SHORT Barrel, L

By Barrett Tillman, photos by Ryan Cleckner

Question: How do you get a vegetarian to eat steak?
Answer: Give him a taste.

That's the philosophy of William Graves, proprietor of GPS Defense Sniper School in Scottsdale, Arizona. A successful, experienced shooting instructor, Graves defies the conventional wisdom that precision rifles need long barrels. Whereas most off-the-shelf rifles have 24- or 26-inch tubes, GPS offers extremely accurate weapons with 16- and 18-inchers. His proof is in the results – a fusilogical steak to convince the ballistic vegetarians.

Actually, short barrels have been discussed for decades. At the Gunsite scout rifle conferences in 1983-84, subjects included the optimum length to provide practical accuracy at 300 yards. The final configuration was a lightweight, 18-inch barrel on a bolt-action receiver.

Several years later Steyr-Mannlicher chopped almost 10 inches off the SSG and marketed the special-purpose SSG-P with a 16-inch barrel to meet legal requirements. But the industry standard remained 26, as few serious riflemen believed that 18 inches could deliver optimum accuracy at long range.

Actually, the information was already there. Much as I loved my SSG's exceptional precision, its 25.5-inch barrel frequently got in the way, and the bolt was stiff. Consequently, I had a 20-inch tube mated to a Ruger 77 action and saw no appreciable loss in practical accuracy.

Barrett with his 920-yard target and the GPS-modified Model 700. The Military E silhouette is pictured behind the target for size comparison.

Shooters ask about the velocity differences between an 18- and 24-inch barrel. GPS instructor Dan Herman just grins: "It seems to run between 20 and 100 fps per inch, depending on powder, bullet, and barrel, but you know what? It doesn't really matter."

He's right. Instructor Ryan Cleckner is a combat-experienced sniper from Afghanistan who says, "I wouldn't care if a bullet turned 40 degrees left and 10 degrees down coming out of a short tube as long as it was consistent. You can adjust for that on the scope." He found that with the same ammo he needed only two more minutes of elevation at 900 yards.

Ryan adds, "My rifle came from the factory with acceptable sub-minute-of-angle accuracy out of a 26-inch barrel. I had my barrel cut down to 18 inches, took it to the range and was pleasantly surprised to see the accuracy improve to a 1/2 minute of angle. Yes, the shorter barrel was more accurate."

The reason for the seeming anomaly is due to harmonics – the amount of vibration in the tube caused by firing the projectile. Harmonics in turn affect accuracy by the amount of flexing as the round leaves the muzzle. For a given length and diameter, the only way to reduce harmonics is to stiffen the barrel by shortening it.