The Famed 94
Foiling Gun Thieves
New Single-Shot Action
"Only accurate rifles are interesting"
   - Col. Townsend Whelen

Volume 7, Number 1
January-February 1975

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This Month’s Cover

The rifle on this month’s cover is a .50 caliber flintlock with 44-inch Paris barrel and Siler lock made by John Bivins for Edward H. Owen of Bayreuth, Germany. Bivins presents an efficient method of inletting a “swamped” octagonal barrel in this issue on page 24. Transparency by Michael Hough of Winston-Salem, North Carolina.

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RIFLE Magazine
Tropical Heat Affects Performance

There is somewhat of a controversy surrounding the influence of tropical heat on a firearm's pressure/velocity figures. In Volume I of Parker O. Ackley's Handbook for Shooters & Reloaders, Warren Page wrote that "in the course of hunting all manner of game on six continents...I have yet to run into a situation where extremes of temperature or humidity had any discoverable effect on the ammunition." However, other oft-published gun writers have argued just the opposite, claiming that cartridges destined for tropical zones should be reduced by one to two grains of powder — if they are maximum or near maximum charges, that is — because high temperatures will send maximum loads vaulting to excess pressures.

Perhaps some historical research by James and William Belote will spice up the discussion. Their combined efforts produced a book called Corregidor: The Saga of A Fortress; in chapter 4, "Clearing for Action," they make some interesting comments regarding the influence of the Philippine's tropical heat upon the powder used in antiaircraft guns.

At this time in history, most antiaircraft batteries on Corregidor used a device known as the Scovil Mark III powder time train fuze. Essentially, this device was cut by a fuze-setter at the gun mount to produce projectile detonation at a certain altitude, its burning speed being related to the known muzzle velocity. According to information supplied by the Belote brothers, the Scovil Mark III fuze burned out at a maximum of 24,900 feet; consequently, enemy aircraft flying at 25,000 feet or higher would be safe.

But Japanese "Sallys" bombed Corregidor from a favorite height of 25,200 feet — and batteries using the Scovil Mark III fuze brought them down! Moreover, there was no mistaking the altitude, as it was provided by "well-trained height-finder operators (who) obtained astonishingly accurate data with their optical gear, and were instrumental in scoring a record which few radar-directed units would be able to equal later in the war."

How could an antiaircraft missile set to detonate at 24,900 feet reach bombers at 25,200 feet? Based upon records and conversations with men who served on Corregidor, the Belote brothers, both trained to be critical researchers, concluded that, in the Philippines, the maximum fuze range was somewhat higher than normal, "for the warm climate heated the powder in the shells and gave the guns a slightly increased muzzle velocity, adding a bonus of 125 to 150 yards of range."

Since velocity is but a produce of pressure, it is obvious that the tropical heat should have run up chamber pressures on those antiaircraft guns. Yet, there is no mention of recurring malfunctions or case failures in those batteries which used the Scovil Mark III fuze.

At any rate, the observations made by trained and knowledgeable artillerymen should give some credence to the theory that tropical heat can indeed affect pressure and velocity factors in firearms.
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There's a reason for three million 'thirty-thirties'

By AL MILLER

SOME DATES AND events are evergreen in a man's memory, like the time I was hunkered down behind a squat boulder halfway up the side of Corral Canyon. It was an ideal spot for an ambush. Below and about a hundred yards to my front, three deer trails intersected. My perch was high and what little breeze there was should have carried my scent far above any sensitive nostrils. Behind and above me, a tall, lonely ponderosa loomed. The opposite wall of the canyon, half buried beneath a mantle of pine and scrub oak, was about 300 yards away.

I had settled in place well before first light. For better than an hour, I remained perfectly still. Gradually, the surrounding world began assuming shape as the first weak rays of light crept over the canyon’s rim. Except for the sleepy chirp of an early rising bird and the querulous chatter of a distant squirrel, it began to look as though I were the only living thing around.

Without warning, something hot hissed over my head, smashed into the tree trunk behind me and scattered bark and wood splinters for several yards in all directions. Instinctively, I shrunk lower behind the rock. Another hiss and the corner of a red sandstone boulder some six feet to the right exploded in a spume of dust and rock slivers. As the bullet screamed away, I heard the distant bark of a rifle.

"Knock it off!" I yelled.

A third slug sizzled into the slope a few feet farther up, raining dirt and pine needles over me. I yelled again — and again. This time, I thought I heard a faint hail from across the canyon.

