

The last decade has seen a phenomenal increase in rifle bullet technology. With the notable exceptions of Nosler Partitions and Bitterroots, almost all of the great hunting bullets have just happened. While rifle bullets surged forward, handgun bullets still tended to be only

lead cores with a jacket around them. There have been some very trick "manstopping" bullets, but they tended to follow trends like ladies' fashions—for a year or so they are supposed to blow up, next they are asked to penetrate.

Until very recently the high-performance hunting handgun bullet, that really worked, was cast in a bullet mold. The cast bullet is still a superstar and I will investigate the latest and greatest cast bullets in a couple of months. But

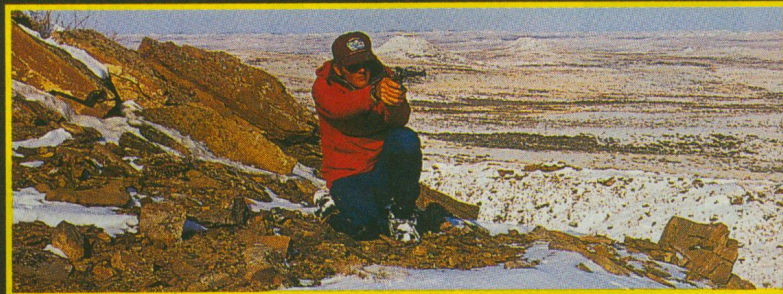
this is about jacketed handgun bullets...that are no longer ordinary. Now, not only do we have truly functional jacketed handgun bullets, but we have a choice of types and performance to match almost any game. The bulletproof handgun bullet is arriving! Right now we have a broad selection, with a

few great hunting bullets from major manufacturers and a vast array from small custom bullet makers.

The first giant hurdle that both bullet makers and shooters must overcome is to stop thinking about rifles when we are talking about handgun bullets. They are simply not the same. When we talk about rifle bullets, with the exception of big-bore solids, we ask a relatively long, high-velocity bullet to expand on impact. We like it to develop roughly one and a half

For years, cast lead handgun bullets generally gave the best performance, but with today's technology, computer-designed jacketed handgun bullets are breaking many of the old rules. G&A's Ross Seyfried feels that the handgunner's choice of the future may be a new generation of...

HIGH-PERFORMANCE JACKETED HANDGUN BULLETS



Left: Seyfried has hunted with handguns for years and knows the importance of using the proper bullet. These deer were bagged in Montana with his Bowen No. 13 .475-cal. revolver (far left) and Montana guide Bill Drew's stainless steel Ruger .44 Mag using a 200-gr. Hornady #26 JHP bullet (left and above).



.475 385-gr. Trophy Bonded (sectioned)



.45 300-gr. Speer plated (unfired)



.45 300-gr. Speer plated (recovered from boar)



.475 400-gr. Golden Bear (unfired)



.475 400-gr. Golden Bear (recovered from wet paper, bone)

times its original diameter and retain most of its original weight. That is, from the normal .30 caliber we will end up with a .450-inch frontal diameter and 150 to 180 grains of weight. Remember that a great deal of its energy, destructive force and penetration are the result of its impact velocity, something normally between 2,000 and 3,000 fps (feet per second). In those numbers you see why we need another kind of thought process for our handguns.

First, if we use the kind of handgun that should be used for hunting deer and larger game, the bullet leaves the bore at a diameter very similar to what we hope to achieve *after expansion* with our .30 caliber. *Correctly shaped handgun bullets are already expanded!* Second, quite often the handgun bullet will be two or three times as heavy as a "normal" rifle bullet. Finally the highest handgun *muzzle* velocities will rarely approach the lowest *impact* velocity of rifles. The bottom line is that, while handgun bullets can be very, very effective, we must not ask them to kill using the same "tools" as a rifle bullet. With some of the modern technology I will describe later

we can get them to behave in a similar way, but just remember that you are playing on a handgun field and that you must play by handgun rules to be successful.

