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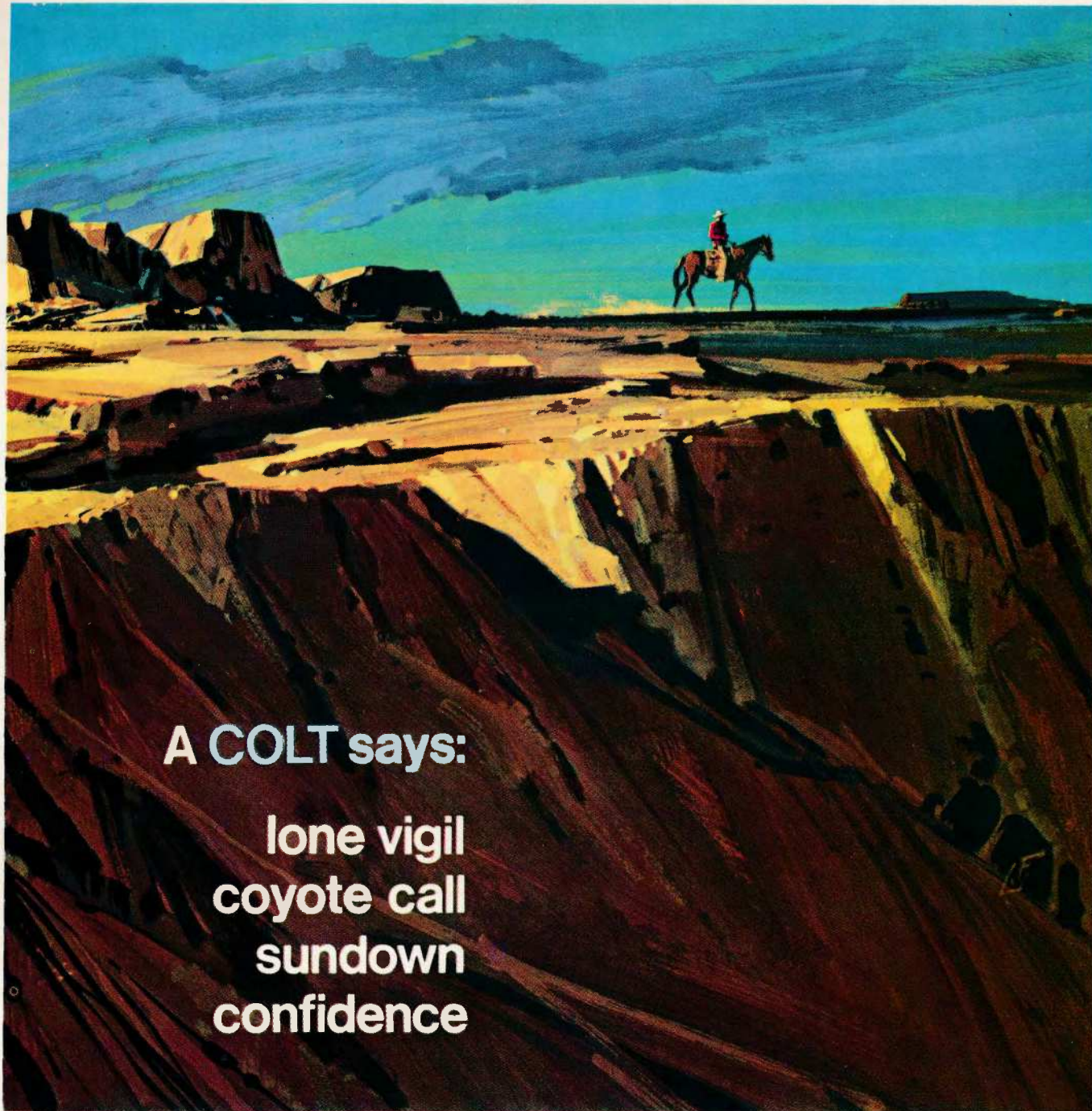
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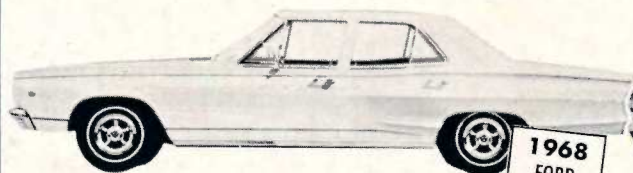
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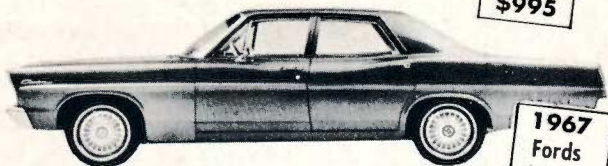
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TRIGGER TALK

THERE IS A MORAL, I believe, in the tale of two cities; Chicago and Miami. In Miami, which certainly has a crime problem, but nothing compared to that of Chicago, the Chief of Police has taken a strong stand against "young hoodlums." Perhaps Chief Walter Headley's language was a bit strong when he said "Felons will learn that they can't be bailed out of the morgue," but I'm sure that none of the hoodlums misunderstood what was said.

In Chicago, on the other hand, the mayor was "shocked" when a city alderman was shot down in the streets, and he quickly called a special session of the city council to "put an end to this lawlessness." How? By proposing a city gun registration law.

I live in neither of these cities, but if I were inclined to move, there is little doubt which I would chose. I ask myself one question: "If I were walking down a dark street, and were approached by a person or persons whose intentions were clearly criminal, which would I rather have, a gun or a gun law?"

• • •

This idea of gun registration is difficult for me to understand, especially after spending some late evening hours reading every page of testimony given at the various federal hearings of committees studying crime, gun legislation and juvenile delinquency. Of all of the proponents of strict gun controls who testified, not one offered any evidence of firearms registration materially reducing the crime rate or effecting the apprehension of criminals. In fact, New York City police reported that during 1966 *not a single NYC homicide involved a licensed firearm.*

• • •

In November, citizens of the U.S. will vote into office a number of civil servants. Wouldn't it be nice if we could elect a pro-gun/anti-crime President? If not this, at least a man who would appoint an attorney general who would have guts enough to stand on the steps of the Department of Justice and yell out to law enforcement officers throughout the country: "Go get 'em!" There are such people in politics, you know, and if they would come out and say that they were pro-gun and anti-crime, they could, theoretically, count on the votes of more than 25 million hunters, target shooters, and gun collectors. Or could they?

THE COVER

The lead article this month brings out one interesting point in the current M-16 controversy. It may well be that this GI is carrying a rifle that is doomed to become obsolete; not because it is basically poor in design, but because some Pentagon whizzes made a decision which could have cost him his life. U.S. Army Photo.

MARCH, 1968

Vol. XIV, No. 8-03

George E. von Rosen
Publisher

Arthur S. Arkush
Ass't to the Publisher

Guns

FINEST IN THE FIREARMS FIELD

C O N T E N T S

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CROSSFIRE

Autos For Police?

Concerning a recent article in GUNS entitled "Are Auto Pistols For Police?" I would answer yes. Nonetheless, an unqualified no would be the answer to any caliber under .40 for police work!

It is the same old story over and over: The experience of Elmer Keith, the late General Julian Hatcher, and others, and extensive testing, shows that small bore, high velocity handgun cartridges are simply not effective as manstoppers. The 9 mm Parabellum round is actually inferior to the .38 Special in the opinion of many.

The trend to a more realistic size and weight package to match a handgun cartridge is good, e.g. the Chief Special S&W, along with the S&W 9 mm Auto. But I fear the Illinois agency using the 9 mm Luger shell will be sorely out-gunned as long as hoods use Government .45 automatics. Of course, the riot gun will always be counted upon to preclude any possible shoot-out with mere handguns. I would not like to approach a car with only a 9 mm on me.

I believe the new .41 Magnum is the ideal police load for revolvers (let's have a metal penetrating bullet please); with the Colt Commander .45 ACP the final word in autoloaders with many fine bullet types available.

Now when some genius comes up with a double action, staggered magazine auto pistol using the .45 ACP, then . . .

C. C. Hauser
Oklahoma City, Okla.

I was interested in your article "Are Auto Pistols For Police?" in the December GUNS. The answer, in my opinion, is a resounding yes. In the past auto pistols were subject to jamming, but these are pretty rare, except on the last round, nowadays. And if they are fed decent, recently-made commercial ammunition, misfires are almost non-existent.

As for the 9 mm as a manstopping load, it can be pretty potent. The hollowpoint bullet would be even more deadly. A 120 grain hollowpoint bullet would be "railroad gin" on bad guns.

As for capacity an auto has them all beat. The Browning's tops in this department. Not to sound prejudiced, the only thing keeping the Browning 9 mm from being the greatest pistol ever for military or police use is the lack of a double action feature. It has more fire power than two revolvers of .38 caliber. I hope the police departments, as well as maybe the military, will go to 9 mm autos.

Thomas Oldroyd
Columbia, S. C.

