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# RIFLEMAN

• DAVE ANDERSON •

## CLICK IT
### Don't Guess.

The steel target was about 8" wide and nearly 600 yards away. The shooter sat down at the bench, adjusted the turrets on the target scope, aimed and fired. A little over two seconds later the clang of a hit came floating back. Three more shots resulted in two hits and one miss by an inch or so.

The shooter in this example was my wife Simone, who shoots rifles maybe once or twice a year. Any reasonably competent shooter can do the same. Many long-range enthusiasts argue "long range" begins at about 500 yards. Fair enough, but to get to the deep water we first have to navigate the shallows.

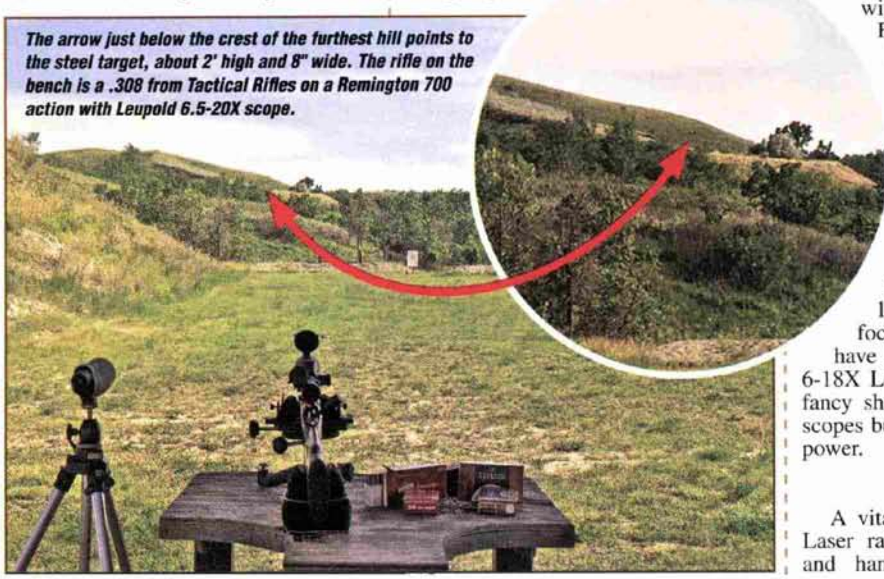
Let's set a starting goal: The ability to hit a 6" diameter target at any range from right off the muzzle out to 500 yards, shooting from a rest. By long-range competitive standards, this is not very difficult. But when you can achieve it, first shot, every time, you'll have learned the basics. Hitting at longer ranges is a matter of doing the same things, just doing them with greater precision. The most precise way to index the rifle is by "clicking" — using click-adjustable scope knobs to dial in the required elevation and windage.

Just as benchrest competition unlocked many secrets of accurate rifles and bullets, rifle metallic silhouette competition led to accurate and repeatable scope adjustments.

Obviously we'll need accurate equipment, a benchrest or other stable shooting platform, and some skill in benchrest shooting. It is amazing how much performance your money can buy today. I've had basic, no-frills rifles from Browning, Remington, Ruger, Savage, Tikka and Weatherby shoot well under 1 MOA.

### Move On Out

The first step is to break the 100-yard habit. Move out to at least 200 yards. Your equipment and skill level should be sufficient to average MOA-size groups.



*The arrow just below the crest of the furthest hill points to the steel target, about 2" high and 8" wide. The rifle on the bench is a .308 from Tactical Rifles on a Remington 700 action with Leupold 6.5-20X scope.*

That means averaging 2" groups at 200 yards, with all (OK, almost all) in a 3" circle. If you can shoot MOA groups at 200 yards, most likely your equipment and skill level is good enough to shoot MOA groups at 500 yards.

I'd be more inclined to save money on the rifle than on the scope. Clicking requires the scope adjustments are accurate, repeatable and durable, which are difficult features to put in a cheap optic. If money is no object, look at tactical scopes such as IOR, the Leupold Mark 4 series, Nightforce or Schmidt & Bender. They are built for heavy use in police and military duty.

### Turrets

For my purposes, shooting paper and steel, I find regular consumer series scopes more than adequate. You can even get along without turrets if you don't mind the inconvenience. Personally I want turrets, at least for elevation. The Leupold custom shop can add turrets to many of their regular hunting scopes and can even regulate the markings to a specific load.

Several makers offer scopes with turrets, including Bushnell, Burris, Leupold, Sightron and Zeiss. Several of my scopes have a focusing objective ring which works fine, though it can be a stretch to reach the ring while looking through the scope. I like the convenience of a side-focusing knob.

A personal favorite is the Leupold 6.5-20x50 with 30mm main tube, turrets with 1/4-MOA adjustments and side focusing knob. Other good ones I have include a 4-16X Sightron and 6-18X Leupold VX-II. I've seen some fancy shooting done with straight 6X scopes but personally prefer a bit more power.

