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# Rifle

The Sporting Firearms Journal



.416  
Rigby

January-February 1989 / Number 121

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### On the cover ...

It seems appropriate for the new Kimber African rifle in .416 Rigby to be seen with big elephant tusks. The other rifle is a Remington 700 in a wood-grained fiberglass stock built by Kenny Jarrett. It is chambered for an experimental .416 cartridge which Remington is introducing in 1989. The Rigby cartridges are loaded by A-Square. For more on the .416 Rigby cartridge, see page 20. Thanks to Jim Wilkerson of The Rifle Ranch in Prescott, Arizona, for the loan of the tusks. Photo by Dave Culver.



## Congress Finally Quits

The Maryland Gun Ban referendum was lost to the anti-gun forces by a 58 to 42 margin on November 8.

\*\*\*

If Congress had gone home when they planned, in early October, we would have escaped unscathed from the most determined continuous assault upon gun rights since 1976 — or maybe even 1968. But they didn't, and we didn't.

The Senate adopted, with minor changes, the McCollum Amendment to the Drug Bill, which the House substituted for the furiously lobbied "Brady Bill" by a 228-182 vote September 15. It requires the Attorney

General to develop and report back to Congress within 12 months on a method to allow dealers to instantly identify convicted felons attempting to purchase handguns. Further, in 18 months he would have to propose to Congress a method of allowing dealers to identify other prohibited persons, such as those who have been committed to mental institutions.

Although Rep. Bill McCollum (R-FL) is now saying he intended that the Attorney General's plan should be implemented without the further blessing of Congress, as a practical matter it will not be. All the gun organizations supported the McCollum proposal only as a study, which is how both sides

described it during debate in the Judiciary Committee. Further, implementation would require a considerable amount of funding, which must be authorized by Congress.

Unfortunately, under the voting rules that existed on the Drug Bill, no vote was "in order" on Rep. Harold Volkmer's amendment to kill the Brady Bill outright.

During the last hours of the 100th Congress, House and Senate negotiators also agreed upon a "House-Senate compromise" plastic gun bill which combined the worst parts of the differing versions which each House had approved in May. What was adopted requires guns made after the effective date to be "as detectable as" a 3.7-ounce steel "exemplar." Further, all major components must be separately identifiable on the "X-ray machines commonly used at airports," which may mean that the Glock and other plastic-framed guns — presumably including the Nylon 66-type Remington .22 rifles — will have to have some type of ingredient added to the plastic. X-ray equipment that easily shows plastic is commercially available, but has not generally been deployed at airports.

As they passed each House, neither "plastic gun" bill affected any existing guns, but that doesn't appear to be true of the final law. The law says it will die after 10 years; we'll see.

The bills that passed are minor compared to what almost passed — a ban on possession of any handgun with less than a half-pound of steel (the original "plastic gun" ban, S. 466) and a requirement for police to be notified of handgun transfers (including detailed information on both the buyer and the gun) and for all sellers or transferors to wait seven days before delivery (the original Brady Bill, S. 466).

Though we succeeded in postponing the battle and preserving the status quo, that is not truly a victory. However, the vote killing the Brady Bill was a catastrophic defeat for Hand-

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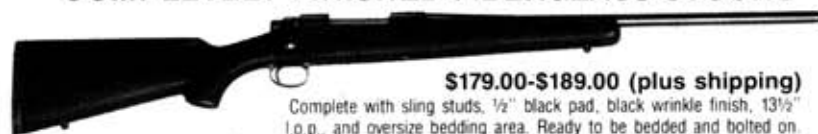
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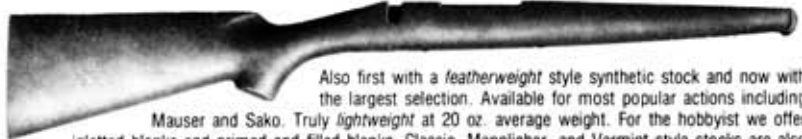
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gun Control Inc. and the anti-gun forces. In that we can rejoice.

\*\*\*

As this is written, a week before the referendum on the Maryland gun ban, statewide polls are showing that the race is a tossup.