Japanese Gun Models

In reference to "Amazing Non-Guns from Japan" in the January issue and your editorial note at the end of the article advising that "models" are not available in the United States. Your readers should also be advised that the Colt models (and perhaps others) cannot be imported into or sold in the United States without infringing Colt's registered trademarks.

Paul G. Gubbins, General Counsel
Colt's Firearms
West Hartford, Conn.

S&W Model 76

Sometimes the mail is a little slow reaching us here in Vietnam but I still am able to keep up with GUNS Magazine. Each and every issue is outstanding.

The article by Jan. A. Stevenson in the October issue, "S&W Model 76," was very good. It sounds like the people at S&W have themselves a real barnburner. I hope to see this weapon, or one of its type in 9 mm, in the field soon. I am curious as to the source of Mr. Stevenson's information on the M2 Carbine. He states its cyclic rate of fire to be something over 1000 rpm. According to the U. S. Army Training Manual and W.H.B. Smith's *Small Arms of the World*, the cyclic rate of the M2 Carbine is 750 to 775 rpm.

Thanks for a fine magazine and keep up the good work. You have a lot of service men reading GUNS whenever we are able to get it.

MR1 William R. Shepherd USN
Saigon, Vietnam

Fast Draw

I read with interest the article "Is Fast Draw Dead?" and wish there were more of this type of articles written and published. Also, the article "Guns of Riots" was of interest

due to my status as a "Special" Deputy Sheriff of this county. Thanks for publishing the article in reference to fast draw. I also read with interest the article on the High Standard Model 10 riot gun for law enforcement. While it sells for \$150.00 to such agencies, I'd think that was too much for the average policeman to buy himself, as it was suggested they do.

Richard M. Needham
Lancaster, Ohio

Thank you for the article concerning the sport of fast draw printed in the November issue of GUNS. Jay Charles presented a fine article to the readers of your magazine and its presentation in full color was quite impressive. This article, together with past articles, in your magazine about fast draw have done a great service to the sport. It is a safe, highly competitive sport for young and old alike and it is gratifying to see it presented in such a fine manner as your magazine did. Incidentally, I am the Chairman of the Western Fast Draw Association.

George A. Reese
West Covina, Calif.

The Champ Says...

I recently read an article on fast draw in the November issue of GUNS Magazine. I would like to congratulate Jay Charles; I think he did a fine job. I am a fast draw enthusiast myself, therefore I was very pleased to see our sport get some acknowledgement in such a fine magazine. I would like to see more articles on fast draw in the future. Fast draw is a very interesting and challenging sport and can be lots of fun. It isn't really expensive and anyone can join in the fun. Again, let me congratulate your magazine on such a fine fast draw article.

Ron Bright
1967 World Fast Draw Champion

Police Matches

In the November issue of GUNS Magazine I read a very interesting article entitled "Police Matches—Competition Or Training" by A. Robert Matt. The men of the Hastings-on-Hudson, New York, Police Department would like to commend Mr. Matt and your staff, for they handled the combat shooting topic superbly.

Ptl. Joseph Marsic
Hastings-on-Hudson, N. Y.

M-16 In Combat

I have read many articles in many different magazines, papers, etc. concerning the causes of malfunctions with the M-16 in Vietnam. I am sick and tired of hearing people say that the main malfunction is the Marine himself, meaning improper cleaning. Although in some case this may be true, it is NOT in most cases. I am speaking as a former Marine squad leader in Vietnam. I have had fresh replacements report to me for duty with my squad and the M-16 rifles they had were brand new, fresh out of dry packs. I had them clean them under my supervision, then, as my usual procedure, test fire them.

Three rifles malfunctioned due to failure to feed. This is caused by too much pressure from the magazine spring on the rounds, making the round hit the upper rim on the face of the chamber when it is carried forward by the bolt. This is done away with by carrying 18 rounds per magazine instead of the 20 it was made for. The M-14 certainly doesn't do this.

Other malfunctions included failure to extract. What causes this, I think everyone would like to know. Although it has been blamed on faulty rims on cartridges causing the rim to rip on extraction by the bolt. I don't believe this is a main cause as more people would have this trouble at the same time as ammo is issued in lots. I believe the trouble lies in the chamber. I just wish some of the experts would come up with a definite answer.

I think it's a pretty sad state of affairs when Marines go into combat with rifles having cleaning rods taped to the side of the rifle's forearm for easier access, so as to knock jammed shells from the chamber. I have yet to see a North Vietnamese with his rifle's cleaning rod at the "ready."

Cpl. D. T. Martin
Camp Lejeune, N. C.

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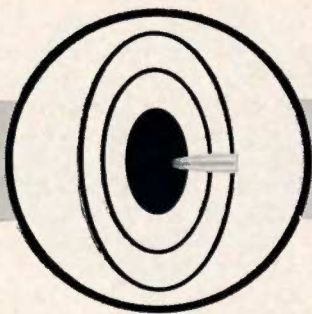
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POINT BLANK

By COL. CHARLES ASKINS

ALL THE FIREARMS writers, if you will follow their mental perambulations for a time, have some hobby they follow. One is hipped on a particular caliber; another shows a predilection to one make of shooting iron, and still another shoots one-inch groups and always kills his game at hell-and-gone yardages. I've got my eccentricities, too.

I'm a little paranoid on stock finishes, not so much over that kind of varnish that makes 'em look pretty but more about this new gunk that seals out the water. I hunted for a month in the monsoon season of Asia and the gun and I both stayed soaked for the whole interval. Every few days I'd miss an easy shot and every few days I'd sight in all over again. I must have had a half-dozen different zeros on my sights during that shikar. That walnut had soaked up enough rainwater by the end of the hunt so that you could have almost wrung it out like a damp towel. That experience made a believer out of me.

If you are going on even a short soiree where you know you will probably get yourself and the firearm well dampened down, make your own test. Place the rifle on the grocer's scales and make a note of the weight to the fractional part of an ounce. After the hunt weigh it again. You may have been out in nothing more severe than a slight drizzle or a mild snowstorm but the wood in the stock will soak it up. And the most of the absorption is in the barrel channel and the inletting for the action — right where it does the most harm when the walnut swells very promptly.

The new dodge is to treat the stock with a synthetic resin finish. This goo wasn't developed especially for gun wood. It was brought along for boat finishing, for the sealing of swimming pools, use on garage floors and other places where it gets the devil's own hard wear. The fact that it is the latest best answer for the outdoorsman's shooting iron is happy coincidence.

Experiments with several synthetic resins on the market have persuaded me that Polyform, made by an outfit

of the same name which picks its mail out of Box 305 G, in Escondido, Calif., 92025, is probably the most satisfactory. As a test of this finish, I pulled a rifle down, removing the barrel and action, taking off the recoil pad, the swivels, and then punching out the inserts. After that I did a careful job of applying the Polyform. The old finish must be removed and care has got to be exercised that you do not get too much build up in the recoil-lug mortise. After that I weighed the stock. It was a selected grade walnut, a piece that had cost me a hundred and twenty-five skins. The weight came out to 3 lb., 5.75 ounces.

I dropped this stock into my horse tank and permitted it to float there for 24 hours. I turned it every hour or so during the day. After the soaking, I removed the wood and dried the stock with a bath towel. I then weighed it again. The weight was then 3 lb., 7.55 ounces. The gain was less than two ounces, actually 1.80 oz. This was a terrifically severe test, worse than anything which might occur in the game fields. I have yet to find any other of the synthetics that will do as well as Polyform.

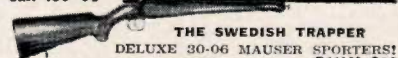
A gunstock properly finished with this preparation simply will not shift or change zero regardless of the amount of exposure to humidity, rain, snow or freezing and thawing. When a fellow is making a long intensive hunt in far places, usually at considerable expense, it is nothing less than plain horse sense to make those simple preparations which will insure a good accurate shot when the opportunity offers. There are precious few hunting spots on this continent where during the hunting season you don't run into a plentitude of stinky weather. When the gun wood is gone over with one of these synthetics, it is ready for whatever may come.

Walther P-38

One of my favorite handguns is the Walther P-38. This number is imported by Interarmco, Ltd., Alexandria, Va., and now weighs only 27½ ounces. Several of the WW II pistols in my collection weigh 32 to 33 ounces. The Walther Co. of West Germany,

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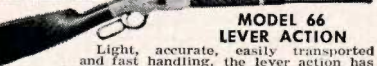
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when they resumed manufacture of the P-38 in '57, redesigned the receiver to incorporate a lightweight alloy and this brought the poundage down.

The P-38 is chambered for the 9 mm cartridge. Before the war the pistol was tried in both the .45 ACP and .38 Super calibers but production was never cranked up. I would like very much to see the pistol chambered for the .38 Super. This is the best of all the automatic cartridges.



New commercial P-38 imported by Interarmco, Alexandria, Va.

