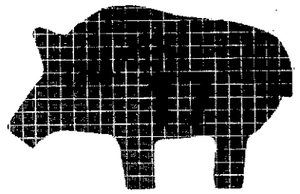
THE SUPER MAG STORY



...Or How A Cartridge Was Developed Over Vast Amounts Of Disinterest

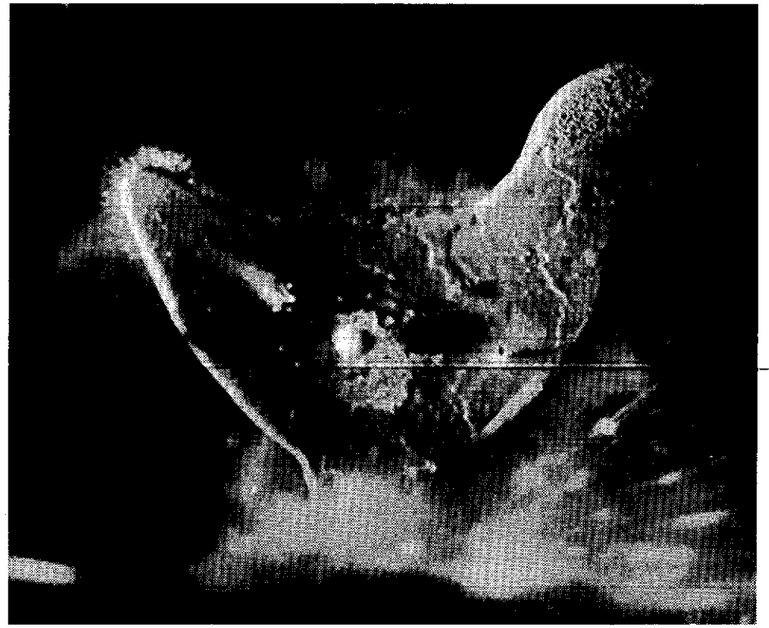
The author developed the series of Super Mag cartridges of which the .357 Super Mag has come to be the most successful revolver cartridge in the silhouette game.

ONE OF the most frustrating things in the early days of developing cartridges for the silhouette game was to get revolver makers interested.

For most of the potent bottleneck designs for single-shot and unlimited bolt-action guns, it was simply a matter of rechambering barrels for the Thompson/Center Contender or rebarreling the .221 XP-100 action to the desired caliber and chambering.

Realizing that eventually silhouette competition would have a separate category for six-guns, one of my own desired goals was to come up with a revolver cartridge that would be effective and reliable against the heavy steel rams at two hundred meters.

The old .357 magnum was marginal, leaving the .44 magnum as the only effective production revolver cartridge available for the silhouette game. What we needed was a revolver cartridge with more power, better ballistics, a flatter trajectory and thus potentially better accuracy. Also needed was a better revolver to go along with it; stronger and more rugged than anything available at that time.



Bill Madewell of Aiken, South Carolina, photographed instant of impact by a 180-grain full patch bullet on armor-steel chicken target. Bullet was from a .357 Super Mag cartridge that was fired from Dan Wesson Model 40V8S Super Mag revolver.

The first possibility would be a revolver that could handle some of the short but potent bottleneck cartridges or a longer more powerful straight-wall cartridge.

Several attempts had been made to come up with revolvers chambered for bottleneck cartridges, but they were plagued with one problem that seemingly could not be overcome — cylinder locking.