A Washington, D.C. television station's poll says that we're three points behind; a *Washington Post* poll says we're five points behind; a *Baltimore Sun* poll done by the University of Maryland — which said we were behind 78-17 in mid-June — now says we're five points ahead. All those predictions are within the polls' "possible margin of error."

I'm cautiously optimistic, because all the published polls on Question 5 (the Massachusetts handgun ban in 1976) and Proposition 15 (the California handgun freeze in 1982) showed us significantly behind right up to Election Day, yet we won by better than 2-1.

There are reasons for those discrepancies between polling and the only true poll: how people cast their ballots. For one thing, the pollsters have never been able to get a handle on pro-gun voters — judging by countless races where our voters simply don't show up until the election results.

Frankly, when we loaned \$5,000 to the Stop Gun Prohibition Committee to help get this referendum started, the chances of winning looked mighty slim — but it was a battle we could not decline to fight.

That contribution, a matching \$5,000 from Beretta, and a separate mailing by Gun Owners of America, put more than 50,000 of our petitions into gun-owning Marylanders' mailboxes. Though the NRA had diligently attempted to avoid this fight, they were forced to get involved. But once committed, NRA-ILA gave us every bit of support needed — providing more than \$4 million for the campaign.

Despite the Herculean efforts of Fred Griisser, who has served tirelessly as chairman of both Stop Gun Prohibition and the NRA-backed Marylanders Against the Gun Ban, and the massive expenditures of time and money of many other volunteers, this battle couldn't be won — and probably wouldn't even be close — if it weren't for that huge NRA expenditure.

If you haven't contributed to NRA-ILA lately, I suggest that you do so, for they have been hurting financially, yet

they've put a huge amount into this fight.

\*\*\*

So gun owners could see that their congressmen and senators don't always vote like they talk, we mailed thousands of congressional scorecards showing nine key House votes and seven Senate votes. If you'd like a copy, send a self-addressed stamped business-sized envelope to Box 6537, Silver Spring MD 20906.

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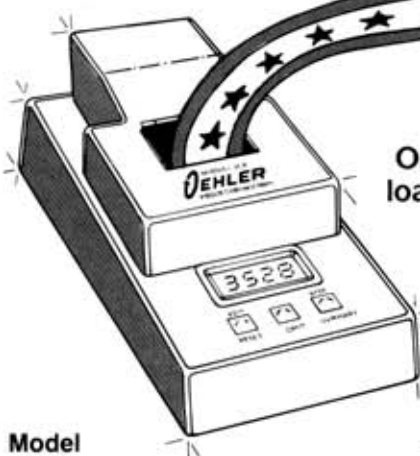
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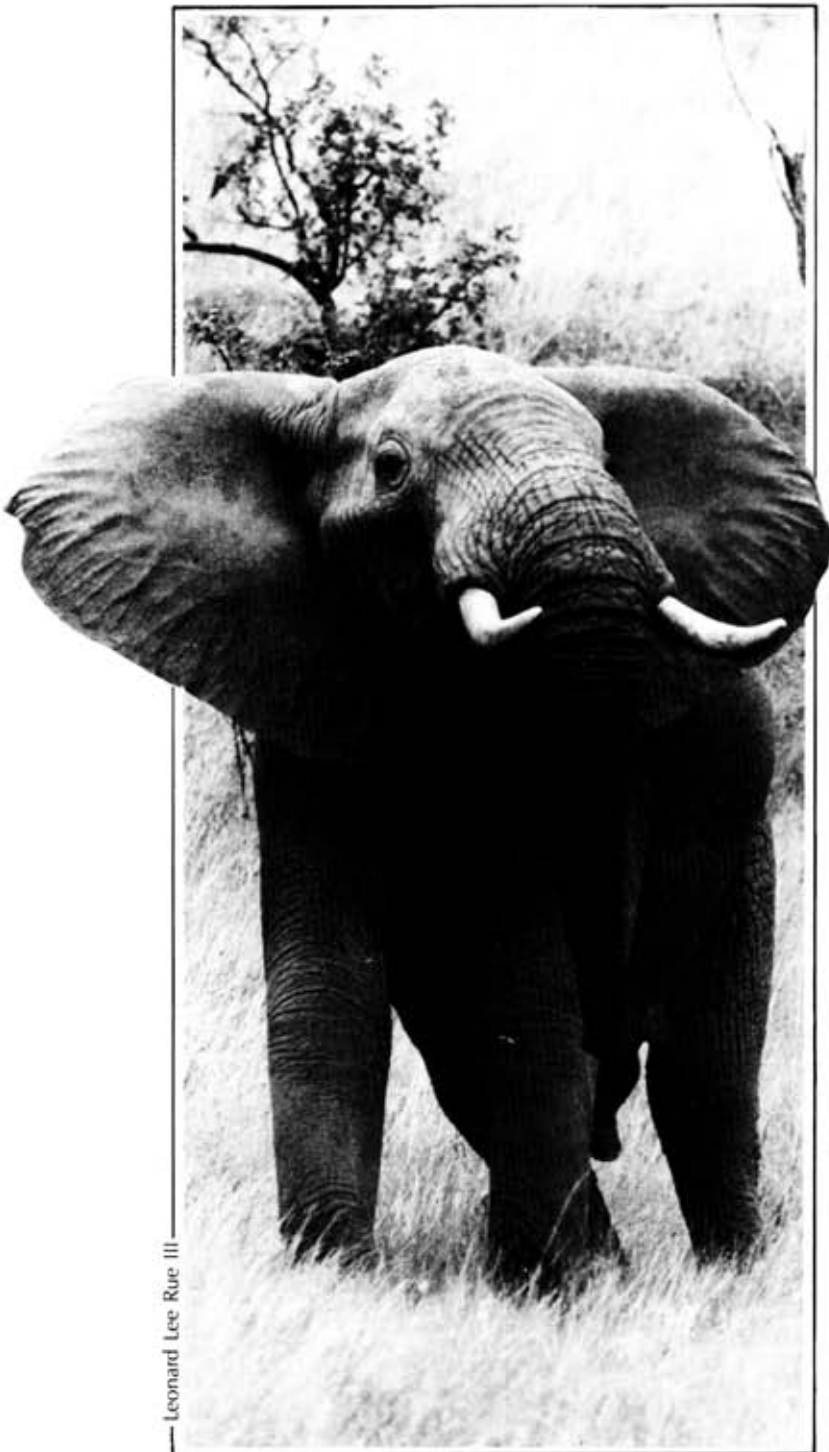
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## Layne Simpson