The Walther has a barrel which is just a whisper under 5 inches in length, with 6 lands and grooves, right hand twist, 1 turn in 15.65 inches. The sighting radius is seven inches and the front sight is a post, 1/10" in width, and the rear is a sort of Patridge with straight sides and a U-bottomed notch. Both front and rear sights are movable for windage but have no elevation adjustment. If the rear is to be moved the pin-type indicator which protrudes when a round is in the chamber, must be removed.

With some modifications I successfully fitted a Micro adjustable rear sight to the new Walther. The front post was built up with welding metal until it gave a full 1/8" Patridge outline.

The P-38 is remarkably insensitive to cartridge changes, powder weights and a variety of different bullets. It fires from a securely locked breech and withstands pressures of 35,000 psi which is hot stuff in any handgun. The Canucks loaded a special 9 mm round with a 114 gr. bullet and got 1480 fps MV out of the loading when fired from a 12 1/2" barrel. I have been shooting some of this fodder in the new Walther and other than turning up a pretty hefty recoil it digests the load without a bobble.

Norma is out with a new 9 mm bullet with a hollow point. This is a move

in the right direction for the 9 mm, as fine pistols like the Walther suffers grievously from a lack of really high performance ammo. Speer, likewise, is off on the right track with a soft-nose which functions through the pistol with nary a feed problem. Cast bullets, I have found, if hardened sufficiently function very well. On game, however, the performance is poor. The slug is so hard it will upset no more than does the conventional jacketed bullet.

The P-38 is not a target gun. It is hard to get a targetman's pull and the sights have to be overhauled in a major way to be satisfactory. The pull has a military take-up and then the true release can be commenced. This takes some practice. There is a bad over-travel after the sear releases and this can be corrected. The angle between barrel and stock is too sharp and as with our own .45 auto this is objectionable. But for hard everyday usage, as a service gun, as a hunting gun, and a pistol you can pack, neglect, fail to clean, stuff with any commercial or handload, it always shoots!

Headspace and Tolerances

The other day in one of the prize booby's of the month, I dropped a .280 round into a 7 mm Magnum chamber and fired it. The two shells have the same length; the .280 runs 2.54" while the 7 mm Magnum goes 2.50" but the big Magnum case is a lot fatter. Just ahead of the belt it measures .513", while the .280 is only .470 inch. At the shoulder just behind the neck of the case the 7 mm Magnum shows .492", while the .280 is only .441". The cartridge, a standard Remington loading, split from just ahead of the extractor groove almost to the shoulder. Gas spewed out in

(Continued on page 70)



HANDLOADING BENCH

By MAJ. GEO. C. NONTÉ

WHEN YOU READ this, it will be almost time to start scouting for good spring varmint shooting grounds again; winter will be fading out; snow will be gone, and patches of green will be spreading in the chuck pastures and sod poodle towns. All manner of attractive varmint targets will be starting to move.

And, if your pet varmint rifle stood idle in the closet all winter, it will be in need of a bit of checking and tuning. If it's a good-quality rig and the stock didn't warp or shift during those smokeless months, chances are the rifle won't need much except a good checkup and a few rounds to verify last season's zero. Of course, it may not shoot for sour apples and, if that's the case, you've got a major tuning job on your hands. All the more reason to check it out early and see just what a winter's idleness has produced. If you wait until that first sunny day when all the beasties are out and *then* find your smoke pole isn't shooting where it looks, you're going to be one sorry powder-burner, believe me.

So, that takes care of the gun—but what about your ammunition? Did you have a fair supply of handloads left over last season? If so, better inspect them carefully—if those cases had been resized and loaded a good many times without any extra neck annealing, you may find some split necks by now. This is especially true if you were using an expander plug significantly smaller than the bullet, and also if your resizing die squeezed the case necks down a relatively large amount. If you do find a few split necks, it won't hurt to shoot them, but don't expect the usual degree of accuracy. When the neck is split, the bullet is no longer held tightly in the case, therefore, offers very little resistance to expanding powder gases as the charge is ignited. This means less uniform ignition and less uniform velocities—and we all know what *that* does to accuracy. Kicking gravel in the faces of your targets won't run up a score you can brag about down at the pool hall.

Of course, we hope mightily that the stuff you have left over from last year was properly labeled so that you'll be able to duplicate it now. If it wasn't, then it's time you learned a lesson about that! Prepare your labels at the same time the loading is done and make sure they will stick to the box. If you don't do that, then sooner or later you're going to wind up with ammunition that contains an unidentifiable powder charge, even though you just *might* be able to identify the bullet by sight.

What I really prefer to do is shoot up all that leftover stuff and start afresh. And, start by careful fired case inspection. Weed out those that have ragged mouths, bent rims, slightly loose primer pockets, oversized flash holes and any visible signs of previous subjection to excessive pressures. Brass is cheap when you consider the number of loadings that can be gotten out of a single case, so it's foolish, false economy to try to squeeze "just one more load" out of one that's beat-up.

Now is a good time to clean the cases that survive your rigid inspection. There are a number of good cleaners on the market, but they all cost a goodly sum of money for a relatively small quantity. For over a score of years, I have cleaned most of my *working* cases in a solution made of common cider vinegar, table salt, and warm water. A cup of vinegar, a quart of water, and a tablespoon of salt will usually do the job. This solution can't possibly hurt the cases, and it does work quite slowly. I usually throw the *decapped* cases into it in the evening and leave them overnight, stirring them up a time or two before retiring. A couple more stirrings in the a.m., then rinse in hot running water and turn them out to dry. This won't produce glistening, new-like brass, but it will remove all of the objectionable crud. If there are thick spots of corrosion, they may have to be wiped off with a coarse cloth before rinsing, but this doesn't

(Continued on page 71)

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News from the...

SHOOTERS CLUB OF AMERICA

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

With more rigid control of firearms by Federal law certain to be hotly debated in the second session of the present Congress, and with domestic unrest and the rising crime rate already slated to be political issues during the 1968 campaigns, it may be wise to examine the dismal failure of the Sullivan Law, enacted by the New York State Legislature in 1911. This law requires a permit for the possession of a pistol in the home or in a place of business.

Argument in favor of the Sullivan Law at the time it was enacted was that a person who found it difficult to obtain a gun, might change his mind, or have time to come to his senses about robbing a grocery store or shooting his landlord.

In New York City, the Sullivan Law is enforced by the Police Department. The number of pistol permits has been gradually reduced over the years, particularly the type granted to store owners. In 1930, 6,363 premises permits were issued; this number was cut to 282 by 1966.

But the New York City crime rate has steadily increased during these same years. Murders went up by 237% from 1940 to 1966, while Police Department expenditures rose by 232% and the city's population increased by only 4%. Pistol seizures more than tripled during the same period. In New York City today, in spite of the strictest pistol law in the country, a well-trained and surprisingly efficient police department, and a steady reduction in the number of legally owned pistols--the crime rate has gone up tremendously and, judged by the seizure record, there are now many more illegal pistols actually in circulation. Clearly, the causes of crime lie elsewhere than in the legal ownership of firearms by New York State citizens.

Despite these facts, or perhaps not knowing them, President Lyndon B. Johnson recently urged Congress to enact stronger laws with which to fight crime and asked for the prompt enactment of a Federal law "similar to the Sullivan Law of New York." Members of the Shooters Club of America must see to it that their congressmen become familiar with the failure of the Sullivan Law during the more than half a century it has been operative. Federal law in this field would pre-empt both State and City laws, and there is no reason to believe that Washington would

have any more success than city police departments, who are well aware of local conditions, in reducing crime through an ill-conceived national Sullivan Law operating in every state.

The experience of New York City shows that even strict enforcement of the Law cannot reduce crime, and is of no value whatever in denying criminals easy access to firearms. It is impossible to carry a rifle on the city streets without causing attention, and pistols have been used in 86% of the reported crimes. Criminals involved in a bank holdup will not be deterred by the fact that their firearms are carried without a permit from the Police, any more than they will be concerned with breaking a traffic law during their escape.

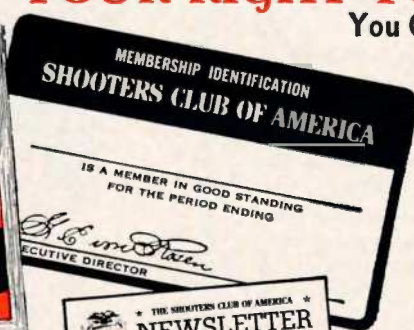
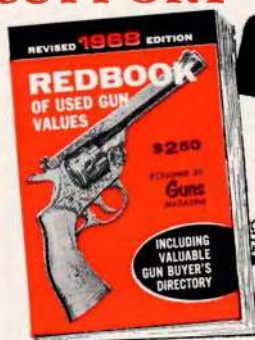
Homicide has been a crime going back before the days of recorded history, but it cannot be prevented by legislation of the Sullivan Law type. As the New York City Police Department itself has stated, "... homicides are most likely to be perpetrated by one's relations, friends, acquaintances or neighbors in a spur of the moment action, usually in a residence..." The use of firearms in homicides is not very great; knives and other sharp instruments, which can be purchased anywhere and are found in every kitchen, were used in more than 40% of the cases, and a blunt instrument or plain physical force were used in another 28% of all homicides, a total of 68%.

