# GUN NOTES

*By Elmer Keith, Executive Editor*

*Continued from last month*

A gas check cup or hard metal will scrape lead out of the barrel, but if bullets are of proper diameter, which is exact groove diameter, and are properly lubricated, then little if any leading will ever occur in good smooth barrels. Some reloaders like them because they will not be shaved by the case mouth. However, if case mouths are slightly belled before loading, then no shaving will occur, even with relatively soft bullets.

Next the engravure of the lands of a sixgun barrel causes further upsettage of the slug and causes it to perfectly fill the grooves of the barrel and seal off all pushing gas. The metal has to go some place when the lands cut into the slug. If the bullet is straight sided, like these half jacket slugs with no lubricating grooves, there is no place for the metal to go except to extrude the base or the nose of said bullet. Smith & Wesson guns with five wide and heavy deep lands displace a lot of bullet metal, but also grip the bullet firmly and prevent stripping and, if loaded with proper temper and sized bullets, are wonderfully accurate. Soft lead or lead alloy bullets must be lubricated or they will lead the gun. That is the reason I prefer either fully jacketed bullets, or else grooved, lubricated lead alloy bullets for all sixgun use.

With full jacketed bullets, if small enough to load properly in the cartridge case, little or no expansion and upsettage will occur in revolver chamber throats unless the jacket is quite thin.

This is the reason why such hard jacketed bullets will wear the barrel throats faster from escaping gas than will the lead alloy bullet. It is also the reason why the front face of the cylinder will in time become burned to some extent as well as the top strap of the gun frame just over the barrel and cylinder joint. Those jacketed bullets hold the rifling perfectly, and if they are of exact groove diameter for the barrel, are usually wonderfully accurate. But, we also can expect shorter barrel life with their use than with a good proper lubricated and sized, grooved, cast or swaged lead alloy bullet. In conclusion, I favor exact groove diameter bullets in both full jacketed, as well as lubricated lead alloy bullets, and I have no use whatever for either gas check cups or half jacketed bullets without lubricant in any sixgun.

Next let us look into the fit of rifle bullets in their barrels. Again I favor exact groove diameter bullets with all metal jacketed rifle slugs. I have never had good accuracy from oversize bullets. The cutting in of the lands displaces a lot of metal and the base can be distorted if bullets are over groove diameter before firing. I once had an Enfield 1917 rifle that Charley O'Neil had rechambered to .30 Newton for me. That rifle would do about anything any of our modern .308 Norma or .300 Winchester Magnum would do. Groove diameter was .312-inch. It gave fine accuracy with all flat base bullets of 180 to 220 grain with its ten-inch twist. It had five wide, deep, heavy lands. Those lands displaced a lot of bullet metal. The cutting in of the lands caused those .308-inch diameter bullets to fill the grooves perfectly. I remember firing a ten-shot group through the target at 800 yards down on my ranch from this rifle and all the slugs landed in a huge snow drift. The next spring I picked them up after the snow had melted. They were M Government boattails of 173 grains weight. Imagine my surprise when I found that the cores in every bullet had extruded a full eighth of an inch out of their tapered tails. This shows what land displacement can do

to hard jacketed national match boattail bullets, even when the groove diameter measured .312-inch.

I had one lot of Remington 180-grain match bullets, boattails of nine degrees. These measured .309-inch. I never could get best accuracy out of them in a very fine Springfield that had four lands and went just .308-inch groove diameter. It was my favorite match rifle for its weight class and I cleaned up the Idaho State matches with it, but used .308-inch bullets to do so. Getting back to that lot of fine Remington .309-inch 180-grain boattails, I also had a Buhmiller 26-inch bull barrel Enfield made up as a single shot, with no magazine, Krag trigger guard and big steel escutcheon for the front guard screw. That rifle had a most beautiful barrel, of .309-inch groove diameter with six narrow lands. It was chambered .300 H&H and with those 180-grain .309 Remington bullets would stay nicely on the 1,000 yard spotter if you did your part using a 12-power Lyman Super Target-spot scope. I took it to Perry with me in that National 1940.

We used it in the Herrick Team match, along with a Winchester Model 70 Bull gun, that Winchester kindly loaned me for the team. It consistently outshot the Winchester bull gun with each pair of our eight-man team. I used 65 grains of 4350 behind the Remington bullet. On a still day you could hit the 1,000-yard spotter every time with that rifle if you could hold it, and as I remember that spotter measured just ten inches in diameter.

