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Revolutionary Rifle Products

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Modern Shooters Have Never Had So Many Innovative Goodies.

While some rifle shooters might list powders producing another 100 fps, bullets with super-high ballistic coefficients, or scopes you can click up and down as the most revolutionary rifle products to appear in recent years, all three have actually been around for quite a while. Truly groundbreaking stuff isn't usually considered.

This can be due to too many New! and Revolutionary! products appearing every year, creating a certain skepticism. Also, many new products come from companies incapable of advertising as extensively as older, bigger companies—and many shooters simply don't grasp the usefulness of certain products.

A perfect example is the array of new exterior metal coatings, especially ceramic-based. Many shooters believe coatings unnecessary thanks to the modern prevalence of stainless steel actions and barrels, but the stainless steels used in firearms aren't actually rust proof, due to a relatively low chromium content. They can and will rust, especially in the worst conditions where hunters think stainless should be the answer. Modern coatings, on the other hand, actually prevent rusting, so can make even normal steels weatherproof.

There are hundreds of non-corrosive metal coatings, including Parkerizing, the old phosphatizing process used on many military arms. Unfortunately, Parkerizing doesn't work with stainless steel, one reason Cerakote is probably the most-used rifle

coating today. It's essentially a paint including tiny ceramic particles, applied by spraying and baking.

Like any paint, Cerakote can be just about any color, whether camo patterns or something resembling traditional matte bluing so closely most people can't tell the difference. Application is also relatively easy compared to many other coatings, one reason for its popularity, and the price for a complete barreled action is similar to rebluing.

An additional benefit is barrel cooling. Cerakote was originally developed as a heat-transfer coating for any steel that gets hot, such as radiators and engine blocks, but the first Cerakote often proved a little soft for hard use on rifles. Today's higher-ceramic-content Cerakotes resist wear much more effectively.

If you want to protect the bluing on a traditional rifle, Dyna-Gun Shield can be home applied. It's another ceramic-based coating, also reducing friction between moving parts. You just wipe on three coatings, allowing each to dry for half an hour or so before the next coat. It may need to be touched up in a year or two, but provides a higher and longer level of protection than any oil, wax or other product I've tried—and doesn't change the appearance of a family heirloom.

Even the inside of the bore can be protected by one of the new ceramic-based products. I've mentioned Dyna-Bore Coat (DBC) a few times before, but it may be the most revolutionary of the ceramic-based products. Essentially it's microscopic particles of clear ceramic in a quick-setting liquid glue, applied to the bore like any cleaning solvent, with a cotton patch or bore mop. After the glue dries, firing half a dozen "curing" shots melts and compresses the ceramic into small imperfections in the bore, but also lays a thin layer of the ceramic over the smooth portions of the bore. As a result the bore fouls much less, and is also protected from moisture.

I've been fooling with DBC for several years now, and have probably installed it in around 15 or 20 rifle bores, including those of some friends. It reduces fouling at least 80 percent, the reason it's inside the barrels of almost all my varmint rifles—

including my Bushmaster AR-15. It used to be routine for prairie dog shooters to clean their bores at least once or twice a day, but these days I don't clean bores even when shooting for 2 or 3 days.

DBC can even make a difference in ultra-smooth custom barrels. My friend Charlie Sisk, the well-known Texas gunsmith, built several benchrest rifles for some local guys who like to compete against each other. He used Lilja barrels and installed DBC in each one. The benchrest shooters claim they've gone as long as 2,000 rounds without cleaning their bores, with their rifles still shooting groups under 0.2 inch at 100 yards.

Recently I decided to see if DBC helps pitted barrels like those often found on older rifles. The first test-subject was a Winchester Model 1892 .25-20 made in 1913, and like most century-old rifles the bore was "frosty" from being fired with ammo using corrosive primers. The rifle shot jacketed bullets just fine, but didn't do so well with cast bullets. I installed DBC and the rifle started shooting cast bullets quite well, without a trace of leading in the bore. Admittedly, this isn't conclusive proof of DBC's effectiveness in pitted bores, but I'll keep experimenting as such bores turn up.

Right now four of my big game rifles are finished in one of the harder versions of Cerakote, with DBC installed in the bore. None of the actions and only half the barrels are stainless steel, but none of the rifles show any trace of rust, either inside or outside, in several years of hunting and shooting.



It's really impossible to thoroughly test any bore treatment or cleaning product without a bore-scope.



This century-old .25-20's pitted bore didn't shoot cast bullets very well until it was treated with Dyna Bore-Coat.

Along with DBC, we also don't have to clean bores as often thanks to clean-burning ball powders, some with de-coppering agents. Ball powders have always been popular with those who shoot a lot, because they meter so well through mechanical measures. Their downside was dirty burning, leaving a crust of powder fouling in the bore after relatively few shots—the main reason prairie dog shooters had to clean their bores so often.

The reason ball powders fouled so badly was the deterrent coatings which control the rate of burning. Modern chemistry has solved the fouling problem, while still controlling the rate of burn.

De-coppering agents aren't new. They've been used in artillery shells for a long time, usually lead foil or lead wire placed on top of the propellant charge. When fired, the lead melted and combined with any copper left in the bore, forming a brittle amalgam. The next shot blew the amalgam out, preventing long-term copper build-up.

The same principle has long been applied to some rifle powders as well, but instead of actual pieces of lead, the lead or another element that works the same way was included in the powder kernels themselves. But the abundant powder fouling of older ball powders prevented the de-coppering agents from working as well as in artillery shells, because the fouling covered up the copper. I've seen this sort of "geologic" fouling in a few used rifles purchased over the years, with copper and powder fouling put down in alternating layers.