Since premeditated murders committed by criminals almost always involved pistols, the actual number of homicides done with permit-to-own pistols is infinitesimal. In fact, there is some validity to the viewpoint that the great reduction in premises permits may actually increase robberies and felony murders, because a holdup man can be fairly certain that retail establishments are unarmed. Of course, a trained police officer is more effective than a storekeeper with a pistol, but an officer may not be present at a crucial moment when the storekeeper's life is in danger.

Congressmen, who may be called to vote on legislation similar to New York's Sullivan Law must be made aware of these facts! Your best "collective voice" is the Shooters Club of America. If you are not already a member, use the coupon below now!

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Varmint Loads

I have recently started doing my own reloading. Needless to say, I didn't know what I'd been missing. Results have been very good and now I'd like to go a bit further.

In order to get more use out of the two rifles in use at present, could you recommend a combination of bullet and powder weights that would be suitable for use on squirrel and other small game which would not vaporize them. I am currently loading the .222 Remington and .243 Winchester. Target shooting and a few shot at varmints have convinced me that my loads are too much for small game.

I have hunted squirrel for 30 years with an ordinary .22 caliber rifle and all my shots are head shots at fairly close range. While hunting squirrel I have had to pass up shots at crows, nutria, etc. which would have been just right for either of the other cartridges. I hope you can provide a solution to this problem.

Floyd H. Norris
New Orleans, La.

There are two courses of action available to produce small game loads for your .222 Remington and .243 Winchester. Traditionally, cast lead bullets are preferred — but I find that much better results can be obtained with far less effort by using full metal jacketed commercial bullets at velocities around 2000 fps. For your .243 I recommend you obtain full metal jacketed bullets in 6 mm from Ernest L. Gardiner, Box 1682, Rockford, Illinois. I believe these bullets are available in 80 and 90 grain weights, either one of which may be driven at approximately 2000 fps by 15 grains of Hercules 2400 powder. A slightly greater charge of IMR4227 will produce essentially the same results. For your .222 Remington, I suggest you use Remington bullet No 9-A, 55 grain boattail with 10 grains of Hercules 2400 or 11 grains of IMR4227.—G.N.

Allen & Thurber Pistol

Enclosed is a picture of a single shot percussion pistol which I have recently acquired. I am not sure of the caliber. The name "Allen, Thurber & Co." is stamped on the barrel. The serial number, 55, is stamped on the bottom of the barrel and on each part of the gun including the grips. The frame has quite a bit of engraving on it but there is none on the barrel.



I have not been able to find any information about the particular gun but in a magazine I found a picture of a .32 caliber percussion cap, six shot pepperbox made under Allen's 1837 patent. This gun is identical to mine with the exception of the barrel.

I would appreciate any information you might be able to furnish me.

James K. Lowe
Robinson Creek, Ky.

The firm of Allen and Thurber was formed about 1838 by Ethan Allen and his brother-in-law, Thurber, in Grafton, Mass. In 1842 the firm of Allen and Thurber moved to Norwich, Conn., and to Worcester, Mass., in 1847. They manufactured pocket pistols of all types, underhammer, double action, double barrel, target type, as well as pepperboxes and rifles. Your pictured pistol is the Pocket Model, sometimes called a "Boot Pistol." Collector's value in fine condition is \$45.00.—R.M.

No Markings?!!

I have in my possession a .45 automatic pistol, similar to the Model 1911 U.S. Army weapon. It has no markings whatsoever, no manufacturer's name, no model number, no serial

number, nor does it have any serrations on the slide. Neither the trigger nor the hammer are knurled. The finish is only fair at best. Other than that, it is exactly the same as the U.S. .45 Auto.

Could you supply me with any information on the gun, as to who made it, when, how many were made, and what value it might have?

A. A. Barker
Amherst, Nova Scotia

When you say "other than that, it is exactly the same as the U. S. Service gun" I assume you have examined the internal parts and that comparison shows that they will interchange with parts of a genuine Colt.

Unless your gun has had its markings ground off, it is quite possible that it is the result of private assembly of "liberated" (stolen) parts. It is true that handmade toolroom samples sometimes are unmarked, but the workmanship is too distinctive to miss. The Chinese imitations always include a few marks. Thus we are left to account with an unnumbered receiver, and these the factories do not release knowingly.

Value of your gun would depend on how much a collector would want it, and its condition. As a guess I'd say from \$35 to \$85.—S.B.

Brescia Shotgun Value

I am requesting you help in evaluating a gun which I am interested in buying. I'll describe it to the best of my ability and memory. It is a 12 gauge over-under double with double triggers. Barrel markings are "Armi E. Contento — Brescia, Italy." I did not notice any model number of any other digits or numerals, although these may be present elsewhere on the gun.

The barrel is ribbed from the receiver out to the gold bead. The receiver and its bottom plate are moderately etched and carved — not abundantly but enough to give it class. The forepiece and the grip are definitely handcarved. I say "definitely" because the edges of the wood carving display very minute errors and nicks where the worker has run over the edge a trifle with his carving tool. One can detect this only after close inspection under good light. This has always been my indicator of a hand-carved stock as opposed to the "too perfect" look of a stamped stock. The stock is a Monte Carlo type with a nicely capped pistol grip and butt plate. The inside barrel surfaces are chromed.

(Continued on page 66)

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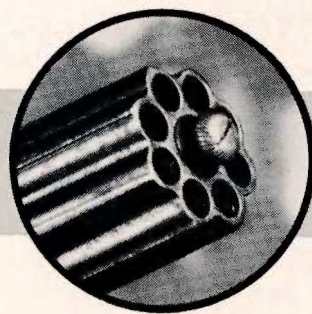
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COLLECTOR'S CORNER

By ROBERT MANDEL

HARTFORD GUN SHOW

IN THE ISSUE of GUNS for July, 1967, I advised our readers of a few of the top quality antique gun shows which were coming up. One high on that list was the Hartford Gun Show. Now that this year's show has come and gone it is very easy to class it as the greatest show in the eastern United States, and as far as I am concerned it certainly ranks as one of the best in the country. This year's displays were some of the finest I have ever seen.

Colts, Millers, Billinghamursts, Whittiers, and quite a number of others. The award for Best of Show, Number Two, was won by Crosby Milliman with his display of arms of the American Revolution. The award for Best of Show, Number Three, went to Howard Green for his display of Revolutionary War arms, which contained the earliest known and dated New England rifle.

Brigham Pemberton of Milton, Mass., won the WW I Commemorative



Jim Smith's display of revolving rifles won the Best of Show award.

Indeed, if the Hartford shows keep up the direction in which they are headed, there is no doubt in my mind that this show could very well come to be considered as the Nation's top antique gun show. To simply say that it was not easy for the show judges to come up with winners for the awards, is an understatement. Each display there deserved an award. The judges, Herb Glass, Bob Ables, and Jack Malloy, who received a little help from honorary judges, Arnold Chernoff, Ken Liggett, and myself, did a remarkable job, I think.

Some of the top show winners were as follows: Jim Smith of Newington, Connecticut, won Best of Show with a great display of revolving rifles. Contained in the display were Ropers,

Automatic contributed by the Colt's Manufacturing Co. for his outstanding display of Single Action revolvers. The award for the Second Best Colt Display went to Jeffrey Cass of New York. Winner of a sterling silver bowl for his fine display of New England-made firearms was Jon Peck of Hartford, Conn. Jon also won the Alvin White Award for the Finest Engraved Firearm of Show. The award for the Finest Display of High Art European Arms was awarded to Gary Friedland of New York City. Once again, the award for the Finest Display of Civil War Carbines was deservedly given to Andrew Lustyik from Middletown, New York. One of the most interesting methods of display was used by Gerald Denning for his Carbine Wheel

of Fortune which took the second place award in the Civil War Carabines division.

For his fine display of U. S. Martial Weapons, a sterling silver bowl was awarded to Dr. Walter Peterson from Michigan. Ed Charol of Westport, Conn., won an award for his display of Colonial material. The winners of the Special Award series were Charles Shif of New York for his Remington Beals display; Mario Marinetto from Massachusetts for his Smith & Wessons; Milton Germaine of New York for his fine derringer display; Al Sullivan and his son for their fine display of Kentucky rifle relationships; Trevor and Bev Bovee for their Mississippi rifle display; Chuck Patterson of Pittsburgh for his Colt Commemoratives, and William H. Guthman from Connecticut for his early Americana display. All these folks received a New England Pewter mug.

For best educational displays, the awards were given to Walter Stryker



Gerald Denning's Carbine Wheel of Fortune won a second place prize.

from Michigan for his great display, "Golden Age of Dutch Arms," to John A. Williams from Ohio for his fine display, "Massachusetts Arms—Springfield Arms," and to Joe Wupperfelds from Connecticut for his display titled "The West Point Story."