### Range It

A vital item is a laser rangefinder. Laser rangefinders are fast, accurate, and handy. As with all electronic





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devices I expect they will continue to get better, providing more performance for the dollar. Another very worthwhile electronic device is a portable weather station. One I've used for several years is the Kestrel 4000. The size of a cell phone, it shows wind speed, temperature, humidity, barometric pressure and can store and graph data.

Carefully sight in to hit point of aim at 100 yards. Once sighted, reset the turrets to zero (check the scope's instruction manual). If possible, chronograph at the same time. Factory ratings are more reliable than they were years ago. If your rifle barrel delivers the same velocity as in the manufacturer's tables, you can likely use their data, but it is better to use your own data.

## Ballistic Dope

There was a time when some ballistic coefficients were a bit optimistic as well. Measuring B.C. can be done by the individual, but frankly is not worth the trouble for most of us. Currently I have no concerns about accepting manufacturers' ratings.

Other information you'll need is the height of line of sight above the bore (measure with a ruler from the center of the scope to the center of the bore), adjustment values of your scope (e.g. 1/8, 1/4, 1/2 MOA clicks) and the

**The turrets on this Leupold Mk 4 6.5-20X LR/T scope can be reset to zero after initial sighting (in this case at 100 yards). This scope has 1/4-MOA adjustments. One full revolution results in a 60-MOA change. The Leupold Custom Shop can install turrets on many of its scopes, including popular hunting models.**

expected temperature and altitude at which you will be shooting.

The next step is to use an Internet search engine and enter "ballistic calculator." There are very good (and free!) external ballistic calculators. One I use often is at www.biggameinfo.com and another is at www.hornady.com.

Enter the data and desired range intervals (I use 25 yards). At each interval the table shows bullet drop in inches, number of MOA come-up clicks required, bullet velocity, energy, momentum, time of flight, and wind drift (I assume a 10 mph crosswind). Print or copy the chart for range use.

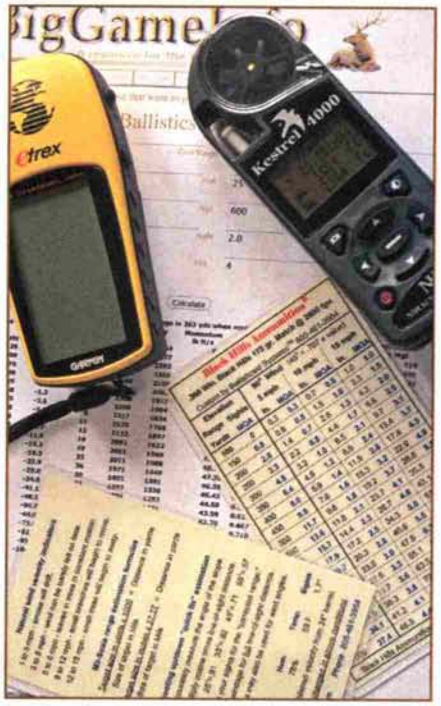
Alternatively, check out an outfit called Ballisticard Systems. They have data cards for hundreds of cartridges and can custom make cards using your data. They will print up laminated cards with bullet drop and wind drift data, plus worthwhile information on shooting uphill or down and estimating wind speed.

Of course we need a shooting range of at least 500 yards. Steel targets are practical and fun, though I like paper targets for measuring and saving groups. Start out shooting when there is little or no wind. You'll have the rest of your life to learn about air movement and density, which is about how long it will take.

You've got a target set up and ranged at 500 yards. Check your range card and click in the correct elevation. Estimate or measure wind speed and enter that correction. Now it's a matter of using the same shooting skills you used at 200 yards.

Why is the group a bit to the right, even though the air is still? You have just seen the effect of spindrift. Most barrels are rifled with a right-hand twist, causing bullets to drift slowly to the right. It was probably too minor to notice going from 100 to 200 yards, but it is obvious at 500 yards.

Even so, why is the group strung out horizontally, when there's no wind? Well my friend, you've just arrived at the point where you either get hooked on long range shooting or find it hopelessly frustrating (maybe both!). Something is always happening with the atmosphere. Air currents, humidity, barometric pressure — the atmosphere is always changing. Dealing with it is the challenge of long-range shooting. When you can handle the challenge fairly well at 500 yards you're past the shallows



*A GPS rangefinder capable of showing elevation such as this Garmin Etrex is a useful accessory. The Kestrel 4000 unit provides information such as temperature, wind speed and barometric pressure. Laminated range cards from Ballisticard Systems show bullet drop at various ranges and other useful information. The ballistic printout on the sheet is a printout from the Web site www.biggameinfo.com.*

and ready to tackle deep water. GUNS

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