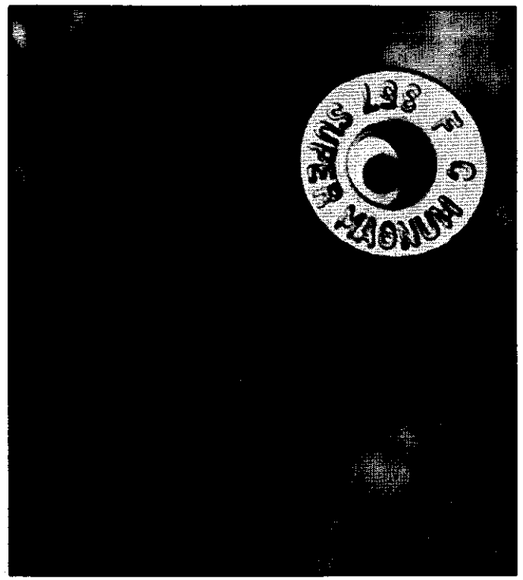
Smith & Wesson introduced their Model 53 in 1961 to take the .22 Remington Jet which, essentially, was the .357 magnum case necked down to .22 caliber with a long, sloping shoulder. Gunwriters waxed poetic over it at first, describing its 2000 feet-per-second-plus velocities as a fantastic new ballistic breakthrough for revolvers. Ironically, this crusade for ultra-velocity out of a revolver is the thing that proved its undoing. The scramble for ever-more powerful and faster loadings expanded and stretched the brass, forcing the case back against the frame to lock the cylinder.

On the other hand, lower pressure, tapered-shoulder cartridges like the old .32-20, .38-40 and the .44-40 worked fairly well in the revolvers chambered for them. Unfortunately, these old calibers were underpowered for long-range silhouette targets.

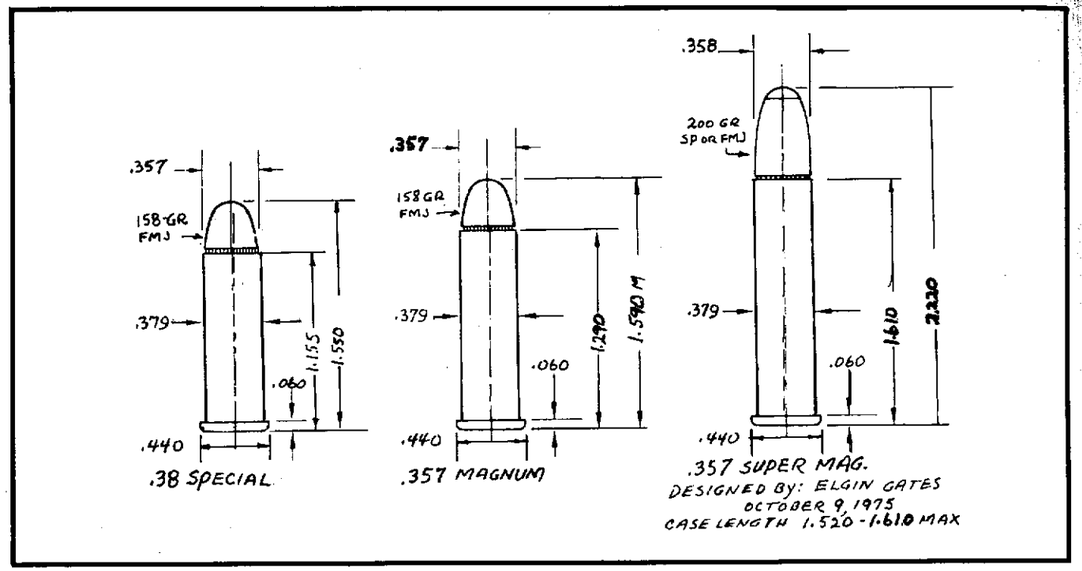
Generally speaking, the big companies' white-smock research and development guys have steered clear of any further attempts to mate a high-power bottleneck cartridge with a revolver. In short, the "experts" say it will not work.

The second possibility was either to get more power out of existing straight-wall revolver cases or to make them longer or bigger — or possibly both. The latter is the route I took in October, 1975, when I started serious work on a series of longer and/or larger revolver cartridges. For want of a better name at the time I dubbed them Super Mags.

The first one I worked on was in .35 caliber, which I felt was the optimum for revolvers. The criteria was simple: It had to have ballistics that would at least equal the power of the .44 magnum as regarding long-range knockdown ability; hopefully a bit more. This, together with the potential flat-



Special run of .357 Super Mag prototype brass was run by Federal Cartridge Company, carries the headstamp.



Original drawings made by the author in October, 1975, illustrate the evolution of the .357 Super Mag cartridge. The round was developed by adding .320 inch to the S&W .357 magnum case which was introduced in 1935.

