



**OFTEN IN ERROR,  
NEVER IN DOUBT.  
BY BRUCE BUCK**

In last month's column on stock fit, I briefly mentioned that famous gun maker and promoter, Robert Churchill, said that a  $\frac{1}{16}$ " stock adjustment where your face touches the stock translates into a 1" movement of the pattern in the same direction at 16 yards. This should be very useful in figuring out how much you have to bend the stock to move your point of impact to where you want it.

A reader emailed me with an explanation of how the formula was derived. I pass it along for what it is worth in the hope that it might help with stock adjustments for different distances and barrel lengths. Frankly, math makes my eyes glaze over, so I'll keep it short. The formula is

$$\frac{P}{D \times \frac{36}{E}} = M$$

where:

- P = Distance in inches that Point of Impact center varies from aiming point on target
- D = Distance in yards from gun muzzle to target
- E = Distance in inches from aiming eye to gun muzzle
- M = Amount of stock movement in inches required to correct

If you plug it all into a spreadsheet, Mr. Churchill's calculations work out if your eye-to-muzzle distance E is 36". From where I check the stock to the rear of the barrel is

about 9". On an O/U with a 30" barrel that makes my eye to muzzle distance 39". Your distance may vary based on your size and shooting stance. Also, an auto's sighting plane will be longer than an O/U's due to the extra receiver length. You'll have to plug in your own numbers.

The bottom line is that if you measure 36" from your eye to the muzzle,  $\frac{1}{16}$ " movement of the stock where your face touches it will move the point of impact in the same direction by 1" at 16 yards. At 40 yards that  $\frac{1}{16}$ " adjustment will move the POI  $2\frac{1}{2}$ ". If your eye to muzzle distance is different than 36", get your twelve year old to run the formula in New Math. Or, if you'd like the spreadsheet in MS Works, which Excel probably reads, email me at [TheTechnoid@juno.com](mailto:TheTechnoid@juno.com) and I'll send it to you with best wishes.

### THE SHOTGUN COMBO GAUGE

With the math class behind us, now it's recess and we can fool around with gear. Since we are talking about stock fit, one has to have some way of accurately measuring things. When measuring stocks I always used an old furniture store yardstick and a plastic desk ruler. My setup is cheap but clumsy and not as accurate as I would like. Just my style. My betters use gorgeous mahogany and brass devices that seem as though they are from the Victorian era and are priced like museum antiques. You can buy modern versions at Galazan's, but they are expensive and require

# MORE ON A FITTING REPLY...

that you buy separate tools to measure drop and length of pull. Brownell's tool is inexpensive, but can't measure the all-important drop at face.

Enter the Shotgun Combo Gauge. It's available from [www.shotguncombogauge.com](http://www.shotguncombogauge.com) for \$118.95, plus \$58 more for the optional SxS extension. It's a handy tool to have if you often work with stock measurements. The Shotgun Combo Gauge looks like a set of giant aluminum calipers about 28" long. Measurements are clearly marked in inches and metric. Measuring length of pull is pretty straight forward. If you look at the photo, you can see that a calibrated metal rule is attached between the jaws in such a way that you can accurately measure stock drop any where along the comb once the gauge is held flat along the rib.

The gauge measures length and drop quickly, conveniently and accurately. The gauge comes with a plastic protractor so that you can theoretically measure the angle of pitch, but that's pretty tricky to use and wasn't entirely successful for me. As mentioned last issue, I measure pitch by standing the gun with the butt flat on the floor with the receiver against the wall,

measuring the distance from the muzzle to the wall. Most US gunsmiths can work in these numbers of "inches of pitch". Or you can use the Combo Gauge to easily measure the English way from trigger to the butt plate's heel, middle and toe. The gauge does not have a provision for exact cast measurement, so you'll still have to do that by guesstimation.

As originally made, the gauge couldn't properly measure SxS guns with swamped ribs because the rib wasn't flat enough to properly align the gauge. The manufacturer has come up with an optional bolt-on extension that extends the gauge in a straight line from muzzle to breech. It's also got a tiny supermagnet to hold it in place while you measure. It proves very helpful for those of us lacking a third hand. If you are only going to measure guns with flat ribs, like the typical target O/U or gas gun, you don't really need the extension. If you measure a lot of classic SxS guns, the extension and its magnet will be worth its weight in gold. If you find yourself needing to measure stocks fairly often, this inexpensive, light weight, high quality, very portable Shotgun Combo Gauge is definitely a better mousetrap.



THE SHOTGUN COMBO GAUGE.