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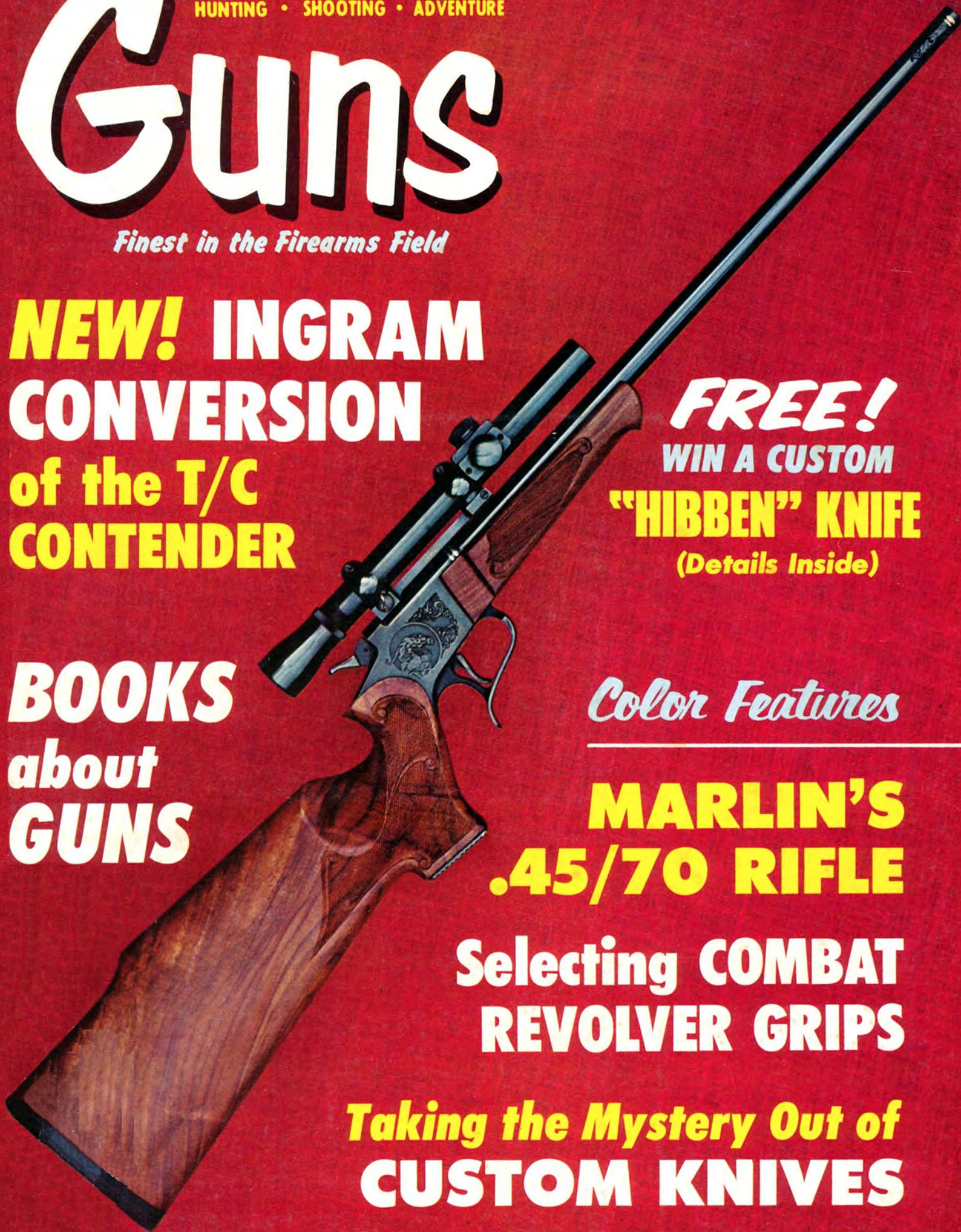
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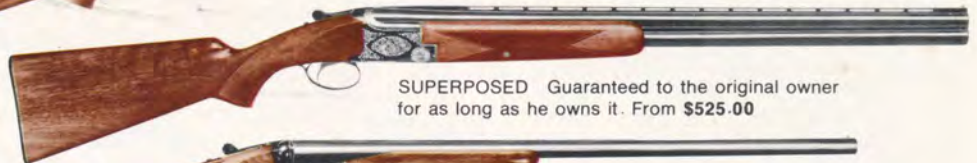
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CAN one man accomplish what groups of thousands could not? Many have tried to challenge the constitutionality of the Gun Control Act of 1968 to no avail. Yet Lewis Gene Freeman, 1059 Pontiac Dr., Kokomo, Indiana 46901, believes that he can. On August 10, 1972, Freeman filed suit in U.S. District Court in Indianapolis charging that the GCA '68 is "unconstitutional in its entirety," based on violations of the First, Second, Fourth, Fifth and Eighth Amendments. The suit names the Federal Government, both houses of Congress and former President Lyndon Johnson as co-defendants.

Mr. Freeman is not a lawyer, yet he wrote and filed the suit alone, and contends that he will take it all the way to the Supreme Court if necessary.

He admits, however, that it will take both financial and legal assistance to carry through, and he is seeking help from those who support his cause. All donations will be used for the court case, and any surplus remaining after legal expenses are met will be donated to the NRA Conservation Fund.

The closing words of his petition reflect his belief that one man can fight city hall: "I am a true tax-paying and law-abiding citizen of the United States of America concerned with freedom and the preservation of the true constitutional form of this government for our republic. I contend that it is my constitutional right to file this suit. I pray that the Federal Courts will accept this suit as written and not return it because it was not prepared by a Lawyer."

We would like to salute our Olympic shooters who participated in Munich. All of them are to be congratulated for their dedication and the sportsman-like manner in which they represented our country at these international matches. A special salute to John Wither, Lones Wigger, Lanny R. Bassham and Victor Auer, who brought back medals. Wither won a Gold in 3-position small bore; Wigger won a Gold in Free Rifle; Capt. Bassham won a Silver in the 3-position and Auer won a Silver in the Small-bore Prone.

THE COVER

The handsome conversion of the familiar T/C Contender pistol into a fine sporting rifle is covered in the article beginning on page 40. Photo by Walter Rickell.

DECEMBER, 1972

Vol. XVIII, No. 2-12

George E. von Rosen
Publisher

Guns

FINEST IN THE FIREARMS FIELD

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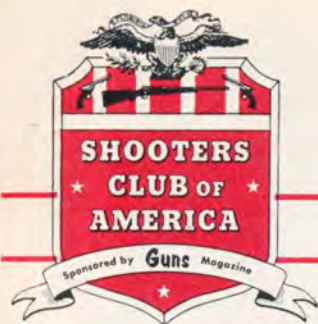
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GUNS • DECEMBER 1972



News from the...

SHOOTERS CLUB OF AMERICA

Dedicated to the Constitutional Right of Every Citizen to Keep and Bear Arms

One thing that all of the anti-gun people like to recite in their pleas for more and more gun laws is the compilation of the Uniform Crime Report issued by the FBI. They read that, for example, there were almost six million major crimes reported in 1971—a seven per cent increase over 1970. They read that murders increased in 1971 from 15,860 up to 17,630—and they cry out “we need more gun laws.” They read that 51 per cent of the murders committed with firearms were committed with handguns, and they scream for confiscation of all handguns.

But, these people are not stupid, and as much as they will use many of the statistics in the report to their advantage, you will not be surprised to learn that there are parts of this report that they will hide under the rug. Why? Because it will hurt, not help their own personal views. Let's take a look at one part of this report that you will never read in an anti-gun newspaper; never hear on an anti-gun radio or TV station.

The Uniform Crime Report for 1971 includes the following: “Since the factors which cause crime are many and vary from place to place, readers are cautioned against drawing conclusions from direct comparisons of crime figures between individual communities without first considering the factors involved.” They then list only the following crime factors:

- Density and size of the community population and the metropolitan area of which it is a part.
- Composition of the population with reference to age, sex and race.
- Economic status and mores of the population.
- Relative stability of population, including commuters, seasonal and other transient types.
- Educational, recreational and religious characteristics.
- Effective strength of the police force.
- Standards governing appointments to the police force.
- Policies of the prosecuting officials and the courts.
- Attitude of the public toward law-enforcement problems.
- The administrative and investigative efficiency of the local

law-enforcement agency, including the degree of adherence to crime reporting standards.

Reading this, it is easy to see why anti-gun people will not broadcast it—it says nothing about gun laws! It does absolutely nothing to strengthen their theory—that more gun laws would reduce crime.

Let's dig a little deeper into this Crime Report to see what other areas the anti-gun people will hide. The report states that of the 17,630 murders committed during 1971, only 44 per cent of those arrested were found guilty as charged; 23 per cent were convicted on some lesser charge and the remaining 33 per cent won release! This points out the fact that the only real crime control measures are not gun laws, but a strong prosecution of criminals and severe penalties for those found guilty. Yet you will find few anti-gun people campaigning for strict enforcement of laws or severe sentencing of criminals found guilty. As a matter of fact, many of those whose voices are raised against guns can also be heard promoting prison reform, advocating abolishment of capital punishment, etc. How many of our lawmakers are willing to put their names on bills which would place mandatory penalties for those convicted of gun crimes? No many—not enough yet to do any good!

I recently saw a bumper sticker which said: “The West Wasn't Won With A Registered Gun.” And the registered gun of today will not win a war against crime.

During the coming year, in addition to our unrelenting fight against anti-gun laws, the Shooters Club of America will wage a battle for judicial reform, a battle that we hope will do more to ease the crime problem than all of the gun laws ever passed. If you have any reports of criminals “getting away with murder” please send us a copy so that we can use it in presentations to our lawmakers. If you are sick and tired of tilting at windmills, and you'd like to get into a real effort, we welcome your support. If you are not already a member of the Shooters Club of America, use the handy postage-free envelope opposite this page to join. If you are a member, tell your friends about our fight, and ask them to join. Do it now!

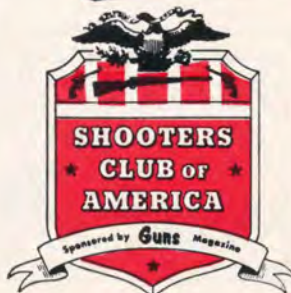
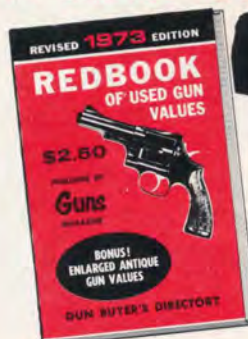
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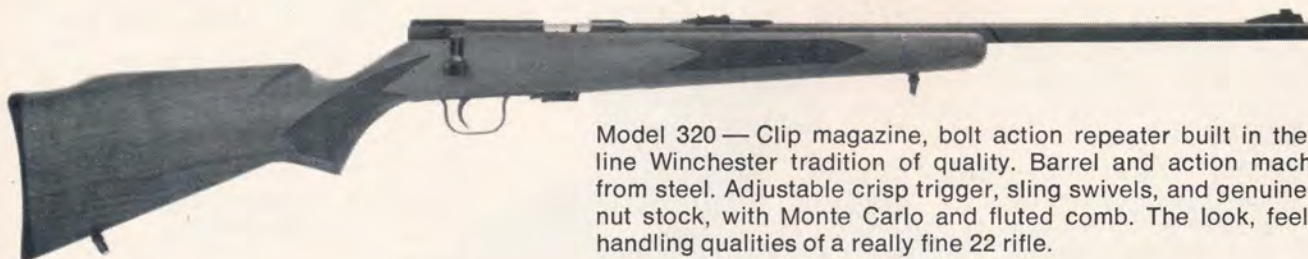
The first 22 marks a milestone in any kid's life. It's an acknowledgment that he's mature enough to use it wisely and it's a confirmation to him that his parents trust his judgment. It also often marks the beginning of a lifetime of shooting and hunting enjoyment.

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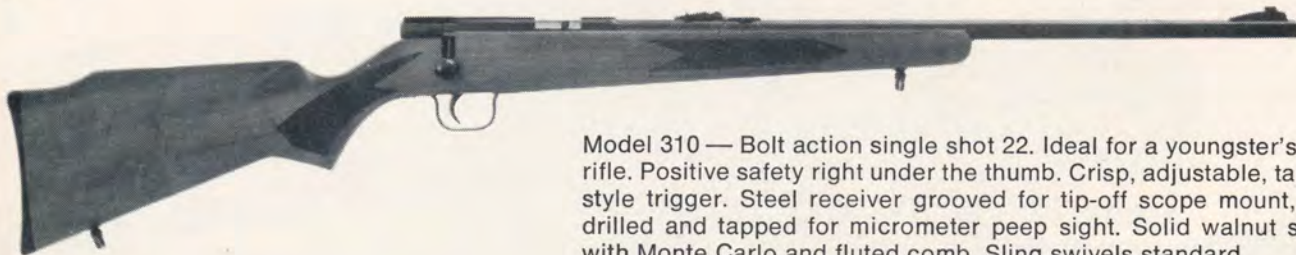
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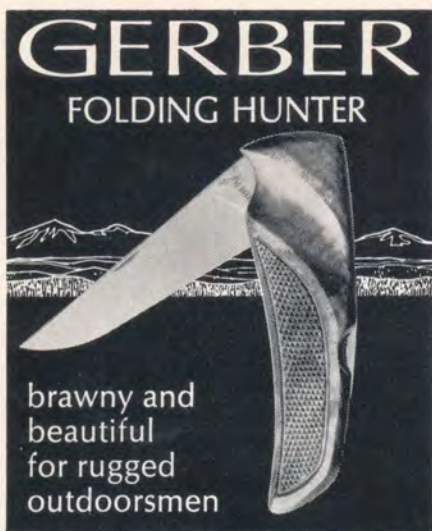
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Stuffing Chairman Mao

In the July issue of GUNS, Col. Charles Askins describes the hunting in different countries in Africa. He warns that there are Red Chinese guerillas operating in Angola, Tanzania, and Zambia. Far from posing a problem, their presence should serve to stimulate a sportsman's enjoyment of the hunt. The only difficulty I can foresee would be the reluctance of some taxidermists to handle a Red Chinaman.

Dennis M. Quinn
Anaheim, Calif.

All In The Family

Truby's article on the Sten gun in your September issue was a fascinating bit of lore. I was especially interested—and amazed—to discover that the name Sten is a combination of the first two letters of the designers' last names (Shepard and Turpin) plus the first two letters of Enfield Arms. I wonder how many people realize that an earlier Turpin (Dick 1706-1739) and Sheppard (Jack 1702-1724)—it doesn't matter how you spell that family name, note my own—were
(Continued on page 47)

the original magnum

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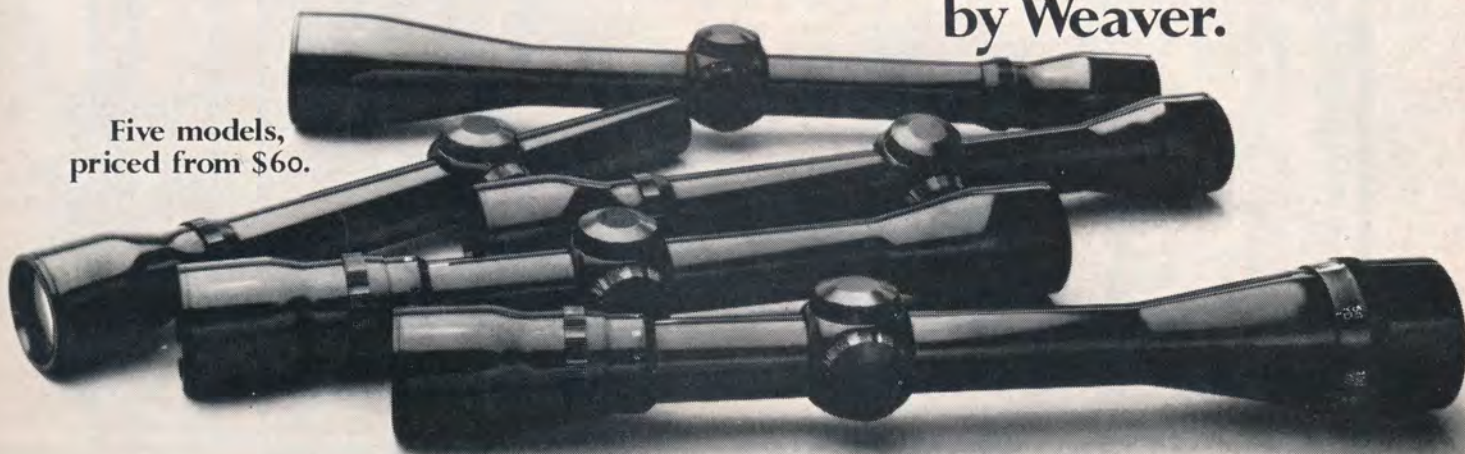
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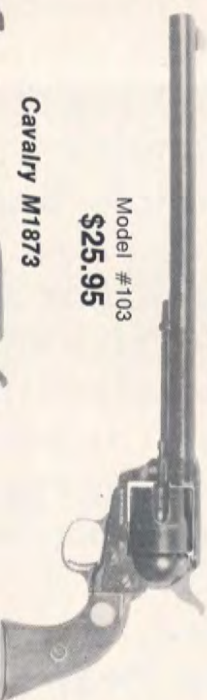
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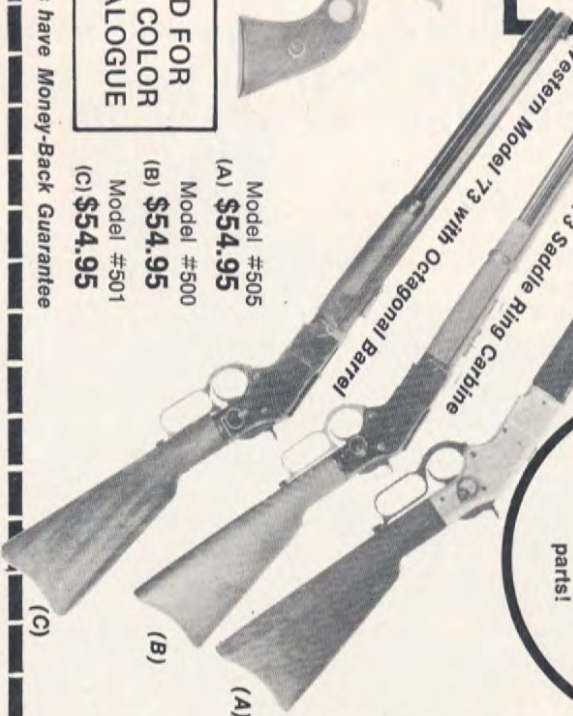
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HANDLOADING BENCH

By C. GEORGE CHARLES

FROM TIME to time, a good deal has been said about the use of lead, hollow-base, wadcutter bullets in .38 Specials for defense purposes. The 146-148 grain, full wadcutter, loaded in .38 Special (at about 770 fps) by all ammunition manufacturers is a pretty fair manstopper in its own right, if its velocity is stepped up a bit. The current factory-load velocity of about 770 fps (in a 6" testbarrel) dribbles off badly in barrels under 4" long, so it doesn't have much smash—but even so, it's more effective than the smaller revolver cartridges and most autopistol calibers under 9mm.

This current loading is labeled "mid-range," thus its mild disposition. Now discontinued, there was once a "full-charge" wadcutter load with a good deal more authority, delivering the same bullet at 870 fps. On paper, it was nearly as good as the standard 158 grain round nose load—but in practice, it was far superior. That flat-ended, soft-lead slug penetrated far less, thus transferring more energy to the target; it created a large wound channel; created more secondary projectiles; and was generally bad news to any animated target.

If you want to use the HB wadcutter in your defensive handloads, by all means copy the full-charge load of yesteryear. Bullseye powder does the job well, with 3.5 grains turning up about 880 fps, and 4.5 grains of Unique will produce virtually the same. Going higher, 4.4 grains of Bullseye or 5.6 grains of Unique will churn up just over 1000 fps for particularly deadly results. But at this level, accuracy may go to pot unless bullets are cast quite hard. The walls of the bullet base, around the cavity, are thin and weak. If of soft lead, the skirt may be badly deformed by gas pressure as it leaves the muzzle.

What happens is simple—gas under pressure is momentarily trapped inside the base cavity, while barrel support is removed from those thin walls—

and chunks of the wall (skirt) are blown out. This badly unbalances the bullet, destroying accuracy. If this problem is encountered (more prevalent in short-barrel guns), make your bullets harder and/or cut back powder charges. It's a performance limitation inherent in the hollow-base design.

Of course, all commercially available HB wadcutters are made from very soft lead, so don't take kindly to being souped-up much past the old full-charge velocity. Then, there is the practice of loading soft HB wadcutters *inverted* to produce what looks like a massive hollow point. Even at low velocities, this will produce considerable expansion in tissue—the thin skirt opens up easily, and at higher velocities, it will fragment, throwing off pieces which add to the destruction it causes.

While the modest load of 3.5 grains of Bullseye and the inverted HB is highly favored by some, others complain about its accuracy. The problem arises in the degree of accuracy required. Generally, it's recommended as a defense load in 2" guns at across-counter ranges where minimum blast and recoil are desired.

One liquor-store operator wrote to tell me it worked beautifully at about a two-foot range during two hold-up attempts, and that there had been funerals to prove it. That's all the accuracy he needed or wanted, considering no point in his store was more than 15 feet from his station at the register.

Another party tried this load on paper and complained bitterly that bullets tipped and keyholed at 30 feet. Groups, though, were coffee-saucer size, quite adequate for any hold-up target across a counter or table.

Accuracy of inverted HB wadcutter bullets can only be increased by driving them faster, and this requires that they be cast harder. They are unstable because that big cavity shifts the center of mass well back toward the

rear, and low velocities don't produce a high enough spin rate to stabilize them in that configuration. Drive 'em faster and they'll stabilize. But that will produce leading and perhaps poor accuracy from other causes, unless they are cast harder—and that reduces expansion.

It's a vicious circle that gets you nowhere. The best bet is to use soft, inverted HBWC bullets at moderate velocities, if your particular situation warrants—and settle for the accuracy they produce. It's really plenty for typical fight conditions. Mainly, don't try to make this or any other bullet do something it can't, just because you're enamored with its looks. As a fellow once said to me, "A 40 C-cup don't necessarily make a lovin' woman." So it is with bullets—appearance doesn't necessarily govern function.

• • •

At one time it wasn't considered practical to swage all-lead or gas-check wadcutter bullets in tools such as the CH Swag-O-Matic. The bullets could be formed easily enough, but being smooth-sided, there wasn't any place on them to hold lubricant. Various forms of liquid and dry lubes were applied by dipping, spraying, or tumbling, but results were never consistently good enough.

Now, though, bullet-canneluring tools are available from both SAS, Box 250, Dept. G-12, North Bend, Oregon 97459 and C-H Tool & Die, Box "L", Dept. G-12, Owen, Wisconsin 54460. Either will roll a neat cannellure in a lead bullet, as deep or as shallow as you like. It requires an educated touch, but with a bit of practice, lead bullets can be cannellured this way without trouble. Most can get by with a single cannellure to carry lubricant, but if it pleases you, a second or third can be added just as easily. Once cannellured, simply run bullets through your standard lubricator-sizer and the job is done.

I've had my best results with a plain wadcutter design with a gas check swagged over the base, fitted with one wide, shallow cannellure halfway up the bearing surface, tumbled lightly in graphite before lubricant is added.

• • •

There may be times when you want to make up some full-jacketed handgun bullets with your swaging rig. It isn't as difficult as you might think. Use a standard-diameter jacket for the rear of the bullet, then a smaller size that will fit inside it for the nose. Cut the core from lead wire small enough to enter the smaller jacket.

(Continued on page 57)

The New Weatherby Premier Scope



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photo A



photo B



photo C

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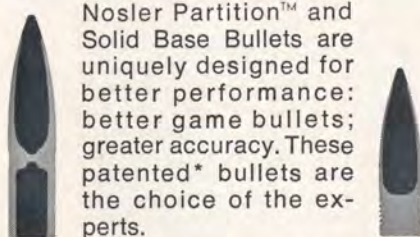
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



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STEVENSON on Hand Guns

FUN AND GAMES MONTH

LAST MONTH, we posed nine very heavy identification problems, and those of you who chose to grapple with them have likely endured thirty days of vexatious frustration. The test, very frankly, was not designed to make the average reader feel like a "gun expert," whatever that may be. The problem set was generally semi-auto oriented, and overwhelmingly European oriented, and many serious students of European automatics probably found themselves perplexed as often as not. There are worlds of other areas of legitimate handgunning interest and expertise, so don't apologize if this didn't happen to be yours.

The selection of the problems was in one sense, as I noted last month, dictated by what happened to be in my photo file. But it was not, I believe, entirely capricious. Many of the pieces we are dealing with are more than just obscure entries in an exhaustive history of firearms development, for they offer or illustrate an alternative way of thinking about handgun design. If you view esoteric identification games as a colossal bore, then try this approach. You may find yourself stimulated to think in new directions. For instance, we all know what a pocket pistol looks like. But if we consider that the purpose of the piece is first of all to be convenient to carry, and secondly to offer absolute reliability, with accuracy beyond arms-length ranges a negligible factor, what might we come up with? A French designer, who had at least the merit of being unencumbered by convention, took this approach, and dubbed his novel creation "Le Gaulois."

