

Five in the Bullseye: Some Random Ballistic Notes

Gary Heartsill

31 March 2020

Shooting a pistol off hand from about 44 feet and hitting inside of a three inch bullseye is a demanding task and takes practice. To put five in a row inside the black bull is also demanding. The former hits can be accomplished by mostly just standing up and bang away till you get some holes punched in the black. The latter five will take some timing of the shooter in breathing, aiming, pressing the trigger, and some expertise in having precision loaded cartridges tuned to the gun – actually, loads that the gun likes.

Perhaps like me, you have done both methods of shooting and, in some cases, wasted some expensive store bought or lovingly built reloaded ‘bullets.’ Maybe expensive but it is shooting and learning.

This paper is to discuss some random ballistic notes and shooting variables. This paper will combine the issues of being maybe a **plinker, shooter, ballistician, statistician, gunsmith, hunter, collector**, or any combination thereof. The focus of this paper is on shooting a “Pistol, 45-Caliber, Model of 1911” as most of us will agree, John M. Browning built one of the finest and best designed guns of all time “a singularly American firearms genius” (Hornady, p. 850). The only thing better than having a 1911 is having one on each hip. Just saying (I would need suspenders to hold ‘em up.)



So, **Plinker or shooter?**



1. The Gun(s)

Some of the major parts for this paper are “The” pistol and its “tuned” reloaded ammunition. Shown below is just an example of an accurate .45 Automatic Colt Pistol. Of course there are other 1911s like for instance the Kimber, Remington, Wilson, and maybe a ‘shop special’ or a gun hand made by a gunsmith in the business of making precision shooting 45s. “45 ACP is a moniker commonly used to describe the 45 Automatic, however this is the incorrect description of the cartridge, but is the correct descriptor for the gun the cartridge is fired in. (The 45 Automatic Colt Pistol).” (Hornady, p. 850).



COLT'S MK IV/SERIES 70 GOVERNMENT MODEL .45 AUTOMATIC CALIBER

It is of course possible to shoot with some of the new striker-fired plastic guns being built by everybody and their brother - as witnessed in any gun magazine. They can be bought for two or three hundred dollars and one could save some money, for this level of shooting by purchasing one calibrated in mouse or rat killing 9mm. Looking forward to seeing some of the hole reports from the Oklahoma ranges...

2. The Bullet

For my research into the best bullet for my target shooting I started with Army surplus 230 hard ball, Federal Premium National Match 185 grain FMJ Semi-wadcutter, and Atlanta Arms 185 gr. HP Match store bought ammunition. *These were inferior to my reloads* It could have been early in my shooting with a new gun (I was really excited) but the expensive bullets were not as consistent as I was looking for – meaning I could not hit squat with store bought – probably just wasted my money.

The reload cartridges include a Semi Wad Cutter (SWC) bullet weighing 200 grains. These were ordered from Oregon Trails' and are **Laser Cast**. The width is .451.

3. The Primer (Large Pistol)

Have moved from Winchester Large Pistol Primers to Federal LPPs and have decided there is very little difference between the two in my reloading. However, when shooting Federal brass I have tried to make sure I use Federal Primers. After all, to tell the difference in the primers shooting a pistol would be just on the edge of hard to prove. I guess if you had a machine to measure spark, fire, or smoke in a primer it would add to the reloading recipe but my guess is to make sure the primer goes in anvil up, not crooked, and seeded .003" to .005" below flush. Be respectful with primers as misuse could light up your reloading bench - or your armory.

4. The Pistol Brass Cases

Lot of choices in brass. Have had the best luck with TZZ/IMI, Federal, and Atlanta Arms. Some of my Israel brass has been used almost ten times and still wearing well. For my last groups of shooting strings new Federal premium Unprimed Brass were utilized. The average length was 0.893" which is the CASE TRIM LENGTH (Hornady Handbook, p. 850) showing the MAX. CASE LENGTH OF 0.898." What this means is trimming .45 cases is not required, generally speaking, when shooting the light loads like shown here.

4. The Powder (charge) – Ballistic Propellant¹

Somewhere between the Frenchman Vielle, Alfred Nobel, and Alliant Bullseye we have flake granules in a very fast burning and very popular double-based propellant (has both nitrocellulose and nitroglycerine – about 40% actually). Following the advice of some competitors and John Wootter's Pet Loads, about 4.0 grains of Bullseye will yield about 716 fpm using a 200 grain SWC. This load has proven to be a very accurate load.