**T**HERE WAS A TIME when names like Holland & Holland, John Rigby & Co., W.J. Jeffery & Co., and Joseph Lang & Sons were household words among the maharajas, princes, ivory poachers and well-heeled Americans who called faraway game fields their second home — and for good reason. With the exception of the single shot, the double-barrel was the only type of rifle that could be built to handle the massive charges of black powder necessary for propelling thumb-sized projectiles toward yon charging beast. Then came the introduction of smokeless powder and the 1898 Mauser rifle, and the double rifle's brief reign as queen of African and Indian big game hunting began to slip.

British rifle makers were quick to recognize several advantages in building sporters around the '98 Mauser action: it was dependable, inexpensive and unlike a double rifle which often took years to turn out, one of the newfangled magazine rifles could be built from scratch within weeks after receiving a customer's deposit. On top of all that, such a rifle could be sold for anywhere from a third to one-half the going price of a double, for considerably higher profit than was possible with the more labor-intensive of the two.

With the adoption of the Mauser action by British rifle makers, the race was on to see who could design the most powerful big game cartridges for it. It seems that Holland & Holland was first to leap from the starting gate with its .400/.375 around 1905, but compared to other cartridges soon to be introduced by the competition, its 270-grain bullet at a rather mundane 2,175 fps doomed Holland's first belted rimless magnum before the finish line was in sight.



Leonard Lee Rue III

# The .416 Rigby

By 1912, the dust began to settle and several cartridges destined for great fame in the world's game fields emerged. From Jeffery came the .333, the .404 and the big .500. Gibbs gave us the mighty .505, and we must not overlook Holland's second .375 belted cartridge. John Rigby covered all bases not already covered by the 7x57mm Mauser, which he had taken under wing early on, by introducing his .350 and .416-caliber cartridges.