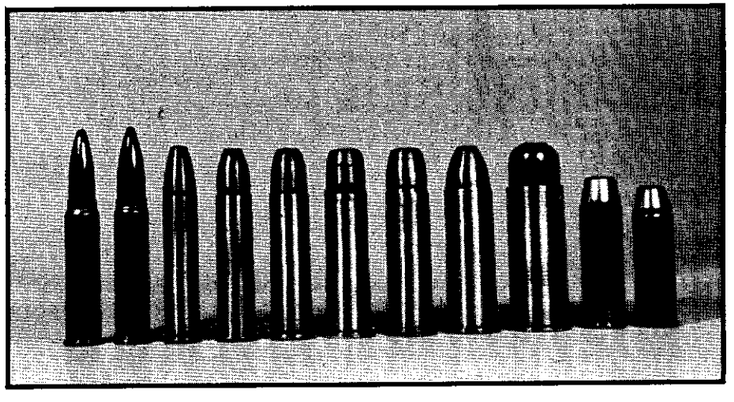
ter trajectory and higher velocity of the .35 caliber bullet, should rejuvenate the old .357 magnum into a high-performance revolver cartridge.

At the time, my old long-case .357 magnum brass from my 1952 African hunting days which had been formed from .32-30 cases was in storage. I decided to lengthen standard .357 magnum brass for testing.

There being no long-cylinder revolver available at that time, original testing had to be done with rechambered Thompson/Center Contenders. By using a .44 magnum T/C barrel and a standard .357 magnum T/C barrel chambered for progressively longer cases, it was a fairly simple task to make the necessary ballistic comparisons.

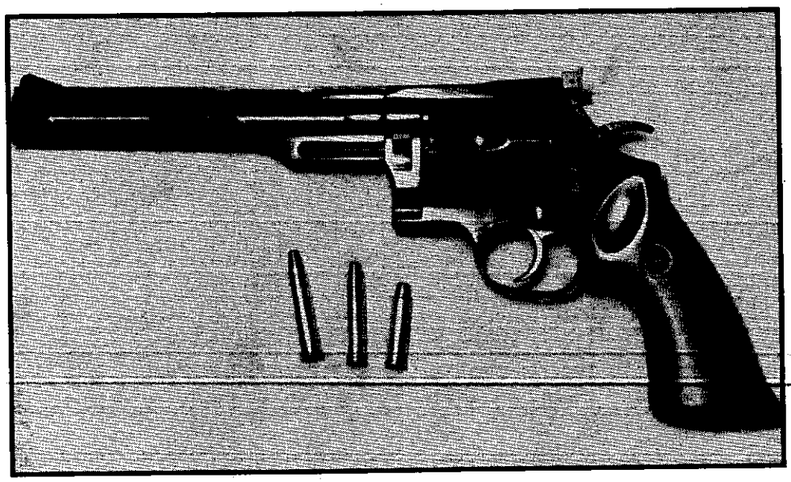
And let it be stated plainly that no greater stroke of ballistic genius was required to develop the series of Super Mag cartridges than any of the other cartridges I came up with over the years. All of them used one or another of the existing brass cases as parents. Only a few have been reasonably successful for the silhouette game. None of the others amounted to much, except for the personal satisfaction of playing with them. Other cartridge innovators such as Frank Barnes and J. D. Jones have been successful with some of their individual cartridges and the series they have created and developed. It's been a lot of fun for all of us.

Lengthening the existing .357 magnum case was accomplished by the simple method of cutting off sections of one case and delicately heli-arcing them on top of another case, using a steel mandrel to hold them in line, then using an outside turner to cut the weld bead flush with the case. Sometimes these welded cases would last for four or five firings; other times, the weld would fracture the first time the case was fired. Nevertheless, they worked well enough to allow testing. Using the old Smith & Wesson-Winchester

