The Story of Black Powder
Little Scopes for Big Game
Don’t Bury the .225 Winchester
Number 119—September-October 1988—Volume 20, Number 5

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ON THE COVER

Eliminating the human variable is the goal of the Ransom Rest and the windage base. The model holding the T/C Contender in .223 is attached to a Bench Buffer, a wood base from Evans Gunsmithing, which is supposed to dampen vibrations. We will publish a ProducTest on the Bench Buffer in a future issue. Photo by Dave Culver.

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FOR NEARLY 40 YEARS after its inception, the Benjamin Air Rifle Company reigned unchallenged in the field of American pneumatic guns. That changed in 1925 with the foundation of the Crosman Arms Company of Rochester, New York. As with most of the pioneers in the American airgun industry, the Crosman company barely survived its early years.

The story of the Crosman Arms Company begins with William McLean. We know little about Mr. McLean other than the fact that he earned his living as chauffeur for the well-to-do Murray family of Rochester during the early 1920s. McLean obviously had a real talent for tinkering with mechanical devices, because he made substantial modifications to an airgun that his boss had brought home from Europe, and, knowing that he had come up with something worth risking a commercial venture, attempted to obtain his employer's financial backing in producing the much-improved airgun.

Old man Murray simply was not interested in going into the airgun manufacturing business. He did, however, arrange for McLean to show his novel airgun to the Crosman family, owners of the Crosman Seed Company of East Rochester. The Crosmans saw the sales potential of McLean's airgun and promptly set up the Crosman Arms Company, ordering the necessary production machinery from the Yawman & Erbe Company. As bad luck would have it, the new airgun company went bust shortly thereafter, and Yawman & Erbe took it over in order to recover the debt. The new owners of the Crosman Arms Company put Frank Hahn in charge of the troubled enterprise until 1929 — another banner year for bad luck — when Hahn's son, Philip, took over.

Interestingly, Philip Hahn was married to a daughter of Mr. Murray, McLean's original employer. Thus, by incredible coincidence, the whole affair had practically come full circle back to touch upon a member of the Murray family. All indications are that William McLean continued on as chauffeur for the Murrays for the rest of his life.

McLean's original model, subsequently dubbed the Crosman Model 1923, utilized the pull-push type of pump mechanism — similar to a bicycle pump — then found in Benjamin pneumatic guns. Shortly thereafter, however, a newer version of the 1923 model would incorporate the much more efficient scissors-type of pump mechanism now common to most pneumatic guns. This model, in turn, was soon superseded by the Model 1924 and, almost as quickly, by the models 100 (.177 caliber) and 101 (.22 caliber). All previous models were made in .22 caliber only. In those days, .177 caliber had not yet caught on, and the vast majority of pellet-firing airguns came in .22 caliber. It is a tremendous testimonial to the quality of the models 100 and 101 that they stayed in production until 1950. The Model 102, a magazine repeater version of the single-shot Model 101, was launched in 1938, also going out of production in 1950. This novel repeating multipumper also was available in .177 caliber as the Model 104.

In the Depression years Crosman, under the direction of Philip Hahn, barely scraped by even though it turned out a good product at a fair price. Most of Crosman's fledgling competitors in the field of airguns became forgotten victims of the economic realities of those harsh times. By 1940, however, the economy had recovered enough to let Philip Hahn purchase the company, a step that would have quite a significance in years to come. More pressing matters were at hand, however. For openers, World War II forced Crosman to forego the manufacture of airguns, at least initially, in favor of much needed war materiel.

A fascinating story in the saga of the Crosman company has emerged from those World War II days. The then super-secret OSS (Office of Strategic Services), forerunner of the CIA,
needed air rifles for some unspecified application at undisclosed places. To that effect, Crosman landed a contract for 2,000 Model 101 air rifles. The order was duly fulfilled, with the mysterious air rifles disappearing as soon as the OSS took delivery of them. No records have surfaced in connection with this cloak-and-dagger transaction.

Following that conflict, Crosman enjoyed rapid prosperity due to the accelerated growth of the recreation industry and renewed interest in the shooting sports. Crosman introduced the first successful CO2 rifles made in America, the models 100CG (.177 caliber) and 101CG (.22 caliber). These were immediately followed by the Model 102CG, a magazine repeater version. They all utilized a four-ounce CO2 bottle attached to the gun either straight down or tilted at a 45-degree angle, depending upon the model. In 1949, the models 105/106 pump-up air pistols were introduced along with the models 111 and 112 CO2 pistols.