All in all, it was a wonderful show, and I for one am looking forward to the 1968 endeavor of the New England area, to see if Ye Connecticut Gun Guild can again do the impossible. I believe it is the shows such as this one, along with the few which match it, that really keep gun collecting a clean and enjoyable hobby. I count myself lucky to belong to such a fraternity, entrusted with the care and preservation of arms for future generations, a fraternity which can present shows such as the one at Hartford.



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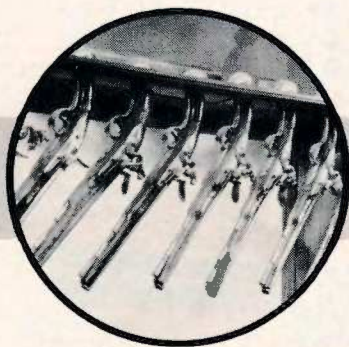
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GUN RACK

H&R's HK-4

Harrington & Richardson's German-built HK-4 semi-auto pistol was prematurely unveiled at the NRA convention in Washington 3 years ago, and since then gun writers and the shooting public alike have been sitting on their hands thinking disrespectful thoughts while Heckler-Koch was too bogged down with European military orders to make the things.

Now, though, H&R reports steady incoming shipments, and by the time you read this, your gunshop should be stocked with the items.

The HK-4 is an external look-alike to the long discontinued Mauser HSc, although the lockwork is much different. It takes its name from the initials of the maker, and from the overwhelming novelty of the fact that it fires four different cartridges: .22 LR, .25 ACP, .32 auto, and .380, by simply switching magazines, barrels, and recoil springs, and flip-flopping the firing pin from rim to center fire position.

It shoots right well, too. Four test targets (one for each barrel) accompany the pistol. They show respectably tight groups, and if you can't do as well, it's your fault. I found I could do as well or better, and had no trouble putting 4 out of 5 shots into groups under an inch with each caliber. Best showing, surprisingly, was with the .25, which delivered a tight $\frac{3}{8}$ " cluster. All this was from 15 meters, bench rested, in a poorly lit range. From standing position, timed fire, the .380 socked five shots into $1\frac{3}{4}$ ". Surprising little tack driver, this pocket pistol.

The usual breaking-in jams occurred in the first 100 rounds with each caliber, but after that the HK-4 chattered along with nary a bobble.

Some real engineering went into this firearm. The slide is a horseshoe stamping with four stake marks to engage the guide rails in the frame. The bolt is machined bar stock, welded into the slide. It sounds

grubby, but it's extremely well executed, it works, makes up into a handsome handgun, and it holds the price down, so who can gripe about that?

The pointing characteristics are (in my opinion) horrid, although a carton of .22's will get you used to it. Double action is gritty, although better than the usual Walther. Single action is spongy, though usable. The



sights are less than appealing on current weapons, but HK says that beginning in January of '68 they are switching over to a big, clear set of Patridge sights which should help bring out the inherent accuracy of the weapon.

The HK-4 hefts just shy of 17 oz., with its aluminum alloy frame. It's $4\frac{1}{8}$ " tall, a whisper over 6" long, and the barrel measures $3\frac{1}{4}$ ". Magazine capacity is 10, 10, 9, and 8 in the four calibers. All told, it's an impressive item. You get everything in the picture for \$99, and that's more shooting for the money than I've seen in ages. —Jan Stevenson.

Schultz & Larsen Rifles

Norma-Precision, the going-hell-for-leather ammunition outfit, have for a long time sold the Schultz & Larsen rifle. Last year, unexpectedly, it was dropped, not because there was anything wrong with the gun but because Norma-Precision is making preparations to peddle their own rifle next year. The Schultz & Larsen,

however, has been adopted by the R. C. Fessler Co., 1634 Colorado Blvd., Los Angeles, California.

There are two models, the Model 68 is the sporter, the Model 62 is a free rifle. The sporter is ready in these calibers: .22-250, .243 Win., 6 mm Rem., 6.5x55, .264 Win. Magnum, .270 Win., 7x61, 7 mm Rem. Magnum, .308 Win., .30-06, .308 Norma Magnum, .300 Win. Magnum, .338 Magnum, .358 Norma Magnum and .458 Magnum. The Model 62, the free rifle but also a heavy benchrest model, its chambered for the 6.5x55 and the .308 but can be had, on order, for any target caliber, virtually, the shooter may desire.

The Schultz & Larsen, made in Otterup, Denmark, locks up with 4 lugs which turn into the receiver bridge. The head of the bolt is countersunk and is shrouded by the heavy mass of the forward receiver. Phil Sharpe introduced American hunting men to the S&L rifle. He developed the 7x61 Magnum cartridge and persuaded the Danes to chamber for it. The rifle came along 20 years ago and cocked on the closing stroke of the bolt and had a badly fitting stock. Since then the stock has been overhauled and so has the action. It now cocks smoothly and effortlessly on the up-stroke of the bolt and the stock is one of the slickest furniture pieces in the business!

If you don't like your shooting iron filled with pressed steel stampings, paper-clip springs and plastics then the Schultz & Larsen is for you. This one is a precision machined all-steel polished and hand fitted job from muzzle to buttplate.

I have owned three S&L rifles. The first was the original Sharpe & Hart 7x61. It was OK but the second was infinitely better. It was the Model 68 Sporter in .358 Norma Magnum caliber. Now the .358 is an honest-to-god buster! It drives a 250 gr. bullet almost 2800 fps MV and has more than 4300 ft. lb. of thump. I wouldn't hesitate to bust an old tusker with it. I shot elk and moose with this Schultz & Larsen and got into one rhubarb with it. It was off the Siberian coast and the game was a wounded Polar bear. I ran through the magazine of cartridges at 50 feet and this bruin kept struggling to reach an open water lead. If he got into it he'd immediately have sunk and been lost. When the rifle ran empty I flipped it belly up, sprung the floorplate latch and dumped a handful of cartridges into the open magazine well. You don't have to feed 'em into the Danish ordnance one by one, just throw them at the opening like you dump ear corn into the sheller. The rifle is the fastest to load of any

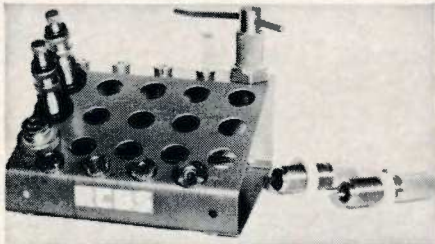
sporter that does not use a clip. The bear was halted. Another rifle loading more slowly, would have seen him lost.

The third Schultz & Larsen is the weighty free rifle, the Model 62. A story is developing on this baby but a longer acquaintance is needed before it is told.—Col. Charles Askins.

RCBS DiRac

Of the dozens of new tools, gadgets and accessories that I get each year for testing, many are merely new gimmicks, made to sell and interesting to the gadget collector but serve little or no real purpose, while others are quite outstanding and add a great deal to the progress of handloading and the use of guns in general.

RCBS (Rock Chuck Bullet Swage Co., Dept. G, P.O. Box 729, Oroville, California) who make one of the real work horses in the loading press line as well as the finest in loading dies, do not concern themselves with putting a lot of new gadgets on the market, so when they do bring out something new you can be sure a lot of time and experimentation has gone into it and that it will have a definite place in the loading tool line-up.



A short time ago they sent me one section of their new DiRac. This is a pressed metal rack that holds up to five 3-die sets or eight 2-die sets. In addition to these it holds nine other accessories, such as trim and forming dies, shell holder heads and boring tools. I immediately installed my collet-type bullet puller and the various collets in the places made for these. I use them so often that having them so readily accessible really speeds up my work.

The stand is finished in a soft green crackle gloss and is easily cleaned. It can be kept on your loading bench, on a shelf or mounted directly to the wall. The average handloader can start with one of these units and add more as he increases his tool line. I plan to replace my wooden shelves, especially drilled to take my tools, with these better looking and more useful DiRacs. Price of each unit is \$4.95, direct from RCBS or from dealers.—Les Bowman.

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OUR MAN IN WASHINGTON

CARL WOLFF



A NEW APPROACH

"What you guys need is a new approach," said the old man. Speaking to this GUNS contributor was a lobbyist, a pro of many battles, talking about opposing the proposed federal anti-gun law.

The meeting had taken place quite by chance because of crowded lunch conditions in the National Press Club. The place is more than a newsman's club; it is the nation's number one market place for ideas, a cross-roads for affluent people from around the world.

Thrown together, the unavoidable took place. The conversation had to turn to our respective interest. It started well enough. "Understand you have been off killing poor, defenseless animals," he needled in a friendly tone. With my best British accent I returned, "Bit of sport in Canada." "Give them a gun then it is sport," said the old man. I snapped, "You are confusing sport with combat."

From the beginning he knew the game would be mine. He only amused himself by needling me where my anger ran near the surface. I, knowing from private sources he had recently been hired to represent the meat packing interests, returned the dig. "Looks like Ralph Nader will get his meat packing bill." He, without indicating any surprise, replied. "Guess he will. How is the gun bill?"