The first Rigby magazine rifle, designated Model No. 2, was introduced around 1903. It was available only in .276 Rigby caliber, a Kynoch high velocity loading of the 7mm Mauser that pushed a 140-grain bullet from its 23½ inch barrel at 2,750 fps. Kynoch also loaded the Mauser cartridge with the same bullet weight at 2,900 fps, a load that quickly gained popularity among owners of the trim little Rigby rifle. Built around a standard Model 98 action manufactured by Mauser for commercial use, the No. 2 rifle weighed 7½ pounds. It might be of interest to note that this flat-shooting rifle was introduced about two decades before Winchester unveiled its great .270.

In 1908, John Rigby introduced his No. 4 rifle in .350 Magnum, a cartridge that produced .35 Whelen and .350 Remington Magnum ballistics long before James Howe and Remington introduced their cartridges. Unlike the No. 2 rifle, the No. 4 was built around the Model 98 magnum action with its square bridge, which was designated by the Mauser factory as action number 17. Three years later, Rigby introduced

his No. 5 "Big Game" rifle with the number 20 square bridge action in .416 caliber, thus filling the final slot in the batteries of those clientele who desired Rigby magazine rifles suitable for shooting light thin-skinned game, the larger African antelope and animals of the big and dangerous variety.

Rigby's No. 5 rifle was also built around the square-bridge action and weighed 9¼ pounds, one pound more than its mate in .350 caliber. The 24-inch barrel had a ramped front sight with an ivory bead and a quarter rib at the rear with one fixed and two folding leaves for shooting at 100, 200 and 300 yards. The magazines of all Rigby bolt action rifles held four

rounds, the No. 4 and No. 5 having dropped or extended magazine boxes for the extra capacity. Rigby rifles also had hinged floorplates with release buttons in the trigger bows, a detail first introduced by Mauser for use on its sporting rifles and copied to this day by various American gunsmiths.

Like a number of the old classics introduced by British rifle makers, the .416 Rigby was a proprietary cartridge, meaning, ballistics requirements were sent to Kynoch for actual development and production of the ammunition. Ballistically, the .416 Rigby might best be described as a scaled up version of the .350 Rigby with performance quite similar to that of the .425 Westley

### Ballistics of Selected British Magazine Rifle Cartridges

(As advertised by Kynoch)

cartridge	bullet weight (grains)	bullet sectional density	muzzle velocity (fps)	muzzle energy (ft/lbs)
.333 Jeffery	250	.322	2,400	3,200
.333 Jeffery	300	.387	2,150	3,090
.350 Rigby	225	.262	2,600	3,400
.400/375 H&H	270	.274	2,175	2,840
.375 H&H*	300	.305	2,500	4,070
.404 Jeffery*	300	.242	2,600	4,500
.404 Jeffery	400	.323	2,125	4,000
.416 Rigby*	400	.331	2,371	5,100
.416 Rigby	410	.339	2,371	5,100
.425 Westley Richards	410	.325	2,350	5,010
.500 Jeffery	535	.306	2,400	6,800
.505 Gibbs*	525	.294	2,300	6,180

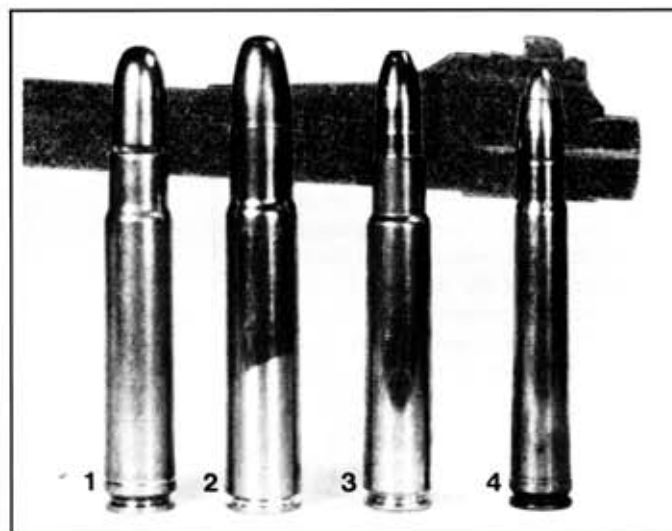
\* The Kimber African rifle is available in these chamberings and the .460 Weatherby Magnum. Factory loaded ammunition, bullets and unprimed cases are available from A-Square.