1. The *Gaulois* palm pistol, designed by Brun-Latrigue and produced by the Manufacture Française d'Armes et Cycles at St. Etienne, France, was a popular item for personal protection

around the turn of the century. Although the protruding barrel was an occasional bother, the gun was scarcely more inconvenient or uncomfortable to carry than a wallet. Aside from its billfold shape and size, reliability was the *Gaulois'* other virtue. It was a five-shot repeating pistol, and functioned mechanically rather than semi-automatically. Closing the fist forced the backstrap pedal into the frame against spring resistance, and caused the front face of the upper bar of the pedal, which served as the breechblock, to strip the top cartridge from the magazine column and chamber it. When the pedal came flush with the frame, the striker was automatically tripped to fire the chambered cartridge. When the grip was relaxed, the pedal sprang back out, and the empty cartridge case was extracted from the chamber and expelled through an ejection port in the top of the frame. The gun's disadvantages were its abject inaccuracy at all but the shortest ranges, and the meager authority of its five 8mm centerfire cartridges. Of necessity, the permissible feeding and extraction strokes were severely limited, and case length was .354" maximum. With powder room so restricted, the 43-grain, jacketed bullet could not have been very ferocious.

2. This very handsome Browning-type pistol with the intriguing serial number is a 9mm Parabellum prototype built by the Fabbrica Nazionale d'Armi in Brescia, Italy, sometime after World War II. Probably they had military adoption in mind, and if the marking 8 53 under the grips is the date of manufacture, one reason the project never prospered may be that Beretta beat them to the window with their M 1951 pistol. Still, the FNA is a fine gun, if none too original. Essentially, it is a slightly moder-

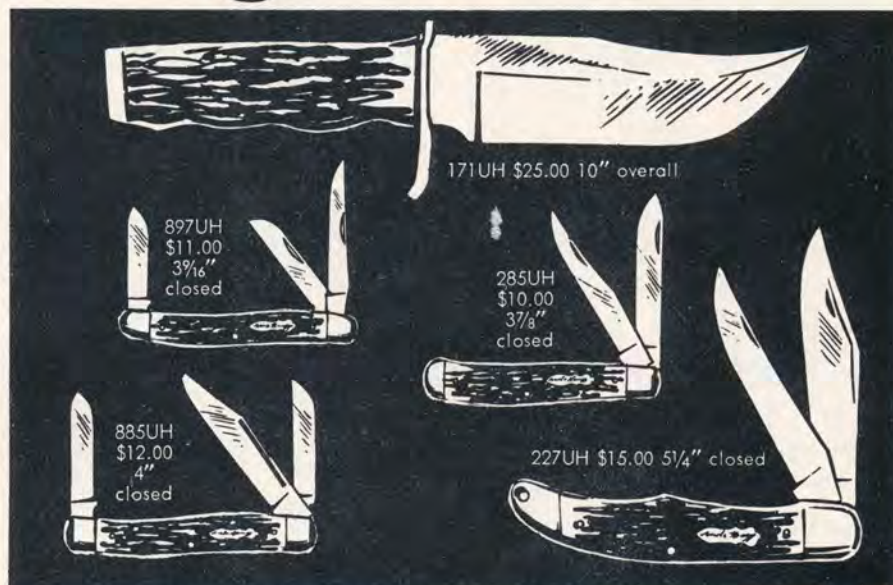
nized and simplified Colt Government Model: the linkage, the lockup, the recoil spring, plunger, barrel bushing and so forth are all Colttish. Even the 1911's expensive hand-dismountable extractor is retained. Sharp-eyed pistol buffs will, however, note a number of departures from the Government Model's design. Those which are visible in the photograph are: 1) the grip shape, particularly the curve of the upper rear corner, 2) lack of a grip safety, 3) lack of a dismountable mainspring housing, 4) lanyard loop location, 4) pivoting rather than sliding trigger, 5) disconnector visible above grip (these latter two points indicating that the searage is more similar to the Star than to the Colt), and 6) muzzle protruding substantially past the barrel bushing.

3. Arminius was a folk hero who led Germanic tribesmen in a battle at Teutoburger Wald in A.D. 9, in which they defeated a Roman Army. His profile has appeared on a number of German arms. Prior to the Second World War, the Arminius Head was used as a trademark by the firm of Friedrich Pickert in Zella-Mehlis, and after the war Pickert's old friend and competitor Hermann Weihrauch used, and still does, the insignia on the revolvers produced by his company at Mellrichstadt, West Germany.

4. To answer the question in reverse, this magazine is similar to those for the French MAS M1949 and M1949/56 service rifles, in that the magazine release is a part of the magazine, rather than being part of the gun. Getting back to the main problem, the "picture window" inspection ports and the distinctive rectangular thumb piece on the follower suggest that this is a magazine for the Italian M1910 Glisenti service pistol. But the Glisenti had a lever type magazine release on the left of the frame. The magazine illustrated is from the Brixia pistol—the rather unsuccessful commercial counterpart of the Glisenti.

5. The Automatic Pistol Model 1913-16 or, as it is better known, the Camp Giro, is the direct ancestor of Astra's famed family of centerfire blowbacks: the Models 300, 400, 600, 3000, 4000, and Condor. Invented by Lieutenant Colonel Don Venancio López de Ceballos y Aguirre, Count of Camp Giro, the gun is significant as well for having been the first automatic to have seen widespread official distribution in the Spanish army. Campo Giro began designing the handguns which bear his name around the turn of the century and arms historians usually group his earliest prototypes under the heading "1904 Type." The 1910 Type, a locked-breech 9mm Bergmann, was the first model to make se-

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ries production, and was adopted by the Spanish armed services three years later. By this time, however, Campo Giro's thinking had evolved, and his Model 1913 pistol, while retaining the powerful Bergmann cartridge, did away with the lockup, substituting a spring buffer arrangement in its place. The gun illustrated, a Model 1913-16, differs from the original primarily in its safety and its grip panels. The distinctive paddle-type magazine latch was moved from behind the trigger guard to its position on the bottom left side of the grip about midway through production of the 1913 model.

6. The grip escutcheons instantly identify the mostly-hidden auto-loader as a Beretta, and the vertically grooved grip panels lead one to suspect that it is a 1923 Model. If the gun were withdrawn from the holster, ever so slightly, to reveal the exposed hammer, the identification would be complete. But that is hardly necessary, for the holster itself tells the story. Notice, if you haven't already, the doubled steel bar along the leading edge, pivoted at the toe of the holster. When the bar is swung around to extend full length, its end snaps into grooves in the pistol's frame between the magazine floor-plate and the lower edge of the grip panels. With the flap closed, the holster serves as a very comfortable shoulder piece, and voilà, a stocked pistol. The 1923 Model was the only pistol in Beretta's line so accoutered. It was also the first Beretta with an external hammer, and the first to carry a formal model designation. Chambered for the 9mm M1910 (Glisenti) cartridge, it was a considerably larger gun than any Beretta blow-back, either before or since, save for a variant of the 1915 type, chambered for the same cartridge, which was about the same size: roughly 6 1/2" long by 5" high with a 3 3/4" barrel. The 1923 Model was discontinued in 1936 or '37, and is a fine collector's piece, if you can find one. The stocked version, needless to say, is extremely rare. As were all Beretta pistols until recent years, the 1923 was designed by Tullio Marengoni.

7. I am still waiting for one of you to identify this thing for me.

8. Those of you with keen eyes and a knowledge of political and industrial heraldry should have spotted immediately 1) the Swiss crest on the slide above the slide holdopen and take-down lever, and 2) the Waffenfabrik Bern emblem on the slide below the rear sight. A little flight of the imagination doubtless told you that 3) the design antecedent for this piece was clearly the Browning High-Power.

From 1943 to 1947 the Swiss Federal Armory at Bern, in fact, made up about forty guns in roughly twelve major variations. All, of course, were toolroom-built prototypes, intended to compete in Swiss Army trials against the SIG, the winner of which would replace both the Luger and the 1929 revolver as the Helvetic service side-arm.

The first of the Bern prototypes is a near-copy of the High Power, while subsequent guns appear more and more original, as the Swiss designers drew upon their own ideas in an effort to produce a handgun which would be markedly superior to the Browning. The prototype illustrated, No 29, comes about two-thirds of the way along in the series.

9. This tiny and intriguing handgun is the Spanish .22 caliber Zulaica automatic revolver. A breech block attached to the topstrap recoils back on each shot, dragging a stud on the underside of the topstrap through the Z-slot maze in the cylinder, thus simultaneously effecting cylinder rotation, and cocking the hammer for the succeeding shot. If any reader has additional data on this gun, it would be most appreciatively received.

Automatic revolvers are always a good note to close on. Next month we shall find an equally congenial note to open on, and shall complete the set. Try your hand at answering the remaining nine questions, the answers to which will be given next month.



10. As a converse exercise, identify this as to 1) mechanical type, 2) designer, 3) manufacturer.

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11. What are these parts, and from what handgun do they come?



12. Identify the pistol from which this distinctive magazine comes as to 1) nationality, 2) designer, 3) caliber, 4) capacity. 5) How does the magazine function to advance cartridges to feed position?



13. How does this P.08 Luger differ from the norm?



14. There is more to this gun than appears at first glance. Identify it as to 1) manufacturer, and 2) model, and 3) expound on its most intriguing feature.



15. Identify this Luger as to 1) nationality, and 2) model. 3) Enumerate the obvious features which distinguish it from the P.08.



16. This neat automatic could pass at a glance for a Walther. A closer look shows it to be even more interesting. Identify it as to 1) nationality, 2) model, and 3) caliber.



17. No one who has ever seen this famous old revolver is apt to forget it. Identify it and describe its mode of operation.



18. What is this man doing? What gun is he doing it to?

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PULL!

By DICK MILLER

WHAT THIS COUNTRY needs, more than a good five-cent cigar, is fifty thousand new shooters! This is not exactly the way Col. Walter Walsh, team captain of the 1972 United States Olympic shooting team, said it, but the idea is the same. And, Col. Walsh was referring to pistol shooting when he expressed the hope for 50,000 more new shooters. Since pistol shooting is not the province of this column, I will leave that problem for other GUNS departments.

Fifty thousand new shooters would provide a tremendous selection pool for the 1976 Olympic trap and skeet teams. And, no GUNS reader is automatically excluded from that pool of shooters. Art Cook, of Maryland, was barely eighteen years old when he made the Olympic team a few years ago. Medal winner and sculptor Walter Winans was in his sixties when he last made the team. Therefore, a lad of fourteen could be one of those new shooters to provide medal winning competition four years from now. Nor is a semi-retired reader in his late fifties or sixties excluded.

Before we discuss where we might get fifty thousand new shooters, it might be well to devote a few words to why we need 50,000 converts to the shooting games. The Olympic Games, more than any other form of competition in any sport, draw world-wide attention. Our Super Bowl and World Series excite the United States and North America, but in many counties of the world, and especially in Europe, shooting exploits are as thoroughly chronicled as baseball and football games are in the States.

I learned at the 1970 ISU World Shooting Championships in Phoenix that the performance of our shooting teams is very closely watched by shooters from all over the world, and that these shooters, many of whom are influential and powerful men in their own countries, attach much significance as to how our shooters perform, and even more specifically, to how many medals our shooters win.

To these men, our medals measure our national purpose and dedication. Our 1964 Olympic shooting team won seven medals in Tokyo. At Mexico City in 1968, we garnered just one gold medal and two silvers. And, the Russians outmedaled us in the ISU championships at Phoenix.

Individually, there can be no greater thrill or sense of achievement in sports than receiving an Olympic medal while our national anthem is being played and our flag is raised over the medal winner's platform. If we are to create a pool of fifty thousand new shooters, most of the effort must come from individuals, as well as from shooting organizations and clubs.

We begin with more days of instruction to new shooters at all trap and skeet clubs, and specifically at your trap and skeet club. You, as an individual, can be just the spark to set off this prime source for new shooting talent. I have always agreed that it is far better to light one little candle than to curse the darkness. All that is needed in many clubs for an instruction program is just one prime mover, and many times all that is needed is simply the suggestion that a program be started.

Shooting leagues are great sources of new talent. Additions to present shooting leagues, and formation of new ones could alone provide the total number of new shooters. Shooting leagues are especially good wellsprings of new shooters, because many a man (or woman) will join a league or league team who might never seek out the clay target clubs on his own.

There is an active program of clay target shooting on the intercollegiate level, which includes competition in the international versions of trap and skeet. This is another program which could very well produce an Olympic medal winner, especially if more schools and colleges participate. You can support this program both as a shooter and as an alumnus. All that it

may take for your alma mater to join in intercollegiate clay target shooting competition is a little moving and shaking on your part.

Two of the most popular convention cities in the United States, Reno and Las Vegas, have excellent trapshooting facilities, large enough to handle national tournaments. In many other convention cities, there are near-by gun clubs who could handle a tournament sponsored by your business, professional, or fraternal group as a part of a convention program. The program chairman of your club may welcome a fresh new approach to a convention program, especially if you can provide some counsel on the details. Good convention program ideas are not all that plentiful. You may be surprised how welcome your trap or skeet program might be to a harried program chairman. A medal winner in the next Olympics could be a member of one of your clubs or societies who was introduced to the game via a convention program.

No discussion of possible methods for attracting fifty thousand new shooters would be complete without mentioning that this task would be made a lot easier by improved media coverage of clay target shooting. Great strides have been made along these lines but much more remains to be done. Shooting event winners in many countries receive media coverage comparable to an Arnold Palmer, Jack Nicklaus, or Lee Trevino in this country. You can help coverage in the United States by plugging for media shooting instruction sessions at your own club, by trying to organize a shooting league including the media, recruiting a media team into an existing league, and by plugging shooting to any media people you know or meet on your job or in your profession. Even if you can't swing any of these methods, you can bring shooting to a media person on a one-on-one basis by asking a writer, telecaster, or broadcaster to be your guest at the club. A small beginning is better than no beginning at all.

At this stage the PULL reader may ask, why all this stress on the one-on-one or people-to-people approach to recruiting new shooters? The reader and/or shooter may feel that if good performance in the shooting sports is all that vital, why doesn't the government do something about it? This is a good question, and a logical one, but one for which I don't have the answer. At this stage, there seems no hope that the government will enter this picture. Trap and skeet are strictly private enterprises, receiving no government help. Rifle and pistol

shooting's national tournament, the Camp Perry (Ohio) Matches did receive some logistical support for many years, but this was withdrawn because of the influence of a handful of anti-gun senators. The National Rifle Association now runs the Camp Perry matches on its own.

Certainly, the advanced marksmanship units of all branches of the military have made very substantial contributions toward fielding shooters with medal winning capability. Even these programs, as good as they are and as much needed as they are, have been cut back, both in size and in support. So, we are right back to where we started. If we are to field a team capable of holding its own against the government recruited, trained, and subsidized teams of other nations, we will have to do it ourselves, and at our own expense, in the traditional American way.

Space does not permit enumerating all the ways we as individuals and individual shooters could contribute toward a goal of fifty thousand new shooters. I have listed only some of the more obvious methods. Others not detailed would be such methods as shooting scholarships, shooting en-

dowments by wealthy persons, firms, or foundations, and by national programs sponsored by civic groups (similar to the Jaycees National BB gun tournament).

Local gun clubs and/or civic clubs could send one boy or girl to a state tournament in either trap or skeet, and from the state tournament on to a national tournament, with the finals at the Grand or Skeet Nationals (similar to football's kick and throw program). This would be in addition to the regular junior programs conducted by both the ATA and NSSA, and not in competition with them. My emphasis on juniors is not meant to detract from senior programs. It is only in recognition that one of the surest ways to create an Olympic medal winner is to start him or her young.

In closing, perhaps it would be good to think once more on the words of John F. Kennedy, paraphrased slightly, to say that we should ask not what our country can do for us, but instead we should ask what we can do for our country's medal winning production in future Olympics. The stakes are high, and the rewards great.

All we need is a beginning.



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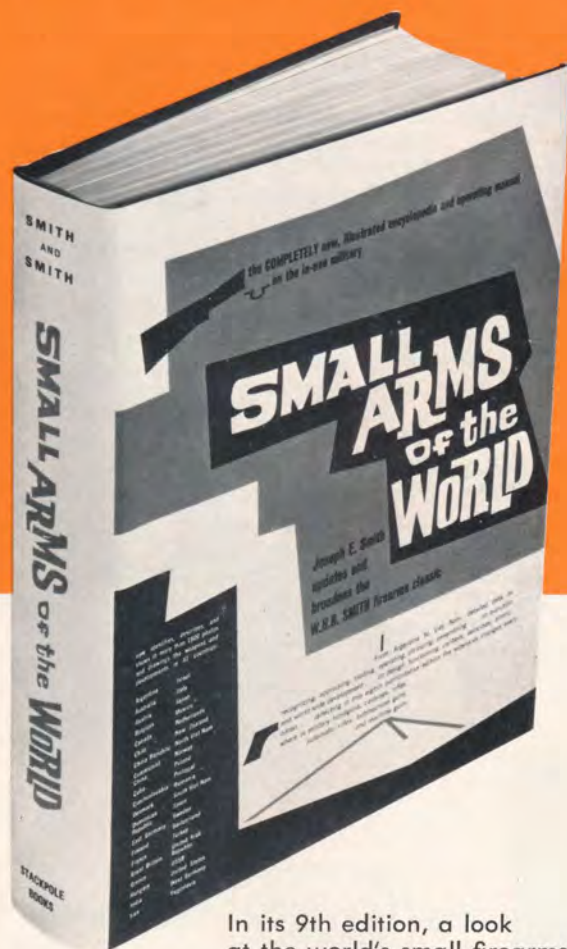
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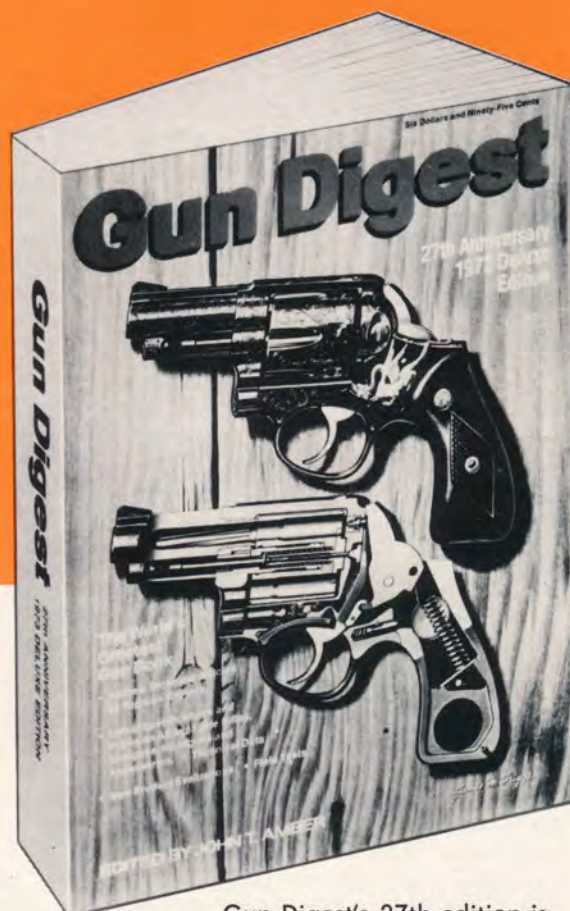
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BOOKS ABOUT GUNS



In its 9th edition, a look at the world's small firearms.



Gun Digest's 27th edition is the best from any standpoint.

By C. GEORGE CHARLES

I KNEW TWO fellows once, in the same Texas town where I was abiding temporarily. Both were gun nuts of the first water. Both were damn smart fellows, and both took their guns seriously.

Jake, for example, shot some every day, and he liked all kinds of shooting. He wasn't rich, but he had a rank of good guns—twenty-odd of them, including handguns, scatterguns, and rifles with target and field types of all three. Wasn't a thing he didn't know about his guns or the shooting of them—nothing, that is, except maybe the things he hadn't tried.

Then there was Ally (short for Alexander, really), friend to Jake, and owner of a similar batch of guns, though he spent a lot less time shooting. He loved his shooting and his guns just as much, but, according to Jake, he spent too much time and

money on "Them damn-foolish books." Jake usually beat him shooting, too.

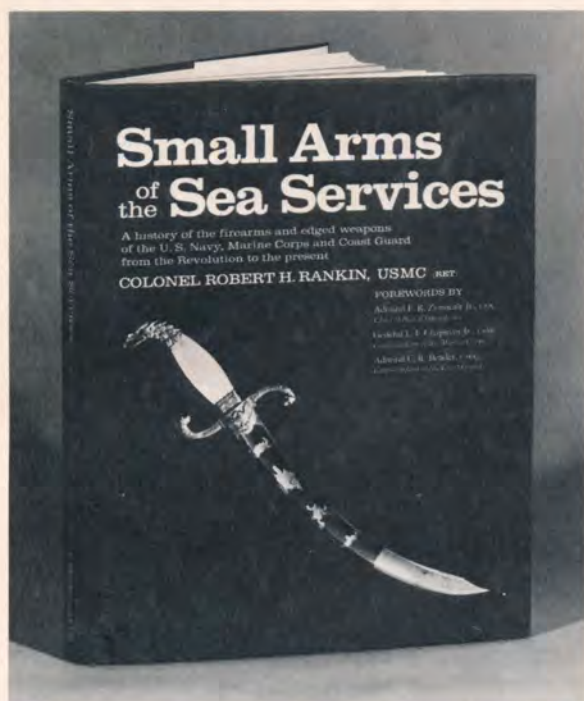
Jake was proud of his gun savvy, and plenty willing to put his money where his mouth was. He won his bets often enough, on all manner of shooting lore, but he never took a nickle off Ally except on skeet scores.

When it comes to knowing about guns, Ally had the whole town beat by a furlong. It all came from his books, a small enough set of shelves containing a few dozen well-chosen volumes put together over the years. The books weren't for show, like so many libraries we've seen—they were dog-eared, smudged, pages creased and torn, and some ragged bindings in the lot, not to mention gun-greasy smears and the Hoppe's No. 9 aroma they'd absorbed over the years. He had a habit of taking down the appropriate book when working on a particular gun. His wife tells of the rainy evening when he stripped and

cleaned his pet Springfield three times without even realizing it while engrossed in a particularly absorbing chapter of Crossman, and wondering later how the pages got all those greasy thumb prints. Ally was (is) a reader. He acquired the books dealing with guns he liked and read them over and over. Weather or darkness never interfered with his enjoyment of guns, for there was always time and light to read for a few minutes or a few hours.

You can learn about guns and shooting *just* from guns and shooting, but you'll learn nothing there except through your own experiences, those of one person.

Add books to your guns and you can learn through the experiences of hundreds, even thousands of men since the time firearms first began. How else can you learn how it was to shoot against the Irish team in the 1800's for the Elco Shield; or how a Spanish arquebusier handled his un-



Contact Norm Flayderman for this historical guide to the U.S. Navy's, Marine's and Coast Guard's weapons.

wieldy musket against hordes of Inca warriors in Peru; or how Gustav Adolphus made his little army one of Europe's most formidable by rapid-fire drill; or how the British Regular Army at Mons in 1914 shot their Lee-Enfields so fast the Kaiser's troops thought they were facing massed machine guns; or learn when and by whom your .45 Government Model auto was made; or why that Springfield '03 has a big hole in its receiver.

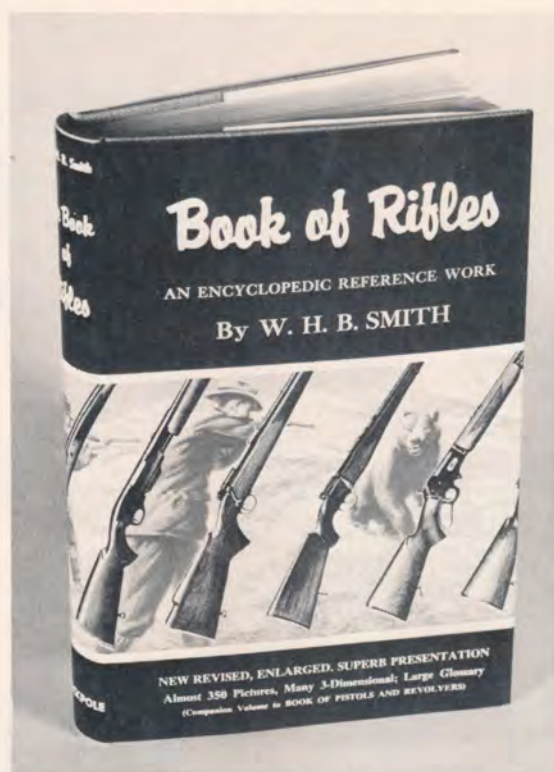
No, those and thousands more are things you'll never learn from holding and/or shooting a gun. You can caress or curse a battered old Winchester for days, and it won't speak a word to tell you when it was made, or why. But in moments you can get the answer by pulling the right book off the shelf. The problem is to obtain the right books, and that boils down to determining which books contain the information you need. Titles are a good enough indication on basic books—you can't get much more specific than "The Book of the Springfield" or "Complete Guide to Handloading."

