

## Optical Delusions

Most field-target competitors are 'heavily invested' in the supposition that high quality optics perform better than economy glass. One would think that with so many mechanical pieces of the optical puzzle contributing to 'the big picture', maximizing the quality of each piece would produce the best-performing optic. With FT sighting equipment being as important as the gun itself, this performance-at-any-price attitude has cost many a field-target shooter many a dollar. Though not near the top, I'm on that list.

### The Impetus

Missing a National Champion trophy by just two points on a 120 point week-end can cost a man more than a little sleep and braggin' rights; especially if one's only perceived handicap happened to have been optical. One naturally seeks to remedy the equipment handicap. So began a two-year quest for the Hunter Class optical 'Holy Grail'.

### The Complication

Since bigger is often better in the optical universe, the quest was complicated by my allergy to mass and weight; in other words, an aversion to the very monster scopes likely to offer solutions. My challenge was finding a reasonably-sized scope with range-finding abilities approaching the 10-50X Nikko-Sterling Diamond Series telescope.

No doubt the Nikko's performance relates to such MIGHTY specifications as: a 30mm tube, and 60mm objective, and 90mm side-wheel, and 18.4" length, and 40 ounce heft and... an \$800 price tag! Each impressive number in each critical category theoretically contributes to better range-finding performance. While (hesitantly) willing to pay the piper for the Holy Grail, I am unwilling to use a scope almost as large and heavy as my rifle (and twice as expensive). Such was the predicament of my quest.

### The Candidates

Nevertheless I studied all the options and mountains of specifications, and set about trying each likely candidate in turn. Surely there exists a reasonably-sized rifle scope that range-finds better beyond 40 yards than the \$69, Korean-built Simmons Pro-Air that fell so excruciatingly short of a national championship. Literally banking on Japanese glass, I tried no less than TEN new scopes; three models of Hawke Optics, three Bushnell Elite models, two Leapers 3-12X Minis, a 4.5-14X Burris Timberline and the 4-16X Weaver V16 or two (okay... three).

### The Epiphany

During this process of discovery, if nothing else I discovered my tolerances for size, weight, reticle complexity, eye-relief, mounting height... and budget! However,

much to my dismay (and impoverishment), I also discovered that none of these optical wonderments range-finds particularly better at 12X than my \$69 Simmons Pro-Air. **DOH!** Rather than think this expensive project a complete waste of time, effort and finances, in retrospect I prefer to consider it a 'valuable' learning experience.

### **Unfulfilled Promise**

The most expensive scope tested, which also boasts the most impressive specifications that theoretically *should* provide superior range-finding, didn't range-find as well as the others! At least in my 59 year-old eyes. Virtue of its 30mm tube and 50mm objective, the \$800 (retail) Bushnell Elite 6500 has an impressively bright and clear sight picture, however the large-diameter tube and objective requires a high mount and center-of-gravity. The reticle also fades to near invisibility in failing light conditions. Though the side focusing is butter-smooth, the sight picture doesn't snap in and out of focus any better than several of the less expensive or front-focusing models. The Elite's mil-dot reticle is very functional for Hunter class purposes, but is also common to many of the other scopes tested.

Bottom line? In my eyes the 2.5-16X Elite 6500 is not worth the bottom line! On the other hand, two scopes (besides the under-appreciated Simmons) do impress me.

### **A Pleasant Surprise**

Given its meager price, the \$159 Accushot 3-12X Mini SWAT scope offers a lot of bang for the buck. Despite its 30mm tube and 44mm objective, it is the shortest scope tested; yet it range-finds as well (for me) as the others (at 12X). It also comes standard with an eye-shade, and its side-focusing is almost as smooth as the Bushnell Elite costing five times as much. Though the Mini's glass doesn't present quite as bright a picture as does the Elite, the picture is adequately clear and bright and its mil-dot reticle doesn't exhibit nearly the allergy to failing light as did the expensive Bushnell.

Unfortunately I've had two Accushot Minis fail within 50 rounds of being mounted on a semi-automatic .22 rim-fire. In both cases, the reticles rotated in the tubes. That said, my current Mini does a good job on the PCP's to which it is now relegated.

### **Best of Show**

Another scope that rose beyond expectations was the 4-16X Weaver V16 Classic. Its 1" tube, 42mm front-focusing objective, 14" length, 17 ounce heft and \$350 price-tag belie prevailing 'bigger is better' attitudes. To my eyes, the V16 seemed the best and most consistent-performing scope tested in this Holy Grail exercise. Besides falling comfortably within my sensitivities to mass and weight, the V16 is the only scope encountered with factory yardage markings that completely agree with my (admittedly aging) vision. In fact, my second and third V16's exhibit the same endearing trait;

suggestive of excellent manufacturing quality control. The V16's range-finding also seems less affected by light conditions than all others; an understandable quirk exhibited to varying degrees by every scope tested. Strangely enough, this all-around best-of-show is virtually shunned by the FT community; not the case in silhouette competition circles. In my eyes, the V16 ranks near the top of every important category, making it the hands-down winner in the search for my ideal Hunter Class scope. "Your results could vary."

