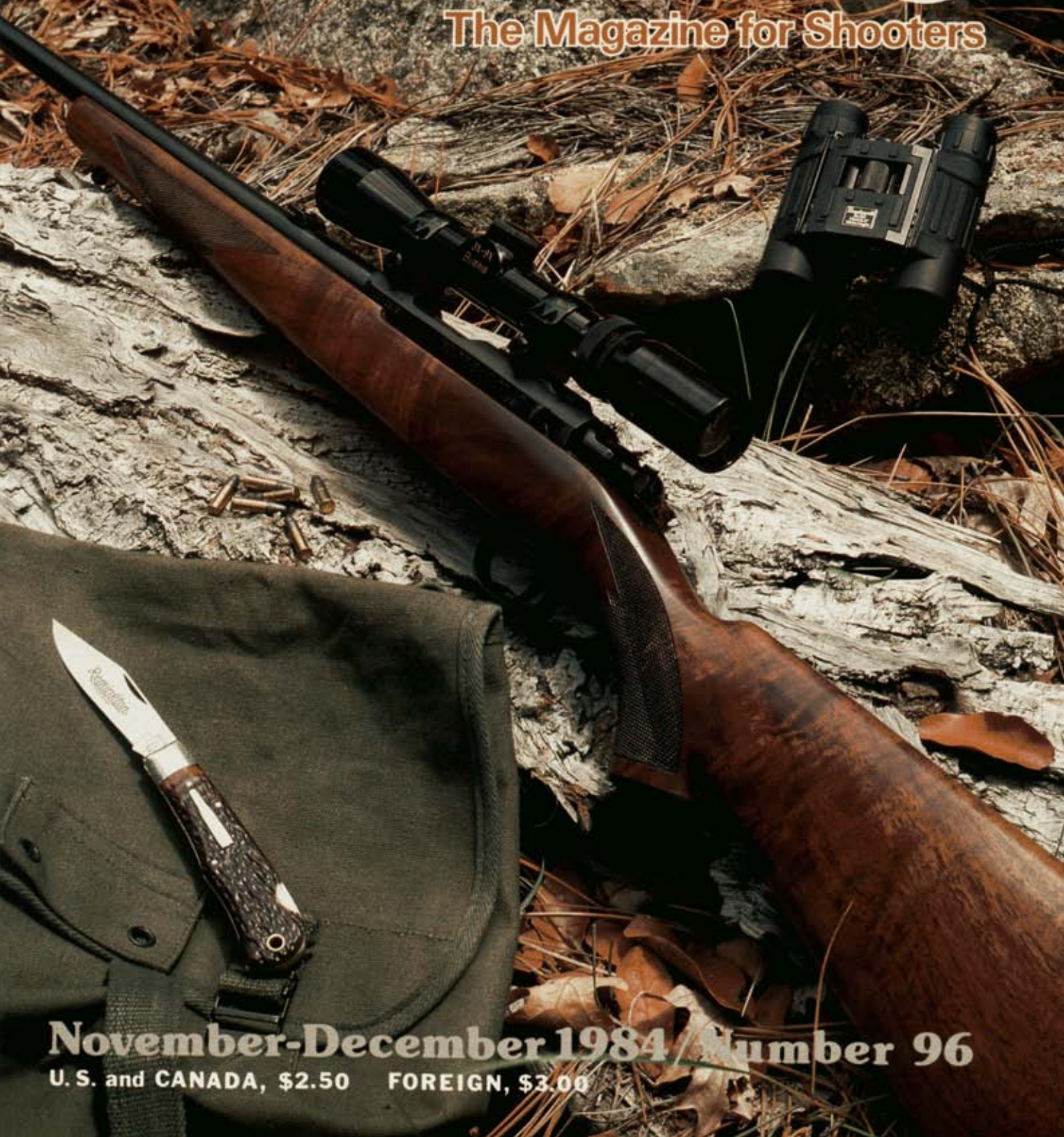


# Rifle

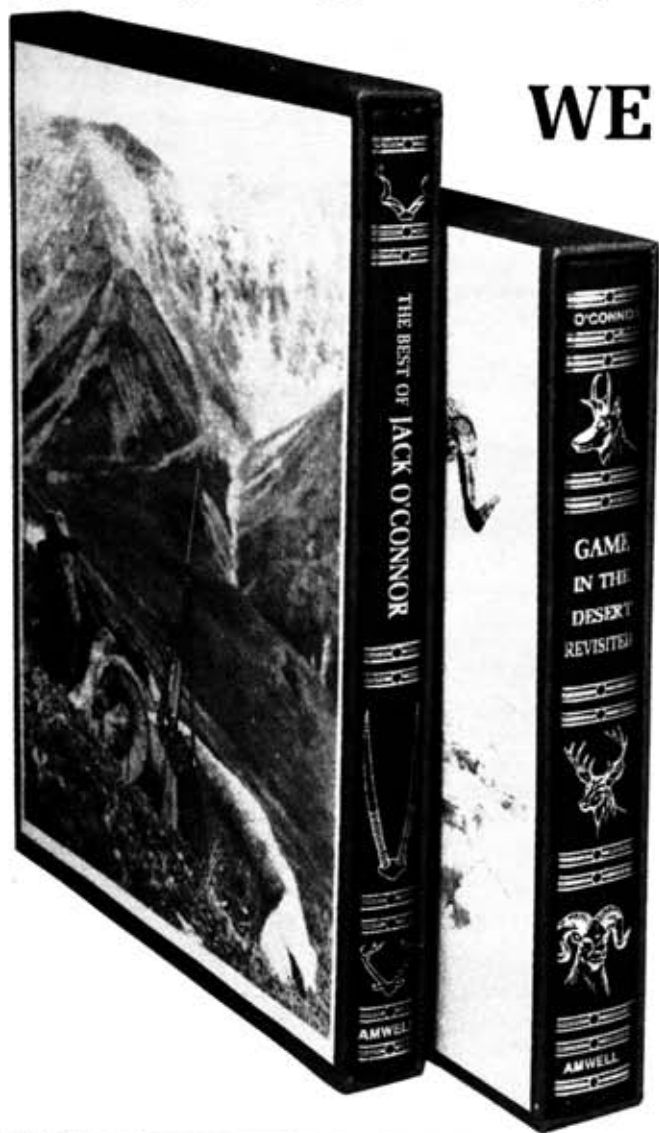
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# Rifle

The Magazine for Shooters

(ISSN 0162-3583)

"Only accurate rifles are interesting"

— Col. Townsend Whelen

Volume 16, Number 6  
November-December 1984

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## ON THE COVER

All the ingredients for a successful squirrel hunt: One of Ruger's innovative .22 bolt actions, a Model 77/22, equipped with a Burris 3x-9x variable and complemented by a pair of 8x Bushnell Compact Armored binoculars, a Remington lock back folding knife and a game bag, just waiting to be filled.



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Keith thoroughly covers the popular cartridges of that era, both wildcat and commercial, most of which are available today. His theories may be controversial to some gun enthusiasts, but no one can deny that Elmer gained vast experience in the hunting field and his writing is based on that experience.

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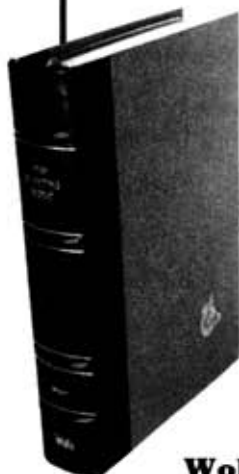
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# AIMING for ANSWERS

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## Which Rifle for Sheep?

Dear Bob Hagel:

I got lucky and drew my Wyoming bighorn sheep license the second time I tried! But I am stumped. Should I take my custom-stocked (and light) Ruger Model 77 in 7x57, or my Weatherby MK V in .300 Weatherby Magnum?

I would like your load recommendation too (bullet, powder, etc.) plus good tips on sheep hunting or equipment. I would be indebted to you!