Don't buy books helter-skelter without a definite plan. Get first sound basic references on guns in general, then branch out into your particular fields of interest. Especially don't buy every new gun book that shows up at your local bookstore.

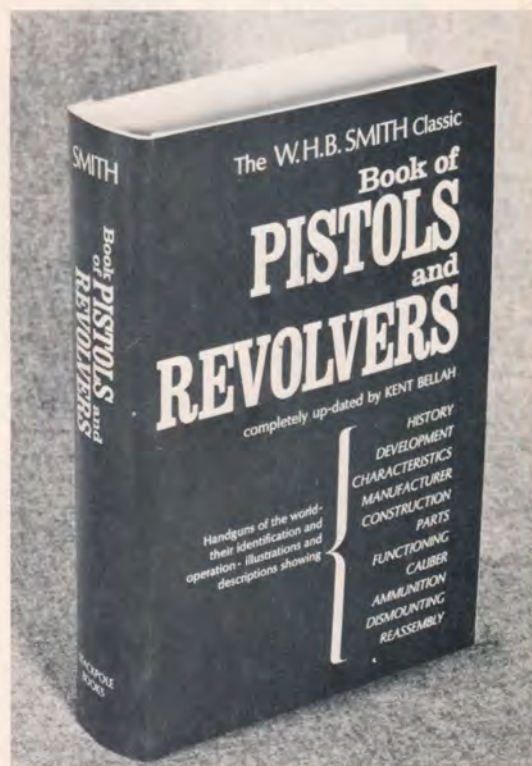
Instead, get the gun book catalogs from N. Flayderman, 4 Squash Hollow, New Milford, Conn. (25¢), Ray Riling, Arms Books Company, 6844 Gorsten St., Philadelphia, Pa. 19119 (50¢), Rutgers Book Center, 127 Raritan Ave., Highland Park, N. J., and from the publishers listed here. Most of them describe their books accurately enough so you can choose carefully. Where new books are concerned, read all the reviews you can find—reviewers usually tell more about a book than the catalog, and are also more inclined to be objective and critical. Naturally, the catalog is going to tell you a book is good—while a reviewer might disagree and save you some money.

Insofar as basic books are concerned, they may be broken down into categories—General, Rifle, Shotgun, Handgun, Military Arms, and Handloading. A minimum of two or three volumes in each category will give you a good basic gun education. Ideally, your library will start with two or three general books, followed by an equal number in each special

(Continued on Page 68)



W. H. B. Smith, one of the most notable writers in the shooting industry, has compiled a pair of classics for the rifle and pistol and revolver owner. Complete with large, glossy photos, these books are essential for a complete gun library. Contact Stackpole Publishers.



HANDLOADING SHOP



The author full length resizes a .30-06 case in the Decker tool. It is essentially a miniature bench press, sans bench.

Tool boxes provide convenient storage for portable handloading tools. The left hand box is packed with Lyman, Ideal, Pacific and English tools. The box pictured on the right provides ample storage for the new Decker tool, in addition to several sets of handloading dies. The Simonsen tool boxes are called "Rally Line" boxes and feature piano-type hinges on the back.

By JOHN W. ROCKEFELLER

WHEN IT COMES to handloading ammunition for rifle or pistol, there is nothing quite so fine as a heavy bench press, solidly mounted upon a sturdy wooden workbench. Unfortunately, it is not easy to move such a massive installation from place to place, and my wife and I have had to move four times in the last five years. The fifth time, the work bench got left behind.

It seemed that I would have to do all my future handloading on a portable tool of some kind, and I set out to find a tool that would do the job. I experimented with tools made by W. H. English, Lee Custom Engineering, Lyman Gunsight Company, and Pacific Gunsight Company. Finally, I reported my conclusions in a story which appeared in the November, 1971, issue of GUNS MAGAZINE.

Since that issue appeared on the stands, a new portable loading tool has appeared on the market. I obtained a sample of this tool, tested it,

IN A TOOL BOX

and found it good. Since that time, also, I have had time to work with all of these tools and determine which ones work best for me. Using these tools, I have set up my own reloading routines to take advantage of the best features of the tools available, for both handgun and rifle cartridges.

The new reloading tool is offered by Harold Decker of 1160 Manley Drive, San Gabriel, California, 91776. It is a real jewel, in my opinion. The Decker tool is essentially a miniaturized bench press, working off twin opposed handles so that it can be held in the hands. It is threaded to take standard loading dies, of 7/8 x 14" thread, such as the Lyman All American dies I once used with my bench press, and it uses standard shell holders such as are made by Lyman, RCBS, or Pacific. Thus, no special dies or shell-holders are required.

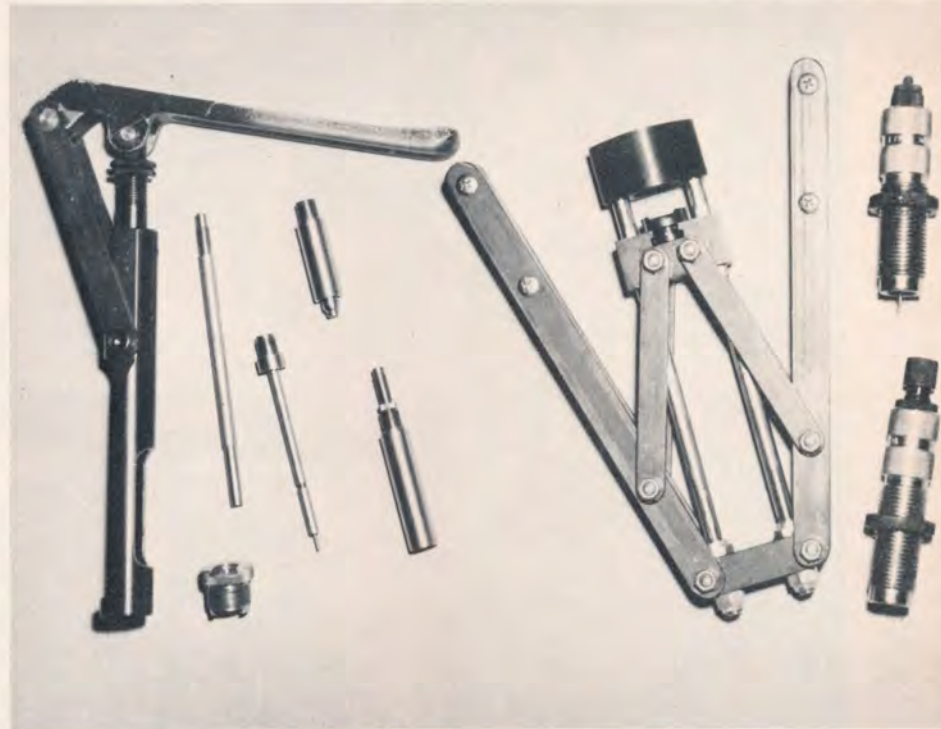
However, it will be necessary to provide an alternate method of priming cases, since no priming device is provided with the Decker tool. Price of the Decker tool is \$24.50, less dies and shell holder. This is quite reasonable, in my opinion.

I was quite interested in this tool, since I have missed the brute strength of my old Herter bench press whenever need arose to full length resize rifle brass or, for that matter, even tough Magnum revolver brass. Also, I still had all my old Lyman All American reloading dies, of standard 7/8 x 14" thread. For these reasons, I wrote to Mr. Decker requesting that he lend me one of his tools for testing.

Tests have been quite satisfactory. The Decker tool possesses the leverage needed to full length resize even tough GI .30-06 brass, and I also ran through several hundred .45 ACP hulls and nearly three hundred .300 Savage cases which I had bought once fired but which, unfortunately, would not fit the chamber of my Savage Model 99 rifle.

The Decker tool has very definitely earned a place in my handloading outfit, if only to perform the "tough" handloading jobs. No longer do I need to hesitate if I get a chance to pick up some once-fired brass for one of my rifles. One pass through the full-

GUNS • DECEMBER 1972



Illustrated is the W. H. English Pak Tool on the left, with the new Decker tool. The author found the Decker tool to be more powerful, using standard dies. The English tool requires special tools.

length sizer die, courtesy of the Decker, and that brass will assuredly fit my rifle. Also, I am thinking of acquiring a fine semi-automatic rifle, the Browning Automatic Rifle, Grade II, in .30-06 caliber. With such gas-operated rifles, full length resizing is a must.

Furthermore, this seems the best possible tool for pistol reloading. When I load for a handgun, I like to load a big lot at once, and I want the cases full length resized for easy chambering. Also, I am prone to shoot the Magnums, both .357 and .44, and this stuff is very tough to resize in any competitive hand tool.

It was the portability of this particular tool which inspired the title for this little piece. Wishing to see just how portable the portable loading tools really are, I decided to see if it were possible to "set up shop" in a common mechanic's tool box so as to be able to reload several different calibers for rifle or pistol.

Shown here are two Simonsen "Rally Line" tool boxes, both of which are 9" high, (Continued on page 49)



Illustrated above is the Lee Loader for rifle calibers.



Warrant Officer Les O'Keefe holds three different configurations of the DART Target system.

By PEDER C. LUND

THE SOLDIER waited tensely in the pitch blackness. As he lay behind the small pile of sandbags, even the sights of his rifle were invisible. Suddenly a split second flash of light from his front indicated the position of his potential enemy. Instinctively, he fired and a vivid red glow illuminated the target which his bullet had just struck. DART went down.

The above situation illustrates only one of the many capabilities of a unique marksmanship training mechanism now being employed by the Australian Army. While on a recent trip to Australia, I wondered what type of program the Aussies had developed that enabled their troops in Vietnam to achieve their well-deserved reputation as sharpshooters. After some preliminary correspondence, I was graciously welcomed to the Australian Infantry Center at Ingleburn by Lt. Col. R. L. Burnard, the chief instructor. He explained that I would be seeing troops who had already completed their basic training undergoing what is called battle practice training. The emphasis, naturally, would be upon achieving hits in combat; but the training I would be seeing, in fact, was based upon the basic fundamentals of good marksmanship.

All soldiers in the Australian Army are initially trained with the Self-Loading Rifle (SLR). This is a variation of the well-known and battle-tested FAL manufactured by the Fabrique Nationale in Belgium. The Australian modification of this weapon is produced at Lithgow, a government factory opened in 1912. Several years ago, an American reputedly borrowed a Littaco-produced weapon and shot a $\frac{5}{8}$ inch group at 150 meters during the Running Deer Championships in Moscow—a fine testimonial to the weapon's accuracy.

After a hair-raising drive by Land Rover through scrub pine, sand, and gum trees, which was reminiscent of military posts throughout the world, we arrived at the battle practice range. I was introduced to Warrant Officer Les O'Keefe, the Range Officer and Chief Instructor, who in the next few hours, took me through a course of military instruction unlike any I had ever encountered in my four years with Uncle Sam.

The recruit in the Australian Army goes through a five-stage program upon commencing marksmanship training. The first stage is naturally that of zeroing his individual rifle. The requirement is an achievement of a one and one-half inch group at 25 meters, which may seem large to the MOA nut, but which interpolates out to the width of a man at 300 meters. The rifleman then progresses to snap

DEADLY DART

A New Concept in Marksmanship Training

practices, rapid practice, moving target practice, and an instinctive shooting phase. All training is concurrent to zeroing. "The main purpose on the 25 meter range is to properly zero the weapon," said an instructor. "We also run a competition in which individual scores are recorded. In this way, we can watch their progress and additional incentive is provided."

O'Keefe began by giving me a rundown on philosophy of marksmanship. "We don't care if a bloke stands on his head, just so he gets a hit. Rifle training is like running the four minute mile. Once a man starts, it takes only confidence to improve. Coaching and assistance are vital to good instruction." As the day went on, I was able to see for myself that these ideas indeed were being employed in the actual training. One officer and five NCO's accompanied the large training platoon of 47 men to the range. Along with Mr. O'Keefe and his Corporal, this complement of instructors created a ratio of one to six which effectively provided immediate assistance and coaching to both the individuals on the firing points and those needing

remedial help behind the firing line. Emphasis was placed not on achieving a proper position as stated in some field manual, but upon one which was comfortable for the individual shooter. Targets were less well camouflaged in the initial firing than later, enabling even the poorer shooters to achieve that feeling of satisfaction which comes from seeing a target downed by a round he has just fired.

The Dart system is composed of five components. A *mechanism* which mechanically raises or lowers the *target* and is actuated by a *receiver* which gathers radio impulses from a *transmitter* on the firing point which is driven by a *power source*, in this case, an ordinary twelve-volt battery. Channels or grooves on the target, when hit, transmit a vibration to a plate on which there is an inertia switch. This switch activates the mechanism lowering the target. Conversely, when a man on the firing point pushes a button on the transmitter, a radio signal activates the switch, raising the target. The acronym, Dart, stands for:

D isappearing—when hit, it goes down.

A utomatic—does not require (Continued on page 60)



The photograph on the left shows an Australian NCO range instructor using the instinctive method of shooting with the Self-Loading Rifle.

Below, a coach and firer demonstrating a good night firing position. Note that the head is directly above the weapon and body position.



ESOPUS-A NEW

By C. GEORGE CHARLES

IT SEEMS like a long time ago when a collector possessed of more generosity than common sense allowed me to take out of his collection a very nice original, turn-barrel percussion rifle. Most amazing of all is that he let me take it even though he knew I fully intended to shoot it. Of course, that was far enough back that people didn't think it particularly sacrilegious to dirty up an original by firing it.

Since then, I've always considered the caplock, turn-barrel rifle the most practical of all muzzle-loading hunting guns. Most practical, I said, not best—for there is *nothing* that can beat a first-quality British side-by-side percussion double rifle. My good friend Maj. R. O. Ackerman owns a .60 caliber double that is a joy to handle, shoots coverleaves at 50 yards, and packs enough punch to handle any North American game. But, the cost of a fine original double would make even a Kennedy flinch, and there aren't any modern ones to be had.

A turn-barrel, now, is different. It

needs only one lock, hammer, and trigger. And with each barrel sighted separately, there is no problem of painful and meticulous regulation to make them shoot together. It's nearly as good as a double, and a hell of a lot cheaper. So, it was with considerable anticipation that I unpacked the new Esopus .45 caliber turn-barrel-rifle sent down by Al Pace from Port Ewen, New York.

With its vertically-stacked 28" full octagon barrels, twin ramrods, and walnut side panels, this gun has a decidedly traditional appearance and appeal. The straight-grip buttstock has a deeply-curved crescent buttplate of brass, and there is a curled-tang trigger guard and flush-inletted patch box of polished brass. The spring-loaded patch box cover is blued steel with a fingernail notch for easy opening. Two brass pipes pinned in the grooves between the barrels hold the ramrods in place. Upper ends of the hickory rods are ferruled with brass, lower tips are rounded and unshod.

Each barrel has its own private set of open sights set in transverse dovetails which allow moderate lateral movement for initial targeting. The fairly high brass blade of the front sight permits filing down to raise point of impact if necessary. Lowering bullet strike calls for a higher front blade, or cutting down rear sight height. Sight radius is 20". Actually, as covered farther along, we didn't find any

Above, a close-up view of the twin front sights, one up and one down. Note the ramrod seated in the grooves between the barrels.

The barrel joints are electrically welded and are concealed by the brass ramrod pipe. On the left is a full length photograph of the right side of the new Turnbarrel Rifle from Esopus. The rifle sells for \$139.50.

The patch box outline on the Esopus is made of brass, but the lid is composed of blued steel—a very unusual combination. It has a fingernail notch for easy entry.

TURN-BARREL MUZZLELOADER

sight adjustments necessary for general shooting.

Barrels are rifled with 8 lands and grooves, .45 caliber, groove diameter .451", bore diameter .445". Rifling twist is 1 turn in 56 inches—a bit faster than tradition allows for patched round balls, but certain to stabilize the longest and heaviest cylindro-conoidal bullets one might care to use. According to the old rules, a ball diameter of .440" to .445" is correct for these barrels, depending on the thickness of the patch used. More on that later.

Esopus uses standard No. 11 size steel nipples screwed into cylindrical bolsters threaded into the right vertical (when barrel is uppermost) barrel flat. No cleanout plug is provided, but the outer end of the bolster forms a flattened stud easily gripped by a wrench. So, instead of unscrewing a plug for cleaning, you can turn out the entire bolster. Do that too many times, though, and the bolster may no longer draw up tight to proper nipple/hammer alignment.

Breech construction is a bit unorthodox, but evidently quite sound and strong. The barrels are not fitted with conventional breech plugs, but are welded together at the rear, reinforced by two square steel bosses welded in the grooves between them. A hardened pivot shaft is fitted between the butts of the barrels, protrudes through a reamed hole in the 1/2"-thick steel standing breech, and is capped by a nut compressing a belleville spring against the standing breech. Between breech and muzzle the barrels are arc-welded together in three places, the welds being concealed by ramrod pipes.

Thus the two barrels are free to revolve on the stationary standing breech. The belleville spring keeps them tight against the breech, yet reduces friction so that movement is easy. The reinforcing bosses welded to the barrels both contain spring-loaded detent plungers which engage corresponding notches in the breech. The detents align the chosen barrel with the hammer for firing, forming a positive stop while allowing easy rotation.

The lock will surprise many. The hammer lays over what appears to be a conventional back-action lock—but it is merely a dummy lock plate. Under it is a heavy side plate enclosing a

modern adaptation of the old box-lock set between upper and lower tangs integral with the standing breech. Three screws passing through spacers hold the cover (Continued on page 51)





GUNS and the LAW

SPECIAL POLICE COMBAT SHOTGUNS

OVER THE PAST decade, particularly since our involvement in Vietnam, two radical approaches to police-military shotgun design have briefly been exposed to U.S. law enforcement. Another model from the gangster era was temporarily resurrected and still another "new departure type" is being actively marketed. In numbers of sales, these weapons have had little impact on the overall police reliance on slide action, riot shotguns of the conventional sporting type. Lack of acceptance of several of the military oriented models by law enforcement can be partially explained by the high prices tentatively quoted, based on the low volume,

production cost estimates. However, they do point the way toward future shotgun design concepts and should be of interest to all shotgun buffs.

Early in the far east conflict, the close quarter, guerilla-type nature of the fighting created an unanticipated demand for riot shotguns. Many thousands of conventional pump type shotguns were procured by the military for policing and combat purposes, and are still in use. Strangely enough, the original requirements for these guns, aside from the standard military sand blast finish, specified that they be full choke. An original specification that this writer never quite understood and one that was later changed

for more open choke models, based upon realistic combat requirements. During the period of military procurement of the conventional shotgun models, the Army and police were expressing a need for more maneuverability and instant firepower with shotgun type weapons. This continuing defense department and potential police requirement spurred some private development efforts by several major arms manufacturers. Bob Hillberg, a well known arms designer affiliated with the Bellmore Johnson Tool Company of New Haven, Connecticut, has been primarily responsible for two new, military-police, multi-barrel design concepts. These gatling gun type weapons featured overall length of less than twenty inches, instant and variable load type of firepower which enables the shotshell type weapon to be used with deadly effect, even by relatively untrained personnel.

THE LIBERATOR

In 1964, Winchester sponsored development of the first Hillberg Prototype. Inspired by the "then" concept of the Vietnam war, it was aptly called the Liberator and was designed



The Colt Defender Mark 11, twenty gauge, 8 barreled model was a second generation design built around the top break, revolving firing pin, double action system of its predecessor, The Liberator. Overall length was 17½" and weight, without attached shoulder stock was 6½ lbs. The awesome appearance acts as a good crime deterrent.



By COL. REX APPLEGATE



Weighing only 7 lbs., the Winchester Liberator was a four-barreled, twelve gauge, top break model. Barrel length was 13½" and the overall length was 18½". Detachable shoulder stock and sling swivels are optional.

PART 2

so that Vietnamese civilians, of either sex, could fire it against the Viet Cong with little previous indoctrination and scant regard for field maintenance. This model was primarily designed for hip firing at close quarters, but was also capable of aimed fire, up to 100 Meters, by use of an optional, detachable, shoulder stock. The 13½" barrel and new type receiver resulted in a four barrel weapon with an overall length of 18½", weighing less than seven pounds. The simplicity of design and operation made possible instant double action, devastating firepower. The weapon was practically maintenance free as the design completely eliminated gas and recoil systems, bolts and moving breech blocks, autoloading devices, extractors, etc., and was based on the revolving firing pin principle of the old "pepperbox derringer."

The Liberator was extensively demonstrated to the military and po-

lice throughout the 1964-65 period. It aroused great interest at the 1964 convention of the International Association of Police in Houston, Texas. A firm police price for this weapon was never established as its acquisition cost to law enforcement was based on an availability, as a by-product, of a large military procurement contract. Police interest in this weapon was active and, based on the riot control needs of the mid-sixties, would have resulted in acquisition by a number of law enforcement agencies. Unfortunately, after prolonged Pentagon consideration, it was turned down and the program was dropped by the Winchester organization.

THE DEFENDER MK II

In 1970, Colt Firearms, convinced that there was still a police and military need for a multi-barreled shotgun, introduced a second generation, Hillberg-designed shotgun at the At-

lantic City Convention of the IACP, the Official Police Chiefs organization. The Defender was a 20 gauge, eight barrel, double-single action, top break model with an 18" overall length. Like the Liberator, it had a revolving firing pin. The multi-type load capacity and a dial selection of barrel firing order, enabled optional firing of loadings such as buckshot, slugs, flares, incendiary and other special and conventional purpose loads. Utilization of 20 gauge Magnum size shells enabled the delivery of 12 gauge equivalent loadings. Provision was even provided for a separate trigger mechanism to activate a Chemical Mace type liquid tear gas projector, or flashlight, in the center of the barrel cluster.

Colt sponsored extensive firing demonstrations to police and the military throughout the country. Again a definite police interest in the weapon for tactical squad, stakeout, dan-
(Continued on page 53)



The High Standard Series B Model 10 is a compact, well designed, special all purpose police weapon. Overall length is 27¼" and the barrel length is 18½". Weight, 8¼ lbs.

SAHARA 10th ANNUAL

The Guns That

By ROBERT MANDEL

ONCE AGAIN, the lure of Las Vegas was soon lost in the excitement of the Hotel Sahara's 10th Annual Mid-Summer Antique Arms Show whose theme this year was "*The Guns That Won The West.*" The splendor of the Sahara Hotel and its magnificent Space Center was all but overshadowed by the assembly of some of this country's finest arms displays.

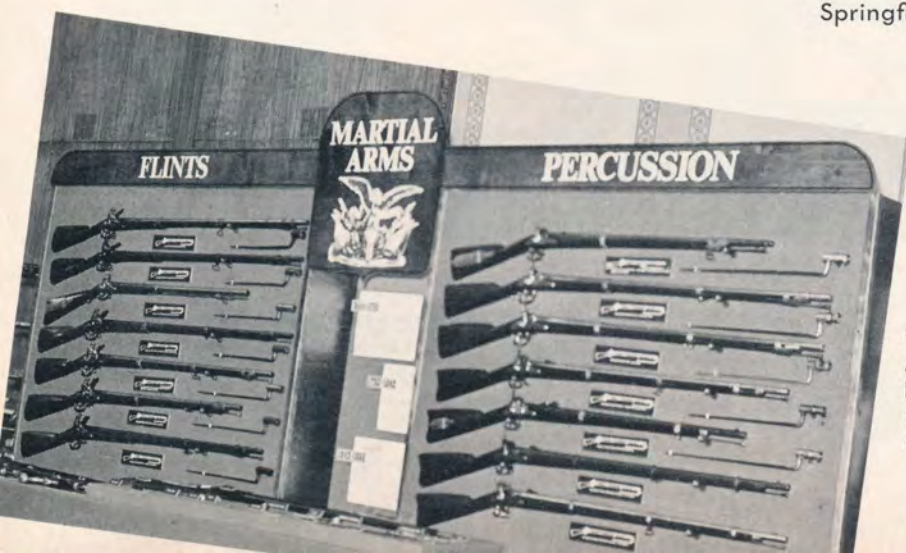
Rather than try to cover with words this mid-summer show, I am sure that the photographs will speak for them-



The Harrington & Richardson Factory Display was the original show piece built for the 1876 Centennial. It contains 24 of the first 28 guns made by H&R. All guns in mint condition.



"Ted" Rowe, President, Joe Widner, Vice-president and Wally Beinfeld (far right), show off a silver engraved Springfield commemorative. They sell for \$1,000 each.



U.S.
Martial
Flint and
Percussion
Rifles



ANTIQUE ARMS SHOW

Won The West

selves, for once again, the Sahara Gun Shows stand alone as the finest quality arms shows in the country. With the great support of Harrington & Richardson, Colt, Winchester, Smith & Wesson, Marlin, and under the able tutelage of Wally Beinfeld, show director, and the Sahara's director of publicity, John Romero, it is easy to understand why this and the future shows to come will remain as the Shows Of The Year.

The next Sahara Arms Show is scheduled for February 9, 10, and 11, 1973. The show is dedicated to the '73s. For further information, contact Wallace Beinfeld, Box 35154, Los Angeles, California, 90035.