### Comparison of Recoil

cartridge	rifle weight (pounds)	bullet weight (grains)	muzzle velocity (fps)	free recoil (ft/lbs)
.416 Rigby	10.75	400	2,400	56
.416 Rigby	10.75	400	2,700	67
.375 H&H	10.75	300	2,600	36
.375 H&H	9.50	300	2,600	40
.458 Winchester Magnum	10.75	500	2,150	56
.458 Winchester Magnum	9.50	500	2,150	64
.460 Weatherby Magnum	10.75	500	2,600	93

Most factory rifles in .375 H&H and .458 Winchester Magnum weigh 9.5 pounds or less when outfitted with scope, sling and with their magazines full of cartridges. Actual weight of the Kimber African and Weatherby Mark V so outfitted is 10.75 pounds.

The new Kimber African rifle will be chambered for these cartridges: (1) .460 Weatherby, (2) .505 Gibbs, (3) .416 Rigby, (4) .375 H&H, plus the .404 Jeffery, not shown. Price is expected to be \$3,500.





Richards cartridge. In shape, the .416 case was several decades ahead of its time since it has much in common with a number of cartridges introduced by various American firms since World War II. More in step with cartridges introduced during that era, the Holland & Holland rounds were designed with rapidly tapering case bodies and mildly tapered shoulders, the latter requiring the addition of a belt just forward of the extractor groove for positive head-spacing.

In contrast to Holland's cartridges, the body of the .416 Rigby case tapers ever so slightly at, according to my measurement, .027 inch per linear inch. At just over 44 degrees, the shoulder angle of the Rigby case is considerably sharper than most sporting cartridges. The .284 Winchester, at 35 degrees, has the sharpest shoulder angle any American ammunition manufacturer has dared introduce. Other nominal case dimensions for the Rigby are an overall length of 2.890 inches and a neck length of .500 inch. Maximum rim diameter is .590 inch, which exceeds body diameter by only a slight amount. If some of those dimensions strike a familiar note with you Weatherby fans, it is because Roy Weatherby simply added a belt to the .416 Rigby case when designing his .378 and .460 Magnum cartridges during the 1950s.

Various sources tend to disagree a bit on .416 Rigby ballistics but data published during its early years by Kynoch listed no less than four loads with two bullet weights and three styles of bullets. Muzzle velocity of the four loads was advertised at 2,375 fps in a 26-inch barrel. Two loads had 400-grain solid and jacketed hollow-point bullets seated over 70 grains of Cordite. The other two loads had an additional grain of Cordite stacked behind 410-grain solid and semi-pointed softnoses.

According to Kynoch, the 400-grain loads generated 17 tons (long tons) per square inch of pressure at an ambient temperature of 60 degrees F. If my multiplication is correct, that converts to 38,080 pounds per square inch of chamber pressure. The 410-grain loads were listed at 18 tons or 40,320 psi.

In case you're wondering why Kynoch loaded the .416 Rigby to such seemingly mild chamber pressures, Cordite was reputed to be extremely

sensitive to extremes in temperature. Consequently, most British smokeless cartridges intended for use in tropical climates were loaded to chamber pressures of 14 to 18 tons. Cartridges produced for double rifles were usually loaded to a maximum of 15½ tons; only those used in magazine rifles were loaded to higher pressures.