D.S., Cheyenne WY

There are a number of factors to consider in making a decision as to whether to use your 7x57 or .300 Weatherby for hunting sheep. The 7x57 is adequate as far as killing power is concerned, but lacks the flat trajectory of the .300

Weatherby. This could make the difference between failure and success if the only shot you get is at long range with no chance of stalking closer. The individual accuracy of the two rifles with various loads is a factor, as is how well you can shoot the .300 with its heavier recoil. Some hunters may also have to consider rifle weight when hunting in areas that are high and rough.

Considering how hard sheep permits are to come by anywhere, my personal preference would go to the .300 Weatherby if it is as accurate as it should be, and if recoil and the extra weight offers no great advantage.

If you use the 7x57, my suggestion would be the 140-grain Nosler Partition if it shoots well in your rifle. The weight will give the flattest trajectory possible, and the design will assure deep penetration if you have to shoot at a ram in a poor position. Not knowing what kind of loads

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We will be pleased to ask the members of the staff to answer your questions. However, due to their heavy volume of correspondence we must ask that you enclose three (3) dollars and a stamped, self-addressed envelope to partially defray the cost of researching and writing each answer. Please limit each letter to one specific question, for many general questions require a lengthy article to answer adequately, and cannot possibly be answered in a letter. Questions should be addressed to Aiming for Answers, *Hand-loader/Rifle Magazine*, P.O. Box 3030, Prescott, Arizona 86302.

---

your rifle will handle, or where the best accuracy will be, I suggest starting with 47 grains of IMR-4350 or 48 grains of IMR-4831 and working up if pressure permits. Probably 50 and 51 grains respectively will be maximum.

For the .300 Weatherby for straight sheep hunting, the 150-grain bullet is the flattest. Start with 82 grains of H-4831 and work up.

It is not possible to offer advice on sheep hunting equipment in a letter unless it is in answer to a specific question.

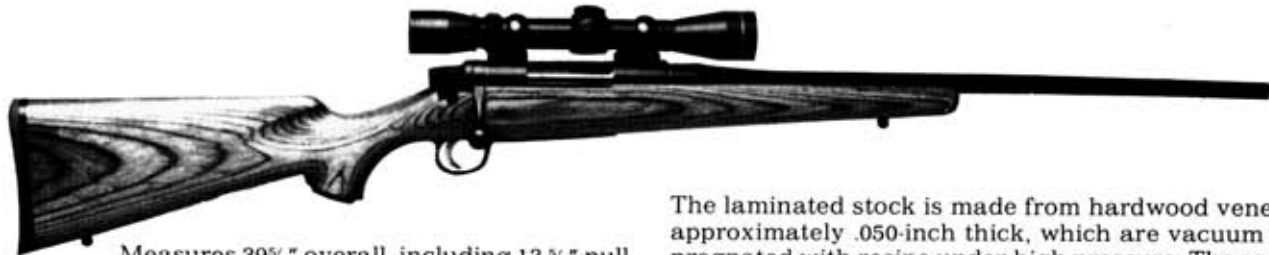
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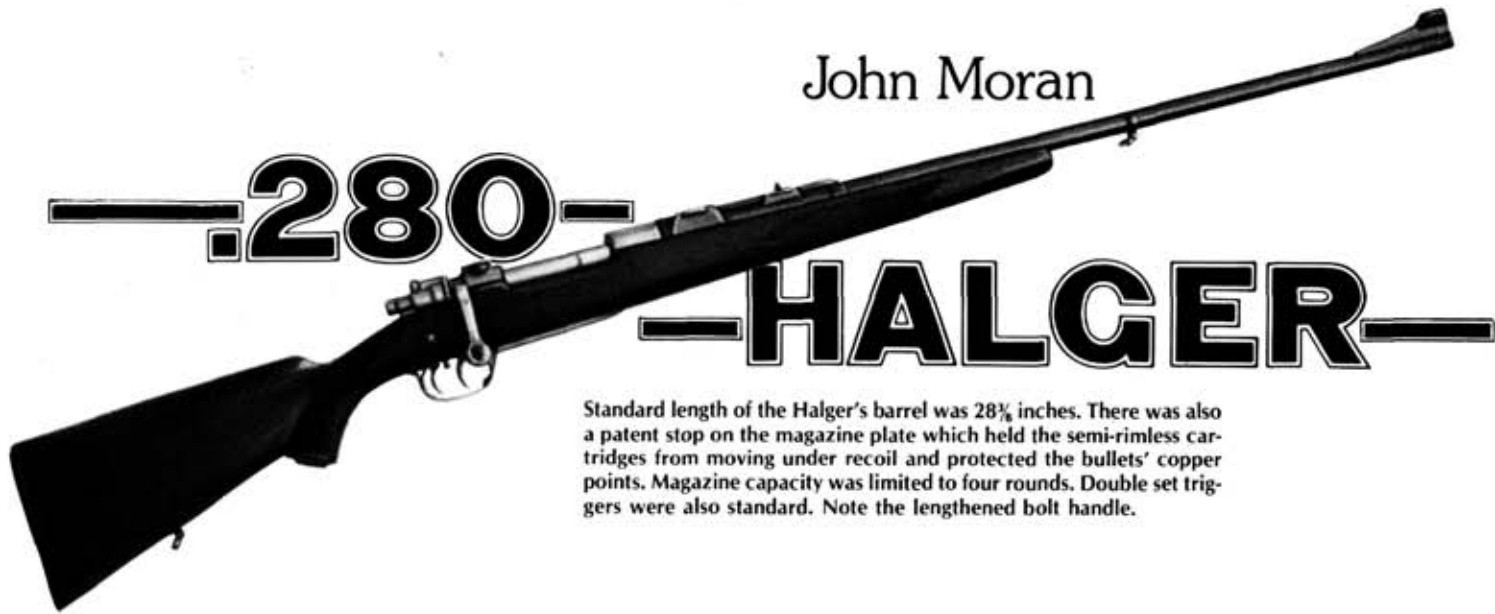
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John Moran