Colt Percussion display owned by Stan Kellert



English Blunderbuss, by Charles Suydan

"Rust in Peace" display by Tommy Bish



A unique display of Starr Firearms was on hand.





HANDLOADING THE .32 AUTO

Point shooting pocket pistols is easy and natural. A little practice at 7 yards soon brings improvement in gun control and centering of bullet impact, a valuable skill for home defense.

By JAMES D. MASON

IN BUREAU drawers across the nation and around the world are tens of thousands of pocket autopistols. Originally acquired for home protection or as curiosities, these handguns sit largely unfired and seldom handled.

Two considerations make this a situation worth thinking about. As home protection pieces, these guns should be fired periodically to assure functional reliability and to keep keen the owner's shooting and gun handling skills. A gun is most dangerous in the hands of an unskilled, unpracticed or rattled shooter. Second, owners of these guns are passing up some of the best recreational shooting opportunities available. Not only is it challenging to shoot pocket autos, but there are a whole set of related activities that can expand the pocket pistol's hobby horizons.

It is a safe bet to say that the typical pocket auto is chambered for the .32 ACP cartridge (otherwise designated .32 Auto or 7.65mm Browning). Originated by John Browning and introduced before the turn of the century, this little cartridge became famous in the very successful FN Model 1900 Browning, the gun that revolutionized the world's concept of pocket pistols. The diminutive .32 Auto cartridge has been chambered for more different pistols than any other load of similar performance. The .32 Auto has been the traditional police load in Europe since the early part of the century, contributing to its dominance in marketed pocket pistols as well.

One big factor in shooting these small, blowback oper-

ated pistols is the cost of factory ammunition (about 13 cents a round retail). No ready supplies of surplus rounds are available and commercial reloads are virtually unheard of. However, for under \$30 (the price of about five boxes of factory ammo) the shooter can equip himself with the minimum necessary paraphernalia, not only to cast his own bullets, but to reload complete rounds of ammunition as well. In so doing, the pocket pistol opens the door to the fascinating world of reloading.

Shown below is the Lee Precision aluminum single cavity mold, cast iron melting pot, lubricating pan, cake cutter, sizing die, ladle and hardwood dowel.



BALLISTIC DATA .32 ACP

<u>Powder Charge</u>	<u>Velocity*</u>	<u>Energy</u>	<u>25 yd. Groups**</u>
74 grain Lee RN cast Bullet			
Bullseye - 1.8 gr.	782 fps	100 fp	2.2 X 3.0 inches
" 2.0	878	127	2.5 X 2.5
" 2.2	985	159	2.5 X 3.5
71 grain Remington FMC Bullet			
Factory Load	835	110	3.5 X 4.0
Bullseye - 2.2 gr	829	108	3.5 X 3.7

*Taken on an Avtron K233 chronograph with photoelectric screens. Averages taken at 5 feet from the muzzle. All rounds fired from a WWII GI Walther PP.

**Accuracy figures as well as velocities for the loads will vary widely among the various pistols chambered for this round. Bore diameter variations, barrel mounting means, age, fit, and design will all have significant effects.

Minimum Equipment for Reloading the .32 Auto

Lee Loader	\$ 9.95
Lee Bullet Mold	8.98
Lee Lube and Sizer kit	5.98
Ladle	1.48
Lead Pot	1.48
	<hr/>
	\$27.87

Most recently, Lee Precision, Mfg. (Hartford, Wisconsin, 53027) has introduced a line of single cavity aluminum bullet molds. In the line is offered a mold for a 74 grain, round-nosed, .311-inch bullet with a 2 caliber ogive radius, which is ideally suited for the .32 Auto cartridge. As part of a complete outfit, a bullet sizing and lubricating set is available. These items are simple, reliable, and inexpensive, typical of all Lee reloading products. Bullet casting is the secret to economical shooting of these pocket automatics.

The economies of casting bullets and loading ammunition are well known. While factory jacketed bullets run in the neighborhood of four to five cents, lead bullets can be cast for fifty cents per hundred, using plumber's lead and tin purchased at retail. The fact that lead can be obtained for nothing on up to about forty cents a pound means that half a cent apiece is about the top price paid out-of-pocket for casting one's own .32 Auto bullets. Scrap wheel weights, melted down, make an ideal casting metal and is relatively cheap. The bullets used in this article were cast 5-for-a-penny using wheel weight metal. A rough estimate of mate-

rial costs for reloading .32 Auto cartridges is as follows:

Case*	\$.006
Powder	.001
Primer	.007
Bullet**	.005
	<hr/>
	\$.018

*Most cases will last longer than the ten reloads used to calculate this figure.

**Assuming the highest cost for bullet casting metal.

It is easy to see that pocket autos can be reloaded for about the cost of .22 LR ammunition or less.

The Lee molds are marvels of production design and engineering efficiency. Made from aluminum, the basic block shape is formed by extrusion. The halves of the block are cut off and the channeled edges are designed to reverse fit precisely into one another establishing lateral positioning. Vertical positioning (Continued on page 54)

The author's simple table-top set-up for bullet casting. The cloth pad keeps bullets from deforming and rolling off of the table. A propane torch heats the lead pot, which is kept below waist level for safety and convenience. Right, an hour's worth of work with the single cavity Lee Bullet mold.



RETURN OF THE

By HARRY O. DEAN

FORTY-FIVE caliber plus seventy grains of black powder with a four hundred and five grain lead bullet, the .45/70. Looking more like a shotgun shell than a rifle round, the venerable .45-70 cartridge is certainly a caliber that can command its share of respect. It has a proud military history, filled with excitement, confusion and even a sly smile or two. It has a future too, guaranteed by the fact that Harrington and Richardson, Colt, Marlin Firearms Company and Sturm Ruger and Company are all offering rifles chambered for this raunchy round that will celebrate its one hundredth birthday! "Old soldiers never die, they just fade away." Here's one that is still standing straight and tall. Let's dust it off, polish the brass and salute the .45-70.

Following the Civil War, an Ordnance Board was appointed in April, 1865, to select a breech loading system for the Army. The basic idea was to fit a compatible breech mechanism that would screw on to the barrels of the muzzle loading rifles on hand, most of which were .58 caliber. Erskine S. Allin, the Master Armorer of Springfield Armory introduced such a system, a sort of early version of the famed "trapdoor" breech with a front hinge. Subsequent alterations, plus a substitution of a .50 caliber cartridge with 70 grains of black powder, eventually resulted in refining the original poor mechanism into a fairly good one.

Later, another U.S. Ordnance Board convened in 1872 to seek an improved rifle. They studied 108 types, including 10 repeaters, one of which was the forerunner of the famed Winchester 1873. After considerable stumbling, they ended up with an improvement on the single shot trapdoor Springfield with a reduced caliber of .45 and 70 grains of black powder. The barrels had 3 lands and grooves and a uniform rifling twist of one turn in 22 inches. The year was 1873. The .45-70 Government cartridge had just been created.

Wow, a single shot! I know you are wondering why the Ordnance gents chose a single when several repeaters were being offered. It was a weird choice, but another group, in 1882, passed up a number of bolt actions including the Winchester-Hotchkiss, the Lee and the Chaffee-Reece in favor of retaining the flapjack single shot for 10 more years! In all fairness to our great .45-70 cartridge, we must state that many of the repeaters tested by that board were chambered for it. More fun ensued when someone decided that the 405 grain bullet was not burning all of the coal they fed it. "Too much flame at the muzzle," they said. It was decided to increase the bullet weight to 500 grains to lengthen the bore time and consume the charge. It worked fine and the hefty missile left the long barrel at around 1300 feet per second. It had an extreme range of about 3500 yards and to get that far required an unbelievable mid-



The new Ruger Number Three Carbine is a beautiful piece of workmanship. The author feels that this is the perfect rifle for those stalking gentlemen who feel that one shot, carefully aimed and placed, is the ultimate in sportsmanship.



.45-70



range height which I am unable to quote. I do have figures for lesser ranges. Here they are if you like to gasp. Midrange height for 1000 yards was 44 feet! Sort of like "leaping a tall building at a single bound," right? To go 800 yards required a 25 foot mid-range height and "only" eight feet to go 500 yards. To travel just 200 yards, we find a 13 inch rise at 100 yards. That is what they call a "trajectory like a rainbow." Don't laugh too loud because shooting the .45-70 at the longer ranges made interesting matches for old time rifle clubs.

Ready for more fun? The "old line" horse cavalry needed a shorter, less clumsy rifle for saddle scabbard use, so Ordnance created a nice carbine with a 22 inch barrel. There was one slight problem. When you cut loose that big 500 grain slug from that clipped off light carbine, you might leave the saddle and greet the earth! The butt plate came smartly to the rear with that load. To alleviate the discomfort and keep shoulders socketed, the Ordnance people went back to the old 405 grain bullet as a specific carbine load. Recoil was reduced, but let's remember why they changed to the 500 grain slammer in the first place. From the 22 inch barrel the black powder shot a spear of flame that gave a lovely thunder *and* lighting effect! I'll mention the smoke later.

Anyway, the big .45-70 *was* a real slammer and did its ignoble bit in the buffalo slaughter and on both sides in

the Indian wars. It finally found its way into one of the first machine guns. Yes, the Gatling gun was made up in .45-70 caliber. The roar and smoke and flame from a passel of these big

tubes clustered around a central axis with a good man turning the crank could falter many a charge. They were still using black powder, so the crew spent
(Continued on page 71)



Harrington and Richardson has resurrected from out of the past the trusty Springfield Trapdoor. Called the "Officers' Model," it is very well made and is case hardened to add to its fine appearance.



Colt Industries has a superb Sharps single shot in very limited production. The photograph is an engineering cut-away model of the Colt Sharps.



Marlins Model 1895 differs in appearance from their original model. The new model has a round breechblock instead of a square one. Marlin advises that loads should not exceed those recommended by the factory.

TAKING THE MYSTERY OUT OF HAND MADE KNIVES

By B. R. HUGHES

WHEN A MAN buys a modern handmade knife, frequently he gets more than a mere knife—in many cases he will also receive strong hints from the maker that the knives from his shop are superior to others on the market because of a “secret” process or some “super” steel.

This is so much poppycock! Let's face it: Of the 100 plus knife-makers in business today in the United States, practically all of them use the same general techniques, equipment, and materials. Even more distressing to the romantically inclined is the fact that there are no secrets in modern knife-making. Picturesque as it may be to imagine a cutler tempering his blades behind a curtain, a la James Black, in order to protect his secret method, in today's cutlery world this is just so much flim-flam.

First, let's consider the materials. Where do you suppose 90 percent plus of today's makers obtain their steel? Out of a catalog, that's where! Steel companies list their offerings together with the properties of each steel, and you, gentle reader, may purchase the same steels used by today's cutlers. There are men who specialize in supplying materials to knifemakers, and they generally handle a fair sampling of steel as well as handle materials, thus the steel, brass, stag, wood, etc. used by a great many makers all come from the same source.

A steel called 01 is, I believe, the most popular high carbon tool steel in use by makers today, while 440C is the most popular stainless. Properly heat-treated, the finished blades of Maker A, who uses 01, will be virtually identical to those of Maker B, who also uses 01. A year or two ago there was a maker who offered knives made of a very outstanding special order steel. Now I understand his supply of this steel is exhausted, and this maker now uses a steel that is available to any cutler who is interested enough to read and study steel catalogs. Why doesn't this lad order more of his super steel? For ex-

actly the same reason that other makers don't place special orders—the cost is prohibitive, unless, like the man who once had the super steel, you can find a steel firm interested enough in cutlery steel research to run a test batch just to see what is possible. If a maker could order several thousand pounds he might get the price per pound down to a not-too-exorbitant figure; but what, pray tell, would a knifemaker do with several thousand pounds of very expensive steel? Sell it to other makers so that they also could offer blades made of super steel? There's precious little incentive for such a move, I'm sure you'll agree.

The small number of makers who do not order their steel in blanks from either a mill or a supplier use a variety of materials for their blades, including car springs and

CUSTOM KNIFE MAKERS

John Applebough, Box 68, Blackwell, Okla. 74631
Arnold Knives, Box 1427, Grand Prairie, Tex. 75050
W. P. Bagwell, Box 869, Vivian, La. 71082
Ralph Boone, 806 Ave. J, Lubbock, Tex. 79401
H. G. Bourne, 1252 Hope Ave., Columbus, O. 43212
D. L. Brown, 1803 Birdie Dr., Toledo, O. 43615
L. E. Brown, 301 E. Neece St., Long Beach, Ca. 90805
Ray Busch, 4449 W. Metairie, Metairie, La. 70005
Pete Callon, 17 Sherline Ave., New Orleans, La. 70124
Frank Centofante, Box 17587, Tampa, Fla. 33612
Collins Bros., 1307 Spring St., NW, Atlanta, Ga. 30309
Nelson Cooper, Box 1423, Burbank, Calif. 91505
Harold Corby, Rt. 3, Johnson City, Tenn. 77511
D&S Knives, Box 460, Santee, Ca. 97071
Steve Davenport, 301 Meyer, Alvin, Tex. 77511
Dan Dennehy, Box 4479, Yuma, Ariz. 85364
Norman Dew, 742 Knobhollow, Channelview, Tex. 77530

T. M. Dowell, 139 St. Helens Pl., Bend, Oregon 97701
Bob Dozier, Rt. 5, Box 4, Springdale, Ark. 72764
Harvey Draper, Box 94, Ephraim, Utah 84627
Gene Dumatrait, Rt. 1, Box 42, Orange, Tex. 77630
John Ek, 3214 NW 54th, Miami, Fla. 33142
Faulconer Knives, Rt. 3, Frederick, Okla. 73542
Clyde Fischer, Rt. 1, Box 170, Victoria, Tex. 77901
Bucker Gascon, Box 398, Brusly, La. 70719
R. W. Gess, Wolf Pt., Montana, 59201
Wayne Goddard, 473 Durham Ave., Eugene, Ore. 97220
Jim Grow, 1712 Carlisle Rd., Okla. City, Okla. 73120
Lloyd Hale, Washington, Ark. 71862
Don Hastings, 216 W. Colorado, Palestine, Tex. 75801
Pete Heath, 119 Grant, Winneconne, Wis. 54986
D. E. Henry, Star Route, Mountain Ranch, Ca. 29801
George Herron, 920 Murrah, Aiken, S. Carolina 29801

(Continued on page 58)

files. Some of them make surprisingly good knives in spite of their prosaic materials.

How about heat-treating the steel purchased in blanks? Directions come with the steel, and should you lack the equipment necessary to carry out this important step under controlled conditions, you can do as the majority of today's makers do and have this operation performed by a commercial heat-treating firm. To be sure, there are a few cutlers still treating their blades by guess and by gosh without any type of special equipment, but unless the maker has been doing this for a few years, the results at best will be inconsistent, with one blade being rather good, and the next very poor. Too, thus treated, the hardness will generally vary within the blade, being hard in one spot, but soft in another.

When it comes to handle materials, practically all of today's makers offer rosewood, coco bolo, sambar stag, and Micarta. Some cutlers list other materials, but I (Continued on page 58)



These knives are made by outstanding cutlers of the present. Starting from the top, the makers are Harvey Draper, Bob Loveless and Bernard Sparks, the latter is a smith, who forges the metal while very hot. Left, Lloyd Hale is at work in his shop with his belt sander, which removes considerable steel in a short period of time. Such a sander is the most useful tool in a modern cutler's shop.

Out of the pages of Western legend, here is a lever

IT IS USUALLY conceded that the Winchester '73 rifle won the West; and the Model 94 killed more deer than any other. Both contentions could be poppycock. The rifle that has probably shaded both is the .45-70. Now 99 years in the running, the old musket campaigned up and down the plains, the Rockies, the Little Big Horn, and the battle at Adobe Walls. Not all the stodgy bison were decimated by the Sharps; plenty died from the lethal hammering of the Springfield. Created in 1873, the .45-70 saw action in the Spanish-American bruhaha of the latter 90s. When we swung over to the Krag-Jorgensen in 1892, the residue

of the Springfields were sold by the arsenals for as little as \$1.75.

The last .45-70 was manufactured by Winchester in 1935. It was then that the Model 1886 rifle was discontinued. Many rifles besides the Model 86 and the older Springfield were in existence, and so strong was the demand that the larger ammo makers have never dropped the round from the active sales list.

Now the .45-70 is enjoying a lively renaissance. A revival of interest and enthusiasm has pumped new life into this sturdy old cartridge. Numrich Arms Corp, West Hur-



THE



The photograph shows the steps needed to manufacture the Marlin .45-70 receiver. The problem was to produce a larger loading gate and still leave enough metal in the side of the receiver to give it the strength that is required for safety. After machining and assembly of the two components, the receiver is ready to be inserted into the Marlin rifle. Note underlying metal scraps.

action rifle with style, strength and .45-70 power.

ley, NY, probably is due first credit for igniting the spark. This outfit offered barrel, stock, forend and sights in the .45-70 if the shooter could produce an old Remington rolling block action. With this as a beginning, Harrington & Richardson startled the shooting world with a handsome replica of the original Model 73 Springfield. Both in the standard trooper's model and in an elegant copy of the Officer's Model.

Last year, Sturm Ruger, the up-and-coming innovators, not only offered to chamber the handsome Number One Single Shot for the .45-70, but also commenced to manu-

ferred to as the Model 336. It holds 5 rounds, 4 of them in the tubular magazine, has the excellent round breech-block, the conventional receiver with its solid top and side ejection, weighs about 7 pounds dripping wet, with a 22 inch barrel, a generously formed man-sized stock and fore-end, open sporting sights, an excellent balance and good pointability, with a modicum of line beauty and color and all the reliability for which Marlin's are famous.

This rifle has evolved from a considerable lineage with a parentage that stretches back in the lever category for 90 years. The first lever Marlin appeared in 1881. It was



By Col. Charles Askins

New

**MARLIN
.45-70**

facture their Number 3 Carbine. The carbine's new design, incorporating all the strength and goodness of the Number One rifle, was purposely designed to sell for somewhat less money. It is chambered only for the .45-70.

Marlin Fire Arms Co., North Haven, Conn., have been the latest to get on the bandwagon. The company has had a .45-70 in the mill these past 18 months. It has now made its appearance and has been christened the Model 1895. A sort of nostalgic touch, because the company once had a .45-70 in the line and it was fired in a Marlin that came along in '95. The only likeness, let me reassure you, between this most modern Marlin and the old timer is in model designation.


The rifle is a lever action—a standard Marlin which in .30-30 and .32 Special, as well as the .444 Magnum, is re-

chambered for the 45-70-405, but Marlin had his own cartridge. It was the .45-85-285, an improvement over the standard Government cartridge for the shooter could get more velocity out of that lighter 285 grain bullet. The two cartridges were interchangeable in the Model 1881 rifle.

The 1889 rifle was the first to have the solid top receiver and side ejection. This was a marked improvement over other rifles of the day and was touted by the company as a decided safety factor. In 1893, another rifle came along. It was chambered for the .32-40 and the .38-55 rounds and when Winchester announced the .30-30 in 1894 the Marlin was promptly adapted to the new load. By 1895, it was also chambered for the .25-36 and the .32 Special cartridges. The Model 1889 was phased out in '95. The Model 1894 was announced during (Continued on page 62)

INGRAM CONVERSION *for the* CONTENDER PISTOL

By WALTER RICKELL



THE THOMPSON/CENTER Contender pistol, introduced almost a decade ago, put the handgun into a new category, expanding it to more calibers, both in standard and wildcat, than any other handgun in history. Many rifle types were chambered for the stubby pistol barrel, but it still remained a handgun with more appeal to the rifleman, than the serious handgunner, who preferred to stick to his standard semi-auto or revolver iron and calibers. The Thompson/Center Company has produced, at present, a total of 27 calibers in 8 $\frac{3}{4}$ " and 10" barrels. On special order, however, just about anything the customer could come up with and the action would accept, T/C would produce.

They were soon flooded with custom orders which just couldn't be filled due to the high cost and time involved, so to fill this void, several custom makers stepped in with custom lengths and wildcat calibers, such as the .17 and .20 (5mm) calibers. One of these makers is David L. Ingram, P.O. Box 4263, Dept. G-12, Long Beach, California 90804. Basically a rifle stockmaker and gunsmith, it was only natural that Ingram sooner or later adapted the Contender action to the rifle/carbine configuration.

The Contender action lends itself to this conversion, or accessory, to be more correct, since you don't have to alter the action one bit. The carbine kit simply is added to it. The barrel attaches in the same manner as the pistol, its only longer, with a more massive, longer fore-end and the buttstock is merely a pistol grip with a butt stock extension, attaching to the action in the same

manner through the pistol grip, then capped with the T/C silver plated butt cap.

The kit sells for \$114.50 (action not included) with a choice of two barrel weights, standard and bull configuration, choice of three barrel lengths 16½" 18" and 20". A choice of 33 standard chamberings which are .17 Bumble Bee, .17 Bee, .17 Ackley Bee, .17 MACH IV, .17 Java-lina, .17/223, .17/222 IMP, .17 Remington, .20 MACH III, .20/222 IMP, .20 X 50-R (DWM), .22 Long Rifle, .22 WMR, .218 Ackley Bee, .22 Carbine, .22 Hornet, .22 K-Hornet, .22 Jet, .22 Super-Jet, .221 Fireball, .222 Remington, .223 Remington, 5.6 X 50-R (DWM-SPEER, INC.), 6mm X 47 International, .256 Winchester Magnum, .30 Carbine, 30/30 Winchester, .357 Magnum, .41 Magnum, .44 Magnum, .45 Long Colt, .45 Long Colt/.410 Combo, .410 - 3 inch shotgun (Smooth Bore 20 inch length only) to only mention a few. On special order, there are such calibers as the .25/35, .32 Winchester Special, .219 Wasp, .219 Zipper, .25/20, and the .44 Auto-Mag. The standard barrels cost \$49.50 in any of the three barrel lengths, while the special order custom calibers cost an additional \$16.50.

The shotgun barrel comes with a full length ventilated rib, cylinder bore and 20" in length, for \$69.50. With a Cutts-Compensator (including the three tubes and wrench), it's \$97.50. All rifle barrels are round tapered and finished in a high luster blue and tapped for scope mounts or iron sights.

The buttstock and forearm are carved from semi-fancy claro walnut with a length of pull of 14½", drop at comb is 1½" and 2" at the heel, with a palm swell on the right side of the pistol grip. On special order, any dimensions that are acceptable to the design can be ordered. All the standard versions feature a hand-rubbed oil finish and are checkered to 18 lines per inch, but 20, 22, 24, 26 and 28 lines per inch are available on a custom basis, as are inlays, carving and extra fancy woods.

The forearms all match the buttstock and come in three styles; standard, beavertail and full length Mannlicher, with a muzzle cap. For the do-it-yourselfer, there are unfinished and semi-finished buttstocks and foreends, with prices starting at \$26.00. Also, the buttstock is not sold without a rifle barrel, to concure with Federal law.

The initial outlay for the full kit is \$114.50, but all you need for an additional caliber change is a barrel for \$49.50, plus your sighting equipment. Since the Contender action can be used for either rimfire or centerfire, Ingram offers a unit that really is a conversion on a conversion. That is, for any of the .22 centerfire chamberings, he has a steel chamber insert that converts the piece to .22 Long Rifle. For the cost of \$12.50, its well worth it. You simply insert the auxiliary chamber into the barrel, flip the selector on the hammer face and load with any .22 rimfire ammo. The

auxiliary chamber is extracted in the same way as the regular caliber, then the .22 hull is pushed out from the front with a nail or pin. This unique extra is not limited to the .22 Long Rifle, but can be adapted wherever practical, such as a .30 carbine for the .30/30 rifle, etc. The rimfire will only work in the Contender but the centerfire to centerfire will work in any rifle.

The carbine version may look a bit awkward at first, but it handles well with any of the rifle barrels, scoped or with iron sights. The .410 shotgun barrel with the ventilated rib points fine, but has to be handled like a rifle, since the qualities are just not there in the high combed cheek piece that has to double for scope or iron sights. A shotgun type stock could be made for it, however. The .44 Magnum barrel can also double as a .410 with the Hot-Shot



Pictured above is the Ingram Conversion Kit as you may purchase it, with the barrel, fore-end and buttstock, plus a choice of barrel lengths and weights for the T/C Contender. The kit sells for \$114.50 (minus action).

adapter, with the Hot-Shot cartridges providing nearly the same affect as the .410 barrel.

The first question that comes into one's mind when you see this slick conversion, is not the gun itself, but the Federal laws that apply to the shoulder stock and handguns. As long as you keep your wits about you, it should be no problem. First, the action starts out as a pistol, so the addition of a longer barrel (16" in the rifle and 18" in the shotgun) and a buttstock is approved. What you are doing is this, a pistol is becoming a rifle or shotgun. The reverse is not approved, so if the buttstock is left on the action and a pistol barrel added, you are breaking the law.

This approach to the single shot pistol is not new, but this seems to be the first practical approach to the ideal of an all around, one rifle/pistol combination, if there is such a thing.



A REVOLVER GRIP IS MORE THAN A HANDLE

By JAMES D. MASON

ONE OF THE frustrations of handgun shooting is the factory grips that come with the pistol. This is particularly true with revolvers. So much so, that several companies and individuals make a living producing custom grips to suit the needs and desires of the handgunning fraternity.