A lobbyist does not like to talk about his activities. Any serious conversation would have to be about my gun writings. Still, it was a good chance for me to get some high-priced thinking for free.

Before lunch had reached the table, he was briefed on current activities in gun legislation. Subcommittees of the respective full Judiciary Committees had sent up to chairman Emanuel Celler in the House and up to chairman James Eastland in the Senate slightly amended "Dodd-Celler" bills. Introduced by them, the measures really were written by Bobby Kennedy's old friends in the Justice Department.



"How did the voting go?" asked my luncheon companion. It had been close in both subcommittees, first crossing party lines in the Senate but splitting Democrats and Republicans in the House. Interestingly, Celler heads both the subcommittee as well as the full committee and had introduced the legislation in the House.

The vote went 6 to 6 with Chairman Celler breaking the tie. There had been no discussion in the final closed door meeting held on November 7, 1967. Republicans had not even been sure why the meeting was called. The Senate had acted a month in advance but subcommittee Chairman Dodd had not had printed the open hearing's proceedings so that the full committee membership might review subcommittee testimony.

"How about the Republican bill?" the lobbyist inquired. Knowing he was making reference to the Hruska compromise, introduced by Senator Roman L. Hruska (R-Neb.), I suggested it stood a good chance of being substituted for the Administration bill in the Senate. That had happened last Congress.

"So the action has been switched to the House," suggested the lobbyist. "It sounds like your opposition wants the more stringent Administration measure or nothing."

I had to agree. On the hill, lawmakers friendly to sportsmen suggested just about the same thing. As to the thinking behind the opposition's position, Republicans on the House Judiciary have branded it "political." One member of the minority party put it this way: The White House has decided to have a Democratic bill to show off as an anti-crime measure or have no bill so as to demonstrate Republicans were blocking anti-crime legislation.

Other lawmakers who have heard the President talk on the subject say this is not true. They say it is the Justice Department working through liberal lawmakers of the Democratic party who block the Hruska compromise. But, if the President really wanted, as he is reported saying, "any gun bill" the Justice Department employees would not block his wishes. The truth of the matter seems to be, it has not come to the point of final decision. Justice and liberal Democrats are still doing pretty much what they please.

My impromptu luncheon companion left me with advice worth repeating. "What you guys need is a new approach. One with some big Democrats behind it," he said. I pointed out that leading Democrats in the Senate had backed the Hruska bill. He asked about the House side, "where the action is." I had to say, again, there were some powerful Democrats in the House on the sportsman's side. None, however, were fighting legislation with legislation. (Continued on page 73)



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WILL NATO

Dear Sir,
I'm a Combat Engineer assigned to the 3147 infantry as a demolition man. This makes me more of an infantryman than an engineer because until we come to a bunker or some other object that has to be blown I serve as a rifleman. I've heard that there's a lot of controversy about the M-16 and how bad it is about jamming. I have just come in from Operation Enterprise and I can truthfully say that the M-16 is the finest weapon I've ever carried. We were pinned down five times the first day. I had three buddies full of water, full of mud.

HOUSE GROUP BLAMES ARMY IN M-16 SNAFU

Terms Lack of Action

'Almost Criminal'

BY FRED FARRAR

(Chicago Tribune Press Service)

Washington, Oct. 18—A House subcommittee today called the army's management of the M-16 rifle program "unbelievable" and "almost criminal" for its failure to correct

House Probers Rip Army On M16 Troubles

WASHINGTON (AP) —

House investigators singled out ammunition deficiencies Wednesday as the major contributor to malfunctions of the troubled M16 rifle. They declared Army handling of the problem "borders on criminal

I Called for government audits of both the Colt Firearms Co., maker of the rifle, and Olin Mathieson, producer of the powder used in ammunition for the M16. The report charged Colt made excessive profits over what was originally negotiated.

for both Colt and Olin Mathieson defended their products, saying they meet Army specifications.

Henry Hillman, Colt's vice president for public relations, denied there had been any excess profits, and said the company was welcome

sial rifle—the worst being failure to extract the cartridge.

'Major Contributor to Shortages'

ARMED FORCES: Rifle Under Fire

Within weeks after it was declared a standard weapon of the U.S. foot soldier, the M-16 rifle came under a withering cross fire of criticism. Soldiers in the field and congressmen at home charged that the new weapon tended to jam, and its defenders at the Pentagon fired back.

Designer Raps Army's Use of M-16 Rifle in Viet

Detroit, Oct. 19 [Special]—Eugene Stoner, designer of the controversial M-16 rifle being used in Viet Nam, said today

poration, manufacturer of the powder. William L. Wallace, vice president and general manager of the Winchester-Western division of the firm, defended

Despite the furor in the Stateside press, many GIs say the M-16 rifle has served them well.

KILL THE M-16?

If NATO does not adopt the 5.56 mm cartridge the U.S. may have to shelve the M-16

By CARL WOLFF

THE YEAR OF 1968 will provide a crucial test for the M-16 rifle, and death for the M-16 could be, as the life of weapons go, an early one.

Terminal illness for the M-16 grows from political roots. These roots reach into the military from both the U. S. Congress and from governments of our allied forces. These roots have real strength because the Army's rifle program has become a pathetic tragedy of errors. It is irrational, but old bungling put the M-16 where it is today and new bungling is threatening its existence.

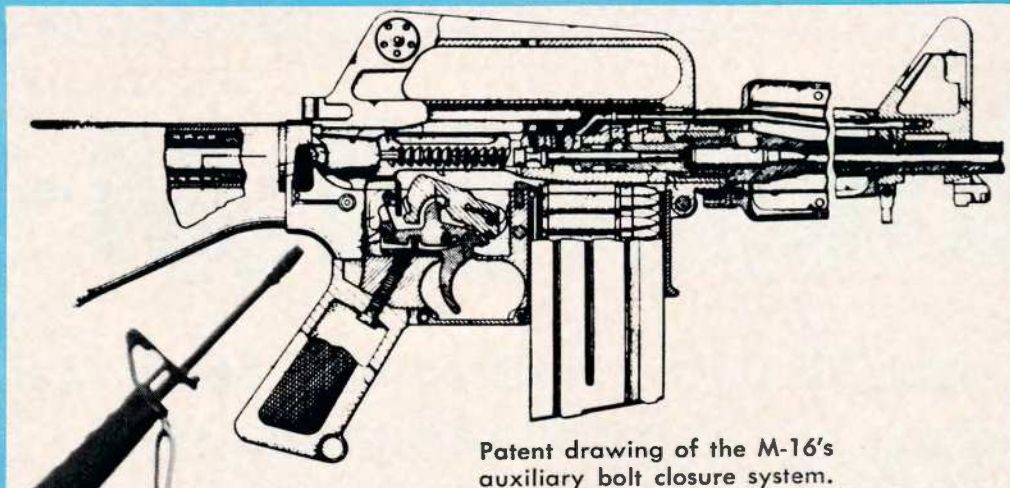
Each year, the military comes before Congress for its funds; billions of dollars for research, development, and procurement of extremely complicated equipment. These projects are often too sophisticated for Congressman to understand, and so the military must have the trust of Congress. But when *understandable* programs become labeled "*unbelievably mismanaged*," and "*bordering on criminal negligence*," it destroys faith in the system. These quotes came from the latest Congressional investigation into the M-16 rifle program.

Earlier in 1967, the Senate Preparedness Investigating Subcommittee of the Committee on Armed Services blasted the entire Army Rifle Procurement and Distribution Program. Its official report concluded: "*While past procurement policies, and* (Continued on next page)



Asst. Chief of Staff, Maj. Gen. W. J. Van Ryzin, points out new features of the M-16E1 to Rep. Richard Ichord, chairman of the House subcommittee which is probing the controversy.

WILL NATO KILL THE M-16?



Patent drawing of the M-16's auxiliary bolt closure system.



Combat troops consider the M-16 deadly, though they test fire to spot jamming rifles.

the decision to terminate procurement in reliance upon development of the SPIW (Special Purpose Individual Weapon), have created obvious problems, we hope that the decision to accelerate the production of the M-16A1 will have the promised beneficial effects so that our non-NATO forces can be equipped with this weapon at an early time. We hope that the long and troubled history of the Army's rifle program is now coming to an end and that this program will encounter no more detours or delays." So said the subcommittee.

The part of the report which cut the deepest, however, asked; "If this simple program could not be run effectively, what about the more complicated projects?"

The Army Secretary, Stanley R. Resor, answered:

"The report suggests that the decision process should not have been so difficult for a 'relatively simple weapon

such as a rifle.' It is true, of course, that rifles present less complex engineering and design problems than such weapons systems as missiles and aircraft. But the development and testing of rifles involve many factors which resist quantification-subjective factors which are not present to the same degree in the evaluation of technically more complex systems. The soldier's rifle is a very personal item of equipment. In combat, his life depends on it."