**-.280-**

**-HALGER-**

Standard length of the Halger's barrel was 28 $\frac{3}{4}$  inches. There was also a patent stop on the magazine plate which held the semi-rimless cartridges from moving under recoil and protected the bullets' copper points. Magazine capacity was limited to four rounds. Double set triggers were also standard. Note the lengthened bolt handle.

**I**N 1929, HERMANN GERLICH of Hamburg, Germany, claimed his .280 Halger rifle was "The fastest and most deadly super high velocity rifle ever developed." Gerlich also insisted that his .280 Halger cartridge represented "... a revolutionary advancement in ballistics which produced astounding accuracy at distances up to 500 yards, and muzzle velocities in excess of 3,500 feet per second." Were Hermann Gerlich's ballistic tests facts, or merely advertising hoopla?

The answer to that question can be found in heretofore unpublished results of extensive tests conducted from July 1929 through June 1931 by the British Armed Forces Small Arms Committee.

In the early 1930s, Hermann Gerlich attained international prominence because of his innovative theories regarding large case, small bullet combinations and their effects on ballistics. As a consequence of his concepts, the Halbe & Gerlich Rifle Company of Hamburg, Germany, designed and created the Halger Rifle and cartridge. The name Halger was formed by combining the first three letters of Halbe with the first three letters of Gerlich. Due to Gerlich's untimely death in 1935, only a limited number of Halger rifles and cartridges were manufactured. Nonetheless, the curiosity of ordnance experts around the world was aroused by the German's controversial advertising claims such as, "At 330 yards, a five-shot group of 3.65 inches."

On the 28th of August, 1929, the British government, after an Executive Committee meeting in the War Office, approved the purchase of a Halger-Gerlich High Velocity Rifle, caliber .280. It was further recommended and approved that tests for pressures, velocity and accuracy be carried out by the Chief Inspector of Armaments, in conjunction with the Chief Inspector of Small Arms, and that the Chief Superintendent, Research Department examine the .280 ammunition.

Due to the limited output of Halger rifles and ammunition, even the British had to wait more than a year before Halger H.V. Magnum No. 143 was delivered with a supply of .280 cartridges.