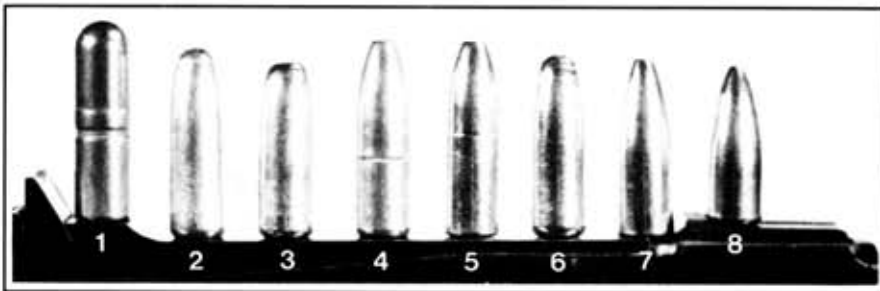
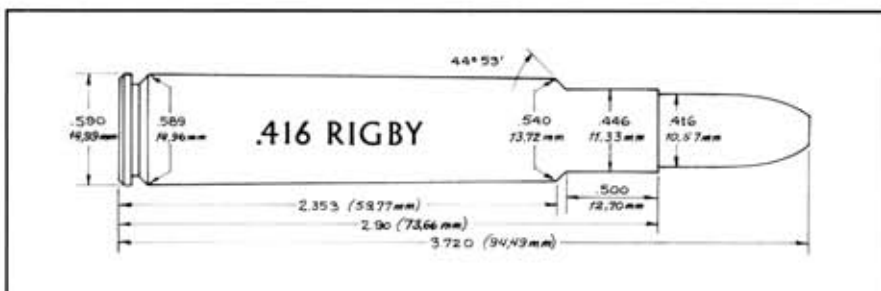
I have no idea how long Kynoch continued to offer a variety of .416 Rigby loads, but it's probably safe to assume that some were discontinued prior to World War II. In his book, *African Rifles & Cartridges* (1948), Taylor illustrates only 410-grain softnose and solid bullets alongside a factory cartridge and makes no mention of the two 400-grain loads. Taylor also listed velocity as 2,350 fps for 5,010 foot-pounds, even though Kynoch had reduced advertised velocity to 2,300 fps before the war began. When writing about the .416 Rigby during the 1960s, Jack O'Connor reported a muzzle velocity of 2,300 fps with Kynoch factory loads which was probably dead on the money since Jack's custom '17 Enfield had a 24-inch barrel.

The .416 Rigby went on to become a favorite of many who hunted potentially dangerous game for fun or profit. Professional ivory poacher, writer and promoter of the double rifle John (Pondoro) Taylor, who seemed of the opinion that the bolt action rifle was

an invention of the devil, finally confessed during one of his weaker moments, "If you prefer a magazine rifle to a double, there is no finer or more satisfactory weapon for all-around use against dangerous game than the .416." Taylor went on to say, "It's tremendously popular throughout Africa, and deservedly so. It's a great killer. Its plain softnosed bullets crumple a charging lion as few other weapons are capable of doing. I cannot say off-hand how many elephant I killed with mine but it was quite a few."

Other African professional hunters have picked the .416 Rigby as their working cartridge: Blunt, Dove, Daly, Lawrence and Potgieter, to name but a few. Jack O'Connor thought highly of the .416 and once let dust gather on his .450 Watts long enough to shoot his best lion with an Al Biesen-stocked '17 Enfield with an Apex barrel in .416 Rigby. The Maharaja of Rewa was so fond of the .416 that by showering old John's desk with enough rupees, he ended up with the first and only double rifle ever produced by Rigby in .416 caliber.

The largest elephant on record now stands more than 13 feet tall in the Smithsonian. The great beast carried only 96 pounds of ivory to the side, but he weighed an estimated eight tons when alive and well. His hide alone



Simpson used these bullets in developing loads for the .416 Rigby: (1) A-Square 400-grain Monolithic solid, (2) A-Square 400-grain Dead Tough, (3) A-Square 400-grain Lion Load, (4) Swift 400-grain A-Frame, (5) Trophy Bonded 400-grain Bear Claw, (6) Barnes 400-grain softnose, (7) Cor-Bon 350-grain semi-spitzer, (8) Barnes 300-grain spitzer.

pegged the scale at two tons. A fellow by the name of Fenykovi shot that jumbo of all jumbos with his pet .416 Rigby while on safari in Angola in 1955. The .416 Rigby stories are countless, as have been its fans.

There also was a time when various .40-caliber cartridges were popular on the North American continent. During the late 1800s, when lever-action and single-shot rifles ruled the hunting roost in America, more than two dozen .40-caliber cartridges were in use. Actual bullet diameter ranged from .403 inch for the .40-50 Sharps up through the various Maynard cartridges with their .417, .419, .422 and .423-inch bullets. The last .40 introduced by an American ammunition manufacturer and the only one designed for smokeless powder was the .405 Winchester with its 300-grain, .412-inch bullet at 2,200 fps. Introduced in 1904, the .405 enjoyed mild popularity in Africa and was eventually loaded by Kynoch.