We begin by defining what the bullet is supposed to do...by asking what game are we going to hunt? I am probably more guilty than most of asking the bullet to do more than necessary. For more than a decade I have worked to develop cartridges and bullets that don't have to say no. That is, those that are an even match for moose, brown bear or Cape buffalo and capable of dealing with elephant. The epitome of this search is the .475 Linebaugh with 400 to 430-grain solids. We have a long, heavy bullet with a mid-sized flat nose at modest velocity. This combination will crush both shoulders on a Cape buffalo. The truth is that, even though our handguns are capable of taking the ironclad monsters, probably 95 percent of the time that the hammer is dropped the sights will be looking at a deer or a hog. While the "buffalo criteria" (the heaviest reasonable weight, with a modest flat on the nose) in any caliber from .357 to .500 will kill a deer absolutely if placed correctly is true,

COLOR PHOTOGRAPHY BY AUTHOR



From small to large-bore, there is a growing selection of jacketed bullets for the handgun hunter. Shown here with loaded cartridges and recovered and sectioned bullets are two of Seyfried's hunting handguns. At left is his 4-in. S&W M29 .44 Mag, and at right is his Ruger .32 H&R Mag Bisley with a damascus sleeved barrel. Below: Not only do we have truly functional jacketed handgun bullets, but we have a choice of types and performance to match almost any game.

.45 300-gr. Hornady XTP (recovered from wet paper)



.45 300-gr. Hornady XTP (unfired)



.32 100-gr. Hornady XTP (recovered from wet paper)



.475 430-gr. DWR softnose (recovered from wet paper)



.475 430-gr. DWR large HP (recovered from wet paper)

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there are probably more efficient and effective ways to go about it. This is where the modern technology comes in by using lighter weights, higher velocity and more frontal area (expansion). The higher impact speeds will have more "splash" and can be very effective if the overall bullet is tough enough not to break up and the critter is small enough so that the bullet can penetrate completely.



sion is not necessary and quite often not desirable in handgun bullets. Also, unlike the results with high-velocity rifle bullets, you cannot depend on most jacketed handgun bullets to always expand. Pure lead is about the toughest material that the 600 to 1,200-fps handgun impact will reliably expand. Wrap a jacket around the lead, even one with a



Left: The author feels the best way to determine how a bullet will perform before taking a chance on game is to fire it into a penetration box of wet paper. Above: This expanded Golden Bear softnose bullet was fired into the penetration box with wet papers and heavy bones. This slug remained intact after contact with this medium, showing it would perform perfectly on game.

As we work our way through the available bullet types you will see that we can come full circle from relatively light, fast bullets that probably expand on deer to long heavy slugs that will punch through the brutes. The overall concept here is that now we have a choice and you can match the bullet to the game.

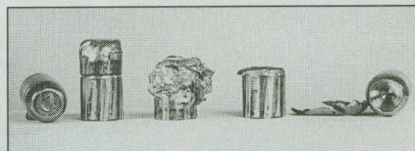
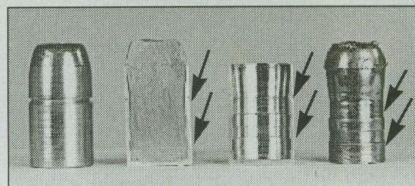
I'll begin again by saying that expan-



Hornady XTP bullets (far left) are one of the more apt-to-expand jacketed bullets. They can produce classic mushrooms as at left. When they hit big bone or other extreme impact they may break up or shed their cores as the three at right display.



A DWR custom bullet with bonded, hardened rear core. Standard bullet on left was recovered from wet paper. The two slugs at right have had lathe-drilled hollow points added by the author. Of these, the one at left was fired into wet paper, and at the right is the other recovered slug fired into bone.



