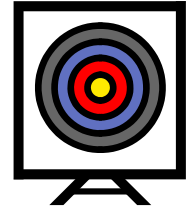




# The Shotwad



Issue #12/19

*The Official Newsletter of the Marysville Rifle Club*

December 2019

*The Right of the People to Keep and Bear Arms Shall Not Be Infringe*

## **MRC NEWS**

### **I-1094 Petition to repeal I-1639**

MRC member Travis Miller and I (Don Jones) are involved in the petition drive to gain 360,000 signatures for the petition to repeal I-1639 and restore our full 2nd Amendment privileges. I have set up a dedicated phone line for MRC in support of this petition drive 360-474-7515. Travis will be covering the Thursday Rec Shooters events, and I will be covering our Wednesday Evening Shotgun Sports events and visiting the Action Bay Shoots on the weekends. I-1094 Petitions will be available all club meetings. For those of you desiring official copies of the petition, in order to collect signatures please, come to the Club meeting or call me to obtain copies.

### **Water Main replacement**

Over the weekend of Nov 2nd & 3rd a 2-day emergency work party was held. A backhoe and a small excavator were rented. I would like to personally thank all of our members who assisted in this vital repair.

As we dug the trench for the new water main lots of buried treasures were found, including a couple abandoned #8 power line feeds, a multitude of buried phone lines, some were live - others were dead - all are dead now. At this point, pending a thorough review of our NRA insurance policy, MRC is going to discontinue Frontier phone service if allowed.

### **2020 Election committee**

At the General Membership meeting on Nov 11th, we will be appointing a nomination committee for our upcoming elections.

The Positions that are up for election are:

- President
- Vice President
- Secretary
- Treasurer
- 3 yr. Trustee

Please contact one of the board members if you are interested in helping with this important committee.

### **Sincere Thanks**

Thank you, Bill Heaphy, for your 20+ years' service to MRC. Bill has maintained the Coke machine for all those years!

## **New Shooting Sport at MRC**

A new shooting discipline got off the ground at MRC in November. **International Steel (ISSA)** is a fast-paced steel event where competitors pit their shooting skill against the clock. Competitors will face 1 to 5 steel targets at varying distances and configurations. Each competitor will shoot 5, Five shot strings with the slowest time discarded. The total of their 4 fastest strings are then summed for their final score along with added penalties or misses.

Competition is open to semi-auto pistols, single and double action revolvers and pistol caliber semi-auto rifles (carbines). Minimum power factor of 120. The competition is also open to semi-auto rimfire pistols and rifles. Classes for Iron sights and Optics are available. Please download and read the rules available at...

<http://www.internationalsteelshoot.com/>

ISSA and MRC Range rules strictly enforced.

Eye and Ear protection required.

Competition will take place on the Saturday before the 2<sup>nd</sup> Sunday of the month. Currently as in the past this Saturday has been marked on the MRC Calendar as "Cowboy Setup". Shooting will start as soon as the stages are set up or 10am, whichever is later. Cost is \$10 for first gun and \$5 for 2<sup>nd</sup> gun.

## **MRC Shotgun Sports**

John Church advised our membership that the trap and 5-stand ranges will be closed on Thanksgiving Day, Christmas day, and New Year's Day. Currently the 2 Saturday evening Shotgun Sports remain closed thru Nov - Jan.

## **MRC Practical Shooters**

Nick Minzghor will be acting as match director for our December MRCSP match on 12/15, it will be an "ALL STEEL" +1 classifier course of fire. This should be a challenging - yet BIG ON FUN shoot.

## **Bring Your Cell Phone**

Due to a breakage in the clubs underground phone line and other issues such as cost of service & darn near everyone has a cell phone: Phone service to the club has been cancelled.

## How To Find Your Natural Aiming Area



All effective firing positions in pistol shooting incorporate the shooter's natural aiming area (NAA). NAA refers to the natural alignment of the shooter and the gun in any position. To determine your NAA, first assume your position, with your eyes open and your gun aimed at a target. Next, close your eyes. With your eyes still closed, make a circle with the pistol, and then settle into the position that feels most stable and comfortable, and take several breaths. Then, open your eyes and observe where your gun's sights are pointed in relation to the target. Ideally, the sight picture will be aligned with the target. If the sight picture is aligned to the right or left or slightly high or low, you will have to modify your foot position or some other aspect of your stance to achieve the proper natural alignment.