Here is an area that somewhat can be controlled. Once a brand has been chosen then one can experiment on how much charge to load up. This final charge will be the one most accurate and the one the gun likes. So, the fun is shooting until we find the charge/load that works best. We all know "Proof is in the puffin!" (Still don't know where this expression comes from or came from.) Maybe it is "Proof in the pudding?" [Some of my readers know exactly where this comes from and it is a test for them.]

My proof is in the exact measurement of powder charge. I have counted the granules in one grain of bullseye to verify the accuracy of my loads. Here is a picture of the flakes showing a grouping of two grains, one grain (both in piles), and the ~583 granules in one grain of Bullseye (spread out in five and half 100 (or so, granule groups). Therefore, my research shows approximately 2332 granules in four grains of Bullseye. The exact one grain and then all together for four grains was verified with my Ohaus 1110 "Dial-0-Grain" powder scale.

It is obvious when rounding off the numbers to 600 granules in one grain, or 2400 granules for four grains of Bullseye the error would be about 2.92%. This accounting of the granules is just blowing nitro smoke up your skirt. Nobody in Oklahoma will EVER count granules! But now you have the numbers!

¹ What we should do is hire Wayne to give us his NRA BASIC METALLIC CARTRIDGE RELOADING COURSE. I have my completion certificate (February 26, 2011). His course is the best one-day course I have ever attended and would take it again. Not only as a how to lesson it is a pleasant way to start in reloading ammo!



Pix

by Kelly *“Precision is the accuracy required to gain the consistency and reliability of unfailing powder propellant.”*

5. Overall Loaded Length²

A sample of 13 reloads using Federal brass, Federal primers, 4.0 grains of Bullseye, and the 45 CAL 200g LSWC .451, are list below showing the overall loaded length (OLL) of each one. This is another way of checking the consistency.

1.246 1.246 1.247 1.246 1.246 1.247 1.246 1.247 1.247 1.245 1.245 1.245 1.246

The average OLL of this sample is 1.2461. The spread is 1.245 to 1.247. This length works JUST fine!

² Tip of the hat to Gen. Julian S. Hatcher for his book “Hatcher’s Notebook” (1962). John talks about all the time.

6. Combining the bullets with bullseyes

My analogy here is shooting free throws. How many free throws can you make in row? How many did you shoot to make ten straight? Plug in any other competitive number and you will see it really does not make any difference. Ten in a row or a hundred. Meaning I could lament and groan over the ammunition I shot up and show you the stack of paper with the 'practice' holes on, near, or scattered by the bullseye. It doesn't matter. **The proof is in the puffin'** – show me your five holes.

The point is, it just takes time and ammo to punch 'em out. It may be a while before I get up one morning and say I am going for five in the X ring...could do it with my REM 547 but with one of my 1911s? Don't think so. The joy is in the math, statistics, ballistics, and just shooting.