By this time, Philip Hahn had teamed up with a Swiss engineer named Rudolf Merz. This proved to be a good match, for under Hahn's proven leadership and Merz's design genius, Crosman continued along a path of unparalleled growth during the 1950s and 60s to become the leading producer of CO2-powered guns in the world and one of the three giants of the American airgun industry. Hahn, after a long and successful career, finally sold his interests in Crosman to the Coleman Company in 1971 and died several years later.

Crosman has had a long and illustrious list of successful pneumatic and CO2 guns to its credit, particularly during the past 25 years. Among the most noteworthy are the Model 600 pistol, a .22 caliber CO2-powered semiauto of great ingenuity, and the Model 1100 Trapmaster CO2-powered shotgun. The latter was far ahead of its time (1968) and was phased out roughly one year after its introduction due to high production costs and poor sales.

In 1984, Crosman launched the first world-class pellet rifle made in America, the Model 84. This state of the art competition rifle is CO2-powered and retails for more than $1,000. It already has won several honors in international matches. In 1986 Crosman announced the introduction of a CO2-powered match pistol designed in cooperation with Olympic pistol champion Ragnar Skanaker, of Sweden. Now in full production, the Crosman/Skanaker pistol gives the U.S. a solid footing in the lofty world of precision airguns.

As a world leader in the production of CO2 guns for all types of recreational shooting activities, Crosman occupies an enviable position in the industry. That position certainly has been earned through hard work and an uncompromising dedication to excellence.

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PRECISION DIDN'T matter all that much. The buck was a good 200 yards away, sure, but he was moving, the hill was as steep as they get in muley country, and I was blowing hard. It would be real dandy, I thought quickly, if this dot would stick to the leading edge of that shoulder just long enough for me to twitch my finger. I wouldn't twitch it too gently at that; I didn't have a lot of time.

The buck gave me a break, though, and stopped in the saddle. He wasn't all exposed, but the important parts were, and when the dot wobbled onto his shoulder again the rifle went off by itself and he collapsed.

My .270 that day was equipped with an old Lyman Alaskan scope. It wasn't fog-proofed, and it carried a dot that would obscure much of anything it was pointed at. The steel tube was heavy, and the 2½x magnification didn't help much at long range on stationary targets.

Still, the Alaskan was a good scope in its day, and it was good enough for me that day on the mountain. Its strength and simplicity and compactness made it fun to hunt with. Its wide field of view and generous eye relief made shooting easy from my contorted position, with lungs heaving and the target moving. There's a lot of use for small, low-power, fixed-power scopes in the field, though not many hunters use them anymore.

The use of relatively high-power scopes for hunting is a recent thing. To be sure, there were 8x scopes in the early days of the industry, along with the 2½x models. But the higher magnifications came only in long, cumbersome barrel-mounted tubes unsuited for the field. They were target scopes only; early 20th century hunters still used iron sights or, if they could afford them, low-power German scopes like the Zeiss Zielklein.

Townsend Whelen was of that period. In his 1936 book, Telescopic Rifle Sights, he arrived at the opinion "that the best possible small game and varmint scope will be one having a magnifying power of about 4 diameters, a field of view of at least 20 feet at 100 yards, and with double the micrometer type of mounting reading to at least half minutes . . ."

What would the colonel use for big game? "Years of experience at this sort of thing has convinced me . . . that the field of view should not be less than 30 feet wide at 100 yards . . . This requirement of at least a 30-foot field limits the big game scope to one of 2½ to 3 power."

Whelen admits that target scopes might find application for long-range shooting at small animals with such cartridges as the .257 Roberts, but he emphasizes field and eye relief as crucial factors in choosing a big game scope.

One of Whelen's contemporaries, Ned Roberts, also found low-power scopes adequate for big game, even at extended ranges. In his 1947 book, Big Game Hunting, Roberts wrote of taking 14 animals with as many shots: "Some of the caribou were shot at 250 to 300 yards using the Hensoldt Zieldialyt 2½ power scope which was, of course, also used in killing the deer at 400 yards . . ."