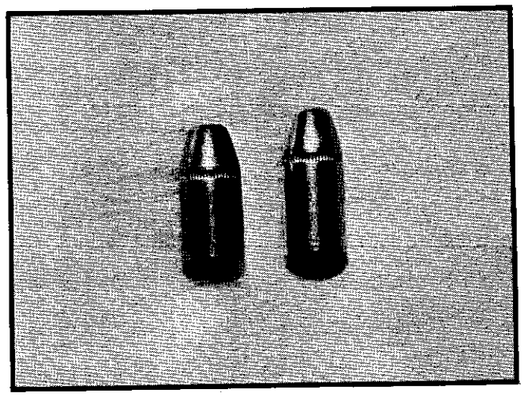


All of these Super Mag cartridges were developed by Gates utilizing case length of 1.610 inches. From left are: 7mm, .305, .357, .375, .414, .445, .455, .505 and the .610. Second from right is .45 round advertised as the world's most powerful handgun cartridge. At the extreme right is the .45 Long Colt. These last two are for comparison.

Dan Wesson Model 40V8S long-cylinder Super Mag is shown with (from left) the .375 Super Mag, .357 Super Mag and standard .357 magnum.



Silhouette competition was a reason for manufacturers to develop heavier, tougher bullets. Speer 180-grain is at left, with the 200-grain version beside it. Both are in .35 caliber.



trick of lengthening the .38 Special brass to create the .357 magnum case, I heli-arced an extra .230-inch section on the end of a regular .357 magnum case for testing. The increase in performance was excellent, but not quite the equal of the .44 magnum. The next section was .320 inch (approximately 5/16ths of an inch) and produced the desired results: performance superior to that of the .44 magnum — at least, in the T/C barrels I was using.

This case measured out to 1.610 inches in length as compared to the 1.290 .357 magnum case. As a sort of afterthought, I made up a still longer sample measuring 1.675-inch, but I did not test it.

It would be tedious to describe all the details of testing each progressively longer case in the series. I was satisfied with the performance of the 1.610 case and drew up the cartridge print accordingly.

On December 10, 1975, I sent a letter to Remington's research and development department that included the drawing and sample cases. Later, at my urging, Federal made a special run of 1.610 brass with the headstamp reading .357 Super Magnum per the drawing I sent them. This brass was used for the ongoing testing program and saved a lot of time as compared to using the heli-arced brass.

During the rest of December, 1975, and early January of 1976, I worked up a full series of Super Mag cartridges, all the same length of 1.610 inches but in different calibers. The first two were bottleneck cases which I designated as the 7mm and .305 Super Mags. Then came the .357, .375, .414, .445 .455, .505 and .610 Super Mags.

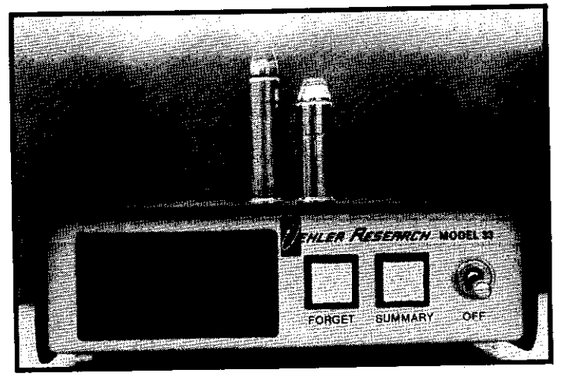
The only remaining problem in this project was to get one of the big revolver makers interested enough to build a long-cylinder gun to take the cartridges.