"Hold your fire!" I shouted. Wriggling out of my red jacket, I draped it over the muzzle of my rifle and waved it above the boulder. Then came another call from across the canyon; this time it sounded closer. Cautiously, I peeked over the top of the boulder. There, on the opposite slope, the small figure of a hunter, red-orange cap glowing, could be seen making his way in my direction.

I headed down toward him. As my fright subsided, it was replaced by anger. By the time we were within speaking distance, my frame of mind could only be described as dangerous. Fortunately, the other man's first words were so unexpected, they threw me completely off balance.

Miller contends a good receiver or tang sight, some tuning, a smooth trigger, good handloads and an iron grip can turn the old '94 into a surprisingly effective performer.
"I was shooting at a squirrel," he stammered apologetically.

All I could do was stare, open-mouthed. Sheepishly, he explained. He had worked his way up to a spot almost opposite me well before daylight. As it grew light, a squirrel spotted his motionless figure, took up a position on a limb just above him and began telling the whole world of his discovery. The noisy little loudmouth kept it up for a good five minutes before the hunter finally had all he could take and upped his rifle. Three quick shots failed to score a hit. I wondered if the squirrel had been shaken up as badly as I.

The guy apologized profusely. He'd had no idea anyone else was even in the canyon, let alone in his line of fire. We parted on friendly terms. As we did, I glanced down at his rifle—a.30-30 carbine. Even today, my reaction is exactly what it was then: who'd think a.30-30 had that kind of punch left at 300 yards!

You don't see much in print about the old cartridge or its favorite rifle, the Winchester 94, these days. When you do, somehow you're left with the impression that the little gun is a marginal performer at best, cursed by a weak action, low powered cartridges and indifferent accuracy. Worst of all, in some quarters, the 94 has been labeled a "fun gun," little more than a toy, suitable for nothing better than potting tin cans—and at fairly close range to boot.

Which is kind of strange, if you think about it. How come such a mediocre rifle has been so popular for so long? Some critics insist the abbreviated Winchester's appeal is primarily due to its appearance, though they admit—albeit grudgingly—that a great many hunters buy them because they're light and practically kickless.

It's surprising how many shooters, otherwise well informed, have been taken in by that rot. Let's face it: nobody sells three million-plus rifles just because packing them around makes their owners feel like a bunch of matinee idols. Nor will a trapper, prospector or other dweller of civilization's fringes stake his life on a firearm if there's the slightest doubt about either its effectiveness or dependability. The fact of the matter is that Winchester's.30-30 is and always has been a big seller because it does the job! Its reputation, one gained in the hands of several generations of outdoorsmen, was firmly established when Madison Avenue was still a tree-lined, pleasant, middle-class residential area.

At one time or another, every species of North American game has been taken by a.30-30. Granted, there are other rifle cartridge combinations better suited for elk, moose and the big bears but it should be recognized that the little carbine is perfectly capable of anchoring any of them on demand. Sure, a man has to put his bullets in the right place but to look at it another way, a grizzly shot in the foot by a.458 is no madder than he would be if stung by a.30-30 in the same spot—and no less dangerous, either. When dealing with animals that bite, bullet placement is critical, no matter what cartridge is involved.

But all that's really beside the point—which is that the.30-30, whatever its merits, is certainly no "all-round" cartridge. Nor was it meant to be; it was designed to meet the needs of the average American rifle toter: hunter, cowboy, timber cruiser and farmer. To judge from its remarkable sales record, it has done just that!

Much as most sportsmen like to dream about and discuss the possibilities of hunting Alaskan Brownies or Dall Sheep, the vast majority are lucky if they can steal a couple of weekends a year to go deer hunting. In our country, the term "big game" is synonymous with deer as far as most of us are concerned—and when it comes to deer rifles, the old.30-30 is hard to beat.