Of course, the sight picture does not stay perfectly still, as it is impossible to hold a pistol without some movement. When proper NAA is achieved, the "wobble area" of the sights will be centered on target. Repeat the NAA exercise until your stance is adjusted for the proper natural alignment. You should make every effort to adopt this same alignment each time the stance is assumed in order to take advantage of your NAA. Also, periodically repeat the NAA exercise, as changes in shooting experience, posture, age and so forth can affect the body's natural alignment.

## How to Choose the Best Long-Range Cartridge



*Of all the current long-range-capable cartridges, out to 1,500 yards the 6.5 PRC probably offers the best balance.*

Selecting a long-range rifle cartridge requires serious thought. As opposed to following the advice of internet "experts" mouth-breathing on their keyboards, the best advice is to balance ballistics with your needs. There are several important things to consider, and when comparisons are done pragmatically, the choice is much simpler.

### Time of Flight

The primary consideration for long-range shooting is time of flight (TOF). The faster a bullet gets to the target, the less time gravity and wind have to act upon it. The best long-range .308 Win. loads will get to 500 yards slightly faster than the best 6.5 Creedmoor loads. However, the Creedmoor reaches 1,000 yards sooner, and at 1,500 yards, the 6.5 PRC outpaces them both.

### Recoil

Recoil matters to long-distance shooters. It's a point of fact that the harder a rifle kicks, the more difficult it is to shoot with precision. You might shoot two to four boxes of ammo between breakfast and lunch, and recoil has a cumulative effect. The new Hornady .300 PRC gets to 1,500 yards quite fast, but every time you pull the trigger, you'll have to endure about 29 ft.-lbs. of recoil. The 6.5 PRC is only 1/100th of a second behind the .300 PRC at 1,500 yards, and it gets to 1,000 and 500 yards sooner. It does this with half the recoil.

### Rifle & Ammo Availability

Once considered an excellent 1,000-yard cartridge, the .260 Rem. is inferior to the 6.5 Creedmoor because factory rifles and ammunition are built to work with a 1:9-inch twist; the 1:8-inch 6.5 Creedmoor can shoot bullets with a higher ballistic coefficient (BC). However, with custom rifles and

handloaded ammunition it's a different story; the .260 gains a slight edge. With purpose-built, long-range rifles, hand loaders have lots of options and a variety of cartridges become serious shooters at distance. For instance, with the right bullet, at 1,500 yards the 7 mm Rem. Mag. is a force to be reckoned with.

However, most shooters—especially those new to the long-range game—are trying it with factory equipment. With regards to rifles and ammunition properly configured for reaching way out there, you'll find more options for the 6.5 Creedmoor and .308 Win. than any other cartridge.

### Other Things

Bullet weight, energy and BC are other things often considered when selecting a long-range cartridge. Bullet weight and energy on target are of no consequence unless you want to shoot through things or you're hunting; it's not hard to punch a hole in paper or ring steel at distance. The BC of bullets available in a specific caliber matter, but what really matters is the triad of BC, twist rate and velocity. A .308 Win. cannot launch a 225-grain bullet with a G7 BC of .391 at a velocity high enough to take advantage of its sleekness.

Short of semi-artillery pieces like the .338 Lapua, .408 CheyTac, .416 Barrett and the like, which cartridge should you choose? Based on things that matter, here's a beginner's guide to selecting a cartridge for successful shooting at long distance.

### Beginners

Beginners will be using factory rifles and factory ammunition, and likely shooting inside 1,000 yards. Because of the wide array of products offered across the counter, and due to their mild recoil, the two best choices are, without question, the .308 Win. and 6.5 Creedmoor.