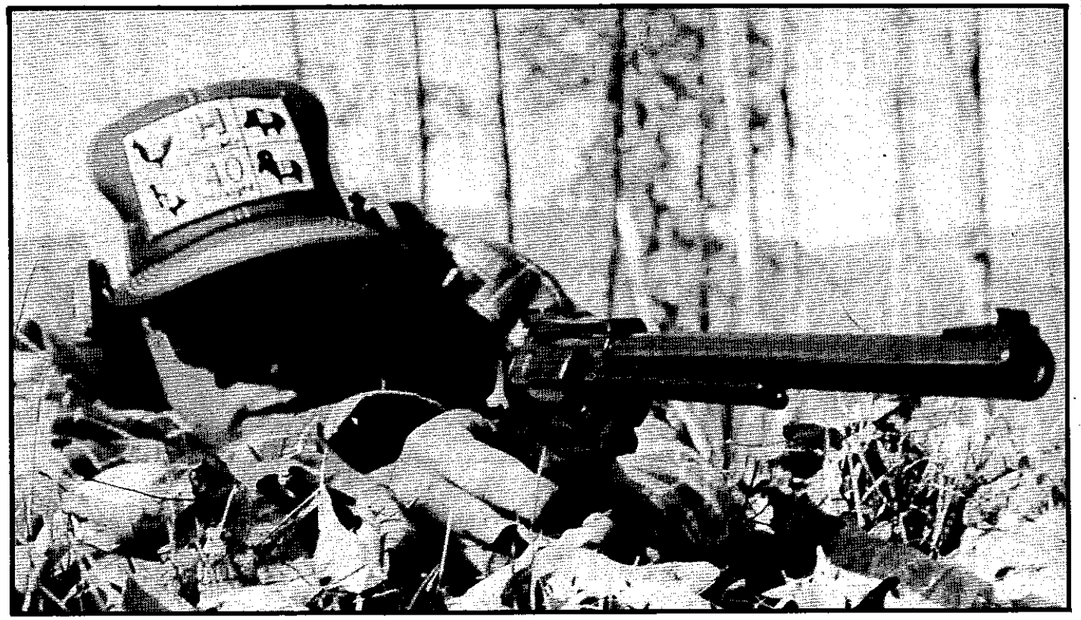
The cylinder length of most .357 magnum revolvers is approximately 1.600 inches; by mere coincidence, the same approximate length of the Super Mag cases without bullets.

Careful calculations from testing in the T/C Contenders brought me to the conclusion that the correct cylinder length for the new cartridge should be 2.045, in order to realize its full potential using heavy bullets in the 170-200 grain range, still leaving adequate case capacity for silhouette loadings. This measurement is nearly a half-inch longer than any existing .357 magnum revolver cylinder.

On this note, I went to the 1976 National Sporting Goods Association show with drawings and samples of the

For the sake of comparison, the .357 Super Mag (left) is shown with the standard .44 magnum cartridge. The Oehler Model 33 chronograph is used in Gates' research.





David Bradshaw draws a bead with the Ruger Maximum. Note the closeness of the bullet noses to cylinder face. This was the short-cylinder version utilizing a standard frame window. Bradshaw did much testing of the model.

Super Mag cartridges in my suitcase, optimistic that one or another — maybe even all — of the revolver makers would latch on to this new development.

I couldn't have been more wrong! It was only four months after the first handgun silhouette match ever held and none of the revolver manufacturers had a clue as to what the silhouette game was all about. Some hadn't even heard about it. Another thing I didn't count on was that the NIH (Not Invented Here) Syndrome was like a brick wall.

Nevertheless, I passed out copies of the cartridge prints and samples of dummy cartridges to representatives, officials and engineers at every revolver maker's booth and a few more besides.

Most all of them gave the prints and cartridges only a cursory glance at the time — but carefully put them in their pockets or briefcases — and proceeded to give me a polite brushoff. Basically, they were appalled at the idea of building a revolver to take a longer, more powerful cartridge.

At one booth, I got one of their engineer types aside, handed him a print of the .357 Super Mag specifications and a dummy cartridge and started explaining why we needed a more powerful cartridge to knock down fifty-pound steel rams at two hundred meters. This character could hardly conceal his impatience and contempt, and looked at me as if I were an escapee from the booby hatch. Finally, unable to stand it any longer, he fixed me with a steely glare, handed the .357 Super Mag print and sample cartridge back and exclaimed, "The 357 magnum and .44 magnum are the most powerful cartridges that can ever be used in a revolver. Clint Eastwood in the Dirty Harry film proved it to everyone's satisfaction. What you are advocating is that we use rifle ammunition in a revolver!"

He stalked away, shaking his head at the thought of having to talk to the nuts that came out of the woodwork at the trade shows. It's probably a good thing I didn't show him the prints and prototype cases of the .375, .445, .455, .505 and .610 I had in my pocket. It really would have blown his mind.

The point is, none of the wheelgun makers would touch the Super Mags with a ten-foot pole. They thought I was out of my mind.