It's light; most tip the scales at or just under seven pounds. It points naturally and lines up on a target quickly; it's easy to

<table>
<thead>
<tr>
<th>Bullet</th>
<th>Seating Depth Inches</th>
<th>Powder/Charge</th>
<th>Velocity, fps</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 Hornady</td>
<td>.25</td>
<td>37.4/.3031</td>
<td>2,739</td>
</tr>
<tr>
<td>130 Hornady</td>
<td>.30</td>
<td>35.0/.3031</td>
<td>2,531</td>
</tr>
<tr>
<td>170 Norma</td>
<td>.50</td>
<td>31.4/.3031</td>
<td>2,209</td>
</tr>
<tr>
<td>172 Cast</td>
<td>.50</td>
<td>31.4/.3031</td>
<td>2,212</td>
</tr>
<tr>
<td>170 Silvertip (Lyman 31141)</td>
<td></td>
<td></td>
<td>2,322</td>
</tr>
<tr>
<td>170 Silvertip (Winchester Super-X)</td>
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<td>2,322</td>
</tr>
</tbody>
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Velocities were measured on an Oehler Model 10 chronograph and taken ten feet from the muzzle of a Winchester Model 94 carbine with a 20-inch barrel. Results represent five-round averages. Range temperature varied from 80 to 97 degrees.
to swing, too. Being short-barreled and blessed with flat sides, the 94 not only slips in and out of rifle scabbards quickly but stows neatly in pack or vehicle. When it comes for firepower — dear to yankee hearts since Indian-fighting days — the old lever-action can really pump them out — accurately, too. With a bit of practice, it’s no trick at all to put all six or seven old lever-action can really pump them out

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RIFLE Magazine
believe that more men than ever arc
Once the barrel is free, a carbine should
loadings: a 150-grain bullet at
shoot true'

also improve accuracy. I've been led to
needed that type of attention and in both
2,220 and a 170-grainer also at 2,220,
no untoward strain on the barrel above it.

vertically from one shot to the next, either
employed against medium-sized game at

bands or the inside of the fore-end where it
missiles tailored for the job. The result is

OR.
The cure is simple enough; back the or a Weatherby. Nor can they be sure if
screw out just enough to take the strain they'll be used against thin-skinned game

they're collector's items now but my 94 is
still adorned with one. Set closer to the
eye than a receiver sight, they offer the
fringe benefit of extending the sight radius from the standard 15.5 inches to

If groups run larger or if they tend to
keep factory rounds inside a 2½-inch
circle at 100 yards when fired from a rest.
If groups run larger or if they tend to
string out vertically as the barrel heats up,
the problem usually lies with the fore-end,
one of the barrel bands or all three.

The place to start is with the screw
which runs from the front of the tubular
magazine to the underside of the muzzle.
Older models don't have one but those
produced since 1945 do. If the screw is
too tight, the barrel and tube will be
placed under a strain. As the former gets
hot, it will walk its bullets up the target.
The cure is simple enough; back the
screw out just enough to take the strain
off. If there's any fear of it working loose,
a drop or two of Loctite will prevent that.

If the point of impact still shifts
vertically from one shot to the next, either
one or both the barrel bands are at fault.
If they're too tight, if they're pulling
against the magazine, the only solution is
to ream out the lower ring of the forward
band or the inside of the fore-end where it
bears up against the underside of the
tube.

What we're looking for, essentially, is
a free-floating magazine; one which places
no untoward strain on the barrel above it.
Once the barrel is free, a carbine should
shoot true. I've only seen two which
needed that type of attention and in both
cases, accuracy was restored immediately.

Handloading, as mentioned before, will
also improve accuracy. I've been led to
believe that more men than ever are
handloading for their .30-30's but most
don't bother experimenting, rolling their
own purely from motives of economy. It's
too bad because the 94, like all rifles,
responds nicely to a custom diet. Even a
change in bullets can make an
appreciable difference. One .30-30 I had
wouldn't accommodate Hornady's 170-
grainers at all while my present carbine
keeps them all in 2¼ inches — with the
same cases, primers and powder charges.

Not only will handloads aid accuracy
but they enhance versatility. They will
not, however, turn the vintage arm into
something it wasn't meant to be. Anyone
fond of the idea of souping up the old
round had best turn their eyes in some
other direction. The 94 wasn't conceived
with high-powered loads in mind and
even though modern steels add a measure
of strength to things, the somewhat
 antiquated design isn't really comfortable
when pressures exceed 42,000 psi.

Anyway, why bother? That 170-grain
flatnose, rolling along at a sedate
2,410 fps; 2,410-2,200 fps may not exude much
glamour, but it's more than adequate for
90 percent of the hunting situations
encountered. Besides, moderate pressure
levels encourage accuracy and are a boon
to case life.