### 500 Yards and Closer

At this distance don't worry so much about time of flight; there's really not enough difference to matter. What does matter is recoil because it will allow you to place your shots with more precision. The 6.5 Creedmoor, 6.5 PRC, .260 Rem. and .308 Win. are clearly the best options at this range.

### 1,000 Yards

This is where time of flight really becomes important. Not just because of wind and gravity, but because it reduces POI errors associated with range and wind estimations that are not exact. For best results, choose a cartridge with a 1,000-yard TOF of less than 1.5 seconds. Considering their milder recoil, the 6.5 Creedmoor and 6.5 PRC are the undeniable top choices at this distance.

### 1,500 Yards and Beyond

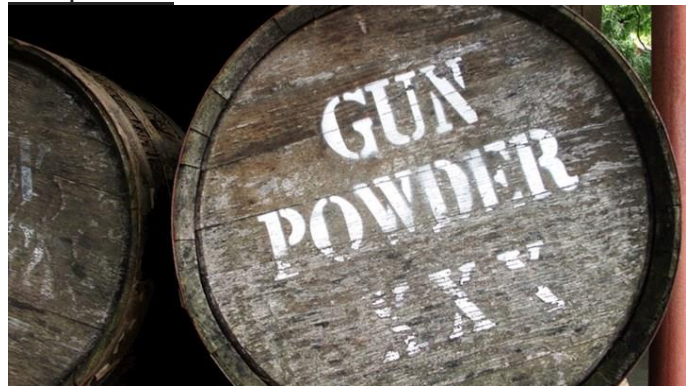
To be really effective here, you need a high BC bullet, combined with a muzzle velocity of 2,800 fps or faster. The 6.5 and .300 PRC dominate this distance, but a properly handloaded 7 mm Rem. Mag. can outpace both of them. Regardless, when you consider recoil in the equation, the 6.5 PRC really shines. In fact, all things considered—and as you can see in the included table—the 6.5 PRC is very likely the best, all-round, long-range cartridge currently available.

#### Cartridge Comparison

Cartridge	Bullet (grains)	MV (fps)	G7 BC	TOF/Yards (seconds)			Recoil (ft.-lbs.)
				500	1,000	1,500	
7 mm Rem. Mag.*	195	2,825	.387	.597	1.362	2.370	25
.300 PRC	225	2,810	.391	.603	1.385	2.441	29
6.5 PRC	147	2,910	.351	.583	1.353	2.457	14
.300 Win. Mag.	195	2,930	.292	.593	1.418	2.635	25
6.5 Creedmoor	147	2,695	.351	.635	1.491	2.754	12
.260 Rem.	130	2,840	.255	.620	1.509	2.838	11
.308 Win.	168	2,840	.263	.627	1.561	3.005	16

Cartridges are ranked from top to bottom based on 1,500-yard flight times. Muzzle velocities (MV) and G7 BCs were taken from Hornady's published data for its ELD Match loads. Time of flight (TOF) was calculated using the Hornady 4DOF ballistic calculator. Recoil was estimated using an online calculator, with total rifle weight of 10 pounds. \*A Berger bullet was used for the 4DOF calculation for the 7 mm Rem. Mag.

### Gunpowder



Gunpowder is so fundamental to firearms, it's amazing that so few know much about it other than it makes a big noise and smells funny. It is the fuel that propels bullets, shot charges or other projectiles.

The first explosive powder—black powder—was invented in China during the 9th century. It is generally accepted that black powder is 75 percent potassium nitrate (salt peter), 15 percent charcoal and 10 percent sulfur. Individual recipes may differ slightly, but this one is the most common. The potassium nitrate acts as an oxidizer; the charcoal and sulfur are fuels. It is considered a low explosive in that it deflagrates at a velocity less than the speed of sound. Black powder deflagrates at a relatively constant rate whether open or confined as in a cartridge case or the chamber of a firearm or

cannon. The deflagration rate can be altered slightly by adjusting the size of the kernels or grains of powder. Coarse kernels will burn a slightly slower than fine kernels because they have a smaller surface area exposed to ignition. It contains no chemical accelerants or decelerants to influence its burn rate.