Reluctantly, I laid the project aside temporarily to handle more pressing matters. Until someone had guts enough to produce a long-cylinder revolver, the project wasn't going anywhere, even though the single-shot makers were quick to latch onto some of the proposed cartridges.

I sent a reamer and specification print to Warren Center at Thompson/Center. In his usual courteous manner, Center paid attention to it and I soon got back two Super 14 T/C barrels chambered for the .357 Super Mag. He and others were interested, but revolver makers weren't yet.

Was the long cylinder revolver concept a lost cause? It was for at least three more years. Then, in 1979, Remington and a major revolver maker got together and developed their own version of a longer .357 magnum case, using the same old stunt of increasing its length .200-inch from 1.290 to 1.490. This was to be used in the original revolver frame by shortening the barrel extension inside of the frame without lengthening the cylinder.

Later, as testing began in 1982, using the 1.490 case, the results clearly showed that the 1.490 case was inferior to the .44 magnum, much as my own tests had revealed earlier.

To offer them the benefit of my own extended testing, I chambered a new T/C Contender ten-inch bull barrel pistol to .357 Super Mag specs, using the 1.610 case and sent it, with a quantity of the 1.610 Federal brass, to David Bradshaw. He took it to the revolver maker's test range. The superior performance of the longer and more powerful .357 Super Mag cartridge was obvious.

Suffice to say that Remington shortly increased the length of their 1.490 case another .105 to 1.595 (still .015 short of the Super Mag) and christened it the .357 Maximum. At the same time, to accommodate this round, the revolver cylinder was increased to a length of 1.935 and the frame window made longer to accommodate it. It still wasn't enough.

In the meantime, I called Bob O'Connor, then president of Dan Wesson, who was preparing to follow the 1.935 cylinder length concept and talked him into going to a 2.075 cylinder length to handle the 1.610 Super Mag cartridge. He said he would give the revolver the same name, adding the comment that, if everything didn't work out, it would be my neck. The decision, O'Connor jokingly told

Remington®
DUPONT

REMINGTON ARMS COMPANY, INC.
SPORTING ARMS-AMMUNITION-TARGETS-TRAPS
BRIDGEPORT, CONNECTICUT 06602

TELEX 964-201 STRATFORD, CT

TELEPHONE 203-333-1112

January 25, 1983

Mr. Elgin T. Gates, President
IHMSA, Incorporated
Box 1609
Idaho Falls, Idaho 83401

Dear Mr. Gates:

I was sorry to learn that some members of IHMSA were disturbed by a Remington representative's statement on the origin of our new 357 Remington Maximum cartridge. The statement attributes the basic idea for the cartridge to Remington and failed to acknowledge the contributions that you and others have made over the years. The record clearly shows that your design of late 1975 was the first concept of a more powerful 357 caliber cartridge for silhouette competition, and predates by several years any work done by Remington.

I can assure you and all members of IHMSA that our omission was a simple oversight and was not done intentionally. I regret any inconvenience that this may have caused you.

We at Remington are proud of our role in recognizing that the time had come to convert a good idea into a factory-produced cartridge. We also applaud the outstanding contribution made by Ruger in the development of the revolver and the input from a number of other sources, many of them within the IHMSA.

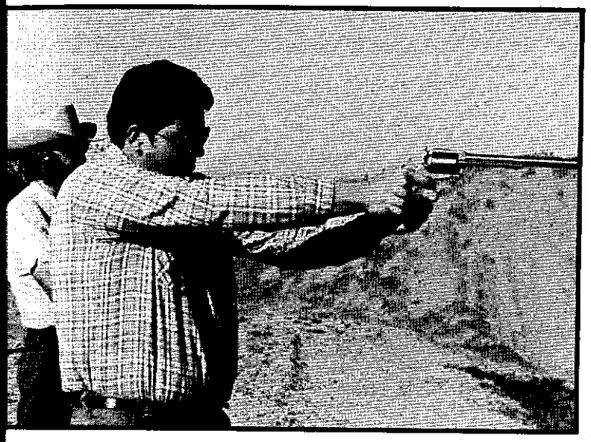
Without the IHMSA, handgun metallic competition would not have grown to the point that made development of the 357 Remington Maximum possible and practical. Let's continue to work together to promote the sport and to provide IHMSA competitors with the best possible equipment.