With clean-burning ball powders, de-coppering agents work much better. The first such powder I used was Ramshot TAC, a powder developed in Belgium for automatic rifles, with a burning rate about like IMR4895. TAC has been around a dozen years now, and works anywhere IMR4895 would be a good choice, but is particularly good with 40- to 55-grain bullets in the .223 Remington. One of my factory .223s has a very smooth, non-fouling bore (so smooth, in fact, that I've never installed DBC), and with ammo loaded with TAC will go at least 500 rounds without cleaning, and still shoot the same-sized groups.

More recently Hodgdon introduced CFE223, another clean-burning ball powder. The CFE stands for Copper Fouling Eraser, and so far it's worked just like TAC. Fortunately, CFE223 is a little slower burning than TAC, so works better with bullets over 55 grains in the .223 Remington. Now we have two very clean-burning, de-coppering ball powders just different enough in burning rate to provide a choice.

Of course, even with products like TAC, CFE223 and Dyna Bore-Coat we still need to clean rifle barrels once in a while. Luckily, these days we have far more effective and easy-to-use solvents. The big advancement has been the switch to an oil base in copper solvents.

Traditional solvents use ammonia in a water base to dissolve copper. Unfortunately, if you leave them in the bore longer than 10 or 15 minutes, the ammonia oxidizes and starts etching or even pitting the bore, the reason the directions for so many solvents say to push another patch through every 10 to 15 minutes. This can grow a little tiring after an hour or so, especially if you run into one of those “geologic” barrels. Oil-based solvents prevent the ammonia from oxidizing, so you can leave the solvent in the bore as long as necessary without any risk.

One thing I discovered after buying a Hawkeye bore-scope about a decade ago is without a scope it’s impossible to tell how well bore cleaners really work. Most of us assume the bore is clean if we can’t see any copper streaks in the muzzle, or patches come out nice and white. This ain’t necessarily so. Since then I’ve tested a bunch of bore cleaners—though not all, since new ones appear as frequently as new powders.

As a result of these tests, the solvents I mostly use these days are Montana X-Treme and Wipe-Out, because both can be left in the bore overnight and then pushed out with a patch the next day. If the bore hasn’t been abused by improper cleaning, either brand will normally eliminate any trace of copper fouling during that single overnight soaking.

Montana X-Treme is available in either Bore Solvent, for normal cleaning, or Copper Killer, for severe fouling or quicker cleaning. If I want a bore cleaned within half an hour, instead of waiting overnight, Copper Killer gets the job. The only disadvantage to the X-Treme products is obnoxious fumes; they should only be used in well-ventilated rooms, or someplace in a far corner of the house where people rarely go. (The company also offers really good take-down cleaning rods, both very strong and without joint edges to harm the bore.)

Wipe-Out is a foam. You just squirt it into the bore, whereupon the foam expands to fill the bore. If you don't block the chamber end of the barrel, however, the foam can get inside the action. An easy solution is a fired case in the chamber.

For abused bores with alternating layers of copper and powder fouling. I haven't found anything to work faster on powder fouling than KG 1 Carbon Remover. In really fouled barrels you may have to apply it between sessions of copper solvents.

The most revolutionary new product of recent years, however, has to be the latest version of the Burris Eliminator riflescope. Laser-rangefinding scopes have been around since Swarovski introduced the first in the 1990s, but Burris' later Laserscope was an improvement both in price and function, since it proved tougher—but it was still only a laser rangefinder inside the scope. This really wasn't much of an advantage, especially since hand-held laser rangefinders can be used with a bunch of rifles mounted with conventional scopes.

Their next version, called the Eliminator, featured LED dots to indicate an aiming point at various ranges: Press a button on the scope while aiming at a distant target, and the correct dot would light up. Of course, this required programming a computer inside the scope with the trajectory of your load, but the system did work—but only out to about 500 yards, chump range to modern long-range hunters.

Part of the problem was only 38 dots, not enough for precision at longer ranges. The latest version includes 96 dots, and is advertised as good out to 1,200 yards—if the cartridge shoots flat enough not to run out of dots. In the past year I tested two of the new Eliminators, the first on a Ruger American in .308 Winchester at the FTW Ranch in the Hill Country of Texas, where a number of shooting schools take place both for hunters and snipers. The ammo was Hornady Match with 168-grain boattail hollowpoints, and the dots worked great out to 800 yards. At 900 yards the scope had to be dialed up like a conventional scope, and at 1,000 the bottom of the ballistic reticle had to be used.

Back home in Montana I mounted another Eliminator on my E.R. Shaw Mark VII 6.5-

06. This rifle shoots extremely well with the 140-grain Berger VLD at 2,950 fps, and the dots provided the correct aiming point all the way out to 1,200 yards. (Actually, they provided an aiming point out to around 1,350, but I didn't actually shoot that far.) Also included is a read-out in the view of a correction for a 10 mile per hour wind at 90 degrees to the shot at the lasered range.

This latest Eliminator is smaller and slightly more conventional looking than the earlier versions, though nobody's going to mistake it for a classic hunting scope. The optics are pretty darn good too, testing 6+ on my nighttime chart, right in there with most other fully multicoated scopes. Obviously it will be improved in the future, perhaps with more dots or even an electronic wind gauge, but right now it's still impressive.

Of course, we'll hear grumbling from old-fashioned long-range shooters who learned it the hard way, with a conventional click-adjustable scopes and a ballistic program on their smart phone. Hey, some shooters still clean their rifles every 20 rounds with solvents they have to push through the bore every 15 minutes. But many riflemen have always been resistant to change, ever since some German put spiraled grooves in a smoothbore barrel five centuries ago.

By John Barsness



The latest version of the Burris Eliminator worked just as advertised out beyond 1,000 yards.

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