One of the reasons the .30-30 is so
effective as a sporting round is that its
bullets are designed specifically for it.
Most .30 caliber slugs are compromises;
manufacturers don't know whether
they're going to be fired in a .300 Savage
or a Weatherby. Nor can they be sure if
they'll be used against thin-skinned game
at close quarters or one of the heavier
muscled types at 300 yards or better.
Blunt projectiles rendered for the .30-30
are simpler in concept. Most will be
employed against medium-sized game at
not more than 150-200 yards at
determined velocities. Since the
criteria is comparatively well defined,
bullet makers can — and do — turn out
missiles tailored for the job. The result is
an inherently accurate bullet, fairly
brush-resistant, quick expanding yet
staunch enough to hold together and
penetrate well.

Factory ammo is offered in three
loadings: a 150-grain bullet at 2,410 fps;
a 160-grain, full jacketed roundnose at
2,220 and a 170-grainer also at 2,220.

Those are Remington's figures, taken
from a 26-inch test barrel.

The 170-grain model is considered
standard and is the best choice for
deer-sized animals. I've never seen any
particular advantage to using the
150-grainer. It doesn't pack the punch of
its heavier brother; trajectory is
practically the same (the difference has to
be measured in tenths of an inch over a
300-yard range) and although its flight
time to 200 yards is slightly faster than
the 170-grain slug, it's not sufficient to
offer any advantage when leading a
running animal. Moreover, beyond 200
yards, it's actually covering ground at a
slower pace than the weightier bullet. To
the best of my knowledge, the 160-grain,
full patch bullet was designed for law
enforcement. It would be useful only to a
turkey hunter or for finishing shots.

The handloader has a great many more
bullets to choose from — and his selection
isn't limited to round or blunt noses,
either. This allows him to use lighter
bullets of better ballistic form which fly
flatter and get to the target sooner.
Moreover, the gentle 1-in-12 twist of the
carbine's rifling makes the barrel more
willing to accept cast bullets. Good alloy
slugs of 170 grains can be sent out the
94's tube at the same velocity as standard
In Handloading—
Accuracy is the name of the game

Warren Page tells how to build, tune, select loads and shoot “One-Hole” rifles
—Whether designed for competition or hunting.

THE ACCURATE RIFLE
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Ever since the development of gunpowder, riflemen have yearned for the ultimate in rifle accuracy — the ability to put shot after shot through the same identical hole. This brand-new book examines this search for greater accuracy from every aspect and details for target shooters and hunters alike the best procedures for making their rifles superaccurate.

Warren Page, winner of nine national bench rest titles, provides the shooter and hunter with detailed practical information on every subject affecting accuracy and analyzes the techniques employed by competitive shooters in creating the equipment and methods that have produced modern rifles consistently capable of holding their shots within 1/4 inch at a hundred yards.

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This is the most up-to-date, authoritative discussion of rifle accuracy anywhere in print. Not only a must for the serious competitive shooter, but highly useful for the practical hunter seeking to increase the size of his bag.

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loads: 2,200 fps. This means real economy — and at no sacrifice of either accuracy or power.

Another benefit of that: 12-inch twist is that light bullets, those in the 100-130 grain range, can be used with no loss in accuracy. Of course, their sectional density isn’t the greatest but they’ll hold up well within range limits imposed by iron sights.

A few years back, a rancher friend who lives about 20 miles west of town found his domain threatened by a pack of wild dogs. First, they started harassing his calves, then they got into his chicken coop. When they attacked his wife out near the barn one morning, he decided something had to be done — quickly.

He called on his friends, myself among them, for help. We loaded our varminters and spent every daylight hour for the next six weeks patrolling the ranch in vehicles, on horseback and afoot. There were more than a dozen mongrels in the pack, man-wise and wary. It took them a while to realize the rifles we packed could reach out several hundred yards and by the time that knowledge became widespread, we’d cut their numbers in half. Evidently, the rest decided to move on. Overnight, it seemed, their tracks disappeared.

Six months later, another group appeared on the spread. This time, the rancher was ready. Refusing my offer to lend him my .243, he stuck to his old .30-30. After experimenting with several bullet-powder combinations, he settled on the 130-grain Hornady spire point in front of 35 grains of 3031. He carried one round in the chamber and another in the magazine. He’d packed the gun for years and was pretty good with it to begin with, but after a little practice with the new loads, he and that battered carbine made a deadly combination.

He managed to bag three of the marauders the first week. After that, they became scarce. Last time we met, he told me that about once a year another pack appeared on the spread. This time, the several I’ve shot died with remarkable suddenness.

It’s a good bullet, deadly and efficient.