The committee answered, "With respect to the comment by the Secretary of the Army on the suggestion in the report that the decision process should not have been so difficult for a 'relatively simple weapon such as a rifle' we merely cite, with agreement and approval, Secretary of Defense McNamara's testimony before a congressional committee on July 28 1961, as follows 'I think it is a disgrace the way this (the M-14) project was handled.

I don't mean particularly by the Army, but I mean by the Nation. This is a relatively simple job, to build a rifle, compared to building a satellite or a lunar satellite or a missile system. And yet this problem languished for months—years, actually. And I see no reason for allowing that to continue. I see no reason why we should expect it should be tolerated in the future."

Even while the Senate Subcommittee and Secretary Resor exchanged views, the human tragedy of further bungling by the military began coming out of Vietnam. A stunned nation read and watched on TV while our fighting men bitterly complained about weapons jamming in combat.

The House Armed Services Committee investigated the firearms procurement issue. *"The much-troubled M-16 rifle is basically an excellent weapon whose problems were largely caused by Army mismanagement,"* a special appointed subcommittee officially reported to full committee Chairman, Mendel Rivers. The report was made public by Chairman Rivers, who wholeheartedly endorsed the subcommittee's work. *"The Subcommittee has performed a valuable service for the Defense Department and for the taxpayers,"* Rivers said. *"But more important still, it has performed a great service for the American soldier."*

The subcommittee's review confirmed many of the reports of excessive malfunctions experienced with the rifle in South Vietnam. The group also agreed somewhat with the statement of various Defense officials that malfunctions were caused by lack of proper training, maintenance instructions, cleaning equipment, and daily care of the rifle. It pointed out that this too was the military's fault.

However, the subcommittee found that the major contributor to malfunctions has been the use of ammunition not designed nor developed for use in the weapon. The M-16 was developed and tested using commercial ammunition loaded with IMR 4475 propellant. This is identical to handloaders' IMR 3031, except the granules are shorter. Without proper testing, the Army permitted the ammunition manufacturers (Winchester-Western Division of Olin) switch to WC 846 ball propellant.

The report reads: "That the rifle project manager, the administrative contracting officer, the members of the



Defending the rifle as "reliable and hard-hitting," Marine Corps Commandant, Gen. Wallace Greene said the M-16 is more sophisticated and needs more care.

Technical Coordinating Committee, and others as high in authority as the Assistant Secretary of Defense of Installations and Logistics knowingly accepted M-16 rifles that would not pass the approved acceptance test. Colt's officials advised the Army that more than half of the rifles would not pass the acceptance test on cyclic rate if they were made to use both ball propellant and IMR extruded propellant in their testing procedures. Colt was told to test using only IMR propellant at a time when the vast majority of ammunition in the field, including Vietnam, was loaded with ball propellant.

"That the failure on the part of officials with authority in the Army to cause action to be taken to correct the deficiencies of the 5.56-mm. ammunition borders on criminal negligence."

What effect did this change in powder have on the functioning of the M-16? First of all, it increased the cyclic rate of fire from 850 rounds per minute (maximum) to about 1,000 RPM. Since the M-16 design passes powder gas back into the breech mechanism, the increased fouling characteristics of the ball powder further increased the already existing fouling problem.

Later, modifications were made to the rifle in attempts to accommodate the new powder. The most publicized modification was a new "buffer" designed to bring the cyclic rate back down to its original 650-850 RPM. The new buffer, with its action spring and action spring guide located in the butt stock, serves to stop the rearward-moving bolt and return it to the closed position.

Another modification made necessary by the use of a different powder was chrome plating of the chamber in the barrel. The powder adopted burns "dirtier" than that initially used in the rifle and left a greater amount of carbon residue in the chamber as (Continued on page 63)



Distributed by Los Angeles Times SYNDICATE

The M-16 has never been discredited as a faulty arm, though it blackened the reputations of some generals.



Beginning with the double concave slug in the center Speer used eleven draw steps in producing cases. This series is for a .300 Weatherby Magnum case.



INCHES

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Collector's Bonanza: THE SPEER CARTRIDGE

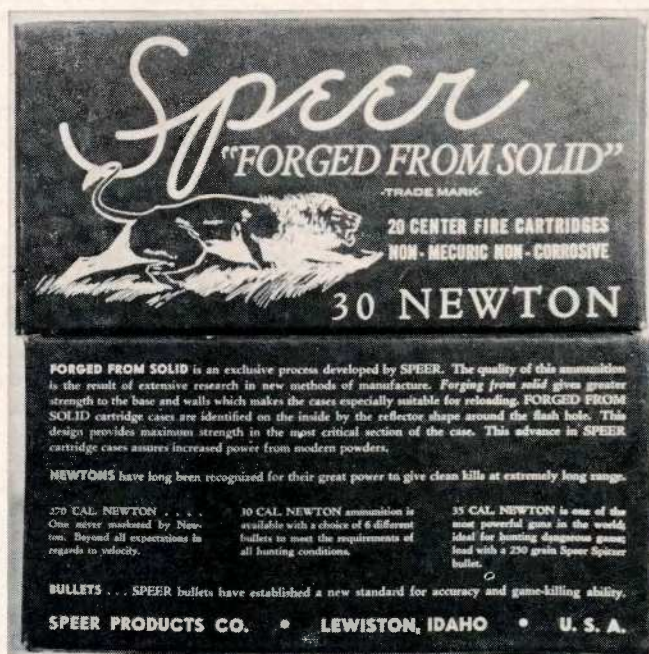
By RICHARD V. UNDERWOOD

THERE IS PROBABLY no more interesting study of history to the gun nut than one which stems from a study of some weapon or weapons system or from some cartridge and its background. A case in point is the Speer cartridge; it is comparatively young, but it is unusual and is becoming more scarce with passing time. For an intelligent understanding of this subject, it is necessary to know some of the background of the companies that made the cartridge, and the people involved.

The Speer cartridge was the brain child of Richard Speer, founder and president of Cascade Cartridge, Inc. (CCI). He set up the machinery and made the cartridge cases under a business agreement with his brother, Vernon, who is owner of the bullet company, Speer, Inc. The original agreement was that Richard would manufacture the cartridge cases and Vernon would market them since the latter already had a good sales organization. At that time, the name of Vernon Speer's company was "Speer Products" and this is the name that was used on the earliest boxes, which you see pictured. The other box in the picture carries the name "Speer Cartridge Works" which was the first name used by Richard Speer for his company, although it was never incorporated under that name. It soon became apparent that the similarity of the two companies' names, products, and location was creating a confusing situation, so "Speer Cartridge Works" was changed to "Cascade Cartridge, Inc." The latter name is familiar to shooters and handloaders around the world as a manufacturer of primers, even though the company is comparatively young in the munitions field. Some confusion still exists, however; just recently, I heard someone say, "They (the two companies) are the same outfit." Let the image be clarified: the two companies are completely independent of each other in manufacturing and in distribution. Another change has been announced recently. Cascade Cartridge, Inc. has been purchased by Omark Industries of Portland, Oregon. Omark makes industrial power tools (the stud driver gun), fastening devices, Oregon saw chains, Sportco rifles, and now, ammunition. Cascade Cartridge will retain its present name and management and continue to manufacture the

same products and perhaps others which will be of interest to the shooter. The high quality for which both companies are noted will be maintained.

Production of the cartridge cases began in 1950 and continued into 1952. The cartridges produced were some of the hardest to obtain at that time. The method of production was that of impact extrusion. Although this method had been used on many other products such as toothpaste tubes, it had not been used on cartridge brass. Impact extrusion is now used successfully by a European firm for manufacture of excellent cartridge cases. These European cartridge cases have been proven to be good in tests using the 7.62 Nato cartridge in (Continued on page 81)



Shown below are all the calibers known to have been produced by Speer Products. Newton cartridges were features of the line which was "Forged From Solid."



6



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8



9

Shotshell Reloading

PART 2



By Maj.
George C. Nonte

AFTER FOLLOWING the instructions in Part I, you and the tool should be on pretty good terms, and the mechanical aspect of *routine* shotshell reloading should hold no particular problems for you.

But there is a great deal more to the reloading of shotshells than simply taking a good fired case and merely running it through a standard tool. While the tool itself is all you really *need*, and the operations it performs are all that are really *necessary*, today's manufacturers offer many accessories which will improve the quality of your work and, in many instances, add considerable convenience to the process. Some of them will also allow you to load special-purpose ammunition that is either difficult to buy or prohibitively expensive in store-bought form.

Picking a place to start in describing these accessories is much like the old game of pin-the-tail-on-the-donkey. It would seem though, that the best point is with those accessories by whose use you can achieve additional savings by lengthening the usable life of your fired cases.

SHELL RECONDITIONERS: Two types are available, those that act only on the body of the case and those that

work on the metal head as well. The first type consists generally of an electrically heated probe or rod over which the mouth of the shell is passed. The most common type simply heats the mouth of the shell, ironing it out on the inside at the same time. In the case of plastic shells, the area containing the residual crimp is heated and softened, and when pulled off the reconditioner, cools into cylindrical or slightly flared shape. This is particularly useful with those plastic shells which retain so much of the original star crimp that insertion of new wads is difficult. Passing them over the reconditioner leaves the mouth nicely shaped for fresh wads. In the case of paper shells, the wax contained in the many-layered body is melted and re-distributed through the crimp area. This removes the traces of the old crimp, and when the case cools the mouth has been stiffened and will take a better crimp.