### **Design Theory versus Marketing Reality**

I'm no optics expert, but have heard from the optically-literate that (much to my chagrin), bigger is better. Apparently longer and/or larger-diameter tubes and objectives theoretically gather more light for a brighter picture to snap in and out of focus better, an important virtue in the quest for the ideal field target scope.

Less obvious than out-sized components but undoubtedly just as important, is the quality of lenses employed. The degree of precision to which the lenses are ground is hugely important to optical quality and clarity; therein lies much of the expense of quality optics. Maintaining precision in the grinding process grows exponentially more difficult as lens diameters grow, so quality lenses grow exponentially in expense with diameter.

Precision mechanicals are obviously also very important to range-finding performance. Less obvious (to some), the production costs of manufacturing precision and quality control get marked-up at every level of distribution between manufacturer and end-consumer. So while larger tubes and objectives are not particularly expensive features, the manufacturing quality control required to produce quality lenses and precision mechanicals to stuff into those bigger pieces makes not only for a hefty package, but a hefty price.

### **FT ideals versus brutal realities**

Field-target airwaves are often abuzz with questions, speculation and debate about the perfect field-target scope. Much of said lip-service revolves around features and specifications ideal for field-target use, and why they never seem to quite come together for the perfect field-target scope.

More often than not, simple economics drive product development and marketing. In most cases logic dictates there be not only adequate demand for a particular product to make developing and marketing it economically feasible, but also that the end-product can be produced to sell for a palatable price. Therein lays the conundrum.

The brutal truth is, the field-target community makes up a miniscule fraction of shooters and hence represents an insignificant profit potential in the burgeoning riflescope market. No matter that every FT competitor might be willing to pay a hefty

price for the ideal product; the profit potential in several dozen scopes wouldn't cover the expenses of developing it. Consequently we make do with what's available for the broader, profitable market. Nevertheless, let's design the perfect FT scope; just for kicks.

A good way to start would be to actually save a little money by doing away with the variable-power feature so common in high-end scopes. The extra mechanicals required for variable magnification not only add manufacturing steps and (therefore) expense, but unnecessarily complicate already complex optical systems. Considering variable magnification is a virtually superfluous feature for competitive field-target shooting, IT'S OUTTA THERE! Whether designing the perfect Hunter Class scope or the perfect scope for all other classes, it should be of fixed magnification.

For classes other than Hunter, it would be nice if our dream FT scope was offered in at least two choices of magnification. Field-target shooters being people (of sorts); people like to have options. Experienced FT shooters and/or those utilizing accessories like harnesses, stabilizers, knee-pads, braces and bi-pods tend to gravitate toward higher magnification optics than those that don't utilize shooting aids. For instance a WFTF class shooter might prefer a 24X or 32X scope, whereas a well-harnessed Open class shooter might be stable enough to make use of magnifications as high as 80X! Ideally, our dream FT scope would be offered in at least two choices, say 30X and 50X. As current Hunter Class rules require the scope to be set no higher than 12X while shooting, obviously the dream Hunter Class scope would be of fixed 12X magnification.

Regardless of magnification, for light-gathering and optical clarity our dream FT scope should have a longish 30 or 35mm diameter tube and a large-diameter objective (say 50 or 60mm). Of course lens quality must be as high as feasible, so the money saved by fore-going variable magnification goes back into lens and mechanical quality controls.

When it comes to focusing, for field target use a large-diameter side-wheel goes almost without saying (virtue of wider-spaced yardage markings). However, there may be room for much improvement in this area.

### **Why didn't they think of this?**

Since FT rifle ranges are 8-55 yards (depending on American or international rules), there is absolutely no need for focusing beyond 55 yards. Any yardage markings (and rotational travel) beyond 55 yards are absolutely superfluous for field target, and therefore represents wasted focusing potential. For example, the 80mm side-wheel on my 2.5-16X Bushnell Elite has about 1.5" of travel from my 55 yard mark to the limit of its rotation (infinity), and the same 80mm side-wheel used on my 3-12X Accushot Mini shows almost 2" of travel from 55 yards to limit. If the same amount of total side-wheel

rotation was dedicated to focusing only from 10 to 55 yards as is now dedicated to 10 yards to infinity, there would be wider spacing between the range markings and consequently, better range-finding.

### **Or this?**

Additionally, even wider-spaced range markings could be affected if aforementioned 10-55 yard focusing was accomplished with a full 360 degree rotation of the side-wheel; rather than the 1/2 turn of the 3-12X Mini or the 3/4 turn of the Elite 6500. In other words, a full, 360 degree rotation of an 80mm side-wheel to focus (only) from 8 to 55 yards would widen the increments between yardage markings considerably, better defining the difference between those difficult-to-range targets beyond 40 yards.

### **Now to name it**

**BAM!** There it is. Not only the ideal field-target scope, but the right name for it. Big-Ass Mother.