The variations on revolver grips are profuse; nearly all custom producers have their own "secrets" regarding shape and general design. All of this can be misleading or confusing to a purchaser of custom grips. What features are necessary and desirable for improving shooting scores? How can a shooter evaluate a grip to tell if it fits his hand and will satisfy his needs?

While running a complete survey of all handgun grips would be interesting, it will serve a better purpose to discuss basic principles and design solutions to grip problems as they apply to shooting needs. As a background, though, several makes of gun grips were examined. Among these were the grips of Guy Hogue, (Hogue Custom Grips, Box 1327, Cambria, CA., 93428), who is a relative newcomer to the commercial field and whose products are noteworthy. Hogue's grips incorporate a broad array of sound, practical, and versatile design features along with a marvelous selection of hardwoods and impeccable craftsmanship at competitive prices. Hogue is well qualified to produce outstanding grips. He was an LAPD firearms instructor for 10 years, as well as an armorer and DA exhibition shooter on the department team. Handgunners with special problems will find in this man an energetic and resourceful person to work out individual grip designs and variations.

The rapid expansion of the revolver grip business in recent years has reflected in part the desire of shooters to overcome the disadvantages of factory stocks. The shift away from the revolver as a target gun during the past decade has also been accompanied by increasing awareness of the need for more effective police and combat revolver marksmanship. Adaptations of older NRA target-type grips do not fulfill the needs of combat or field shooters.

The updating of police marksmanship training and expansion of civilian

Clockwise, starting at Midnight: Hogue's small-frame service style in goncolo alves, then Mustang's small-frame combat in rose-wood; Herrett's Shooting Ace in Walnut; at six o'clock, Hogue's large-frame combat in rose-wood; Herrett's Shooting Ace in walnut; Hogue's recoil shoulder combat style in pau ferro.





REVOLVER GRIP

combat sport shooting brought the focus on redesign of handgun grips to suit the needs of the DA pistoleer. Handgun stocks that allowed more stable DA shooting control were evolved. These grips used a filler block just behind the trigger guard that provided a full-fitting hold for the long fingers of the hand and stable hand position relative to the frame. The butt-end of the wood was tapered down to allow the third and little fingers to securely enclose the grip. Properly fitted, the web of the hand could ride high on the handle to effectively lower the bore line in respect to the shooter's wrist. All of these features promote sta-

force. The swell fills out the hollow of the hand, giving comfort and a secure grip; consistent hand placement is another bonus without making the grip too bulky. The thickness and area of the swells is a matter of individual preference. The grip can be too thin, however, to a point where it is difficult to maintain horizontal control of the muzzle.

Many grip designs come with finger "memory" grooves on the front edge or sides of the grip. The advisability of these features is debatable. Most custom gripmakers will furnish grips with or without grooves. If a shooter wants them, grooves should be adequate in size for the diameter of his fingers. Grooves that are too small will be irritating and distracting. The idea behind finger grooves is to provide

consistent hand positioning time after time. This is probably a good idea for the beginner or occasional shooter. They tend to build confidence in the novice. However, most veteran combat shooters prefer a smooth, grooveless grip that is properly fitted. In drawing the gun from the holster, it is possible to grab the groove separations instead of the depressions, causing serious disequilibrium, with resulting poor scores. The design of the grooves can eliminate much of this danger. The grooves shouldn't be made especially deep with sharp separations. Generous grooves with gently rounded separations tend to work more consistently. But whether or not a shooter buys a grooved grip is a matter of preference. They can always be filed and sanded off later if they prove unnecessary or otherwise ineffective. Mustang Pistol Grips (13830 Highway 395, Edgemont, Ca., 92508) makes a small frame design that incorporates finger grooves which tend to function favorably.

Another common and popular feature on custom grips is the recoil shoulder. Technically, this is a thickening of the wood behind the metal of the frame at the top, rear area of the revolver handle. The shoulder serves two main functions: (1) to spread recoil from stout loads over a large area of the web of the shooting hand, and (2) to adjust the length of trigger finger reach so as to accommodate

different sized hands. While either reason is legitimate enough, many shooters get a recoil shoulder on their custom grip because it looks "sexy" or it sounds good to have one. The recoil shoulder is usually most justified where it fulfills *both* expectations mentioned above. This is usually on a lightweight, small frame gun, such as a snub-nose revolver. On larger magnum revolvers (e.g., Model 19 Smith or Colt Mark III), the normal weight of the gun and width of the frame might make the recoil shoulder unnecessary, since most rounds fired in these guns may be less than full-power Magnum loads.

A recoil shoulder can cause (Continued on page 66)



"Memory grooves" ideally should be shaped like the bottom grip. The author feels that many grooves help the novice, but the expert combat shooters prefer the smooth contoured grip. Right, palm swells fill the hand without building unnecessary bulk thickness.

bility of the gun in the shooting hand and will be discussed in more detail later. While most revolver-makers now furnish a target-type factory grip, many of the old ills are still retained, especially in the lower proportions of the stock that are too generous for the average hand. But, providing one grip style that will suit everybody is a big order, which justifies the position of the custom gripmakers.

For the duty officer, a trim functional grip is a necessity. Unnecessary bulk and superfluous projections only get in the way and slow down smooth gun handling. On some designs, grip panels are thinned down but palm swells are incorporated to provide proper thickness to absorb recoil

POINT BLANK



By COL. CHARLES ASKINS

ONCE THE FIRST frosts have splashed the woods and fields with the mellow hues of autumn, a most insidious malaise spreads over our hunting lands. This malady strikes only at hunters and, while precious little is known of the virus, it seems established that the germ is scattered by the very game which the nimrod is seeking—the wild deer.

The sickness is characterized by a fever which develops with all the swiftness of atomic reaction. With this fever, there are also evidences or cardiac complications and some pulmonary symptoms. Like the common cold, medical science seems utterly baffled as to a cure. While this is alarming, the mortality is relatively low, as a matter of fact, no single victim has yet been known to succumb. This is heartening when it is realized that thousands are stricken every hunting season.

This vexing pox is known as "Buck Fever." It strikes practically every nimrod and is especially virulent among tenderfeet. It is no respecter of age, sex, or previous degree of servitude.

The onset of the fever, with its accompanying butterflies in the stomach, palpitations of the old pump, dyspnea, and sweating palms, it usually stimulated by the first clear view of the 10-point buck. This is followed by a rifle that wanders, sights that dance uncontrollably and if the stricken one manages to get off a shot, it misses.

While the incubation period may be measured literally in seconds, building up from nothing more than mild excitement to those alarming symptoms just enumerated, the convalescent state appears just as speedily. It sets in when the "Bull of the Woods" takes it on the lam, placing yon handy hill between his shiny hide and your wavering gun muzzle.

The disease, truly a noisome flux, has accounted for the loss of some of the biggest trophy critters in the woods. Nor are these trophy racks always lost by the tenderfoot, the fever, on occasion has been known to strike the old timer, too. There is neither

vaccine nor inoculation, yet found which will render even the most experienced hunter immune to the fever.

I heard one time about an old head who stealthily raised his rifle and brought it to bear on a bull moose standing in the willows, not 40 paces away. The guide who told the story said he waited for the shot to ring out. No bellowing explosion smote his ears. He looked over at the old hand and noted he was busily engaged in working the action of the rifle. The live rounds, one by one, were plopping out on the ground. The moose heard the bolt slamming back and forth and he stampeded. Unscathed.

Another time and another huntsman, so goes the story, was carefully positioned behind some down timber.

At 90 yards, to his front was a grizzly, busy excavating for a ground squirrel. When the sport got all settled, the guide waited for the shot. Nothing happened. He looked over at his dude just as he commenced to shuffle the bolt shouting at the top of his lungs, Bang! Bang! Bang! He never touched the trigger. The bruin went over the mountain.

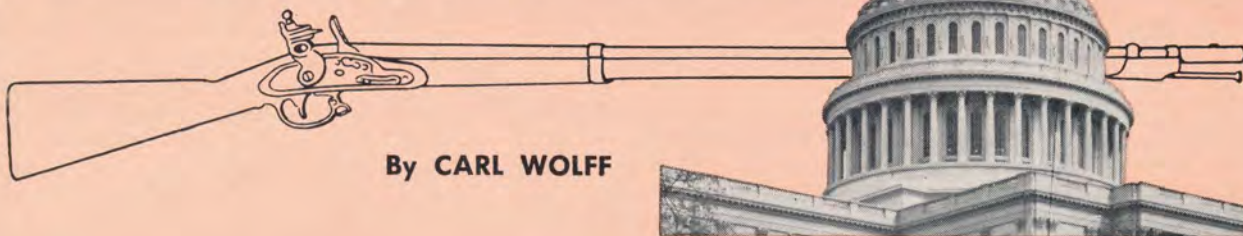
Still a third, stalking elk, got into range and when the old bull wapiti was dead in his sights, he suddenly pitched the rifle into a bush and charged down on the unsuspecting elk, hunting knife in hand, ready to skin out the trophy. Nary a shot had been fired. The bull was so startled he almost turned a back flip!

The fever works on its victims in strange ways. There are mental lapses and these nimrods, who I have described, will all deny to this day that they ever did such thing. The man who has never been bitten by the virus is nothing better than the most casual hunter. The ague strikes down the aspiring deerslayer, and maybe works even more insidiously on his more prosaic brother, the match shooter. It is the bugaboo of the competition performer and scores of backyard champs. Their record breaking totals on the home range are

(Continued on page 48)



OUR MAN IN WASHINGTON



By CARL WOLFF

FROM THE SENATE Press Gallery, you look down upon its members. The subject is gun legislation. Speeches are made; votes are taken on amendments, and another bill further limiting the citizens right to own firearms passes the Senate.

It is an old story. This measure, S.2507, by Senator Birch Bayh (D., Ind.), finally has both good and bad provisions. Called the "Hand Gun Control Act of 1972," no one can disagree with what supporters say is their objective, "to remove cheap-poorly made 'Saturday Night Specials' from the hands of criminals."

But in reality, what the bill does and what supporters say it does are two different things. What the bill attempts to do is outlaw, from regular trade routes through federal licensed dealers, all handguns small enough to be carried by their owners on a belt or in their pocket.

Another thing the bill does, and this was not removed from the bill by the Senate, is to remove from regular marketing channels all single action firearms manufactured after 1890.

Hidden in the bill is the requirement that all single action revolvers have a manual operated firing mechanism, causing the hammer to retract to a point where the firing pin does not rest upon the primer of the cartridge. "Once activated, such safety device must be capable of withstanding the impact of a weight, equal to the weight of the revolver, dropped a total of five times from a height of 36 inches above the rear of the hammer spur onto the rear of the hammer spur with the revolv-

er resting in a position such that the line of the barrel is perpendicular to the plane of the horizon."

Not one of the single action revolvers now on the market will withstand such treatment. Already, manufacturers are redesigning and tooling up to meet this requirement. What about all those already on the market or owned by shooters and collectors? Unless the proposed law is changed by the House side of Congress, manufacturers and dealers could only sell them to police, military, those doing firearms research, or to the Federal Government.

Those in the hands of sportsmen and collectors could only be sold to other citizens within the owner's own state. They could not be sold through or to, dealers, as any dealer holding a Federal license would be violating the law if trafficking in these single action revolvers.

What about if a collector in one state wants to sell, trade, or buy from another person living in another state? There is no way it can be legally done!

How did such a proposed law get past the Senate and may very well get past the House? The bill was written by people who wanted to make it as restrictive as possible. It was approved by lawmakers who had no knowledge or concern of firearms. There is not one lawmaker in the Senate of the United States who has any real knowledge of firearms. Sure, a few shoot, and a few more hunt. A lot tell the sportsmen back home they are "gun owners," but the truth is they, too, are engaging in political rhetoric.

Another (Continued on next page)

thing that gets into your craw is the two-faced liberalism that Senators show. From the beginning, those same Senators who claim to be "liberals" continue to be the same ones who shout the loudest for more and more Federal control over gun owners. What they really are is "federalistic." They want to continue to concentrate more and more power here in Washington. The true liberal liberalizes existing controls.

Votes on two amendments show up this liberalism to the point of hypocrisy. The Long amendment would have made it a Federal crime for those convicted of major crimes to have a firearm in their possession. Here was a straight-forward Federal criminal control measure. It went down to a smashing 72 "Nays" and 20 "Yeas." The point is that 72 Senators did not want to legislate, on a Federal level, against convicted criminals having firearms.

Only the following voted for the measure: Senators: Anderson, Bayh, Case, Edwards, Fannin, Fulbright, Hart, Hartke, Hollings, Humphrey, Inouye, Kennedy, Long, McClellan, Pastore, Ribicoff, Saxbe, Stafford, Stennis, and Stevenson.

Yet, when it came to establishing a national system to register hand-

guns, and require a federal license of owners, the following Senators voted "Yeas." Brooke, Case, Cooper, Fong, Hart, Hughes, Javits, Kennedy, Mondale, Muskie, Pastore, Percy, Ribicoff, Stevenson, Tunney, and Williams.

By putting the votes together we find that Senators Brooke, Cooper, Fong, Hughes, Javits, Mondale, Muskie, Percy, Tunney, and Williams rejected Federal controls over convicted criminals who want to own guns, yet want Federal controls over lawful handgun owners!

Another observation this GUNS contributor made was that there was a lot of switch voting. There were about eight senators who regularly voted for licensing and registration when amendments were presented. However, when they saw the amendments were doomed to failure, they switched their votes!

Because there is no public record, they will not be identified here. The final vote was 68 "Yeas" to 25 "Nays". A review of the 25 "Nays" discloses that three of the lawmakers who made switch votes even voted against passage of the bill. All of which proves one thing: Those cards and letters sent to Washington opposing gun controls work!

CROSSFIRE:

THE READERS COMMENT

(Continued from page 8)

probably the most notorious criminals in British history (certainly with Burke and Hare, the body snatchers, the best known). Turpin was a burglar and horse thief, Sheppard a thief and escape artist, before they were hanged. What a coincidence that the same family names should come together again in an identical time slot to put another great dent in English history.

Louis P. Shepherd
Fitchburg, Mass.

Defends High Standard

I have read the article "First Steps in Pistols Marksmanship," by S. F. Ferber and I take issue with the statement he made that, "the Model 41 S&W might have a slight edge in accuracy over the High Standard models." More High Standard automatics are used in competition than all other makes combined. I have

been shooting High Standard pistols since the first model "B" came out and I have never had one that didn't have much better than 10-ring accuracy on the slow fire target. At the present time, I have five High Standard frames and thirteen barrels and two Model 41 S&W frames and five barrels. I have tested these barrels over a sand bag for many years and target barrels of equal length have about the same accuracy, no matter who makes them. Long ago I decided you didn't have to worry about 22 caliber handgun accuracy and the thing that is far more important is how the gun feels in your hand and what results you get with it. I'm not about to say that one make is always more accurate than another make because it wouldn't be true and would misguide someone. Shoot what feels good in your own hand and what gives the best results for you.

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POINT BLANK: UNKNOWN FEVER HITS HUNTERS

(Continued from page 45)

reduced to the marks of the also-ran when the virus strikes them in the big match where the championships hang in the balance.

• • •

The most beautiful medal given by the United States government is not for bravery, but for marksmanship. This is the Distinguished Designation Badge. There are two awards, identical in appearance, one for riflery and the other for pistol marksmanship. So scarce are these that fewer have been given than the Congressional Medal of Honor.

From the aesthetic side, that is in consideration of beauty of design, grace, and an exquisite sense of proportion, the Distinguished badge sets such war-time bits of tinsel as the Congressional Medal, the DSC, DSM, Flying Cross, Legion of Merit, Silver Star and other lesser awards completely in the shade. Made of solid gold, the Distinguished Marksman (rifle) and the Distinguished Pistol Shot medals are strikingly handsome.

First awarded in 1884, and limited to the military, both medals may now be won by any American citizen. But gaining either takes some doing! The Department of the Army pamphlet 355-17, dated 17 Feb, 1962, entitled "Marksmanship", says the shooter must first gain three Army excellence in competition badges called "Legs on Distinguished". One leg must be gained in the National trophy matches or in the Army championship matches". As an example of the tough chore required to claim the award, a marksman could win the national rifle championship and for this exemplary shooting stint would gain only one of the needed three legs or he could be a member of the team that won the rifle championship of the country but

again, this would be worth only one leg.

A really topflight marksman can, with considerable luck, win his Distinguished in two years. Others sometimes require five and six years and I know of one shooting man who needed fourteen!

The two Distinguished badges are identical except for a small difference in the size and lettering. The rifle award is slightly the bigger of the two. By their very simplicity, they are extraordinarily outstanding in appearance. Each medal is in the shape of a shield, this body suspended by a heavy link chain from a cross-bar of solid gold. Upon the face of the golden shield is a plate, enameled, and displaying a bullseye. The wording on the rifle award is, "Distinguished Marksman;" on the other, the lettering reads, "Distinguished Pistol Shot". The winner's name is engraved on the reverse side along with the year of winning.

These medals are seldom seen. What is even more rare is the shooter who sports both of them. He is indeed a champion! While even fewer of these coveted awards have been given than the Medal of Honor, the buckos who pin on both are, have no doubt of it, really super shooting men!

We have sort of gone wild in the award of medals in the military these days. But the Distinguished medal is different. So tough is it to come by, and so well known is the fact that only top drawer shooting has to be done to earn it, and so extremely few are they, the possessor may display it proudly. The medal is one of the greatest single incentives to the marksmanship program. One glimpse of the glistening badge and it is a rare shooter indeed who does not yearn to possess it.



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(Continued from page 23)

9" wide, and 19" long. These boxes are guaranteed for ten years, if that matters, and are finished in red enamel with black trays and handles, twin latches, and piano-type hinge running the full length of the box.

The box on the left is well crammed with Lyman Ideal #310 tool handles and dies, with the tray containing a W. H. English Pak Tool, Pacific Pakit tool in .30-06 caliber, and a Pacific Measur-Kit. There are seven Lyman #310 tool handles and eight sets of Ideal dies, plus four sets of dies for the W. H. English Pak Tool. There are also several "hand type" full length resizing dies, of dubious value.

The box on the right, however, contains four two-die sets of Lyman All American rifle dies, seven three-die pistol sets of various makes, and seven loose dies. It also contains the Decker tool, Herter powder measures and scales, two bullet pullers, and even a micrometer. Portable? The boxes weighs but thirty five pounds apiece, and I could pick them both up and run with them if I had to. Though it would be a short run, I admit. . .

Since the Decker tool does not incorporate a priming device, this must be provided for. In days of old, when I was loading on my bench press, I used to prime my rifle brass on the Lyman #310 tool, screwing the priming chamber into the handles and using this to seat primers. Since I have not disposed of my ol' nutcracker, I will just continue to use it for the chore of seating primers. I have never seen a hand tool, or a bench press, that does a better job of primer seating.

For that matter, I shall probably continue to seat bullets on the tong tool, as well, since it is easier to handle than the massive Decker tool. If you don't mind owning two different tools, both of which take different dies, the Lyman and the Decker do make a good pair.

But the story does not start and end with the Decker tool, with or without an assist from the nutcracker. As time goes on, I am coming more and more to appreciate that simplest of all loading tools, the Lee Loader. Indeed, I make it a firm rule to purchase a Lee Loader whenever obtain-

ing any rifle in a new caliber, even before I get around to buying a set of 7/8 x 14" loading dies in that caliber.

Why? Because I use the Lee Loader much more than I do the Decker tool. The Decker tool is my "tough job" tool, the one I use whenever I have rifle brass that needs sizing, or the one I use when I want to load up a batch of pistol cases. But the truth is that I do little pistol shooting, preferring to shoot center-fire rifles for the most part, and that I also do not full length resize my rifle brass any more than I have to. Instead, I prefer to put up mild handloads for practice, using brass that has been neck-sized only in my Lee Loaders.

The Lee Loader is the simplest and most economical of loading tools. It comes in a flat cardboard box with styrofoam liner, and sells for \$9.95 retail. It consists of a body which, in essence, combines the functions of a neck sizing die and a straight-line bullet seater. There is a priming chamber with attached bullet seating stem, which serves to seat both primers and bullets, and there is also a decapping punch and base set, a knock-out rod, a plastic scoop or "powder measure", and charge table and instructions. The whole thing is very simple and ingenious.

In addition to the Lee Loader itself, other things are needed. For one thing, you need a plastic-headed hammer, which is used to perform all work with the Lee Loader. I also insist on buying a Lee Case trimmer for each caliber, at a cost of \$2.95 complete. A primer pocket cleaner is required, and I much prefer the Lee "Automatic" Primer Pocket Cleaner at \$1.98. This comes in two sizes, "large" and "small", with the former being used for all rifle cartridges which I use taking "large" primers, while the latter is used with revolver rounds such as the .357 Magnum and .38 Special . . . as well as the .222 Remington rifle I hope to get some day!

Other items needed are a deburring tool, for removing the burr thrown up on a cartridge case mouth when the case trimmer is used, and a primer pocket reamer, for removing the crimp from primer pockets of GI brass with crimped-in primers. I obtained both

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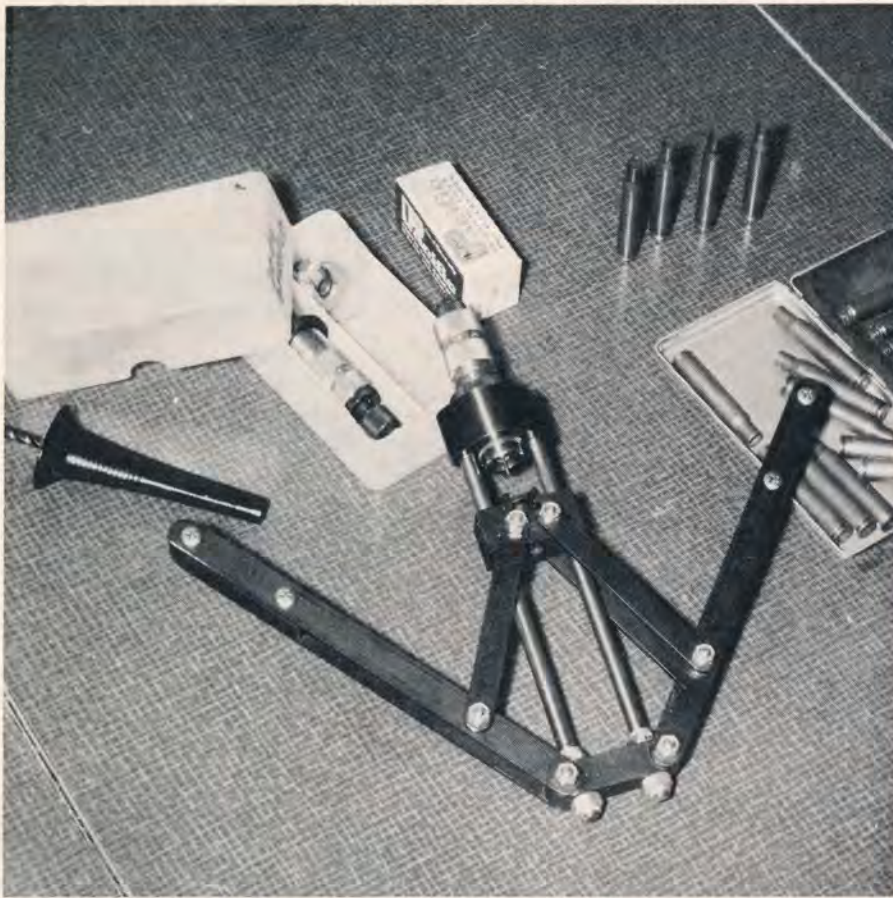


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The author found the Decker Tool to be a unique asset to his hobby.

of these items from Herter's, Inc., of Waseca, Minnesota, paying \$1.37 for their Primer Pocket Reamer and \$1.39 for the Double End Deburring Tool. Both have proved well worth the modest cost.

While I have made no "discoveries," I would like to outline the routine I use for handloading rifle ammunition with my Lee Loaders, and the tools mentioned in the last two paragraphs. The routine is simple and easy and, I think, results in good ammunition.

Starting with cases which were fired in your rifle (or which will chamber in your rifle), you must first decap the empties. Place the empty case, neck up, in the decapping chamber, insert the decapper through the case neck, and give it a few good raps with the plastic hammer to knock out the dead primer. The decapper is quite sturdy, by the by, and will knock out even crimped-in primers from GI brass without likelihood of damage to the decapping pin.

Step two, if you have a Lee Case Trimmer handy, is to chuck the empty, unsized but decapped, into the holder of the trimmer, slip the pilot through the neck, and turn the reamer until it stops cutting. This must be done after decapping, as the small pin at the end of the pilot must slip through the flash-hole and primer

pocket. (It won't work with Berdan primed brass, of course.) However, trimming can't be done after neck sizing, as the pilot will only slip through an unsized case neck. The same is true of the decapper, also.

If the Case Trimmer cuts no brass from the case neck, the case is okay as it is. If it does trim metal from the case neck, the neck must then be deburred, both inside and out, before proceeding further. This is done with the Herter double-end deburring tool, deburring the inside of the case neck with the pointed end, then scraping around the outside of the case neck with the prongs, turning the case.