Sincerely,

Robert E. Fielitz

ROBERT E. FIELITZ
Director of Research

REF:jl



Robert Gates test fires the Seville .375 Super Mag. This gun was built on suggestion from silhouette clan.

me later, was easier to make with the substantial order I gave him at the time for the big-frame Dan Wessons to be chambered for the .357 Super Mag and the .375 Super Mag, with the condition that the 2.075 long cylinder be used.

The success of this revolver, since its introduction in 1983 in these two calibers, especially the .357 Super Mag, has been unequaled in the history of silhouette shooting. The Dan Wesson Model 40 V8S .357 Super Mag has won the IMHSA Internationals every year with perfect 80x80 scores beginning in 1983 and on through 1987.

Likewise, an order and a discussion with Sig Himmelman of United Sporting Arms resulted in the creation of the stainless steel single-action Seville silhouette model with a 10½-inch barrel chambered in .357 Super Mag and, shortly thereafter, the .375 Super Mag.

As a matter of personal satisfaction, one of my greatest moments was when Duane Small, national sales manager for Dan Wesson, presented me with the original .357 Dan Wesson .357 Super Mag bearing the serial number *E. Gates-1* in recognition of the help I had given them in the project.

The best part of it, as far as handgun silhouetting is concerned, was that the revolver finally had come of age. When you can launch a 180- to 200-grain .35 caliber bullet downrange at 1400 to 1500 feet per second from an eight- or ten-inch revolver, the steel rams at two hundred meters are going down. You can count on it.

What is the status of the rest of the Super Mags? Let's take them one at a time, starting with the smallest caliber of the series, the 7mm.

While much greater emphasis had been placed on the .357 and .375 Super Mags as revolver cartridges, the 7mm had not been forgotten. First mentioned in 1977, it was not offered to the firearms industry until the fall of 1987. Almost immediately, four manufacturers of single-shot pistols agreed to chamber for it and the cartridge was approved by IHMSA for production gun competition. Silhouette shooting will be the acid test for this cartridge in coming seasons.

In late 1987, I had a long discussion with Sig Himmelman, now operating as Competition Arms Company. He wanted to know what could be done to increase revolver performance even more. I gave him these ideas:

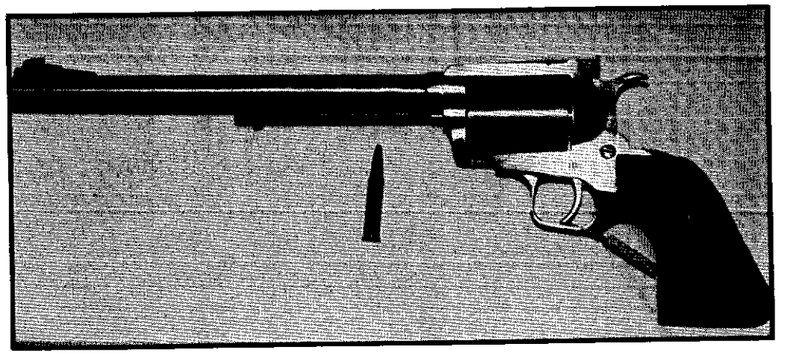
"If some genius can figure out a way to eliminate the cylinder gap gas loss," I said, "achieve perfect alignment of all cylinder holes with the barrel on regular production line guns — and come up with a revolver that will take some of the high performance bottleneck cartridges, he will be a big step ahead of the field."

"Have you got any more reamers for your 7mm Super Mag?" Sig asked.

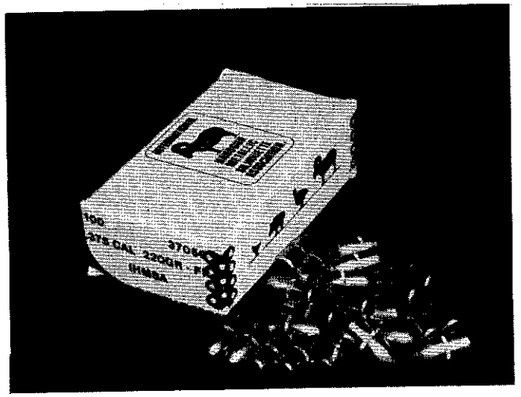
"Yes," I answered.