While most American ammunition makers concentrated on the development of calibers on both sides of .40, during later years, wildcatters have paid it a bit more attention. In 1922, James V. Howe necked up the .30-06 case and called his creation the .400 Whelen, a cartridge that soon became a favorite of Elmer Keith. Later, in the 1940s, custom bullet maker Fred Barnes necked up the .375 H&H Magnum case, fireformed it to minimum body taper and an extremely sharp shoulder angle and called it the .416 Barnes Supreme. The Barnes wildcat pushed a 400-grain bullet

(Continued on page 42)

## .416 Rigby Exterior Ballistics

	range (yards)				
	0	100	200	300	400
<b>400-grain Swift</b>					
velocity *	2,400	2,179	1,969	1,773	1,593
energy	5,110	4,213	3,440	2,789	2,251
trajectory	—	0	-5.9	-20.8	-46.8
trajectory	—	+3.0	+0.1	-11.8	-34.8
velocity	2,700	2,465	2,241	2,028	1,828
energy	6,468	5,391	4,456	3,699	2,965
trajectory	—	0	-4.3	-15.5	-35.2
trajectory	—	+3.0	+1.7	-7.5	-23.2
<b>350-grain Cor-Bon</b>					
velocity	2,800	2,592	2,393	2,202	2,018
energy	6,086	5,216	4,445	3,764	3,161
trajectory	—	+3.0	+2.3	-4.5	-18.5
<b>300-grain Barnes</b>					
velocity	2,900	2,666	2,444	2,232	2,030
energy	5,596	4,729	3,975	3,315	2,742
trajectory	—	+3.0	+2.6	-3.7	-17.0

\* All velocities in feet per second; energy, in foot-pounds; trajectories, in inches.

## .416 Rigby

bullet	powder	charge (grains)	overall length (inches)	muzzle velocity (fps)	pressure indications
<b>traditional velocities</b>					
400 A-Square Dead Tough	IMR-7828	107.0	3.720	2,422	mild
400 A-Square Monolithic Solid	H-4831	106.0	3.670	2,391	mild
400 A-Square Lion Load	RL-22	104.0	3.640	2,417	mild
400 Swift A-Frame	H-450	103.0	3.735	2,404	mild
400 Trophy Bonded Bear Claw	H-4350	100.0	3.730	2,414	mild
400 Barnes Softpoint	IMR-4831	97.0	3.720	2,411	mild
400 A-Square Dead Tough	IMR-4350	96.0	3.720	2,405	mild
<b>high velocity loads</b>					
400 A-Square Dead Tough	RL-22	112.0	3.720	2,682	maximum
400 Trophy Bonded Bear Claw	H-4350	104.0	3.730	2,641	near max
	H-4350	108.0	3.730	2,736	maximum
400 Swift A-Frame	IMR-4320	90.0	3.735	2,568	near max
	IMR-4320	94.0	3.735	2,631	maximum
350 Cor-Ben Spitzer	H-4350	102.0	3.735	2,518	mild
	H-4350	110.0	3.735	2,755	near max
	H-4350	115.0	3.735	2,857	maximum
300 Barnes Spitzer	H-4350	102.0	3.530	2,593	mild
	IMR-4320	98.0	3.530	2,934	maximum
<b>factory loads</b>					
400 A-Square Dead Tough			3.720	2,396	mild
400 A-Square Monolithic Solid			3.670	2,410	mild
400 A-Square Lion Load			3.640	2,402	mild

The test rifle was a Kimber African with a 24-inch barrel and a 1-in-12-inch rifling twist rate. A-Square cases and Remington 9½M primers were used in developing all load data. Velocities shown were clocked 12 feet from the muzzle with an Oehler Model 33 Chronotach and corrected to actual muzzle velocities. Average ambient temperature during velocity readings was 88 degrees F. Warning: Maximum loads shown were safe in the author's rifle but all powder charges should be reduced 10 percent for starting loads in other rifles. These loads are intended for the Kimber rifle and A-Square cases only and are not recommended for other rifles or cases of a different manufacture.

Be alert — Publisher cannot accept responsibility for errors in published load data.



Finding bullets for loading the .416 Rigby isn't a problem, and with the expected introductions of new cartridges in this caliber even more bullet makers will be adding .416s to their line-ups.