Step three is to neck size the cartridge case. Insert the case into the body, neck first, and drive it down flush with the plastic hammer. The tool body can be held in the hand during this operation, since only light taps of the hammer are required. The neck will now grip a bullet tightly.

Note: Do not use any lubricant during this operation, as none is needed. Any oil used here will only cause powder to stick to the body during the powder charging operation, and any oil that gets into the case can "kill" the powder or the primer, causing misfires or "duds", or causing erratic performance. In handloading, lubricants are only a necessary evil,

so use them only when you *must* use them!

At this point, while the case is still in the die, you can look to the primer pocket. If this is a GI case, and the issue primer has just been removed, you can use the primer pocket reamer to take out the remnant of the crimp. Grasp the tool body firmly with one hand, the reamer with the other, and twist it into the primer pocket until it bottoms. The GI case will now accept a commercial "large rifle" primer easily. And, while this operation can be done while holding the case in the fingers, I find that it twists all too easily in my hot, sweaty hand. This makes it easier!

Step four, pick up the Lee "Automatic" Primer Pocket Cleaner, push the tip into the primer pocket, and thrust down with the tool handle a couple of times. This rotates the tip in the pocket, scraping out all the gritty black primer residue, so that a new primer will seat properly. Tap the tool against the work surface, to knock out the loosened residue.

Step five is priming. Place a large rifle primer in the priming chamber, with the cup down, anvil up. Place the tool body over the priming chamber, insert the priming rod, and drive the case down out of the die and onto the primer. Note: Some persons are nervous about "seating primers with a hammer," and may prefer to remove the case from the body, prime it by other means, and replace it afterward. However, using the plastic hammer is quicker, easier, and produces no bad effects that I know of.

Step six is to dip a charge of powder and pour it into the mouth of the tool, tapping the tool and watching to see that all the powder runs down into the case. (Lee's directions recommend driving the empty case down out of the body of the tool, and into the decapping chamber, before pouring the powder in. However, this seems an unnecessary step to me, and results in powder spillage between case and die body.)

Charging a case with powder is, potentially, the most dangerous step in handloading. If you use the wrong powder, or too much of the right powder, if you use a double charge or no powder at all, you can ruin your gun and, perhaps, yourself as well.

A charge table comes with the tool, listing the Lee Powder Measure to be used by number, and telling you which powder to use with that measure for the bullet weight you wish to use. Check, first, that the number stamped on your dipper, or powder measure, is the same as the number listed on your charge table. Next, make sure the powder you wish to use

Next step is to drop the bullet, base first, down the neck of the body so that it rests upon the mouth of the case. Place the body on the decapping chamber, slip the bullet seater into the body (giving it a turn or two to line up bullet and case neck properly), and use the plastic hammer to drive

(Continued from page 27)

Buttstock attachment is also unusual for a muzzle loader—a hefty through-bolt under the butt plate. This beats the usual tang-screw attachment by a hard furlong, and insures an always-tight assembly.

These are the tools I use, and the methods I prefer. I hope that readers will find them useful. They work for me!

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As for shooting, my sample gun favors a .445" diameter pure lead ball in a thin, hard patch saturated in vaseline, ahead of 60 grains of FFFg Curtis & Harvey powder for general

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A simple dummy lock plate, as illustrated in this cut-away photo, gives the outward appearance of being a conventional back-action lock. The barrels are rifled with 8 lands and grooves. The rifling twist is 1 turn in 56 inches. This helps in stabilizing the monster round.

hunting and field shooting. With this load both barrels will group in 2½"-3½" at 50 yards all day long if the bore is wiped regularly as soon as ramming becomes stiff. Uniform wiping after every shot may tighten groups up a bit.

Both barrels shot precisely to point of aim in windage with this load, but a bit low. A milder target load for use at 25 yards is 45 grains of the same powder and prints very pretty cloverleaves.

The above 25-yard load is also excellent for small game at relatively close ranges. It shoots tightly enough to neatly decapitate sitting squirrels, cottontails, or other edible small game. Place your shots carefully, though. That slow-moving .445" ball may not look very impressive on paper, but count on losing half the meat if your game is hit in shoulder or ham. If you will eat well, insist on head or low rib-cage shots.

If you've deer hunting on your mind, to take advantage of those fast two shots, more potent loads are advised. Generally, 80 to 90 grains of FFg powder will do the trick with a round ball. It's best to use a thicker patch—drill or ticking—and if this makes loading too difficult with the .445" ball, use smaller projectiles.

Often it will be necessary to juggle powder charge, patch thickness, and

ball diameter to get best accuracy at this level. My rifle does best with .440" balls and heavy, well-laundered pillow-ticking patches ahead of a full 90 grains of powder. This load produces deer-killing groups at 100 yards and churns up a muzzle velocity of about 2200 fps.

However, Lyman's #445599 minie bullet, weighing 250 grains, is far better for big game than the 130-grain

round ball. It's also quicker and easier to load. Minie bullets have a much better ballistic coefficient than round balls of equal caliber, and thus lose velocity less rapidly. They are much heavier, too, and thus deliver greater energy on target, even though initial velocity is low compared to round balls. These same factors make the minie bullet the preferred choice for long range shooting of any sort, at game or paper.

When driven by 60 grains of FFg, Lyman's minie departs the muzzle of these 28" barrels at nearly 1400 fps, and that rises to over 1500 fps when 70 grains are used. The latter is recommended for any big game and will usually stay inside six inches at 100 yards from a bench rest. That is more than adequate for sure rib-cage hits on deer so long as you are reasonably close in range estimation and don't get in too big of a hurry.

Functionally, our range work turned up no problems with the Esopus turn-barrel rifle. The ramrods are a bit difficult to remove, which could be embarrassing on a hunt. Because of this I used a fiberglass loading rod and left the issue sticks in place. Then, too, the rods have no provision for attaching a worm when it becomes necessary to unload without firing. I'd suggest the manufacturer make this addition, and also supply at least one of the rods in virtually unbreakable fiberglass.

Overall fit and finish are good for the price. All surfaces appear to be machine-sanded rather than polished. This is a conventional "hot blue" finish that is quite acceptable. All in all, an excellent two-shooter for hunting and other powder-burning at \$139.50.



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GUNS TAKES A LOOK AT POLICE SHOTGUNS

(Continued from page 29)

gerous apprehensions, squad car, and other special purposes was evident. An acceptable selling price to law enforcement was once again contingent on volume production based on a military procurement that did not materialize. Colt has presently shelved this development, but it is hoped that for the sake of law enforcement needs, it will be reactivated some time in the future. This weapon, in the writers opinion, was just about the ultimate in design for police practical and tactical needs. It had numerous other desirable features, making it an instant, devastating firepower and deterrent weapon, much more suitable for the majority of shootout situations than the numerous M1 carbines, sub-machine guns and automatic rifles now in police hands.

Critics of the multi-barrel shotgun concept contended that the weapon was just too deadly in appearance and awesome for public acceptance as a enforcement weapon. The answer to that one is that the gun was designed to be awesome to the criminal, not the man on the street. If a standard, slide action, police riot gun is acceptable with a magazine extension that provides eight round firepower capability, what is wrong with eight barrels firing one round each?

THE HOLLAND AUTO BURGLAR


In 1969, an updated, Spanish made version of the fabled Ithaca Auto Burglar gun appeared on the police scene. This double barrel, 20 gauge, top break, pistol grip type weapon of the Al Capone era became available to law enforcement only, due to a special arrangement with the U.S. Treasury Dept. The modern version featured a single trigger and was chambered for 20 gauge Magnum loads, providing a 12 gauge firepower capability, when it was pointed out to most police agencies that the 3", 20 gauge Magnum load contains the equivalent amount of pellets as the favored 12 gauge, H.V., police buckshot round. The Holland version weighed less than five pounds,

had a 17" overall length and was choked to deliver a 20 pellet pattern of #3 buckshot, which measured 9" at five yards and 18" at fifty yards. It was properly described as an equalizer without peer in a handgun size that also developed a tremendous deterrent respect. This weapon was sold in limited quantities to law enforcement agencies at a relatively reasonable price, by the Holland Firearms Company of Houston, Texas. As of this writing, for reasons unknown, it is no longer available.

HIGH STANDARD MODEL TEN POLICE SHOTGUN

This weapon has been available in two separate models. It is the only one of the special type police shotguns to have survived and be currently available. This semi-automatic design was originally conceived by Sgt. A Crouch of the Santa Monica, California Police Department. High Standard Manufacturing Corporation picked up the rights around 1965 and eventually produced the first Model Ten, Series A in 1967. This model, with a built-in flashlight incorporated in the fiber glass frame assembly (that never functioned properly), was plagued with jamming problems and "sensitivity" to various makes of ammunition. It was withdrawn and a newer improved model, Series B, was introduced around 1970, and is now being offered to police agencies. From this writer's own recent experience, the jamming and sensitivity to various makes of high velocity loads during the chambering and firing cycles has been corrected. However, in a Series B Model recently tested, one fault remains that could cause serious, if not fatal, problems if the shooter has to reload under combat tension and stress. Unless care and deliberation is exercised in loading, it is possible for a shell from the magazine tube to slip back under the hinged loading platform in the loading port and freeze the weapon into instant combat ineffectiveness. This serious defect is not

unknown in other weapons, but in the case of a semi-automatic weapon, it should not be tolerated and is capable of being corrected. The jam-up created by the shell under the loading platform is such that it usually cannot be cleared by hands alone and a lot of cussing, the use of a can opener, screwdriver, etc., is indicated to clear it. In a police firefight with hasty and sometimes very nervous loading procedures to be expected, this is not an acceptable liability.

The overall design concept and many special advantages and tactical use features of this weapon are excellent. Once its mechanical problems are solved, it deserves a place in the police arsenal because of the many combat and handling features that are not currently present in any other police shotgun in the marketplace. 



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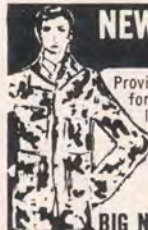
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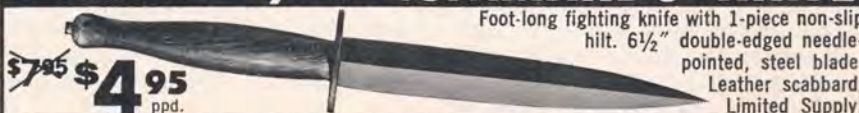
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RELOADING THE

.32 ACP

(Continued from page 33)

is accomplished by a single steel pin drilled and inserted through the side of the mold at the junction line. Handles are hardwood dowels staked on stamped steel clamps that are attached to the blocks in the usual way. Matting for air vents appears to be rolled on the blocks and provides up to six times the vent area of conventional semi-steel mold blocks. The sprue cutter has a fitted bushing secured by a mounting screw. A spring wave-washer maintains alignment of the cutter flush with the top of the mold.

Aluminum has many advantages for bullet casting molds. This light metal makes the blocks easy to handle without tiring the operator. Aluminum is easy to machine, and contributes to the low cost of the Lee units. Its high thermal conductivity (about three times greater than that of steel) means that the block heats rapidly but also cools quickly to allow easy bullet release. The heat generated from casting dissipates rapidly. Merely tipping the corner of the blocks into the molten lead in the pot for 8 to 10 seconds is enough to warm the mold so that the first bullet casts perfectly. Heating the block for too long will cause the bullet metal not to chill in the cavity; when this happens, the mold will cool sufficiently in a minute or so to work perfectly. Aluminum has no eutectic affinity for molten lead, so the blocks will not solder together.

The setup for casting bullets is simple, but a few precautions are in order. Because of toxic fumes, the room should be fairly large and adequately ventilated. Dross taken from the lead pot after fluxing is messy and there should be a wood or metal box to receive this material. There should not be any materials that are readily flammable around the casting area. The lead pot should be secured on a rack or peg preferably below waist-level; some really nasty burns can be acquired from a careless bullet casting setup. High-top shoes with cuffless trouser legs below the tops are a good idea.

For a single cavity mold, only a small melting pot is needed. Lee makes a drawn sheet metal pot that is adequate and holds about four pounds of lead. I prefer a cast iron pot and use a small Lyman unit that I've had for several years. Heat from

a propane torch is adequate, but a gasoline camp stove will also do the job. Kitchen stoves may be used but with a word of warning. The lady of the house may get thoroughly put-out at bullet casting from the mess that can develop from a careless operation. Although vent hoods can carry off fumes, the area is also used for food preparation. Burns on countertops or lead flow into burner heads may be difficult to remove.

Maintaining proper heat on the lead is important. Without a thermostat, cast bullets should be observed for wrinkles and folds, improperly filled out bases or insufficient diameter; these are signs of the lead being too cool or a cold mold. Lead that is too hot will cause rapid surface oxidation in the pot, smoking of the flux material and frosting of the cast bullet surface. Some reloaders prefer radiused bullet bases because they are easier to load and cause reduced leading in hot loads. With proper heat control, bullets can be cast with radii on the bases, even if the cavity is cut to produce square base edges. Lead casting temperature is critical for this technique. If the temperature drops below the critical point, bullet base diameters may be smaller than acceptable. For this reason, a cast iron pot is preferred for its superior heat conservation, making temperature more uniform and easier to control over a given time.

Lee offers a pressed sheet metal ladle which is adequate for single cavity molds. Because of the small amount of lead held in the spoon, however, it is a good idea to work out a technique where the time and distance from dipping to pouring is uniform. Bullets cast close to the pot with hotter metal may differ in diameter from those cast a few seconds later after the dipper leaves the pot and temperature cools. Some people like a cast-iron dipper with fairly large capacity to assure more uniform lead temperature at the time it is poured into the mold.

When casting rapidly, the bullet is still quite warm when the mold is opened. As the lead cools, the bullet contracts, releasing it from the mold cavity. Bullets that are still quite warm may stick in one half of the mold after it's opened. These bullets

should be shaken out or lightly tapped out of the mold with the wooden dowel used to turn the sprue plate. Using a metal object to pick out the bullet can cause deformation of the mold cavity. Steel molds are vulnerable to damage from this cause, but aluminum molds are especially vulnerable.

The Lee mold casts shiny little 74 grain (74.6 gr. average with wheel weight metal) bullets of .312-inch nominal diameter. Variations of maximum diameter were within 7/10,000 when I did the pouring job consistently. Roundness was well within .001-inch, which means that the output of the mold was of very good quality. Weight variations using wheel weight metal was within three tenths of a grain on ten random samples taken from a batch of bullets. All bullets molded were of consistent shape, free from random flanges and flashing. Sprue cutting was quite uniform. These Lee bullets will shoot well as cast straight from the mold with only lubrication applied in the groove. While not trying to maximize output, I attained a rhythm that was easy to maintain over 15 to 20 minute periods while producing bullets of consistent quality. At this rate a little less than 200 bullets an hour can be cast from the Lee mold, although less experienced casters may not get more than about 100-120 bullets an hour, at first.

Obviously, this is not a setup for the volume user, but it is not expected that the pocket pistol shooter will consume a lot of fodder at any given time. On a casual basis, a couple of weekday evenings will produce enough ammo for the two or three yearly outings of the average pocket auto shooter. For the more demanding reloader, Lee is considering producing four cavity molds when demand is met for single cavities.

Lubricating and sizing operations need a well-developed routine to be efficient. The Lee lube and sizing kit uses the cake cutter method where bullets are placed base down in a pan furnished for the purpose. Alox lubricant is melted and poured into the pan to just above the level of the lube groove on the bullets. When the lube cools and hardens, the cake cutter tube is slipped down over the bullet to remove it from the pan. This operation leaves a film of lube on the sides of the bullet and the lube groove is filled.

Sizing is then done by placing the bullet nose down in the Lee tapered die. A ram is placed on the flat bullet base and a light hammer tap forces the projectile through the die. The Lee sizer reduces the bullet diameter only about .001-inch maximum and leaves no evidence of compression, abrasion,

and/or smearing of the bullet sidewalls. Some guns with loose bores can shoot this bullet as cast. Ideally, bullets should be sized .001-inch over groove diameter, but this is not overly critical in a pocket pistol. The die brought bullets into round within 5/10,000 variation. Finished bullets have lube on the bases which should be removed by rubbing the base on old rag sheets stretched on a flat table top. Bullet noses were cleaned up after seating in cases. Unless lube is removed from bullet bases, however, it can contaminate the powder charge and cause misfires.

A Lee Loader kit in .32 Auto caliber may be used to assemble ammunition for the occasional shooter. A number of inexpensive reloading presses are available for the man who wants to expand his hobby interest in terms of volume, output, or variety of calibers. Most of the major die manufacturers furnish sets for the .32 Auto. RCBS makes a sizing die that reduces the case diameter more than usual at the mouth to assure adequate tension on the bullet. This feature reduces the possibility of a short round which telescopes the bullet back into the casing when being fed up the ramp into the chamber. Autopistol rounds are subject to rough handling in the feeding cycle.

Loading data for the .32 Auto is simple. The best bullets are round nosed designs ranging from 70 to 80 grains in weight. The standard factory loading is a 71 grain FMC hardball bullet. These bullets are available as loading components. Their expense may limit their use in practice ammo. There are a few lead cast designs running from about 74 to 77 grains sized and lubed. The Lyman #311252 is a classic. The best all-around powder is Bullseye which can be used for light to full loads with jacketed or lead bullets. From tests of loads in this caliber, ultra-uniform powder weight is not overly critical to accuracy. Powder measuring can be done from a filed down shell case fitted with a soldered-on wire handle. Charge weight should be proven on an accurate powder scale, dipped into a bowl of powder and leveled by lateral motions. Quite consistent charges can be measured using this method.

Several things came to light during load development. First, the little WW II PP Walther that was used for test firing was more accurate than was expected. The old saw about pocket autos being inaccurate refers more to the shooter than to the gun itself. Groups shot at 25 yards from the belly-down prone position used a two-hand hold. Accuracy data rivals that of some .22 rimfire plinkers and surely



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makes these guns useful for this sporting purpose. Most of the modern fixed barreled quality pocket autos will shoot this well. Removable barrels and over-sized bores can contribute to erratic accuracy.

Notice that in the data table all the loads grouped equally well. There doesn't seem to be any great advantage to loading down in powder with this cartridge to gain accuracy. The heavy 2.2 grain charges were noticeably hotter (more pressure) than the factory loads, but produced about the same velocity with the jacketed bullet. Lead bullets, which slip through the bore with much less resistance than jacketed types, were much more efficient. No appreciable leading was evident.

The 2.2 grain loads in all cases expanded the brass more than the original factory loads. Cases will tend to deform after multiple firings using maximum loads. For this reason, the 2 grain load given in the tables is recommended for the best performance combinations consistent with good case life and safety margins in practice ammo.

In regard to defensive shooting, practice should be made using a two-hand hold and shooting two to three shots in rapid fire groups. The PP Walther performed admirably at 7 and 15 yards, placing all hits inside the 8-ring on a 25 yard slowfire target. Pocket auto calibers are generally regarded as inadequate by American standards for defensive stopping power. However, when multiple hits are made in rapid succession with these little guns, the cumulative terminal effect is formidable. Each .32 projectile has about the punch of a piece of 00 buckshot as fired from a riot gun. Two or more large buckshot will plant a felon in the sweetpeas and so will the same number of hits from the .32 auto! But the shots must be delivered in rapid succession. The secret is multi-shot "bursts" and close placement of hits in the vitals. It takes a little practice.

A few refinements on the trigger

pull, over-travel, feed ramp and chamber opening, and sight settings can make any pocket auto into a respectable sporting arm that can double as a home guard piece. Many of these guns have faulty magazines and will require at least two reliable magazines if they are to be shot regularly. Triple K Mfg. Co. (568 Sixth Avenue, San Diego, CA. 92101) are specialists in replacement magazines for current production and obsolete autopistols. These magazines are priced reasonably and carry an unconditional guarantee. I used two Triple K magazines that function as reliably as the German original. Triple K also carries replacement parts for several hundred obsolete, out of production autopistols. They will send a valuable catalogue for \$1, refundable on the first order.

Pocket pistol grips are a problem where they are broken or missing. Replacements can be obtained through Triple K, also. There are a variety of makes and types including Fransite plastic grips and custom wood stocks for most common models. For the picky shooter, Guy Hogue (Box 1327, Cambria, CA. 97005) makes some dandy dress-up grips for the PP and PPK in Brazilian rosewood, goncolo alves, and cocobolo.

Leather is of interest to the pocket auto fan. For the off-duty policeman and the occasional field shooter, Triple K makes two distinctive models. One is a hip-hugging slim style 23 with the flat tongue that slips over the trouser top. A safety tab holds the holster to the pants belt. The style 39 is made for snapping on and off a regular pants belt. The holster features a magazine pouch sewn on the outside. It is ideal for storing the gun in a drawer, ready for instant conversion to a field kit gun by merely snapping on a trouser belt.

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HANDLOADING

(Continued from page 13)

Then assemble base jacket, core, and nose jacket in that order and swage. Adjust dies and core weight so the two jackets overlap a bit when the bullet is fully formed, and you'll have an entirely satisfactory FMJ bullet. That peripheral groove where the two jacket parts join won't hurt a thing.

If you're going in for swaging very light, shot jacketed bullets for handgun use, you'll find the bearing surface gets mighty short. This can cause trouble in keeping bullets in cases. To ease this problem a bit, have a hollow-base punch made—or simply reshape the nose of the existing punch to rounded or conical form. Given the same weight and shape bullet, forming a cavity in the base will cause the bearing surface to come out longer.

There are still quite a few of the old .44 Bulldog and .44 Webley revolvers floating around, but ammunition hasn't been made in those calibers for many years. George Spence, Steele, Mo., has been forming cases for them by swaging down .45 ACP brass for a long time. If you can't find cases for loading, try getting in touch with George—he may be able to help. If there's anything in the handloading field that can be done, he can do it.

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THE SECRETS OF CUSTOM KNIVES

(Continued from page 37)

do not know of a single material that is not available to all makers, if they have the motivation to use it. Probably the most popular material among cutlers is stag, as this type of handle is much easier to make, and it requires considerably less time than would one of, for example, rosewood.

Before leaving materials, let's say for the record that if a maker refuses to reveal his steel, he's probably trying to finesse the buyer, because in all likelihood it is one of four or five standard catalog steels in common use today.

Now let's take a look at the procedures and equipment used by today's makers. There are certainly no secrets here, and several makers, including Bo Randall, Clyde Fischer, and Bill Moran, to name but three, go into great detail in their brochures to outline the steps they take in making knives. To begin their knife, most makers scribe the outline of their blade pattern on the steel blank, then cut it out with a band saw, leaving a little extra metal around the outline. A few use a cutting torch for this operation, but I frankly cannot consider this a plus factor. There are a few smiths still in the business, and at this stage they heat the blade blank to a "cherry red" in a forge, and then pound it on an anvil with a sledge, making sure that the temperature of the steel does not drop below 1400 degrees F. during this operation. Those who do not forge simply omit this step. Next the average cutler uses a belt sander to bring the blade to its final shape, and then the belt sander is utilized to place the bevels and con-

tours on the blade. Most of today's makers use such a sander, which takes off a considerable amount of metal in a short period of time, although there are a few who use a power grinder in lieu of a sander. Practically all makers then go to a buffing wheel to remove all scratches before submitting the blade to heat treating. Most makers leave considerably more metal on the blade than will be found on the finished knife before heat treating, feeling that this helps to prevent warping, and that should warping occur, the extra metal will allow them to correct the warp by grinding away steel until the blade once again reaches its straight configuration. After treating, the blade must be "drawn," which means that it is heated to between 400 and 700 degrees F., then allowed to cool. This reduces the hardness of the blade, but it also strengthens it and reduces the possibility of brittleness. The higher the drawing temperature, the softer the final blade.

The blade is then finished with either a fine-grit belt on the sander or a series of buffing wheels, although one or two makers use emery paper for this operation.

I have neglected detailing the handle operation, first because the blade is "the heart of the knife," and secondly, if the techniques for making a blade are similar among the various makers, the procedures for fitting handles are even moreso.

Am I then saying that there is no difference in the quality of the many makes of hand-crafted cutlery on today's market? Definitely not! However, the difference is a matter of skill and workmanship, not of methods or materials. For the most part, the more perfect and skillful the workmanship, the better the knife. One has only to look over several different makes of handmade knives to determine that there is a wide variation in workmanship. The men talented and dedicated enough to produce a knife of near-flawless beauty will almost certainly be dedicated enough to make sure that their blades have been properly heat-treated either in their shops with proper equipment or by commercial firms. I well remember a tale that went around the knifemaking circles a couple of years ago concerning a man who turned out second-rate knives that looked second-rate,



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laughing over the fact that he had completely assembled and finished a knife the blade of which had not been heat-treated. That self-same knife was on his display table with a price-tag on it. Assembling a knife with a non-heat-treated blade *could* happen to practically anyone, but once discovered, no self-respecting maker would offer it for sale. A maker must have pride in his work if his knives are to excell. I have tried, but I cannot think of a single maker whose knives are beautifully made and finished who does not offer a superlative knife.