Black powder is characterized by a dense white smoke and a strong, pungent sulfurous odor when ignited. Its report is more like a deep, resonating boom, compared to the “crack” of high-speed modern smokeless powder ammunition. Though largely obsolete in firearms other than replicas for reenactors and certain “black powder only” hunts, it remains in limited use as an explosive in the mining industry, blasting powder, fireworks, as well as a component on large artillery-type weapons. Dynamite and ammonium nitrate/fuel oil mixtures have largely replaced it in the explosives industry. *Right: Black powder is identified by its granulation, in this case, FFG, which is used in rifles.*

Because of its fouling, which is hydrophilic and corrosive, along with its telltale smoke and what some call an acrid odor, there was a long pursuit of a suitable substitute for black powder as a firearm propellant. A German chemist, Christian Friedrich Schönbein, invented a substance called “guncotton” in 1846. Guncotton is cellulose that has been treated with nitric acid. Cotton was often used as a source of cellulose and after treating and drying in nitric and sulfuric acid, became a product with more explosive power than black powder. As a fuel to launch projectiles, guncotton produced six times the volume of gas than black powder without the smoke and stench of black powder. Unfortunately, it was rather unstable and as likely to blow up a gun as it was to launch a projectile.

Nitroglycerine was synthesized by Italian chemist Ascanio Sobrero in 1847. Although it contains a lot more chemical energy than black powder and it is largely smokeless and sulfur free, nitroglycerine detonates, thus making it wholly unsuitable as a propellant alone.

Several chemists and would-be powder makers continued to research and develop a smokeless and corrosive-free gunpowder. Many perished in laboratory or production facility explosions during the late 1800s. French chemist Paul Vieille invented a smokeless powder called Poudre B (poudre blanche—white powder) made from 68.2-percent nitrocellulose, 29.8-percent nitrocellulose gelatinized with ether and 2-percent paraffin in 1884. This new powder contained 300-percent more energy than an equivalent weight of black

powder. It was relatively stable and easy to handle. This powder first saw service in the Lebel rifle. Austria, France and Germany each began manufacturing of their own versions of Poudre B, and by 1890 smokeless powder had become as prevalent as black powder, especially in sporting arms. England got into the act as well, producing a product called cordite in 1889 and using it in its Mark I and Mark II Enfield rifles chambered in .303 British. Cordite is a double-based powder—meaning that it contains both nitrocellulose and nitroglycerin—and comes in strands resembling spaghetti.

The U.S., not to be left behind, began making versions of smokeless propellants starting with the Anglo-American Explosives Company manufacturing a shotgun powder in Oakland, New Jersey, in 1890. E. I. du Pont de Nemours and Company, more commonly known simply as DuPont started making guncotton at Carneys Point Township, New Jersey, in 1891. Other companies sprang up or got into the powder business as well. Explosive Powders provided **Winchester Repeating Arms** with powders with which it began its ammunition business. DuPont developed or spun off a number of powder companies including California Powder Works, Hercules and Laffland & Rand.

Like firearms manufacturers, powder companies sought fat government contracts with which they hoped would fill their coffers. But a significant sporting market began to emerge during the first part of the 20th century. Companies lived and died as they experimented with formulas, coatings and granulations of smokeless powders.



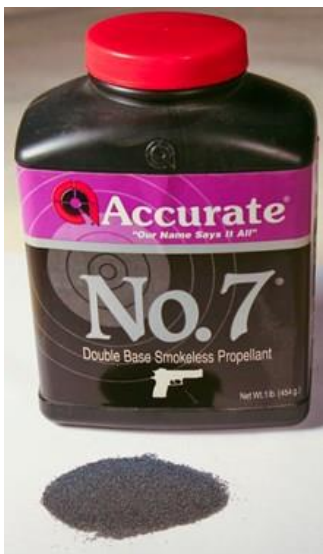
For the average sportsman who uses nothing but factory loaded ammo, powder burn rates are perhaps nice to know and use as a discussion point around the campfire sipping a sundowner, but the handloader—the amateur ballistcian—dotes on these characteristics.