Author feels the heavy-frame Dan Wesson is ideal for women shooters. The weight dampens recoil. Nanette Workman of Canada utilizes the Creedmoor position to bring her .357 Super Mag version on a distant target.

Seville silhouette revolver has the longest cylinder available. It measures 2.300 inches. The gun shown is chambered for the 7mm Super Magnum cartridge.



The 220-grain bullets turned out under special contract with IHMSA were manufactured for .375 Super Mag shooters.



"Send me a reamer and dies," Sig said. "And what are you using for brass?"

"The 7mm Super Mag is a regular .357 Super Mag case necked down," I explained. "Simply run a case through the 7mm seater die, then the full-length die and you have a 7mm Super Mag ready to load and shoot."

"Okay," Himmelman said, "I can handle that, and I may have a surprise for you."

He did: a brand-new stainless 10½-inch barrel revolver with an extra-long cylinder measuring 2.300 inches to take the 7mm Super Mag!

The prototype revolver is going through final heat treating as this is being written and will be tested fully as soon as possible. If the potential problem of cylinder locking encountered in the past can be overcome, this may be the first breakthrough for a series of high-performance revolvers and cartridges. The possibilities are intriguing.

The next cartridge in the series, the .305 Super Mag, is in the same position. It will follow as an extra chambering option for the manufacturers to offer to .30 caliber devotees.

The.357 Super Mag, as the first offering, already has been discussed fully. By using heavy silhouette bullets for which it was designed, the cartridge has been enormously successful in the revolver category for silhouette shooting and handgun hunting.

The downfall of one revolver that caused it to be withdrawn from production was the mania of certain people to achieve ultra velocities with light bullets. Severe top strap cutting and forcing cone erosion resulted, causing the revolver to be discontinued. Actually, to give proper credit, this revolver was quite accurate and shot well, with 180- to 200-grain silhouette bullets, using non-corrosive powders such as 4227, 4895 and others.

As for the .375 Super Mag, the two revolver makers, Dan Wesson and United Sporting Arms, have been chambering for it since 1983. In the beginning, I had a special pressure barrel made up and Hornady conducted the pressure tests in their lab. The slightly smaller base of the .375 Super Mag case (.415) — plus its C.U.P. rating of 53,000 — allowed higher pressures to be used. The big-frame Dan Wesson, for example, is rated at 43,000 C.U.P. in .44 magnum caliber. I suggested pressure testing at 45,000 C.U.P. for the .375 Super Mag. Bob Domian, chief engineer for Dan Wesson, agreed.

The pressure tests performed in Hornady's lab used a special Hornady-made IHMSA 220-grain .375 bullet that I had ordered with the cannelure moved up an extra .050 to allow secure crimping for revolver use.

While the .375 Super Mag probably never will obsolete the beloved .44 magnum with its twenty-eight-year head start, it has caught on well in the silhouette game and among handgun hunters, both in the double-action Dan Wesson and the single-action Seville. Overseas silhouette shooters and hunters are particularly intrigued with these two revolvers.

With the one major revolver maker discontinuing their long-cylinder model for the reasons mentioned, it is not clear at this time whether any of the other revolver manufacturers will jump into the long-cylinder competition in the near future.

The .445 Super Mag? Its time has come! I have just negotiated a deal with Duane Small, Vice President of Dan Wesson Arms. They will chamber for the .445 Super Mag using their big-frame, long-cylinder revolver that has been so successful with the .357 and .375 Super Mags. I've just sent a batch of special .445 Super Mag brass to Bob Talbot, Dan Wesson's new engineer, who will handle the mechanical details and design changes needed to get the gun into production.

After that, the .455 Super Mag will be next, along with the 7mm Super Mag which Dan Wesson also has agreed to chamber for.

The .505 and .610 Suger Mags? They will be waiting on the sidelines for someone to come up with a real he-man, two-fisted, super-tough revolver to handle them.

Let's see what the future brings!