Right: Target at top shows the results of Golden Bear 400-grain .475 bullets fired from a Linebaugh revolver at 50 yards. Bottom target reveals the performance of Northern Precision's 320-grain .44s from a Ruger Super Redhawk at 100 yards. Top left: This photo shows (left to right) a Golden Bear 400-grain bullet, sectioned bullet and sectioned insides of a jacket illustrating internal grooves and thinned mouth of the special jacket made on a lathe, which mechanically locks the core (far right) inside. Bottom left (left to right): Here is the nose of an unfired Golden Bear 400-grainer, one recovered from wet paper, pulled from wet paper with bone and a lathe-cut hollowpoint taken from wet paper (with actual HP bullet shown at right). Seyfried considers these Golden Bear bullets among the finest he has ever fired.

expands, sheds its core and breaks up.

Our killing nose shape is a flat or meplat. It can be made of lead, jacket or air in the case of a hollowpoint. This shape is most effectively achieved by using a truncated cone or radius bullet design. A minimum "killing flat" is about 1/4 inch in diameter and ranges up to .400 inch or more in the .500 bores. When we fire this shape we know that it will kill effectively and penetrate in a straight line, even if it does not expand. One of the most graphic examples of this is a load that my Montana friend Bill Drew used. This is the old-style Hornady 200-grain hollowpoint and a big dose of WW296 in a .44 Magnum. I quite frankly shuddered at the thought of him using this kind of bullet on antelope, let alone mule deer. Last fall he absolutely ash-canned a good mule deer buck at 90 yards with his old Ruger Blackhawk. The little bullet penetrated the shoulder, broke the spine and stopped under the hide on the far side. What it didn't do, thank goodness, was expand. The recovered bullet looked like it had just come out of the box. The truncated cone did the work, where if it had expanded it probably would have shed the core and failed to make it through the first shoulder. Incidentally, this year I have shamed him into using his incredible



hollow point, and the expansion becomes suspect. Therefore, a paramount criterion for any handgun bullet is a nose shape that will kill effectively even if the bullet doesn't open up. On the other end of the spectrum, a bullet that expands too much, into the big classic mushroom, and lacks a mechanism to break away from that mushroom can fail to penetrate deeply enough on anything but broadside lung shots on small deer. The same can happen with a bullet that

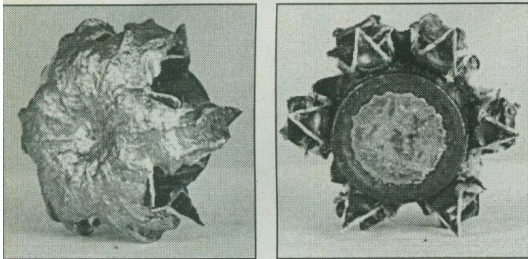
shooting skills to direct real bullets. Now he launches 300-grain Hornady XTPs out of his Linebaugh .45 Colt Bisley. A letter that arrived this morning makes a rather definitive statement: "The .45 Colt hits antelope with way more authority than my .44."

If we add some expansion and can still keep a good measure of penetration and high velocity while inside the animal, light game like deer may well be flattened more quickly. We can have this, but it

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takes "real" bullets to do it. The first criterion is some reasonable length and weight (sectional density).

My idea of a "perfect" expanding bullet will do one of two things. The first will only "bump up" to a more or less wadcutter shape, without any major increase in diameter beyond that of the gun's bore. It will hold this shape, plow through soft tissue and bones and penetrate

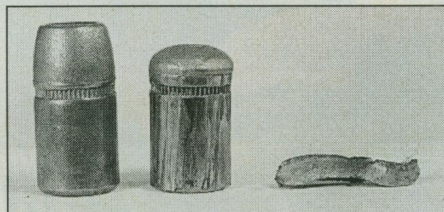
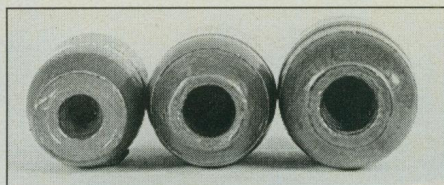


These two photos show side (left) and rear (right) view of a recovered Winchester .45 ACP 230-grain Black Talon bullet fired from a Colt Commander auto. This new ammo is currently offered in only low-velocity defense bullets; however, the technology will soon be available in hunting configuration. The author believes that this is the threshold of an exciting new development in high-performance bullets.