I also used that rifle in the Wimbledon Cup Match, but a Marine in the first relay in the morning had no wind and shot 27 straight Vs to win the match. I fired at 2 p.m. in the afternoon when the wind was so strong it would rock you, even with tight sling. You could play cards on the flags all down the range and it was gusty and varied badly. At that time I had done enough long range coaching that I could read the wind, but I had no way of controlling the gusts. The National Match Springfields required from 2¾ points to 3¼ points left windage with the wind coming in from nine to ten o'clock. Even in that gale, I wound up with a 97 in the Wimbledon. I lost three 4s, due to lulls in the wind while I was squeezing off the trigger. Had I used a set trigger, I might have been able to get the shots off quicker and stayed in the black, but there was no chance of winning the match in that wind. My three 4s showed the spotter hanging on the edge of the bull at about 9:30 due to lulls in the wind. That rifle and load next went to Alaska, where it was used by a wolf hunter with great success up until he and his two sons were all killed in an airplane crash.

I had another super-accurate, long-range match rifle. A .285 O.K.H. Bull gun with a Neidner 26-inch bull barrel.

The only trouble with that outfit was the lack of a super-accurate match boattail bullet. I fired some three-inch groups with it at 500 yards prone with sling and 12

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power Lyman Super Targetspot scope, with 180-grain WTC Co. open point bullets. But out at 1,000 yards a boattail bullet was badly needed for match work. Larry Youngberg then lived in Chicago and had access to some very powerful swaging presses. He made up dies and reswaged Government nine degree boattails down to about 169-grain .285 O.K.H. bullets. His dies left a very narrow belt on the bullet just barely ahead of the taper of the boattail. This narrow belt was .001-inch larger than groove diameter for a perfect gas seal. The rest of the parallel-sided boattail was exact groove diameter or .2850-inch, the groove diameter of that barrel. With Duplex cases and these reformed 169-grain bullets I used 55 grains of 4350. The tube in the case carried the flash to the front half of the charge and the rifle was tight chambered over the body of the case but had .005-inch clearance in the case neck. Velocity as shown and proved by steel penetration and 400-yard midway trajectory was considerably higher than the 180-grain, 3,000 fps .300 H&H match load.

On a calm, still day with slight solid overcast, I fired a ten-shot group down on the range at 800 yards on the big C target. The group measured a scant six inches in diameter from prone position with tight sling. That rifle and load would shoot and if I had had enough of those fine Youngberg bullets they would have been the ticket for the Wimbledon, Herrick or other long-range match.

***NEXT MONTH!***

***RELOADING OBSOLETE CARTRIDGES***

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***HANDLOADING THE 9mm PARABELLUM***

The old Sharps rifles used paper patch bullets, the forerunner of modern metal patch. The slugs were swaged to perfect form and density and patched with two layers of hard bond paper. The long Sharps cases were charged with a good grade of black powder, a card wad and next a lubricating wad and often a thin hard card wa over the lubricating disc, then the paper patched slug of one part tin to 16 parts lead was seated friction tight in the case neck. The rifles were cut, both with wide and

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deep lands and some with very shallow lands. I have used both types and can see no difference in their accuracy. The barrels were throated so that the long paper patched slug was seated right up in the barrel throat and start of the lands which tapered from full depth to a whisper at the mouth of the chamber. Those paper patched slugs were just land diameter and in many rifles could be shoved through the barrel before firing with a good stout cleaning rod and the lands would barely mark the paper patch. When the powder charge exploded they already lay in the lands and upset to perfectly fill the grooves and shot with wonderful accuracy. As late as 1900 the Wimbledon Cup Match was won with a Sharps Creedmoor caliber .45-120-550 for the 3¼-inch straight case with a perfect possible score and against all manner of Krags and Winchesters for the .30-40-220-grain army load. While paper patched lead bullets are not as hard and will not hold the rifling as well and will not shoot with today's fine metal patched bullets, they will still outshoot anything but a fine bull gun match rifle in modern persuasion. The principles of their ammunition paved the way for our modern loads and rifles. So today, if you want finest accuracy from any modern rifle be sure and load a bullet that is exact groove diameter, or if any variation, then it is best for it to be .001-inch smaller than groove diameter rather than that much oversize. Cutting in of the lands will fill the grooves and with less distortion of the bullet jacket, than if an oversize bullet is used. Oversize bullets greatly increase pressures and when any given load is increased beyond the balance point, then pressures become erratic and elevations vary to beat the devil at long range. So feed your rifle or sixgun a proper sized bullet for its groove diameter and you will find it pays dividends over the years.

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**FIELD TESTS**
**THE G&A STAFF**
**TESTS**
**THE LATEST GUNS!**

*Due to the volume of mail received, Mr. Keith cannot answer letters personally, unless they are accompanied by a self addressed stamped envelope. Queries for Mr. Keith may be addressed to* Guns & Ammo, *8490 Sunset Blvd., Los Angeles, CA 90069.*