There aren’t too many big game rifles around which can be fired for pennants a round but using cast bullets allows a man to do just that. That kind of economy encourages practice — and anyone who wants to be good with a 94 needs all the practice he can get.

Surprising as it may seem, the carbine is a tough rifle to master. Its bobbed barrel and negligent recoil, usually regarded as plus features, actually work against most men when they try to shoot the little cannon accurately. The short sight radius poses the greatest problem.

With the standard, open sights, distance from rear leaf to front bead is a minimal 15.5 inches. The slightest misalignment can send a bullet inches away from its target, even at a mere hundred yards.

To aggravate matters, hammer fall is deceptive. Anyone who takes the trouble to dryfire the carbine will find that the hammer drops with surprising force; hard enough to jar the gun and kick the sights out of alignment. When there’s a live round in the chamber, this sudden movement takes place a split second before recoil begins. No matter how infinitesimal, any motion of the gun at this moment, as the bullet is launched, is bound to be away from the target.

Ridiculous as it may sound, the 94 should be held as though it were an elephant rifle: with an iron grip. The butt plate should be rammed into the shoulder and anchored there with constant, unrelenting pressure. The left hand (presuming the shooter’s right-handed) should do all the work. It should grasp the fore-end and pull the rifle straight back. This leaves the right free to pull the trigger and work the lever. It’s an ideal hold for offhand work and can be used equally well when shooting from a kneeling or sitting position.
It's been said that the .30-30 has killed more deer than any other American sporting round. It's also charged that it's wounded more. Both statements are probably true but if so, that last is an indictment of poor marksmanship, not the cartridge's potential. Much of the reputation for so-so accuracy is due to the fact that so few men ever take the trouble to learn how to shoot it well.

The .30-30 and its favorite round have served several generations of hunters and outdoorsmen faithfully and well. The stubby carbine has had a familiar sight in backwater areas throughout our hemisphere since this century began. To the best of my knowledge, no sporting arm in the world has ever come close to its sales record and from all indications, its popularity shows no sign of diminishing.

It's been praised — and damned — in several languages but the most memorable tribute I ever heard came from an old friend, now dead these several years. A 30-year infantry veteran, the Colonel's one of the many young men we never called him anything else — was a gun buff from way back. He'd been a member of several Army rifle teams in the thirties and over the years had acquired one of the most impressive collections of fine rifles and shotguns I've ever seen. Despite his years, he managed a deer hunt every season and whenever he drew a license, tried for elk as well. Despite the availability of several first-class hunting rifles, he invariably chose a well-worn .30-30 when he headed for the mountains. He carried it on his last hunt and dropped the .30-30 when he crossed the 10 to 12-ounce range.

Several of us were admiring the monstrous rack at a taxidermist's one Saturday while the Colonel regaled us with anecdotes of the hunt. After he finished one of his tales and the laughter died down, one of the audience asked, "Colonel, didn't you feel a mite undergunned when you selected the .30-30?"

"No, I never took a shot at anything with the .30-30 — if he knows how to use it — is ever undergunned!"

788 Trigger Modification
(Continued from Page 35)

must run from breech to muzzle. Any cross marks will affect the action of the trigger.

Reassemble the trigger and lightly lube the pin fulcrums. Then install it on your rifle. Insert the bolt in the action and cock the rifle; push the safety to the "on" position and we're ready to adjust our work of art. Screw in the rear engagement adjustment screw until the trigger lever touches the safety button. Stop. This is the minimum rear engagement attainable to assure operation of the safety. Next you'll want to move the safety to the "off" position and adjust the trigger spring for the lightest possible let-off that will assure safe operation. Depending upon the spring you selected, the trigger should let-off in the 10 to 12-ounce range.

This simple trigger modification gave me a lot of satisfaction and a large sense of accomplishment. While the trigger probably won't compare with a $40 Canjar, it's safe, reliable, and it works.

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THE PART I REMEMBER
by Charles F. Waterman
From the social consequences of boyhood shunt-trapping to the special skills required to give away uncleaned fish after ten in the evening, this charming bit of nostalgia treats with humor and sentiment the people and places which have contributed to Waterman's vast sporting experience.

THE DUCK HUNTER'S HANDBOOK
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Here's a compact yet comprehensive book filled with down-to-earth, practical advice for the millions of serious novices and experienced waterfowlers who are interested in calling, shooting and eating their legal limit of ducks and geese.

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