about 80 percent as much as it would have if it did not expand. The next should behave on what cannot be better described than the "Nosler Partition principle." That is, it will hit, mushroom violently and then if any heavy resistance is encountered (bone or heavy muscle) the "mushroom" will tear away, leaving a shortened wadcutter to carry on with penetration and exit. What they cannot do and still be reliable under almost all circumstances is shed their cores, break up or otherwise lose their integrity. In this



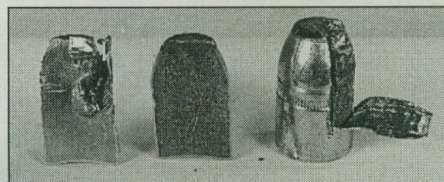
These .44-caliber bullets from Northern Precision work very well where minimum expansion and deep penetration are desired. Both recovered bullets still retain almost their original shapes.



Top: Custom bullet makers can tailor your bullets to suit your specific needs, such as these Ballard Built's .44, .475 and .500, all HP bullets. Bottom: Ballard's .475 bullet has a long section of exposed lead (left). The recovered bullet on right shows how the mushroomed lead tip has been torn away, leaving the shank to penetrate—ideal for an expanding handgun bullet.

they are exactly like rifle bullets, or possibly even less forgiving, because they lack the velocity/energy to kill without penetration performance.

With bullet performance defined so that we know what to look for we will look at the specific bullets to see what is available. The first category I will label "conventional bullets" for lack of a better word. They are truncated cones that



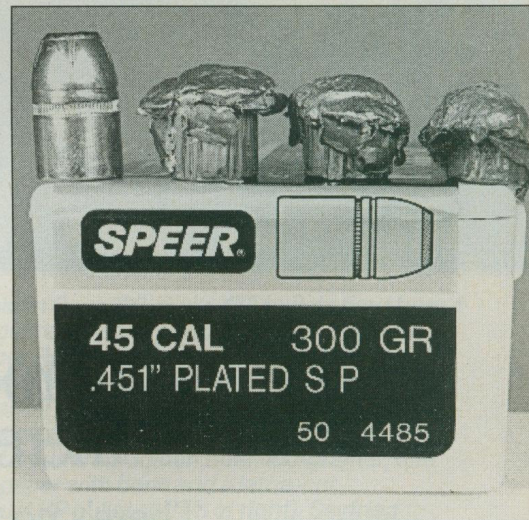
Right: The Plated Jacket Speer is in effect a bonded-core bullet and one of the best all-around performers Ross has used. Left to right is a 300-grain unfired bullet, one fired into wet paper, wet paper with bone and one recovered from a downed hog. Above: Here's a sectioned Speer Plated Jacketed bullet and a section damaged by a punch after author tried to tear the core and jacket apart. Right shows lead bonded to jacket after tearing a strip of jacket away from the core.

probably will not expand. These are typified by the Freedom Arms, DWR and Barnes (both have copper tubing jackets without hollow points) and Northern Precision. The Freedoms have hardened cores that more or less make them solids, even against bones. The rest have pure lead cores. At most the exposed lead will flatten a bit, unless they hit a big bone, where some nose deformation will take place. All have enough structural toughness, in the heavy weights in any given caliber, to perform well. As I said earlier,

this kind of a bullet is a killer and if your target is over 300 pounds the non-expanding types may well be the surest bet.

I'm not sure which family the Hornady XTP should be in, so I will treat it by itself. Of the jacketed hollowpoint designs it is the most apt to expand that I have tested. This, combined with a reasonable (but not foolproof) means of holding the core in the jacket, makes the XTP a very effective handgun bullet. The XTP produces a classic mushroom, and against soft tissue and light bones it will perform very well. However, if you slam them hard into the shoulder bones of a big deer or hog they can become pieces of lead and flattened jacket. Here you need to think about sectional density. In .44 caliber they are available in 200, 240 and 300-grain weights. I personally would not consider the 200 for anything except varmints and would want to keep the 240s behind the shoulders on a big deer, especially if they are fired out of a gun capable of high (1,300 fps or more) velocity. The big 300-grainer will probably still expand but will have the long shank behind the mushroom to drive forward and do the job. Of course if you had a short-barreled, light revolver like the S&W Mountain, the 240 would possibly be the best balance between weight and velocity.