In lower power magnifications, rifle scopes don't need a large objective lens. This results in a smaller, lighter scope that is quick to use in brush. This Zeiss 15-4.5x is an ideal range for many big game hunting situations.
Roberts later noted that powers "of 2½, 2¾, or 3 are the most practical for all around use, especially if the scope is to be used on running game. If the hunter was to shoot only at standing game, a 4-power scope could be used to good advantage, but it will have too small a field for running game."

True, rifles of the World War II era didn't have the reach of some modern numbers burning slow propellants, but what we expect of scopes today — what we can actually wring out of ourselves and our hunting rifles — could still be done with what many shooters consider optical relics!

Scopes were in use very early in America's history. Long before they were issued to snipers during the Civil War, slender barrel-length affairs were used by erudite shooters for target work. In 1840, New Yorker Morgan James built his own scope for match shooting, and several commercial models — the Malcolm, Pierce, Mogg, Sidle, Vollmer, to name a few — were available prior to John Brown's raid.

Short receiver-mounted scopes didn't come along until later — but it wasn't as late as a lot of folks think. In 1904, Zeiss was marketing a compact 2x prism scope that weighed 14 ounces.

Foreign optical companies dominated the scope scene in the years either side of World War I. Most were German: Busch, Fuess, Gerard, Goerz, Hensoldt, Oigee, Voigtlander. Their scopes were internally adjustable, though calibrations were either inaccurate or nonexistent. It wasn't until the 1930s that scopes became popular and American firms started producing them.

In Stoeger's catalog no. 18, 1933, Zeiss listed four hunting scopes: the 2½x Zielfleisch, the 4x Zielvierz, the big 6x Zielfleisch and a variable 1-4x called the Zielmulti. Albeit compact, this last model weighed more than 18 ounces! Prices, incidentally, ranged from $25 to $66 — a lot of money when you consider that for $50 you could get a brand new Winchester 54.

Not all scopes were so expensive. The 2½x Weaver 339, introduced in 1933 on the heels of the first American-made scope, the Noske 2½x, sold for less than $20. During World War II 36,000 Weaver 330s were produced for the military under the label M73B1. After the war, Bill Weaver promptly brought out the superb K2.5, then the K4. By the 1950s other makers were giving him stiff competition. Bausch and Lomb, Bushnell, Leupold, Kollmorgen, Redfield, Unertl, and a number of lesser-known companies were turning out complete lines of receiver-mounted scopes by the end of that decade. Tube diameters had been increased from ¾ and ¼ to one inch. Objectives were bigger, lenses brighter. The weight of these new models, somehow, was about the same as that of pre-war scopes.

Sophistication spawned higher magnification, just as it had larger tube diameter. It's worth noting that the first American scope with a one-inch barrel — the Weaver K2.5 — didn't need it. That is, to provide the 5mm exit pupil usable by the human eye in dim shooting light, a half-inch objective lens would have been sufficient. (Perhaps the extra magnification of later scopes was likewise unmerited.)

Variables as we know them also came right after the war. Bausch and Lomb was among the first to market a workable model, its Balvar. Weaver followed with the KV, a 2½-5x scope that was either 2½ or 5x, nothing in between. The power dial on this variable was on the turret behind the windage knob. As the years passed, such crude arrangements went the way of the grasshopper mount. Crosswires no longer got bigger as the power increased — the opposite of what a hunter would want — but stayed the same size throughout the range of magnification, which itself was broadened. Optics were fluoride-coated for greater light transmission, and each scope was nitrogen-filled then sealed to prevent fogging. Aluminum tubes replaced steel. Scopes became smaller and lighter and, for a while at least, stayed fairly affordable. As late as the sixties you could buy at retail a Leupold, Redfield or Lyman All American for around fifty bucks.

By the 1970s variable scopes had the overwhelming support of sportsmen. A lot of hunters thought that by carrying a variable they could dispense with binoculars and that at the mere flick of a wrist they could dial up just the right magnification to meet any situation. There were some holes in that thinking, though. First, the two-barreled vision afforded by binoculars can't be duplicated by a rifle scope. No one glasses as long as he should with a rifle scope because the rifle is heavy, and it strains the eye to look through the single tube for very long at one stretch. Every time you move the scope you move the rifle, which is something too big to move if you're trying to re-
main inconspicuous. Too, if you're looking at something you haven't identified yet, it's only courteous that you don't point your rifle at it.