On October 8, 1930, the Chief Inspector of Armaments forwarded the following report to the Director of Munitions:

*I have now completed my firing trials so far as the ammunition is available. The ammunition consists of three types, and I received them from Chief Inspector of Small Arms:*

- 59 rounds with bullets nominally 100 grains
- 17 rounds with bullets nominally 143 grains
- 17 rounds with bullets nominally 180 grains

*One round of each type had been broken down. The bullets were in each case within manufacturing limits of the quoted weights. The charge appeared to be graphited N.C. flake form about .05-inch square. The charge weights were:*

- 100 grain bullet ..... charge weight 70.5 grains
- 143 grain bullet ..... charge weight 66.9 grains
- 180 grain bullet ..... charge weight 60.7 grains

*All three types of cartridges have been tested for velocity and pressure, and the 100-grain bullet for accuracy. The velocities were taken from the rifle itself, but it was not possible to measure pressures in the rifle without unstocking it and fitting the barrel to a pressure gauge, which was not advisable. This cartridge, however, will fire in the .280 Ross sporting pattern rifle, and a sample of this weapon was obtained from the museum at Enfield and the barrel fitted into a pressure gauge. As, however, I have no knowledge of this barrel, the pressures obtained from it must be accepted with caution. The results obtained are given below. The figures for copper used represent the calculated static crushing obtained by multiplying the "D" copper crushing by a calculated correcting factor based on the size of the cartridge case, the correcting factor used being .76 throughout.*

	velocity (fps) at 60° F.		pressure (lbs/sq in.) at 60° F.	
	dry	oiled	oiled	copper
100 grain	3,625	37,856	34,496	
143 grain	3,337	46,816	40,880	
180 grain	2,912	48,384	40,880	

On October 8, 1930, the Chief Inspector of Armaments forwarded the following statement to the Director of Munitions:

*Two 10-round accuracy targets of the rounds with 100-grain bullets were fired from the shoulder at 500 yards. The groups obtained were height 22 inches by width 17 inches, and 20 inches by 20 inches respectively. The firer was not satisfied, however, that he had done the rifle justice, and it is possible that further accuracy trials under 'fixed rest' conditions would produce better results.*

An earlier Halger test conducted by the Official German Small Arms Testing Station from a fixed rest position produced the following results:

	size of five-shot group	
	220 yards (inches)	330 yards (inches)
.280 100-gr. spitzer	3.25	5.33
.280 145-gr. BT spitzer	3.00	5.25
.280 180-gr. BT spitzer	2.50	3.65

On June 20, 1930, three rounds of each type .280 were forwarded to Chief Superintendent, Research Department for investigation of the components.

The Chief Superintendent, Research Department reported to the Director of Munitions:

*It is confirmed that the charge weights are as stated by Chief Inspector of Armaments. The propellant is a flake nitrocellulose powder, the moderant being a variety of centralite, i.e., dimethyldiphenylurea. An average of several analyses is as follows:*

	percent
Nitrocellulose .....	93.9
Dimethyldiphenylurea .....	4.0
Diphenylamine .....	0.6
Mineral matter .....	0.3
Volatile matter .....	1.2
Nitrogen content of nitrocellulose .....	13.1
Solubility of nitrocellulose in ether-alcohol .....	20.2

*The flakes were heavily coated with graphite (about 0.5 percent), and were of the approximate size 0.47 inch by 0.47 inch by 0.18 inch.*

*The cap composition weighs about 0.5 grains, and is coated with lead tin foil.*

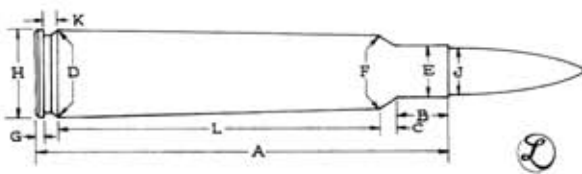
*The average of several analyses is:*

	percent
Mercury fulminate .....	29.5
Antimony sulphide .....	27.9
Potassium chlorate .....	42.6