Another bullet that I especially like that fits into a special category is produced by Ballard Built, one of the myriad



of small custom bullet makers. These are copper-tubing-jacketed bullets, but with almost one third of the bullet's length being exposed pure lead. They begin as big flatnose designs, with or without hollow points. The exposed pure lead will mushroom under almost all circumstances, often right back to the beginning of the jacket. Should it hit bone or even heavy muscles, the rear portion will drive right through the soft mushroom, leaving a wadcutter to carry on with penetration. They behave in an

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almost identical manner to the cast softnose designs that I have written about. I like them. As a general all-around bullet design, this combination of a lot of *exposed pure lead* with a jacketed rear portion is hard to beat. You can have violent expansion backed up with good residual penetration—the Nosler principle again. I am sure that other custom makers turn out similar bullets, but Ballards are the ones that I have experience with.

The next step in jacketed technology for handgun bullets is similar to one followed by rifle bullet makers. That is core bonding, or the use of some mechanical means to be sure the core stays put in the jacket. The real trick is getting enough lead exposure or fragility to offer any reasonable assurance that the bullets will expand. Remember, expansion is not a total priority, but if you are demanding expansion and want it from a bonded-core-type bullet you have to scrutinize them carefully. Most heat-bonded bullets cannot have lead exposed beyond the jacket. The process of melting the lead to solder it to the jacket rules out exposed lead. The earliest bonded-core bullets that I know of are the Cor-Bon bullets. They have worked very successfully but often have a pointy

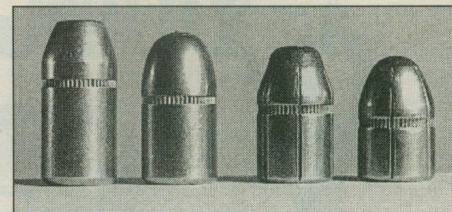
or roundnose shape that could be unreliable if it does not expand.

One of my favorite handgun bullets comes right out of boxes off the dealer's shelf. These are the Speer Plated Jacketed bullets. The process electroplates a proper jacket onto a lead core one molecule at a time. The jacket is literally grown right onto the lead. With this, Speer has unlimited control over jacket thickness, and with some added scoring to weaken the jacket at the bullet nose they achieve a very good measure of expansion. The flatpoint design, with a big meplat, adds to the effectiveness. I have driven the 300-grain .452-inch bullets through 2 feet of tough muscle and bone on heavy hogs. One in particular I remember graphically.

I had hit a big hog with my Holland & Holland Paradox. The 750-grain slug had flattened the pig, but I was a bit uncertain of my lead on the running shot. When I pulled the trigger there was a proper eruption of hogs, dust and general chaos, not the least of which was caused by the slipping of a pack of hounds hot on the trail of the 20 other porkers. Speed was of the essence: I needed to catch up with the dogs as soon as possible lest some giant old boar might cut valuable hounds to tatters. I wanted to be certain that the first boar was finished and planned to do this without wasting a second by planting a .45 Colt between his shoulder blades as I raced past. What I wasn't quite ready for was the pig meeting me in the middle, white gnashing teeth just inches from my thigh. I launched myself into the air and fired at the same instant. It was with some relief and gratification that I saw its beady black eyes come out on stems like a lobster. Later I returned to the scene of the attack. The 300-grain Speer had smashed through the skull and most of the length of the neck bones, plowed through the chest and ribs and come to rest under the hide on the pig's belly. It had expanded somewhat, chewed and torn by the bones, but perfectly intact, weighing 228 grains. This is what real bullets are all about!