Variables give you options, surely; they're versatile. But the flick-of-the-wrist philosophy is ill-adapted to the field. Some hunters are so enamored of the adjustability of variables that they're constantly fiddling with them, twisting this way and that, not remembering at the crucial moment what magnification they chose last. Big errors in range estimation can result.

Another pitfall is a preoccupation with power. While riding as an observer in the back of a Land Rover last year, I watched a hunter with a very expensive Sauer rifle and 3-10x Zeiss variable scope miss an easy shot at an impala because he couldn't find the animal with the dial set on 10. A hasty shot just as the buck disappeared in the bush at 150 yards wasn't even close. The hunter had no business twisting the power ring all the way up; I had just finished hunting the area and my shots averaged right at 100 yards!

When I was using variables regularly, I generally set the magnification pretty low so I was prepared for a quick, close shot. I reasoned that if I was presented with a long-range opportunity I'd have time to adjust my scope, while a high power setting would put me at a disadvantage if things got urgent close in. Oddly enough, I soon found that, though I was taking some pretty long shots, I wasn't touching the power ring. A setting of 3x appeared adequate for most of my shooting, short or long. And it seemed only logical that unnecessary adjustment would result in impact shifts. Such shifts were denied by the scope makers, but like any rifleman suspicious of things that slid, swung, ratcheted, rotated, or otherwise moved my sight, I didn't trust that power ring!

Variables have really improved of late, and they're probably a good choice for the man who does some varminting, a spot of pronghorn shooting, and a little whitetail hunting in the thick stuff with one rifle. Most of us have more than one rifle, though, and if we use one for more than a single application it really isn't spread thin. Conditions afield may vary — that elk could be in the poles or in a stringer meadow across the canyon — but not enough that you need different magnification to make the shot.

Fixed-power scopes, no matter what the magnification, are lighter and more compact and less complex than variables. We have compact variables now, and they're mighty attractive, but the compact fixed-power scopes are even more so. There's something solid and sure about a low-mounted fixed-power — never anything to check and little to worry about. We shouldn't forget that the primary advantage of a scope is not its magnification, but its ability to let us see target and reticle in the same plane, with nothing to bring into focus and only the eye to align.

Another thing that bears remembering: High magnification reduces brightness or light-gathering ability unless objective diameters are increased proportionately. Relative brightness is a measure of the lens' ability to transmit usable light to your eye; it's determined by dividing the magnification into the objective diameter in millimeters and squaring the result. A 4x40 scope has a relative brightness of 100, but a 6x42 computes to only 49, a 9x40 to 20. So low-power scopes can have small objective bells (or no bell at all) and still gather in maximum usable light. Because the human eye can dilate to only about seven pupil (the square root of relative brightness) of greater than seven are pretty useless to the unaided eye. That's why those big Navy surplus binoculars have objective lenses roughly seven times the magnification: 7x50, 8x56, 10x72. It isn't that the ships can't carry bigger glasses or that the military can't afford them; it's just that bigger lenses are unnecessary.

The same goes for scopes, except that 5mm is usually accepted as the useful maximum because our eyes only dilate further in total darkness, when we're unlikely to be shooting. The fine continental firms of Zeiss, Leitz, Schmidt/Bender and Swarovski produce scopes that are much heavier and larger in diameter than ours — the reason being that many of them are used at night. In Germany, a typical hunt for wild pigs is carried out in a treestand over bait. The pigs come in after dark and it takes a good scope to pick them out. Often there's snow background to help delineate outlines and reflect available light, but a big objective lens is still necessary. One of Weaver's last offerings, the hefty 8x56 scope, was patterned after European thought. I don't know if it sold well; our hunting tactics and equipment needs are quite different than those of the Germans.

Though night hunting isn't kosher in much of the world, the hours on the fringe of night are really productive ones for many species of big game. A high relative brightness is an asset to any optical sight, and it's only possible to get a bright sight picture in small scopes if you keep the magnification low. That's why I not only prefer fixed-power scopes but low-power scopes. I

Sometimes speed is more important than sub-minute precision. This Alaska grizzly could vanish into the brush in an instant. A low power scope would be quicker to use than one of 4x or higher. That's especially important if ole griz starts coming your way. (Photo by Len Rue Jr.)
don't want to sacrifice compactness, light weight or brightness. The only way to get all three is to favor the low end of the power scale.

