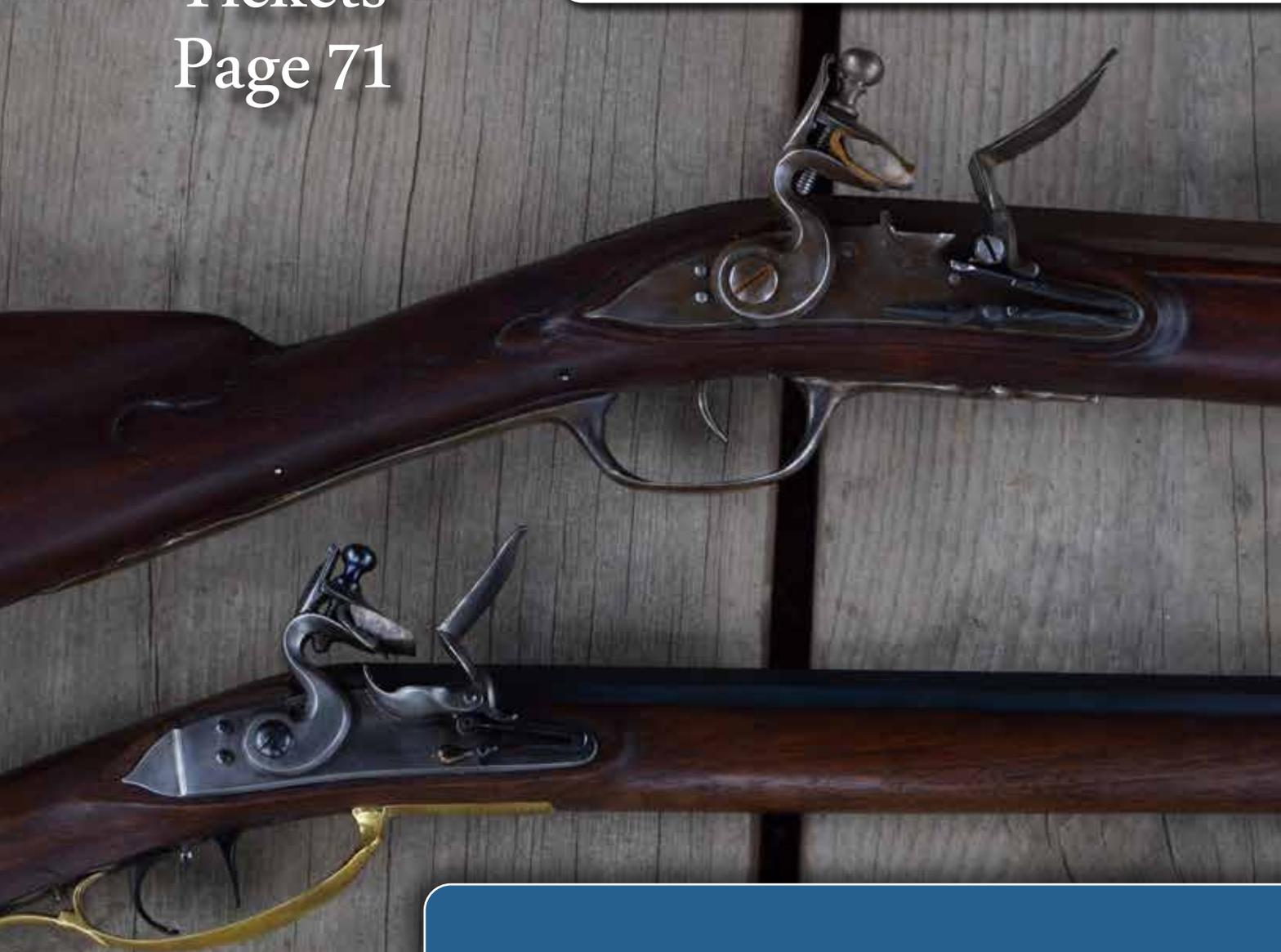
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- Eye-glass adjustable optical device; www.meritcorporation.com
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