There are other bonded-core designs from the custom makers. DWR turns out

big flatnoses with a hardened rear core bonded within the jacket and a pure lead exposed nose. These are bullets that can expand but which still have a more or less indestructible rear portion. They tend to make a big mushroom if they expand that can limit penetration. However, like many of these small custom makers DWR will make almost any bullet to your request. They are currently working on hollowpoints with a deep

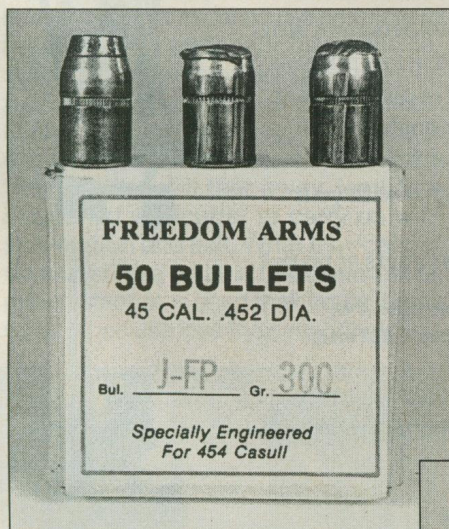


Seyfried feels that Cor-Bon's original bonded-core jacketed hunting bullets are too pointed and could be better with a larger meplat on the nose and the roundnose shape should be avoided altogether.

cannelure that may well allow the expanded nose to break away.

The last two makers turn out bullets only for the big .475s and .500s but demonstrate the application of high technology that makes extraordinary handgun bullets. Birt custom bullets makes flatnoses with bonded cores combined with big gaping hollowpoints and exposed pure lead—bullets that almost certainly expand to some degree and will hold together with bonded-core technology. They also make a pure solid with a turned brass jacket and a big flat nose. Where you want a bullet to punch through big, tough game, they deserve hard consideration. They, like the modified Trophy Bonded Sledge Hammer solids for the .475, are virtually indestructible. However, the thinner jackets designed for handgun velocity allow a better weight-to-length ratio than the Sledge Hammer with its high proportion of bronze jacket.

Finally, another maker dedicated to the .475s and .500s is Golden Bear bullets. These bullets are made to John Linebaugh's specifications using a big flatnose truncated radius shape and brass jackets turned out on a screw machine. Rather than using a soldering operation to hold the jackets and cores together, internal bands turned into the jacket, much like lube grooves on cast bullets, literally lock the cores in the jackets. Without hollow points the bullets do not expand much unless they hit



Freedom Arms' bullets have hardened cores that all but rule out expansion. The pair of recovered bullets on the right shows the usual degree of expansion on game, though this is not necessarily bad. These bullets penetrate deeply and the flatnose shape is very effective. They are well adapted to heavy game.



These popular handgun hunting chamberings can all be fitted with high-performance jacketed bullets.

bones. However, with the addition of a big hollow point working with the specially thinned front portion of the jacket, they expand violently. The crimp groove is cut into the jacket, making a break-away point for the expansion. When the going gets tough, the base rips right through its mushroom. I have pounded them into a sandwich of wet paper and 2-inch-diameter elk bones. They expand, cutting a big hole in the soft paper, and then chop right through the bone as if it were a match stick. Then the base portion, with the tough jacket gripping the core, keeps right on trucking for another 18 or 20 inches. As if this weren't enough, they are about as accurate as any bullet I have ever set free.

As you can see, the handgunner who wants a jacketed bullet almost has it all.



Above: High-performance jacketed bullets for hunters are available in a wide spectrum from the little .32 Hornady XTP (left) to the Golden Bear .500 slug. Right: Here's a variety of the hunting bullets that are offered by the major manufacturers and the small custom makers.

An extreme example of high-performance jacketed bullets is the modification of the 500-grain .475 Trophy Bonded Sledge Hammer solid to a 385-grain bullet for the .475 revolver. These slugs have successfully taken elephants with frontal brain shots.