A lot of hunters will disagree with me, saying that you need reasonably high magnification for long shots or evaluating antlers or placing your bullet precisely even at short range. Granted, long-range hits are better made with scopes of high magnification, but only if your target is still, you are still, and your rifle is capable of grouping well at long range. The magnification of many scopes today exceeds the ability of both riflemen and rifle to place bullets even close to point of aim. You might think a four-minute dot in a 2½x scope a crude sighting arrangement, but that dot won't obscure the vitals on a deer unless the animal is over 300 yards away, and I know my bullets will all stay within the area subtended by the reticle out to that range if I do my part. I usually can, because keeping shots within four minutes from the sitting position with a tight sling isn't all that difficult — not a sure thing, perhaps, but not impossible either. If I unlimbered my .25-06 with its 6x scope and fine crosswise, I'd be able to see my target better at long range and hold on a smaller spot. But under field conditions my shots probably would be no better than those I accomplish with the Alaskan-scoped .270.

Taking things a bit farther, no thinking man would mount an 8x varmint scope on a 94 Winchester. It isn't that the 170-grain .30-30 slug won't dust a prairie dog at 300 steps; the point is that the scope is capable of far greater precision than the rifle. An extreme example, perhaps, but a lot of rifles in use aren't the equal of their sighting gear.

Evaluating antlers should be done with your binoculars before the shot. It is necessary only occasionally to scrutinize heads through the scope — once in a while when two similar bucks are mingling with a herd, or when you can see only parts of elk through the brush and you want to be sure your bullet hits the animal attached to the antlers.

Short-range precision rarely is called for in the hunting field, and if it is the small scopes should suffice. I recall once having to shoot a blacktail buck in the brain because his face and antler bases were all I could see. The range was 60 yards, and I had to take the shot offhand with a 2½x scope. The 180-grain .308 bullet hit about an inch left of center and the buck never heard the shot. A bigger scope might have helped, but I doubt it. Higher magnification would have made my wobbles appear even more violent and probably would have made the shot look impossible.

On another occasion I was still-hunting the rim of a basin above timber. As I carefully scanned the ridges and scrutinized the whitebark pine scrub around me, I was startled to see a patch of white in a bush to my right, one I'd just passed at a range of less than 10 steps. Without stopping, I smoothly brought my rifle up and swung it to the side, halting on the trail as soon as the butt hit my shoulder. The crosswires instantly centered on the throat patch of a fine four-point mule deer, and before it knew it had been spotted the .30-06 bullet was on its way. I didn't need extra magnification there. The 4x Redfield gave me a generous field and the ability to quickly locate and identify my target.

Some of my hunting scopes are of reasonably high magnification. A .257 Roberts wears a 5x Leupold, as does a .243. The .35-06 has a 6x Lyman, a .270 a 6x Redfield. My coyote rifle, another .243, carries an 8x Lyman. There are several 4x scopes in the rack: one on a .270, another on a .30-06, another on a .300 H&H, yet another on a .300 Winchester. Perhaps my favorite all-around big-game scope, though, is the discontinued Leupold 3x with a duplex reticle. Two .338s wear this model: a .375 and a slug-shooting shotgun are topped with 2½x scopes, like the .270 mentioned earlier.

There's a need for big scopes, all right. I shoot with a 20x Redfield in smallbore competition, and a lot of benchresters are using 36x magnification. For the hunting field, though, the low-power fixed-power scope is hard to beat. The next time you're in the market for a hunting scope, ask yourself how far you'd shoot at an animal. Ethically, could you justify a 350-yard shot? A 400-yarder? Maybe something even longer? Your outside range depends on your abilities, your rifle's accuracy, the trajectory of your bullet and field conditions at the time. But a lot of opportunities will come at short distances, and there aren't many shots that can't be made suitably with a 2½x scope. For me, there are none that require magnification greater than 4x. The longest shot I ever took at a deer was with a 4x Leupold. The bullet dropped two feet into the buck's heart.

If you think you still need that variable, or a scope of high power, fine. But look over the various scopes available before you buy. You may find that, considering weight, size, simplicity and practicality, the little scopes can be pretty big!

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In thick brush it's often difficult to find the animal, even without looking through a scope. The wide field of view provided by low-power scopes lets you get on target quickly. Also, there's no need for pinpoint accuracy at this range. (Photo by Len Rue Jr.)

September-October 1988