Smokeless powders burn differently when they are confined to a case or chamber. So-called faster powders like Hodgdon's Titewad or Alliant's Bullseye are fast burning powders with virtually no leftover residue. They achieve their maximum chamber pressure pretty quickly, and it decays just as quickly. These kinds of powders are useful for target shooting in pistols, where light recoil and consistent velocity contribute to accuracy. Moving down the scale to slower powders like Winchester 231, Accurate No. 5 and Ramshot Zip we find powders still useful to the hand gunner who is looking for accuracy, perhaps a bit more velocity without undue recoil, as well as the clay bird shotgunner. Moving toward the slower powders Aliant's Blue Dot, IMR 4227 or Winchester 296 is equally at home in a heavy 12-gauge field load as it is in a .357 Mag. or .44 Mag. revolver. Some of these powders can also be used in small rifle cases like the .22 Hornet or .30 Carbine. For the larger, magnum hunting cartridges, say, .30-06 and above, powders like IMR 4350, H1000 (Hodgdon), Ramshot Big Game or Hodgdon Retumbo is called for. These are among the slowest burning smokeless powders we have. They are designed to spread out the peak chamber pressure over a longer period to allow that pressure to push against the bullet's base for a longer time and thereby increase its velocity. rates..

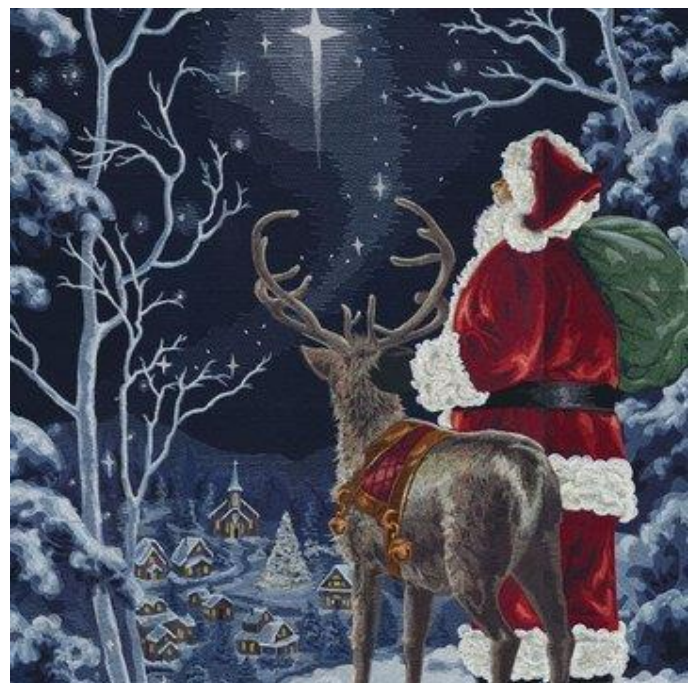
*suited for large capacity rifle cases where a heavy bullet needs to be fired at maximum velocity.*

All reloaders should have a current loading manual available from bullet and powder manufacturers. They should stay scrupulously within the parameters give in those manuals. Interestingly, a number of benchrest shooters have learned that a variation of plus-or-minus 2 grains of powder will not have much of an effect on group size. But that does not apply to safety. If the manual says 59.3 grains of a particular powder is the maximum load, don't try to fudge in an extra half grain or so. Internal ballistics has a nasty habit of forcing you search for fingers and gun parts if you do not heed the manual's parameters.

Powder technology continues to march forward. We now have copper fouling eliminating powders from Hodgdon (the CFE series) that purportedly reduce the amount of copper fouling a shooter gets in his barrel over a shooting session. Other powders are touted as being designed for a specific cartridge. And, of course, you can go back to old school and shoot black powder—often referred to as “Holy Black” by its adherents—in guns suited for the old stuff. Gunpowder is cool stuff. It can do some wonderful things, but it is a stern mistress and reacts badly toward those who might abuse her rules.



*Accurate No. 7 is a spherical, double-based powder suited for moderate pistol loads like the .38 Special. H1000 is a slow-burning, stick powder*



**Merry Christmas to All!**

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