In addition to the overall appearance of the knife, a person should very carefully read the contents of the maker's brochure. Note the terms of sale and particularly the guarantee. Strange as it may seem, one maker, whose work is among the highest-priced on today's market, actually has no guarantee. Other makers have somewhat ambiguous guarantees, while others will refund the purchase price only if the knife is returned to them in new condition within a very short span of time. Contrast such guarantees to the one offered by Chubby Hueske: "I guarantee full satisfaction for the lifetime of the purchaser, and may he live a long, long time." That doesn't require the services of a lawyer to understand, and during the several years that Hueske has been making knives, he has had only one request for a refund, which he quickly made. The latter is a good point as some makers offer pretty good guarantees on paper, but getting them to make good is another

matter, as invariably they explain that the failure was the fault of the user, not the maker. Certainly I'll agree that throwing a knife not designed for this purpose should void any guarantee, but when a knife fails under normal usage, restitution is in order.

The price that a man pays for a handsome knife may be deceptive. Some knives, listing at well over \$100, have fewer actual hours of labor involved than do knives made by other makers retailing at \$50. The number of hours required to make a knife in terms of actual labor vary considerably. Obviously, a man who has a considerable amount of power equipment will take less time to turn out a knife than will the man with a minimum of equipment. However, I'd estimate that the *average* knifemaker has between five and eight hours of labor involved in the *average* knife that leaves his shop. Thus, if this maker's prices average out to \$10 per hour, he is not getting rich, particularly when you consider the cost of materials, depreciation of equipment, utilities, advertising—if any—brochures, etc. In addition, many makers hire their leather-work done by another party, and the cost of the sheath must be passed on to the customer.

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THE DEADLY DART: AUSTRALIAN TRAINING TARGET

(Continued from page 25)

any action other than that of a round hitting it.

Retaliatory—24 detonators can be attached to it. If a soldier misses seeing or hitting a target, the target will fire a detonator to indicate that the enemy has fired back.

T target.

The Dart system differs from the American Trainfire System in that Trainfire utilizes coaxial cables, rather than radio impulse to raise and lower targets. More important, however, is that because of the nature of coaxial cables, Trainfire is a static system limited in its portability. Dart is completely portable. The various configurations in which it can be set up are innumerable. According to Les O'Keefe, "It can be set up like the spokes of a wheel, in 'sneaker lanes,' in battle practice form. You can let your imagination run riot as far as the equipment is concerned."

As I watched individual firers going through the two stations, O'Keefe explained. "There is an operator with a transmitter in the center, with a set sequence of operation. He follows the same sequence for all firers. The firer comes to the first firing point and fires. Then he goes on to the second point, which has targets placed in a slightly different configuration, and fires. Each lane has eight targets which are operated so that the firer has an opportunity to hit twelve exposures. The shooter has 16 rounds in the magazine, allowing him to fire four extra rounds in the event of a first round miss. The targets range in distance from 25 to 300 meters and are exposed, depending upon range, from five to seven seconds. A safety scorer (NCO or Officer) is behind each firer as he shoots. This enables him to insure that weapons are pointed down range at all times, and also provides an opportunity for close, individual coaching. The scorer records each shooter's hits and misses, noting whether a miss was due to inaccurate fire or a failure to see the target as it appeared. If,

for example, a shooter only sees four of twelve targets exposed, it is necessary to take him away for further work on target detection. If he actually misses a number of targets, he obviously requires additional training with the rifle." O'Keefe continued by advising me, "Don't be dismayed if they miss a target, they are being educated to pick up targets visually. This is a trial run. Later, we make the targets harder to detect and reduce exposure time. We progressively build the soldier up. We build confidence."

At a break in the training, I had my chance to try Dart. I had never fired an SLR, though I was familiar with the mechanical function of the weapon. It immediately felt comfortable and after a couple of rounds, I became confident that the weapon would hit what it was aimed at. (A note here: The Australians intelligently provide a high-quality, competition-type ear protector for all shooters to use while firing. The theory is that not only are eardrums protected, but flinch due, to excessive noise, is more easily eliminated in inexperienced shooters. The American Army uses only the far less effective ear plug.) Of the 12 targets exposed, I managed to hit nine, failing to see one at about 250 meters and just plain missing two others.

The average soldier achieves approximately 65 hits in 94 rounds fired. One man, who had never fired a weapon prior to entering the Army, had actually hit 78 out of 94. O'Keefe went on to say, "We started out scoring in the 40's and we thought our standards were too high. Gradually, we saw an improvement which we attribute to more emphasis on the 25 meter range and to an encouragement in competitive shooting. We record scores on a blackboard and the troops throw in 20¢ apiece. The winner takes the lot. In addition, the best shot in the platoon is acknowledged as such with a certificate."

The relaxed atmosphere of the training was demonstrated in the early afternoon. The greatest individual



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sporting event of the year in Australia is the running of the Melbourne Cup. This race virtually stops all activity in the entire country for two hours each November. At Ingleburn, Officers, NCO's, trainees and an erstwhile reporter stacked weapons and huddled around radios, while a New Zealand horse ran past the Australian favorite to victory.

While the range was being prepared for the daylight phase of the night firing training, O'Keefe explained. "There are six targets on the night shooting range. Attached to each target is a device, which when activated by the transmitter, flashes for one-half second to simulate a rifle shot. If the target is hit, it glows red and goes down automatically. This provides an immediate visual record of success, which builds confidence and interest. The old method of examining a target with a flashlight, and the resultant argument about who pushed the pencil through the target is also eliminated. No one goes forward of the firing line, increasing safety and efficiency. One bloke actually hit 36 of 40 at night and this was at 45 meters."

In night firing, a pointing rather than aiming technique is taught. The shooter aligns his chin along the top of the stock as he lies in a prone position. The weapon is grasped firmly and the head moves with the weapon as it is swung onto the target. Both eyes are open and looking in the direction of the target or enemy muzzle flash. On the sneaker or stalking lanes, instinctive shooting is emphasized. The shooter does not use the sights, but points, again with eyes open, as with a shotgun. In this case, the Retaliatory detonator attachment is affixed to Dart. If the firer does not see the target or fires and misses, an explosive simulates an enemy firing at him. These targets are engaged as the shooter walks along a path and requires both instantaneous reaction and accurate, instinctive shooting.

It was quite evident, from observing the Dart program, that the Australian success in turning inexperienced shooters into superior marksmen, comes from two specific areas. One is the low key, relaxed, and patient attitude of coaches and instructors. The second is the obvious superiority of the Dart system itself. It is portable, it may be set up in any configuration creating versatility, it is simple and durable, and most important it creates a sense of realism in marksmanship training. As Chief Warrant Officer Les O'Keefe put it, "This is proven to be the best around. We're very happy with it."



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THE NEW MARLIN .45-70 RIFLE

(Continued from page 39)

July and was offered in .25-20, .32-20, .38-40 and .44-40.

The Model 1895 was a variation of the Models of '93 and '94, it had a somewhat larger and heavier receiver and was designed especially for a larger family of cartridges. It took the popular .33 WCF, the .38-56, .40-62, .40-70, .40-82, .45-70 and the .45-90. The model was continued until 1917.

The Model 36 was the successor to the '95. The breechblock was changed from square to round on this rifle in 1948. When this change occurred the model designation was switched to "336." It has remained ever since. The Model 444, which appeared 10 years ago and was chambered especially for the .444 Marlin Magnum cartridge is the Model 336. The new .45-70, while it has been dubbed the "Model 1895" is, in reality, the Model 336. An exceedingly sturdy breech, believe me.

For many years, the Marlin company had a brilliant firearms designer named Robinson. He is dead now, but during his tenure with the company, he did a lot of most worthwhile gun developing. Among other things that he put together was the .444 Magnum rifle. This rifle was the husky Model 336, but it chambered a big .44 caliber round, a cartridge big enough for any game on this continent and probably large enough for the game on any continent. The cartridge looked something like the .45-70, except it was longer and held more powder and was infinitely more powerful. It drove a 240 grain bullet at 2400 fps and produced 3050 ft. lb. of muzzle oomph.

It just especially appealed to the left-handers, who are always wedded to the lever gun. Too, it was a replacement for the .348 Winchester which had gone by the board. "Just the ticket for a big Kodiak bear in an alder thicket," an old professional guide told me on Kodiak Island.

There was only one fly in the ointment. Neither Robinson the inventor, nor Marlin the company, had any control over the ammunition. These cartridges were produced by a single manufacturer and this outfit put the .44 Magnum revolver bullet in the rifle cartridge. These handgun bullets were jacketed for velocities of 1400 fps, at these speeds the bullets mushroomed well, the jackets held together

er nicely and performance was okay. At the 2400 fps of the .444 rifle the jackets simply exploded. The bullets broke up and penetration was poor and killing effect was indeed poor. Snow Smart, for years the director of sales for Marlin, took the .444 rifle and some of the offending ammo to Africa and shot plains game with it. He told me that it tended to splash wound and blow up on the surface without sufficient penetration.

I deliberately shot at a small Texas whitetail at 90 yards with the .444. But first, I waited until the little buck stepped behind a prickly pear cactus, with its big dinner-size leaves. These leaves are filled with pulp, fiber and water. The 240 grain bullet broke up on the prickly pear and the buck ran off unharmed. These experiences with the .444 have hurt its popularity.

When Marlin decided to chamber the Model 336 rifle for the fine old .45-70 cartridge, I heard about it through Col. Bill Brophy, who is one of the wheels with the firm. Brophy has a fine background in firearms and is invaluable as a designer and adviser in the development of new models. I immediately applauded the idea and told Brophy it ought to be simple to convert the Model 444 to the .45-70. "Not so easy," he cautioned me, "for one thing the head of the .45-70 case is bigger than the .444. We may even find we cannot cut a shell loading gate and still leave enough metal in the side of the receiver above the gate to give the receiver the strength it needs." This was news, I had jumped to the conclusion that the .444 had a bigger shell-head than the .45-70. The former measures .514" the older round goes .609".

But these and other problems were ultimately licked and the new .45-70 appeared. The Model 1895, with a 22 inch barrel which has 8 lands and grooves, a bore diameter of .450", a groove diameter of .4575", with a twist of 1-in-20 inches. The standard bullet is a 405 grain jacketed number with a broad soft nose. It mikes .4585", average variance in weight is 2.2 grains.

Factory ballistics, as given by Remington, show that this slug gallops along at 1320 fps MV and turns up 1570 ft. lb. of muzzle swoosh. It drops 25 inches traveling from 100 yards out to 200; this with a perfect zero at the shorter yardage. At 300 yards, again

with a 100 yard zero, it falls a somewhat startling 7 feet! We did not fire the Marlin beyond 200 yards because of a lack of range space. With the rifle printing 4 inches high at 100 yards, it fell 18 inches below the point of aim at 200. A drop of 22 inches, which was pretty close to the Remington tables. The Oehler chronograph, indicated only 1176 fps MV for an average of 10 factory Remington rounds, some 144 fps lower than the quoted figure.

The field test rifle arrived just before I was scheduled to depart for Africa and a safari. I intended to take the .45-70 with me. It would be a fine test of rifle and load to see what it would do on the varied fauna of the Dark Continent. Bradley Mills, a good friend and a very knowledgeable ballistician, set to work to develop a really useable handload for the rifle. It was obvious that the 1176 fps MV and the horrendous trajectories would not do for Africa, where sometimes you have to make shots at 300 yards. We were encouraged by the stories of velocities over 2,000 fps and with attendant energies in the 3,000 ft. lb. levels. Our subsequent experiences showed that these figures must have been shot with some pundit's Smith-Corona and not with a rifle.

Under Mills' careful experimentation, the Marlin shot 1685 fps with a charge of 47 grains 3031 powder, the 215 Federal primer, Remington cases and the standard 405 grain Remington bullet. This delivered 2550 ft. lbs. of muzzle energy. 5 shot groups at 100 yards from the bench averaged 1 1/4" to 1 1/2", which is exceptional accuracy. Says Mills in his notes, "This was about as high as I wanted to go with this powder. I was getting some case expansion."

I laid the thought of taking the new Marlin to Africa with me aside. It might kill okay at 1685 fps velocities, but the trajectories would still be so looping that I'd have to make too many guesses at hold-over to be assured of much success. I left the rifle in Mills' hands while I hied off to Angola. He fired the rifle some 200 shots while I was gone and kept a careful record of targets, loads, groups, and results. A meticulous student, a conscientious handloader and an engineer by background, his data is fascinating.

We had attached a B&L Balfor 4X scope in a combo Marlin base and Weaver rings to the rifle before we fired it. The stock with an excellent length of 13 3/4", and it had an extension added by Mills in the shape of a slip-on recoil pad. Other than these additions, nothing was done to the rifle. It has no sling swivels, there is

no pistol grip, the iron sights were ignored by us and the thoroughly miserable trigger pull was left unaltered. The 3 shot groups were all fired from 100 yards, using Remington factory loads, with the aid of a benchrest. The groups measured 1 3/4", 2 1/6", 3/4", 1 3/16" and 1 5/8". The handloaded groups are recorded in the table illustration.

Mills, in recapping his experiences with the new Marlin, has these comments: "To sum up a month of firing with the new Marlin, I have tested 3 powders, 3 primers, 2 factory bullets and a cast bullet of my own. The rifle is pleasant to shoot and exceptionally accurate. The recoil is heavy with top loads, but it is a slow push that does the shooter little harm. My experience with Remington factory loads show that these chronograph 1176 fps at 8 feet from the muzzle. The cartridge averaged about 1 1/2" at 100 yards from the bench.

"A load of 46.5 grains #4895 with Federal 215 primers and 405 grain Remington bullets chronographed 1555 fps, with 2175 ft. lbs. of muzzle energy. It shot an average of 1 1/4" groups. With 46.5 grains #4831 and the 250 CCI primer and the Remington bullet, I got 1315 fps velocities and 1361 ft. lbs. of energy. This load will almost shoot into one hole. Chronograph screens, when firing this primer, were speckled with many unburned grains of powder.

"For a top load for heavy game, I found that the 47 grains #3031, 405 grain Remington bullet and the 215 Federal primer at 1685 fps and 2550 ft. lbs. of energy was best. This load gave me 1 1/4 to 1 1/2" groups and was uniformly good. There was some case expansion and I question if the hand-loader should go any higher than this powder weight in the Marlin. The .45-70 is hard to ignite, I found, so I turned to the 215 Federal Magnum primer to insure proper ignition."

HANDLOADS 405 REMINGTON BULLETS

Powder	Primer	Group*
55.5 gr./4831	250 CCI	3-7/8"
56 gr./4831	250 CCI	3-1 7/16"
55.8 gr./4831	250 CCI	5-1"
44.5 gr./4895	250 CCI	4-1 1/4"
47 gr./4895	215 Fed.	5-1 1/4"
46 gr./3031	215 Fed.	4-1"
46.5 gr./3031	215 Fed.	4-2"
47 gr./3031	215 Fed.	4-1 3/8"

300 HORNADY BULLETS

46 gr./4895	9 1/2 Rem.	4-1 1/2"
46 gr./4895	9 1/2 Rem.	4-1 1/2"

*First number indicates number of shots; second number gives measurement from center to center.

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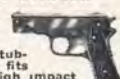
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year, he has a right to expect that, with reasonable storage in a cool dry place, his left-over ammunition still will perform perfectly. That's just one of the reasons why we use our own Olin Ball Powder in Super-X and Super-Speed center fire loads. An exclusive Olin product for 30 years, this clean-burning smokeless propellant is made through a special graining process that produces high stability and prevents long term deterioration. And hunters throughout the world

have the trophies to prove that when a single shot counts, Ball Powder delivers all the power they need at all reasonable hunting ranges.

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1. Bullet designed for extreme accuracy and maximum upset.
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Cartridge	Bullet Wt. Grs.	Type	Muzzle	Velocity (fps)	Energy (ft. lbs.)	Mid-Range Trajectory (inches)							
				100 yds.	200 yds.	300 yds.							
22-250 Super-X and Super-Speed	55	PSP	3810	3270	2770	2320	1770	1300	935	655	0.3	1.6	4.4
222 Remington Super-X and Super-Speed	50	PSP	3200	2660	2170	1750	1140	785	520	340	0.5	2.5	7.0
225 Winchester Super-X and Super-Speed	55	PSP	3650	3140	2680	2270	1630	1200	875	630	0.4	1.8	4.8
243 Winchester (6mm) Super-X and Super-Speed	80	PSP	3500	3080	2720	2410	2180	1690	1320	1030	0.4	1.8	4.7
243 Winchester (6mm) Super-X and Super-Speed	100	PP(SP)	3070	2790	2540	2320	2090	1730	1430	1190	0.5	2.2	5.5
25-06 Super-X and Super-Speed	90	PEP	3500	3090	2730	2420	2450	1910	1490	1170	0.4	1.8	4.7

And these are the deer cartridges

243 Winchester (6mm) Super-X and Super-Speed	100	PP(SP)	3070	2790	2540	2320	2090	1730	1430	1190	0.5	2.2	5.5
25-06 Super-X and Super-Speed	120	PEP	3120	2850	2600	2360	2590	2160	1800	1480	0.5	2.0	5.5
270 Winchester Super-X and Super-Speed	130	PP(SP)	3140	2880	2630	2400	2850	2390	2000	1660	0.5	2.1	5.3
270 Winchester Super-X and Super-Speed	130	ST(Exp)	3140	2850	2580	2320	2850	2340	1920	1550	0.5	2.1	5.3
270 Winchester Super-X and Super-Speed	150	PP(SP)	2900	2620	2380	2160	2800	2290	1890	1550	0.6	2.5	6.3
30-30 Winchester Super-X and Super-Speed	150	OPE(HP)											
		PP(SP)	2410	2020	1700	1430	1930	1360	960	680	0.9	4.2	11.0
		ST(Exp)											
30-30 Winchester Super-X and Super-Speed	170	ST(Exp)	2220	1890	1630	1410	1860	1350	1000	750	1.2	4.6	12.5
30-06 Springfield Super-X and Super-Speed	150	PP(SP)	2970	2620	2300	2010	2930	2280	1760	1340	0.6	2.5	6.5
30-06 Springfield Super-X and Super-Speed	150	ST(Exp)	2970	2670	2400	2130	2930	2370	1920	1510	0.6	2.4	6.1
30-06 Springfield Super-X and Super-Speed	180	PP(SP)	2700	2330	2010	1740	2910	2170	1610	1210	0.7	3.1	8.3
30-06 Springfield Super-X and Super-Speed	180	ST(Exp)	2700	2470	2250	2040	2910	2440	2020	1660	0.7	2.9	7.0
308 Winchester Super-X and Super-Speed	150	PP(SP)	2860	2520	2210	1930	2730	2120	1630	1240	0.6	2.7	7.0
308 Winchester Super-X and Super-Speed	150	ST(Exp)	2860	2570	2300	2050	2730	2200	1760	1400	0.6	2.6	6.5
308 Winchester Super-X and Super-Speed	180	PP(SP)	2610	2250	1940	1680	2720	2020	1500	1130	0.7	3.4	8.9
308 Winchester Super-X and Super-Speed	180	ST(Exp)	2610	2390	2170	1970	2720	2280	1870	1540	0.8	3.1	7.4
32 Winchester Special Super-X and Super-Speed	170	PP(SP)	2280	1870	1560	1330	1960	1320	920	665	1.0	4.8	13.0
32 Winchester Special Super-X and Super-Speed	170	ST(Exp)	2280	1870	1560	1330	1960	1320	920	665	1.0	4.8	13.0

These are the choices of the experts for open or plains shooting where long range accuracy, flat trajectory and ultra-high velocity count most —

243 Winchester (6mm) Super-X and Super-Speed	100	PP(SP)	3070	2790	2540	2320	2090	1730	1430	1190	0.5	2.2	5.5
25-06 Super-X and Super-Speed	120	PEP	3120	2850	2600	2360	2590	2160	1800	1480	0.5	2.0	5.5
270 Winchester Super-X and Super-Speed	130	PP(SP)	3140	2880	2630	2400	2850	2390	2000	1660	0.5	2.1	5.3
270 Winchester Super-X and Super-Speed	130	ST(Exp)	3140	2850	2580	2320	2850	2340	1920	1550	0.5	2.1	5.3
30-06 Springfield Super-X and Super-Speed	150	PP(SP)	2970	2620	2300	2010	2930	2280	1760	1340	0.6	2.5	6.5
30-06 Springfield Super-X and Super-Speed	150	ST(Exp)	2970	2670	2400	2130	2930	2370	1920	1510	0.6	2.4	6.1
308 Winchester Super-X and Super-Speed	150	PP(SP)	2860	2520	2210	1930	2730	2120	1630	1240	0.6	2.7	7.0
308 Winchester Super-X and Super-Speed	150	ST(Exp)	2860	2570	2300	2050	2730	2200	1760	1400	0.6	2.6	6.5

For large game — including moose, grizzly and Kodiak bear — you can count on the knock-down power of these —

*30-06 Springfield Super-X**	220	PP(SP)	2410	2120	1870	1670	2830	2190	1710	1360	0.8	3.9	9.8
30-06 Springfield Super-X and Super-Speed**	220	ST(Exp)	2410	2180	1980	1790	2830	2320	1910	1560	0.8	3.7	9.2
300 Winchester Magnum Super-X and Super-Speed	220	ST(Exp)	2720	2490	2270	2060	3620	3030	2520	2070	0.6	2.9	6.9
300 H&H Magnum Super-X and Super-Speed	220	ST(Exp)	2620	2370	2150	1940	3350	2740	2260	1840	0.7	3.1	7.7
308 Winchester Super-X and Super-Speed**	200	ST(Exp)	2450	2210	1980	1770	2670	2170	1750	1400	0.8	3.6	9.0
338 Winchester Magnum Super-X and Super-Speed	250	ST(Exp)	2700	2430	2180	1940	4050	3280	2640	2090	0.7	3.0	7.4
338 Winchester Magnum Super-X and Super-Speed	300	PP(SP)	2450	2160	1910	1690	4000	3110	2430	1900	0.8	3.7	9.5
375 H&H Magnum Super-X and Super-Speed	300	ST(Exp)	2550	2280	2040	1830	4330	3460	2770	2230	0.7	3.3	8.3

*Not for Grizzly or Kodiak Bear.

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A GRIP IS MORE THAN A HANDLE

(Continued from page 44)

the shooter to "stretch" the forefinger to reach the trigger in the DA mode. If the gun is used regularly in the field with heavy loads in the single-action mode, the shoulder is generally good. However, it may be undesirable on a DA combat revolver using moderate loads, unless the shooter has large hands and needs to compensate for long fingers. As a rule of thumb, the S&W K frame provides a good gauge of proper trigger reach for the vast majority of hand sizes. Shoulder-to-trigger distance is about 2 3/4-inches, with 3-inches being about the limit for average hand sizes. Beyond this distance, a man needs really large hands to shoot DA with the proper control.

Although the addition of a projected recoil shoulder might be questioned, the width of the stocks at the shoulder of the frame can be critical. Besides spreading recoil energy over the web of the hand, the width of the stocks contributes to horizontal stability of the gun in the shooting hand. Optimum width or thickness should fill the web of the hand adequately, so opposition of thumb and forefinger can actually support the pistol securely without assistance from the other fingers of the shooting hand. Many custom stocks flunk this test, being too thin in the shoulder cross section. Too thin stocks cannot take full advantage of the lateral support from the thumb and large knuckle of the forefinger. The factory S&W combat stock fitted to the Model 19 is nearly ideal in this one respect; it has an optimum breadth and contour at the shoulder for the vast majority of hand sizes.

The angle at which the little finger closes in a fist is sometimes greater than that of the other fingers of the hand. An angular bias at the tip end of the grip will allow the little finger to close properly in order to exert full gripping force. The addition of this extra 15-20 pounds of pressure from the little finger at the end of the grip helps stabilize the muzzle in recoil. It also enhances total gripping and trigger pulling efficiency by allowing all hand and forearm muscles to work in coordination.

Vertical stabilizing of a handgun

barrel is especially important in double action shooting where successive shots must be centered on a target. Recoil forces are transmitted to the web of the hand along the axis of the bore. Since the bore is positioned above the hand at its contact point on the grip shoulder, the gun tends to pivot around the web in recoil, letting the muzzle rise if the fingers of the hand are not fully closed around the grip.

This disturbance will be most unmanageable where the fingers cannot provide adequate corrective force to stabilize the muzzle, which can result from a poorly fitted grip or a loose hand hold. Vertical stringing of shots is not detrimental to practice scores if the shooter is horizontally centering his hits; vertical dispersions will still make 5's on a standard silhouette target.

Under combat shooting pressure, though, any natural dispersion in group placement control is magnified and can become erratic, contributing to misses. A properly fitted grip will overcome this tendency by providing for adequate finger pressure to counter pivotal recoil forces. Fingers that can fully encircle the grip exert force that pushes the lower backstrap rearward into the heel of the hand and thrusts the web of the hand forcefully against the grip shoulder high on the frame. The result is that the recoil from discharging rounds is transferred to the wrist and forearm of the shooter, centering the impact of bullets on the target and stabilizing muzzle rise for quick recoil recovery. It is easy to see why good, well-fitted custom grips contribute so much to consistent shooting accuracy.