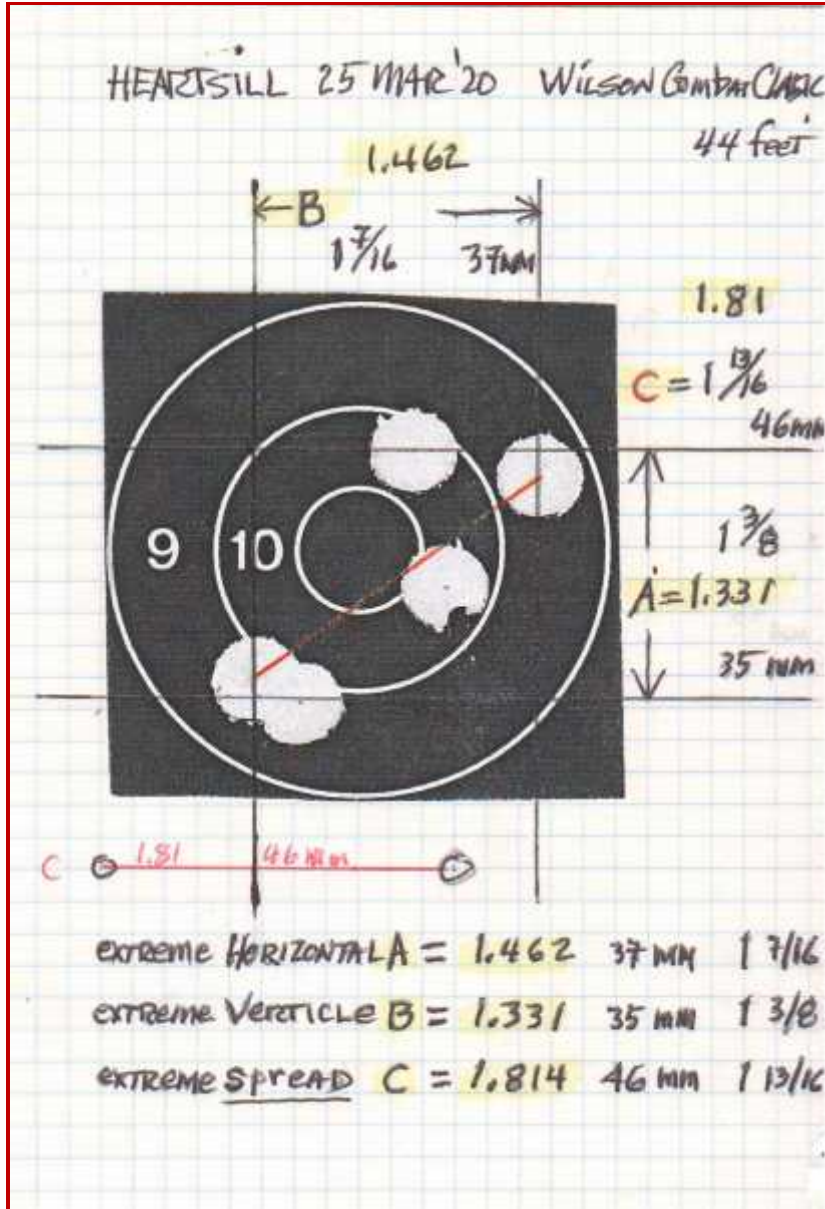


Here is the cropped target with a 1.8 inch spread.

Below shows the ballistics and statistics. This shows the center of the hole on the left with a vertical line thru it. Right next to it is the hole for the lowest bullet and is a horizontal line or the southwest corner.

Top right in the northeast corner is the farthest right shot and has the vertical line. The top shot has the

horizontal line showing the highest shot. So, we have all four corners and a box showing all the holes inside. A equals the vertical distance, B is the horizontal distance, and C shows the spread of the longest shots. No big record of course, but for me and my ole shaky hands this muther is hanging on my wall!



Speaking of hands let me discuss a couple of items I used to work up to and finally put five in a row inside of three inches. The first issue is my recent acquisition of using the Mossad Grip modified by placing my weak hand forefinger ahead of the trigger guard. Notice in the picture how my weak side

thumb (my left thumb) overlaps my shooting hand thumb. This is critical for really 'getting a grip. This is the best angle and it is spread out just a touch to show my right thumb under my left thumb. (My thanks again to Keith for suggesting the grip.) It didn't take long for this to be by "GO TO Grip!" For me, it takes out some of my shaking, wobbling, and gives me a better grip without squeezing the pistol too tight. For me, again, the gun is better held for shooting and recovering to get back on target. If I can say one thing this is the most improved step in my shooting.