The committee further stated that the .280 Halger case capacity was 76.4 grains of water and that the bullet depth was about .4 inch with a diameter of .283 inch. From those measurements, the cross-sectional area of the bullet was .7854 x .283 x .283 = .06290 square inch. In as much as 7,000 grains of water at 62 degrees Fahrenheit occupy 27.73 cubic inches, .02516 cubic inch contains  $7,000 \div 27.73 \times .0252 = 6.36$  (6.4) grains of water. Consequently, volume of case minus the space occupied by the bullet =  $76.4 - 6.4 = 70$  grains of water behind the bullet.



Three types of the .280 copper-pointed Halger cartridges. The round in the center featured a 180-grain spitzer backed by 60.7 grains of an unknown powder. According to official German Army reports, that combination produced a 3.65-inch group at 330 yards during their range tests.



Since density of loading equals ratio of charge weight to case capacity, it follows:

$$\begin{aligned} \text{Density} &= 70.5 \div 70 = 1.007 \text{ for 100-grain bullet} \\ \text{Density} &= 66.9 \div 70 = 0.956 \text{ for 143-grain bullet} \\ \text{Density} &= 60.7 \div 70 = 0.867 \text{ for 180-grain bullet} \end{aligned}$$

The greatest density possible by machine filling is 0.85. Since all the .280 Halgers exceeded that limit, the cartridges must have been handloaded. This conclusion is also supported by the present day rarity of the cartridges (\$15 each) and their extremely high retail price (\$50 per 100) in 1930.

A subsequent British Small Arms Committee Test involving separate velocities of the 100-grain cartridges was conducted on March 17, 1931. The test listed the number of rounds fired and the full range of velocity differences.

	10 shots muzzle (fps)	14 shots 30 yards (fps)	8 shots 60 yards (fps)
highest	3,812	3,660	3,593
mean	3,747	3,618	3,487
lowest	3,645	3,565	3,441
greatest difference	167	95	152

The ballistic chart that follows, published in the 1934 *Stoeger Catalogue* and confirmed by the Official German Testing Station for Small Arms, differed only slightly from the British tests. The variances existed because all .280 Halgers were handloaded.

Halger	muzzle velocity (fps)
.280 spitzer 100-gr.	3,900
.280 boat-tail 145-gr.	3,500
.280 boat-tail 180-gr.	3,043

The fact that the .280 Halger has passed the most severe test of all, the test of time, can best be illustrated by the following comparison with renowned cartridges.

caliber	bullet weight (grains)	muzzle velocity (fps)	energy (ft/lbs)
.280 Ross	150	2,870	2,710
7mm Mauser	154	2,740	2,567
.270 Mag. Weatherby	150	2,920	2,840
.280 Mag. Halger	145	3,500	3,550

On January 7, 1935, while asleep in a London hotel, Hermann Gerlich suffered a fatal heart attack. For all practical purposes the Halger was buried with its creator, except for a limited number of collector cartridges and a scant few rifles which keep the legend alive.

Table I

**.280 Halger/.280 Ross**  
dimensions in inches

	.280 Halger	.280 Ross		
		R.R. Co.*	Kynoch	Win.
Length of case (A)	2.600	2.601	2.600	2.602
Length of neck (B)	.315	.315	.315	.315
Length of shoulder (C)	.110	.110	.110	.110
Diameter at web (D)	.530	.530	.530	.530
Diameter at neck (E)	.312	.317	.319	.317
Diameter at shoulder (F)	.415	.418	.419	.417
Rim thickness (G)	.060	.058	.060	.059
Maximum rim diameter (H)	.554	.556	.554	.556
Diameter of bullet (J)	.287	.287	.287	.287
Extractor groove width (K)	.080	.082	.082	.082
Extractor groove to shoulder (L)	2.035	2.036	2.033	2.036

The overall length of the 100-grain Halger is 3.36 inches, while the Ross Rifle Company\* hollowpoint is 3.5 inches, and a Winchester .280 with full jacket is 3.46 inches.