Then how can a shooter be sure the grip is tailored to his hand dimensions? One test is to observe the tips of the middle, third, and little fingers as they curl around the grip for double action shooting. When the hand encloses the grip, the center knuckles on these three fingers should align and fingertips should not come closer than 1/2-inch (middle finger) or farther than 1 1/4-inch (little finger, nominally from the heel of the hand. The tip of the trigger finger should rest comfortably on the

face of the trigger without strain when the gun frame is aligned to the centerline of the forearm. Without this proper fit, a shooter can count on having deficiencies in DA shooting with a revolver. Single-action shooting is not so critical, since it does not require the coordinated trigger control necessary for good DA performance.

Many target shooters prefer a flare around the bottom of the grip. The function is to provide consistent positioning of the hand on the grip. Experience has shown, though, that if all other aspects of the grip are fitted properly, this flare is not necessary for the intended purpose in DA shooting. The more recent trend in revolver grips has de-emphasized superfluous projections and "horns" in favor of better basic, natural dimensions. Those grips that show economy of design reflect this trend. Steve Herrett (Box 741, Twin Falls, Idaho, 83307) was one of the pioneers in functional grip designs and his line reflects the form-follows-function idea. He has a standard line of Shooting Star and Shooting Ace grips for nearly all revolvers. In addition, Herrett's offers a custom service to meet special individual needs.

Checkering is another feature usually taken for granted on custom grips. Aside from its esthetic value, the fundamental reasons for checkering seem obvious. Ideally, checkering fields should be generous enough to provide a textured surface to bite into the skin of the shooting hand to help stabilize the gun in recoil. If the gun does not move in the hand from one shot to the next, accuracy should be improved. In truth, this feature does serve a useful purpose, if virtually all palm surfaces are checkered. Small panels of decorative checkering are just that: decorative. And, if a grip is properly fitted to the hand, checkering is not necessary for recoil stability with sensible loads. Many experienced combat revolver shooters prefer a smooth grip, since it provides for cinching up the handhold for long-range shots or rapid-fire strings. Checkering can be irritating to the hand during a fast draw and may also inhibit hand-to-grip adjustments. Checkering in the area of the web of the hand can be very irritating. Also, checkering can wear out clothing for a police officer. For this reason, some makers offer optional checkering of

outside grip panels while inside panels are flat and smooth.

Whenever somebody is going to spend an additional \$12 to \$20 or more on a shooting iron, he should think about what he wants to accomplish with the purchase. Most shooters are simply not knowledgeable or critical enough to make good judgments about handgun grips. If the reader will take some of the generalizations put forth herein and apply them to his own situation, it will help develop a critical eye for what suits him best in revolver grips. The question of custom grips is highly individual and the buyer has to know what he wants in order to gain full satisfaction. It will serve the shooter to know his own functional requirements well, rather than to approach the problem whimsically or to rely solely on other shooters' judgments. Trying several grip designs on friends' guns will increase sensitivity to one's own needs. The evolution of the modern combat grip has brought forth designs that solve many attendant problems for revolver shooting, whether for police, combat, or in the field.

The following list of handgun stock makers will serve as references for shooters interested in fitting a pair of handgun stocks

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Box 1133
Twin Falls, Idaho 83301

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Twin Falls, Idaho 83301

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BOOKWORMS AND GUNSMOKE

(Continued from page 21)

field of interest. We've compiled lists of the better references, indicating essential works with an asterisk (*), with further desirability indicated by A or B in that order. If you acquire the essential volumes, you'll be well on your way to achieving a great deal more use and value out of your guns.

Buying books can be a problem. The average book store simply won't have a wide selection, if it has any at all. Gun books aren't fast movers like whodunits and skin books, fast turnover is the name of the game. Any shop can, of course, order the book you want, but the time lag can be frustrating. The best bet is to obtain catalogs from gun book specialty houses (Ray Riling, Rutgers Book Center, Norm Flayderman) and place your orders with them. Specializing as they do and selling mainly by mail, they can give you fast, first-class service. Most of them also can provide search service for scarce or out-of-print books, and they often buy up stocks of the latter. In addition, if you know what kind of material you want,

but don't know who wrote or published it, they can make recommendations, and possibly supply it.

But just owning the books and skimming through them won't accomplish much. Study, not read, is the answer to learning. Most books are poorly indexed and need a bit of help if you'll be referring to them often. Exceptions to this rule are Complete Guide to Handloading and Principles and Practices of Handloading which are superbly indexed. The general references can be fitted with colored index tabs to indicate different subject areas.

Don't be afraid to mark or annotate a book. After all, it's a tool to be used, not an ornament for the wall. There is hardly anything so useless as an unopened, unused book displayed to impress passersby. Gun books belong in your gun room, den, or shop—wherever you keep your guns, the place where you hide out from family and creditors to commune with wood and steel. Shelved neatly out in the living room, they'll become part of the

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decor, and mama won't want them disturbed, so you won't get much use out of them. Most of my library is in my office next to the gun room, with a small selection of favorites alongside the bed upstairs. In those slowing-down times between retirement and sleep, I can just reach out for an old friend and relax.

But to today's gun buff, the basic books we've listed are only a beginning. There seem to be hundreds of titles devoted to very narrow specialized fields, and they contain some of the most fascinating information of all. For example, you'll find dozens of books devoted to Colt percussion revolvers, complete books on nothing but the SA revolver, and another on Colt Autos. Most impressive is Sutherland's "The Book of Colt Firearms," which contains amazing information on all Colt guns. There are similar (but fewer) works on Winchesters, Smith & Wessons, Remingtons, Mausers, Walthers, Mannlichers, Air Guns, Gunsmithing, Gun Sights, Stocks, Holsters—virtually any subject you might want to explore. Once you've a small basic library and use it, you'll discover fields you never even thought of before—and you'll want books on them, too.

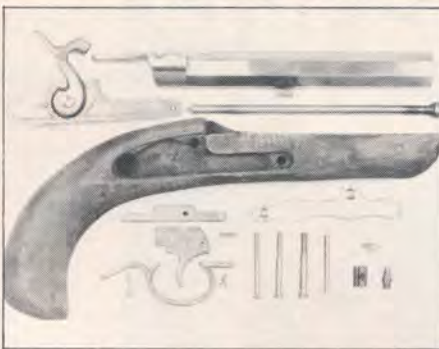
How many books do you need? A dozen, well-chosen volumes will be worth their weight in gold, and represent only \$100-\$150, depending on when and where you buy. Spread it out in time so you'll never miss it. From then on, you can go to 50, 100, even 150, and still want more. Many are cheap, but a few edge into the \$35-\$50, and occasionally more. But the more costly volumes retain their value. For example, copies of Mathews' Firearms Identification sold a few years ago for \$35 and are now worth well over \$100.

You might even become a *gun book* buff, instead of just a gun buff with books. If that happens, the sky is the limit, and a library of a couple thousand items is possible. My own shelves contain nearly that many, and not a volume there is wasted—they have all taught me something. So, don't stick to guns alone. Get a few books and *really* begin to enjoy your guns.

HANDLOADING

- *A Principles and Practice of Handloading, Naramore, Stackpole (technical)
- *A Complete Guide to Handloading, Sharpe, Funk & Wagnall (Technical)
- A Modern Handloading, Nonte, Win. Press (General)
- A NRA Handloaders Guide, NRA, (Continued on next page)

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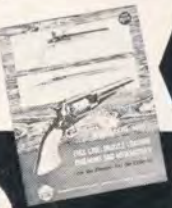


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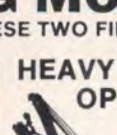
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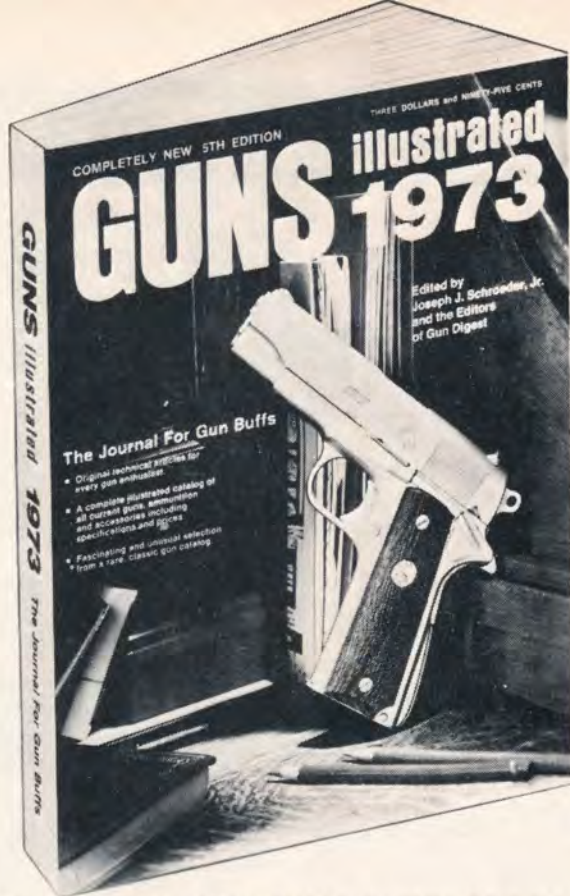
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- B Handloaders Digest, Amber, GD (General)
- B Handloaders Guide, Steindler, Stoeger (General)
- B Cartridge Conversions, Nonte, Stackpole (case forming detail)
- *A Cartridges of the World, Barnes, GD (Cartridge detail, dimensions)

MILITARY ARMS

- *A The Book of Rifles, Smith, Stackpole, (Identification & operation)
- *A Book of Pistols & Revolvers, Smith, Stackpole, (Identification & operation)
- *A Small Arms of the World, Smith, Stackpole, (Identification & operation)
- B The Worlds Assault Rifles, Musgrave/Nelson, MOR Assoc. (Identification & operation)
- B The Worlds Submachine Guns, Nelson/Lockhaven, Int. Small Arms Publ. (Identification & operation)
- B Book of the Garand, Hatcher, Stackpole (Technical)
- B Book of the Springfield, Crossman, Stackpole (Technical)
- B Mauser, Walther & Mannlicher Firearms, Smith, Stackpole (Technical)
- B U. S. Martial Pistols & Revolvers, Gluckman, Stackpole (historical)

- B Mauser Bolt Rifles, Olson, Fadco (historical, technical)

RIFLES

- A The Book of Rifles, Smith, Stackpole (description & functioning)
- A Small Arms of the World, Smith, Stackpole (Military)
- *A Hatcher's Notebook, Hatcher, Stackpole (General)
- B Bolt Action Rifles, DeHaaz, GD (History & description)
- B Single Shot Rifles, DeHaas, GD, (history & descriptions)
- *A Big Game Rifles, Keith, Samworth (hunting)
- A Gun Digest, Amber, GD (General, annual)
- B Book of the Springfield, Crossman, Stackpole (Springfield rifles)
- B The Winchester Book, Madis, Madis (Winchester lever actions)
- B Mister Rifleman, Whelen, Petersen (General)
- A Rifles & Shotguns, O'Connor, Harper & Row (General)
- A Complete Book of Shooting, O'Connor, Harper & Row (General)
- *A The Rifle in America, Sharpe, Funk & Wagnall (Historical to WWII)

SHOTGUNS

- A The Golden Age of Shotgunning, Hinman, Win. Press (historical)
- *A Shotguns by Keith, Keith, Stack-

- pole, (General)
- B Gough Thomas's Gun Book, Garwood, Win. Press (Gunning, British)
- *A Rifles, Shotguns, O'Connor, Harper & Row, (General)
- B Sure Hit Shotgun Ways, Sell, Stackpole (General)
- B Game Shooting, Churchill, Stackpole (Gunning)
- B U.S. Shotguns, Normount (Military)
- *A NRA Shotgun Handbook, NRA (General)
- A Gun Digest, Amber, GD (General, Annual)

HANDGUNS, MODERN

- *A Pistol & Revolver Guide, Nonte, Stoeger (Shooting, Functioning, Repair)
- A Pistol Shooters Handbook, Askins (Shooting)
- B Handgun Digest, Grennell/Williams, G.D. (Law Enforcement Use)
- *A Book of Pistols & Revolvers, Smith, Stackpole (Descriptions & Functioning)
- B No Second Place Winner, Jordan, Jordan (Modern Gunfighting)
- A Small Arms of the World, Smith, Stackpole, (Military)
- B Pistol & Revolver Cartridges, White/Munhall, Barnes (Ammunition)
- A Pistols, Revolvers & Ammunition, Jasseraud/Stevenson, Crown (General)
- *A Sixguns, Keith, Stackpole (Revolver, hunting and field)
- B Firearms Identification (I & II), Mathews, Univ. Wis. Press. (Photos & descriptions)

GENERAL

- A Modern ABC's of Guns, Steindler, Stackpole (General)
- *A Small Arms Lexicon & Encyclopedia, Mueller/Olson, Stoeger Definitions)
- B Small Arms Design & Ballistics, Whelen, Samworth (OP) (General)
- A NRA Shooting Handbook, NRA, (Shooting, General)
- B Americans & Their Guns, Trefether/Serven, Stackpole (Historical, general)
- *A Hatcher's Notebook, Hatcher, Stackpole, (General)
- A Gun Digest, Amber, GD, (General, annual)
- *A Anatomy of Firearms, Wallack, Simon & Schuster, (General)
- B Textbook of Small Arms 1929, Pollard Press, (Historical & technical)
- B Firearms Factbook, NRA (questions & answers, general)

HATS OFF TO THE .45-70 CARTRIDGE

(Continued from page 35)

much time wiping eyes and coughing. General George "Yellow Hair" Custer may have made his greatest mistake when he declined to take a pair of these stutter guns to Little Big Horn, thinking they would slow his trip. Not many men would challenge the authority of a .45-70 Gatling gun that would address the gathering.

It wasn't until 1892 that still another United States Ordnance Board finally scrapped the single shot trapdoor Springfield .45-70 for the .30-40 Krag Jorganson bolt action repeater with its smokeless powder. Did I say "scrapped?" Perish the cruel word, because as the slow transition from the musket to the rifle took place, the noble .45-70's went into the hands of the National Guard! And they weren't destined to rest. When the Spanish American War was declared, the "volunteer" units of the "Guard" boated to Cuba with their single shots to face the hissing, high velocity bullets of 7M/M bolt action Mausers! Only the "regulars" and a few select groups of militia like Teddy Roosevelt's "Rough Riders" were armed with Krag's. The Guard took heavy and unnecessary losses when the Spaniards concentrated their Mauser fire on the smoke from our soldiers' .45-70 black powder rifles. When the conflagration ended, the National Guards transition to boltguns resumed at a snails pace and, because the .45-70's were considered to be sufficient for such duties as marching and firing salutes at cemeteries, a few actually continued in guard service until after the first World War. Let's find out what happened to the rest.

The "trapdoor" Springfields were sold off, in lots and piecemeal to various enterprises like Bannermans and Kirk Bros. and large numbers went to members of the National Rifle Association at prices as low as \$1.50 per gun, plus charges for shipping and handling. Because of their long tenure, both in manufacture and in service, the condition of the rifles being sold could run the entire gamut of appearance. Some looked astonishingly new, while others were atrociously bad. The one pleasant factor was the low price and if you had bad luck you could always try again. With hacksaw and file, you could remodel the big boomers to your hearts delight. They were everywhere! Veterans posts

carried the rifles in parades and funerals and they hung on hundreds of walls. Try and find one now!

Black powder cartridges, in both bullet weights, were as cheap as the rifles and were sold in cases, cartons and bandoliers. This meant that the



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big 405 and 500 grain slugs were looping their merry way across target ranges, woodchuck meadows and deer runs all over these United States. The Winchester 1886 lever gun was available in .45-70. So was the Marlin Model 1895. The Winchester-Hotchkiss boltgun was briefly offered in .45-70 and an even larger number of Remington-Lee rifles in this caliber appeared on the market. These latter two bolt actions and the lever action repeaters could handle breech pressures somewhat higher than the recommended allowances for the old Springfields.

This eventually resulted in the introduction of a .45-70 "High Velocity," smokeless round which featured a 300 grain jacketed soft point at a muzzle velocity of 1890 feet per second and with 2370 foot pounds of energy. This bullet rose only 6½ inches at mid-point to travel the first 200 yards and gave the flattest available trajectory in commercial .45-70 cartridges. Listed as the ".45-70 Winchester and Marlin," the buyer was supposed to know that it was not meant for trapdoor Springfields. However, since many a peasant tromped into the local hardware emporium and simply muttered "Gimme a boxa them .45-70 government cartridges," it was a surefire bet that many a high velocity load got latched in by the hinged block of the Springfield. To forestay this eventuality, the "High Velocity" loads were dropped and only the mild fodder has been available ever since.



Navy Arm's Rolling Block Buffalo Rifle actions are richly color-hardened and are complemented by a highly polished solid brass trigger guard and walnut colored wood stock and fore-end. The barrel band is also made of the same highly polished, solid brass.

Not that this deterred the lads who wanted to go full bore in the "better" guns. The cavernous mouth of the big straight brass tube was easy to get powder into. Casting bullets was no problem either, but the lead disappeared quickly. Technically, the 7000 grains in a pound should yield 14 of the 500 grain bullets, but what with sprue and skimming, you might get 12 or 13 good ones. The .45-70 is not too hard to reload, so now that the cartridge is revived, we can talk about restuffing the brass.

In the new Marlin and Ruger rifles, you can certainly get plenty of whumps, but unless you really need it for game animals, it is foolish to be power happy. The .45-70 can be a real

fun cartridge, if you do not have a hangup on velocity. The real expert aspires to accuracy rather than speed. I am also inspired to remind you that these big lobs of lead do not break up in earth like the super speedsters. They are notorious for taking off again from rocks, ground or what have you to sing, hum and whine all over the landscape. Backstops must be well chosen! Do not be deterred from reloading however, because big bores



The Shikari from Harrington and Richardson uses the familiar single barrel shotgun action, but is strengthened and has been chambered for the .45-70. The cartridge has a long and unblemished reputation as a hard hitter. Care should be taken not to overload the cartridge.

are beautiful! You will get the most pleasure and the greatest economy from using the cast lead bullets. To really get the "feel" of the big cartridge, you must try it sometime with the 70 grain black powder charge. The real "feel" includes stepping through the acrid smoke to see where she hit. I tried this a couple of times and it is a real laugh. The proper powder granulation is FG and the bullet should be 400 to 500 grains to consume the coal. You will have to clean the barrel well afterwards and saliva moistened patches still do a great job followed by dry ones.

seems ultra mild in the big case, treat it with the same respect as any full power pistol load.

When we move up in power, we find that similar velocities are achieved by lead or jacketed bullets of equal weight, but there is little point in pushing the lead ones any faster than 1325 F.P.S., because accuracy will not improve. Further, the smokeless powders adapted to the .45-70 seem to disappear in the huge

case. Don't overload and check carefully for double charges! Consult your reloading books and cast bullet catalogs for suitable combinations. The 405 grain bullet, cast or jacketed, is a good all around bullet and you can duplicate the factory loads with 17 grains of Unique or 29 grains of 4198 to give around 1300 F.P.S. Sticking with Winchester or Remington jacketed soft points, the 405 grain bullet can have its velocity upped to 1625 F.P.S. with 50 grains of 4895 or 48 grains of 3031. This gives a much more favorable trajectory and is fine for game shooting out to 200 yards. Some owners of these newer rifles will want to try the high velocity type of thing with a 300 grain bullet. This will require 57 grains of 3031 and gives 2000 F.P.S. Such a load, zeroed at 100 yards will be one inch high at 50 yards and about a foot low at 200, which is not too bad. Hornaday makes a good 300 grain bullet for this load. The .45-70 is accurate but not a bench rest cartridge. A good hunting rifle will print the factory fodder in about 2½ inches at 100 yards and if you want to see something under ½ inch you just fire one shot!

Now that we have studied the cartridge, we can take a closer look at the several fine rifles that have just been announced. One, a single shot with nostalgia and class, the other, an excellent lever action repeater in the classic tradition. There is also a re-issue of the old trapdoor.

While the beautiful Ruger Number One single shot can be had in .45-70, the rifle I want to discuss is the new Number Three. This single shot has the same high strength, falling block action, but in a defrilled form. The lever is similar to the old standard shapes found on early Winchester and

Stevens SS rifles. Buttstock is plain, without pistol grip and the forend has the classic carbine barrel band. The gun is trim, neat, light and has the muted elegance of fine craftsmanship. When you drop the powerful breech-block, a lot of light seems to come through that big hole to illuminate the crisp looking rifling. This elegant little carbine seems to talk to you. It says that anything the .45-70 can do, can be done to perfection in its fine machinery. And that's for sure.

For those who like to rack in another round with the flack of a loop lever, the new Marlin Model 1895 puts 5 big ones at your command. Like the Ruger, it has a 22 inch barrel. The buttstock is straight and the half magazine tube extends a few inches beyond the forend. Action is almost a duplicate of the one on the .444 Marlin with minor changes to accommodate the larger cartridge. Knowing that the large capacity of the .45-70 case might tempt handloaders to exceed safe charges, the Marlin Company cautions against loads that exceed the factory rounds. They specify that overall cartridge length should not exceed 2.55" to function properly through the magazine.

Finally, the most nostalgic of the .45-70 rifles is the beautiful reproduction of the original trapdoor Springfield that is being offered by Harrington and Richardson. It is well made and case hardened in colors to add to its handsome appearance. Introduced in 1971 to commemorate H & R's 100th anniversary, the "Officers Model" Springfield is one of the few completely authentic replicas of old time firearms offered in this country. Like its predecessor, the H & R Springfield is designed to handle *only* the factory cartridges and the low pressure reloads. As I previously stated, *any* .45-70 loads should be checked for double charges, because some smokeless powders occupy very little space in this big cartridge that was designed in the days of bulky black powder.

As a hunting cartridge, the big boomer has a fine reputation. It is at its very best in deep woods and timberland where the heavy projectile can show off its inherent brush bucking ability. Rifles in this big bore class are seldom scoped, but if you wish to add glass to make aiming more precise, go to it. The only caution is to stick to low power with plenty of brightness for the specialized close-in work of the big bores. Four power is maximum and one of the new low range variables would also work O.K. Post or post and crosshair reticles are best for low light woods shooting and those fast throw-up-and-shoot occa-

sions when a bold aiming point is desirable. Don't be tempted to over reach the practical range of the high trajectory bullets. They do a really great job within 150 yards and still hit plenty hard at 200 when the rifleman is expert enough to properly judge the bullets drop.

Factory ballistics and sighting data are given in a separate box, and if you file this data, it goes toward the end of the notebook where the really big boys hang out.

.45-70 BALLISTICS 405 GRAIN BULLET

Muzzle Velocity—1320

50 yds.	100 yds.	200 yds.	300 yds.
(1320)	1160	1050	990

Energy, Foot Pounds—1570

(1570)	1210	990	880
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Trajectory, Inches

12.4	Zero	-25.1	-81.2
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Factory ballistics are intentionally un-

derpowered because of the many old rifles still in use and breech pressures are limited to about 16,000 pounds per square inch.

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(Continued from page 75)

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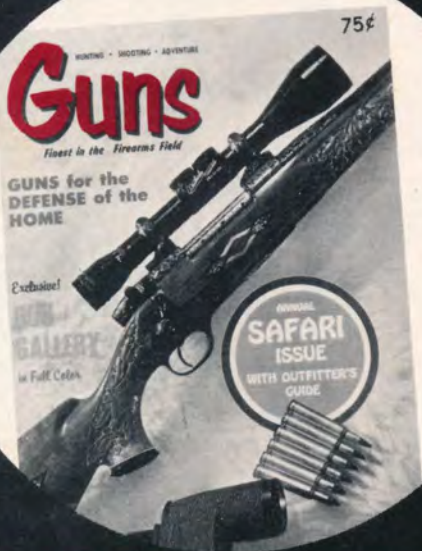
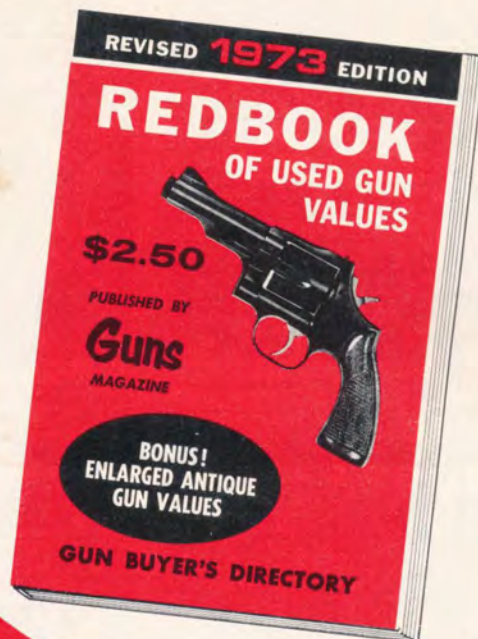
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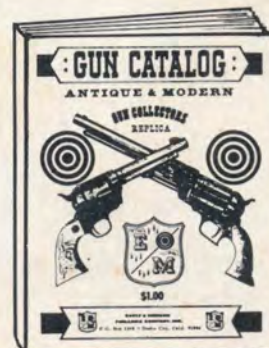


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