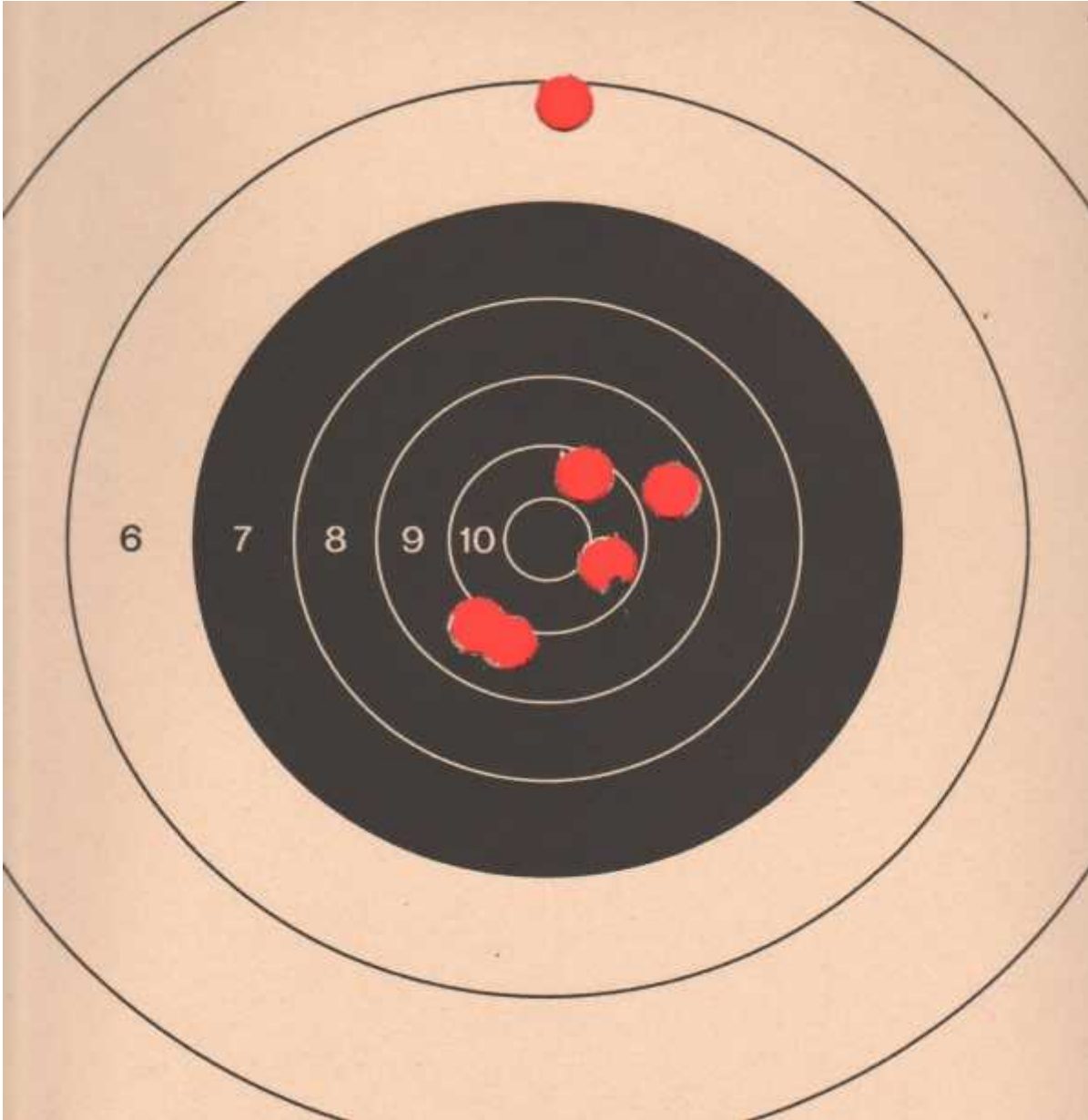


Pix by Kelly. **Pistol by Wilson Combat**

The final five went together by (1) dry firing in place, (2) firing a spoiler to heat the gun up, (3) placing five reloads, from the same batch and same temperature, (4) after getting my grip set, coming up safety off, and as I let out half my breath I gave myself about 8 seconds to stabilize on leveling the two sights and placing my green dot on my front blade on the bullseye, and (5) looked forward to being surprised at the compressed break. Dang, that was fun!

"If your pistol is not in easy reach as you read this, give me 10 pushups!" (Just to remind you of my hero Jeff Cooper in his "The Gargantuan Gunsite Gossip" (1990). [Jim & Ken won't miss it...])

SPOILER plus ***FIVE! – FINALLY, INSIDE 3 INCHES***



25. März 2020 **Wilson Combat Classic** .45 ACP

Bullesye is 5 5/16 across – Spread is 1.81 inches

200 grain SWC .451Laser, silver Federal brass,

Federal primers, 4.0 grains Bullseye

From 44 feet Score = 49/50



Was thinking about your question of how many times I had four in the black bull. Well, looking back to the end of January when I started all this I found out something yesterday afternoon that was a surprise. The bulls (five in the black) that I have touted were The five blues with the Norwood, five in the bull with my Browning, and the biggie last week of Finally putting five in a row in the black – with the extreme spread of 1.81 inches.

I laid out the copies of shot targets on my Monk carrel and had about 177 shot up pieces of paper or targets. Made three piles of misses, four hits, and five hits. This was 160, 13, and 4. So had about 13 with four in or close to the bull to say I had a total of 13 'real close ones.'

The surprise came in the third stack. I had not counted one .45 target with five as it had, as shown in the .jpg file, two shots low and in the 6 ring. Well, all along the task was 'in the bull.' If I were to make the claim of grading as a group this attached spread would be a winner. As a matter of fact the extreme spread is a half inch less than my "Finally five inside three inches." I measured, marked, and remeasured keeping the bull the same size and not blown up, meaning keeping the original to scale, and the top and bottom shots of the group are 1.333 inches long compared to my hanger of 1.814.

So, if at the Boxcar shooting with Johnny's rules of grouping, this last one would be the winner – a half inch smaller!

Course, this and 50 cents will get you cup of coffee but "proof is in the puffin."



BEST ***GROUP*** FIVE, INSIDE THREE



WILSON COMBAT CLASSIC .45 ACP

21. März 2020

BULLSEYE = THREE in. - EXTREME SPREAD = **1.333** in.

200 LSWC .451, 4.0 Bullseye, FED Primer and Brass