Birt Custom Bullets makes .475s (shown here) and .500s with bonded cores. They can be (left to right) hollowpoint, softnose or solid.



they don't, check to see if the flat nose holds the bullet on a straight course and makes a wound channel somewhat larger than the bullet itself. If they do expand, be sure they penetrate enough to absolutely get through the vitals on the game you intend to shoot, at any angle of shot you are prepared to take. If your bullet stops in 8 or 10 inches, you better not plant one on the shoulders of a big bull elk. When you think everything is rosy, bury a chunk of bone that represents the shoulder bones of your game about 3 or 4 inches deep in the wet paper. Shoot this with full velocity from 15 to 25 yards. Now many bullets that gave you classic textbook mushrooms are going to open your eyes. All but the finest are going to be mangled pieces of jacket and bits of stray lead that stop penetrating very shortly after they commit suicide on the bone. These represent a grand game animal sadly wounded by a shoulder hit—a shot where you did your job perfectly but the bullet failed. Needless to say, weed these out of your selection process if you are after heavy-bodied game.

The doors of the modern jacketed handgun bullet are just beginning to open. I still bet most of my money on cast bullets, but now I say "most," where 24 months ago I would not have considered a jacketed bullet on game. If you want a jacket, I can say without reservation to go ahead, just as long as you are very selective. If you wonder about the super-modern cast bullet, stay tuned. In about two months I will tell you all I know about them.

I'll assure you that the makers aren't done yet. For those of us who are bullet performance addicts there are some exciting things waiting in the wings. First, there are Winchester's Black Talons. Right now they are made for the relatively low-velocity defense-type pistol rounds. These are serious secret-technology hollowpoints that expand into beautiful six-sided "stars," for lack of a better description. They are designed to not only expand, but penetrate as well, using a special core/jacket relationship that locks the cores into the jacket. In the not-too-distant future we should see them made in heavy weights for high-velocity hunting applications. While the existing bullets are too fragile now for high velocity, plans are under way to make Black Talons that will not be torn apart by magnum revolvers.

Last, but not least, most of you know how highly I prize the all-copper Barnes X bullet in rifles. Currently, research is underway to bring this kind of bullet to handgunners.

With all of the choices it is important to know how to choose. First remember that if you are after expansion, no handgun is powerful enough to drive a big mushroom very deep. Also, again, many

expanding handgun bullets will not expand. The major manufacturers generally show you pictures of bullets fired into wax, water or ballistic gelatin. None of these media will tell you the truth. You must be prepared to test your bullets before you risk a game animal. Begin by firing into thoroughly soaked wet paper. That is, paper that has been submerged in water for at least 2 to 4 hours. Use reduced velocities that represent the speed of the bullets when they hit at realistic long hunting ranges—50 to 100 yards. Fire into wet paper alone to see if your bullets expand at the low velocities. If



DIRECTORY

ALPHA LAFRANK

(.44, .45)
Dept. GA, P.O. Box 81027
Lincoln, NE 68501

BALLARD BUILT

(.44, .475, .500)
Dept. GA
P.O. Box 1448
Kingsville, TX 78364

BARNES

(.44, .45, .475)
Dept. GA, P.O. Box 215
American Fork, UT 84003

BIRT CUSTOM BULLETS

(.475, .500)
Dept. GA, R.R. #1, Box 352
Nashville, IN 47448

COR-BON BULLETS

(.38-.45)
Dept. GA
P.O. Box 10126
Detroit, MI 48210

DWR CUSTOM BULLETS

(.45, .475, .495, .50)
Dept. GA, P.O. Box 1434
Ballwin, MO 63022

FREEDOM ARMS

(.44, .45)
Dept. GA, P.O. Box 1776
Freedom, WY 83120

GOLDEN BEAR BULLETS

(.475, .500)
Dept. GA
3065 Fairfax Ave.
San Jose, CA 95148

NORTHERN PRECISION

(.44, .45)
Dept. GA, 33 S. James St.
Carthage, NY 13619