wear in the barrel so my seating depths will, again, be at a known and proven setting. As explained in the ammunition segment, on a brand new chamber my bullets are seated farther into the case than what I want. After the first 200-300 rounds they are then right where I want them. All through the year I have been running experiments and noting behaviors and zeros, and the majority of that information, or at least the most reliable information, has come from barrels that are from 25 to 75 percent maturated. Using this system, I could effectively shoot the same barrel more than once at Camp Perry. That, I think, is a big advantage.

Barrel Choice
[*rifling styles*]

The only assurance anyone has of barrel quality is purchasing from a known good barrel maker. That's going to be an individual who makes custom barrels. There are a few who deserve recommendation, but the one I take my business to is Gary Schneider. I use Schneiders in all my across the course, long range, and rimfires. All Schneider barrels are hand lapped stainless steel. I have won what I have won, with three exceptions, using a Schneider barrel. The three exceptions were using a Hart in my .308 for one early Camp Perry win, an Obermeyer for a Palma® win, and a factory Remington® barrel to win the Silhouette Rifle nationals one year. Schneider is the barrel used on each TUBB 2000. Again, there are a lot of good barrel makers from which to choose but I have stayed with the one that has been proven to me to work.

I began experimenting with Schneider polygon barrels in the early 1990s and was impressed with them. I used them in .308 and 7mm but couldn't get Gary to build them for smaller calibers (they are very difficult to lap) until late in 2002. Now that I have 6.5mm and 6mm polygon barrels, I'm planning on using them in all my competition rifles for the 2003 season. Polygonal rifling has a different land and groove configuration which essentially eliminates any right-angle edges that come into contact with the bullet. The result is less stress and friction on the bullet jacket. Polygonal rifling has less tendency to foul, and since there are no square corners for the gas to flow by, may produce a slight increase in muzzle velocities. If you push a bullet through a firearm bore you can see light streaks around the lodged bullet. These are far less distinct in a polygon barrel. Additionally, the interior of the barrel is work hardened more during this rifling process; this lends itself to providing longer accurate barrel life. A limited test (a few 10 round groups) might not show much, if any, advantage on target to this rifling system, but the advantages are there over the long run. Extended accuracy (from reduced fouling) is a big asset to the High Power shooter. Shooting a polygon barrel against a conventionally rifled barrel after both have had 100+ rounds worth of fouling in them, in other words, is likely to display a difference on target (it certainly does with a bore scope).

My experience with these polygon barrels has been that they take less propellant to attain the same velocities as a conventional barrel. Comparing new barrels, it's approximately 1-2 full grains of powder. That's a good deal of difference, and definitely something to be aware of before working up a load in a new polygon barrel. Keep in mind that I am speaking from a lot of experience in using conventionally-rifled Schneider barrels and also am using the same chamber reamers, loading components, and conducting these tests in a known control environment. I mention those things because it otherwise is difficult to know how accurate other comparisons might be. I attribute the difference in powder charges to the greater efficiency of the polygonal rifling method since, for the same reasons mentioned earlier, the bore is allowing that much less gas blowby. The question, then, is not what you're not getting with a polygon, but what you're not losing. Burning less of the same propellant to get the same thing is not at all bad. I have noticed an absence of the typical dark fouling streaks in the throat area common with conventional rifling, and believe this is also due to less gas blow by with the polygon. Barrel life should increase for most applications due to less concentration of hot gases directed at the barrel steel.

Polygonal rifling looks like a stretched "M" with no sharp lines. There is no sharp trailing or leading edge angles. In a conventionally rifled barrel, the leading and trailing edges of the rifling never obturates or fully fits that groove so, consequently, there is some gas blowby. How well a bullet conforms to the bore, and how little deformation or stress is on it has to make a difference. Better fit contact and more even bearing means there should be less displacement of jacket material.

Additionally, seeing the commonplace dark streaks on either side of a land indicates to me that the bullet is not bearing in that area either. Considering their absence in a polygon barrel, I also have to believe that there is greater contact being made with the bullet in this configuration. That also somewhat would explain the experience of polygon taking less propellant, and points out a possibility that polygonal rifling might work that much better with a moly coated bullet.

All TUBB 2000s have polygonal rifling and we have been setting records with them.

[twist rate]

I have some hard-learned advice to share on twist rate selection. If there is any question, and an option, go the next step faster in twist rate. I was one of the first contending shooters (early 1990s) using .243 Winchester and here is where I learned that lesson. We were first using the (then) new Sierra® 107 and also some vld-style bullets from custom makers and trying to determine what was necessary to stabilize them. Consensus and comparison both seemed to indicate that 1-9 twist ("one turn in nine inches") was adequate. And it was, until we got to Camp Perry. My home is at about 2500 feet above sea level and I experience typical Western summers, meaning it gets hot and stays dry. My 9 twist reverse tapered silhouette barrel shot like a house afire at the Silhouette Rifle nationals in Pennsylvania at 2000 feet, and also my 9 twist across the course barrel shot well at the other trips I made with that combination to Oklahoma City, which is about the same profile as home, to Raton (6500 feet), and to Bailey, Colorado (8000 feet). But at the 600 feet elevation in Ohio, the 9 twist cost me a win that year. The rifle would not shoot up to my standard. I remember one 300 rapid string of 100-0x, and that said it all.

Now, several years later, I'm back to using 6mms and I'm using a 1-8 twist to drive them. Using bullets suitable for High Power shooting, there will be no ill effects from going one turn faster than you think you might need. The rifle shot as well the next