Another form of shell reconditioner contains a "well" to hold melted wax. As the shell is pressed over the heated probe, its mouth enters the fluid wax and absorbs enough to materially stiffen the paper when cool. Paper cases that are past holding a decent crimp can often be restored to usefulness for

additional loadings by this treatment—which is sometimes referred to as re-waxing. Naturally, plastic cases may also be reconditioned on this type tool, but no additional wax is applied to them. Mouth and body reconditioning is performed more often on paper cases than plastic.

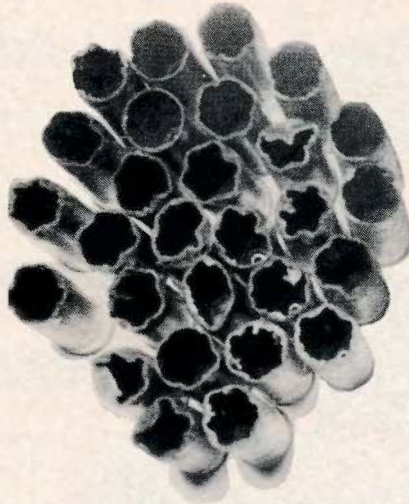
The other type reconditioner consists of a die and base set for reducing the rim and head back to near-factory dimensions. When built-up shotshells are fired in old, loose guns with excessive head space, the rim often expands to the point it is too thick for use in properly-dimensioned guns. Such a case can be restored to usefulness by reconditioning the head. Also, cases sometimes develop concaved heads if reprimed on a tool that holds them by the rim while the primer is forced in place. Such "dished" cases, when reprimed on a different tool, may produce misfires. Some head reconditioners correct this dished condition by a rod entering the case to bear heavily on the base wad, forcing the head flat and level again.

BASE WAD SEATER: Particularly in paper cases, base wads sometimes work loose after several reloadings. Once the wad is loosened, additional firings

may blow it out completely. However, if the condition is noticed when it first occurs, it can be corrected, and the case will remain useful.

Inspect all your cases under a bright light, looking down at the base wad, and set those aside that show any signs of loosening. Take a dowel which will slip easily into the case ($\frac{5}{8}$ " is about right for 12 gauge), cut off a six-inch length, and shape one end roughly to match the contour of the base wad. Set defective cases on a solid, smooth surface, insert the dowel against the base wad, then drive the wad down with a couple of smart hammer raps. This reseats the base wad, and expands it radially somewhat producing a more secure assembly. If overdone, this will cause some expansion of the case head—but no more than can normally be corrected by resizing. Do not attempt this operation with cases resting on a yielding surface.

Primer pockets sometimes expand after a few reloadings to the point where they will not grip a fresh primer properly. In extreme cases this may even allow a primer to fall out as the shell is being fed through the gun action—tying things up for certain. Normally, though, it simply allows gas leakage, which is less serious but certainly undesirable. Williams Gun Sight Company makes a little gadget called a "Primer Pocket Peener" with which this condition can usually be corrected on paper or plastic built-up cases. It consists of a punch and base set. The case is set head-down on the base, the punch inserted from the mouth, centered over the primer pocket, then given a sharp rap with a hammer. The squeeze, so to speak, is put on the primer pocket, reducing its diameter



Flaring each shell mouth, along with occasional wax dips, gives longer case life and fewer jams during reloading.

slightly. Incidentally, re-seating the base wad will also often produce some tightening-up of the primer pocket.

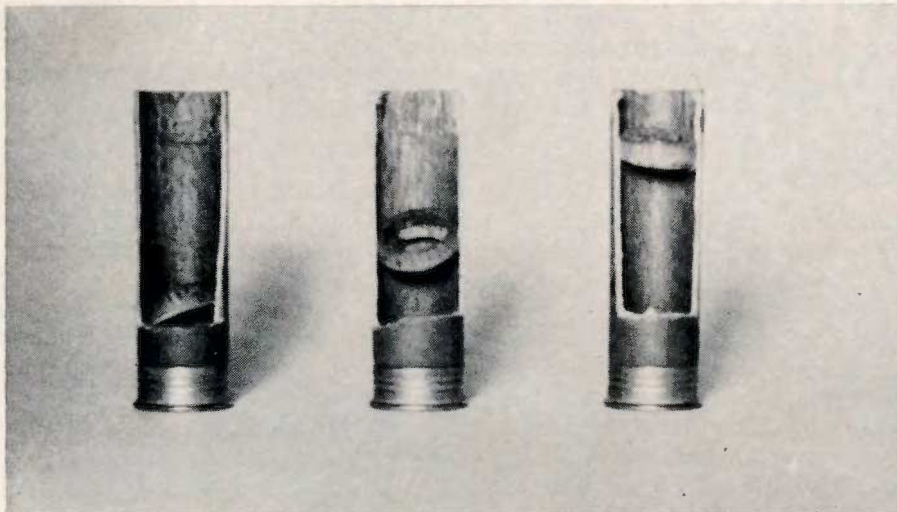
MOUTH FLARING: Occasionally you'll run across a batch of cases which close back up at the mouth rather excessively after the first firing. This is more common among some brands of plastic case, but in any event, results in so much of the crimp remaining at the mouth that the fingers of the wad guide cannot enter freely. If you inadvertently slip a case like this into the wad seating station you'll wind up with bent spring fingers and a crumpled case. Nearly all the later makes of tools have a section of the decapping rod tapered to force this residual crimp out of way and slightly flare the mouth of the case. If you wind up with an older tool that doesn't do this, or one with a decapping pin body so large in diameter that it won't enter such cases, you can easily correct the condition. Take a piece of $\frac{3}{4}$ "

dowel and taper one end of it enough that it will enter the case mouth. Press the paper portion into the case and give it a couple of twists, and the case mouth will open up enough to feed through the tool properly.

ROLL CRIMPING: The star crimp is almost universally used in this country today, but if you decide you want to load some shells with the larger sizes of buckshot, you'll need to roll crimp. The Lyman Gun Sight Company makes an excellent roll crimping head for use in a drill press or portable electric drill. It comes complete with instructions. Should you decide to load some rifled slugs, you will have to use a roll crimp. There is no other way to secure them in the case.

A roll crimping head also comes in handy for improving the star crimp when it isn't holding particularly well because of age and soft case mouths. The head is brought down spinning on the existing crimp, and by friction, heat, and pressure makes it firmer. This has the added advantage of putting a smooth radius on the outer edge of the crimp which, at least in theory, facilitates feeding through repeating and semi-automatic guns. Incidentally, there are special dies available for installation on your regular tool to put that outer radius on the crimp.

If you decide to load any significant quantity of roll crimp shells, it will pay you to take a look at the special dies available from Lyman for that purpose. A crimp head which functions much like a push-drive screwdriver is made to fit the Lyman E-Z Loader, and could be modified for use on other tools. It puts an excellent roll crimp (Continued on page 60)



Loose base wads can be driven into position using a proper size dowel.

The newest way of making



THE BARREL

By HARRY O. DEAN

**FIREARMS
DESIGN—Part 4**

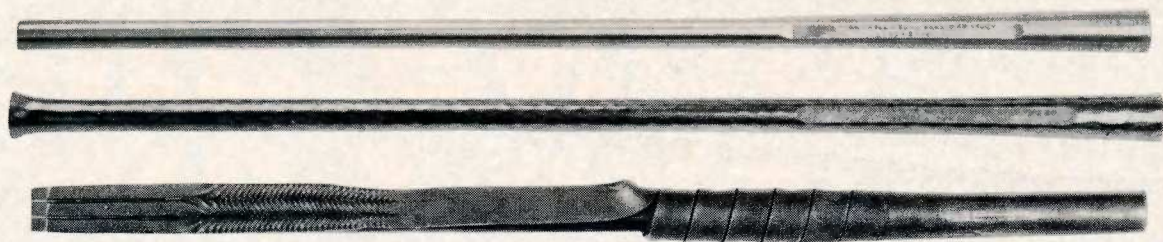
THE MAKING OF EARLY rifle barrels proved to be a laborious task. There were early attempts to cast tubes but the very granular structure of early castings lacked sufficient strength to hold up under the explosion of firing. There also were attempts to hammer out a sheet of metal, forge it into a tube around a center mandrel and hammer the edges shut to form a closed seam. Some of the cast tubes were heated red and hammered around a mandrel to forge strength into the walls and smooth the coarse surface of the casting. Hammer, hammer, hammer! And hammer some more.

Certain swordmakers discovered a clever trick. Instead of hammering out a blade from a single piece, they hammer-welded several thin pieces of fine steel together. The blade which resulted had a harder surface, held a keener edge and often exhibited unusual flexibility. In addition, a beautiful wavy ribbon-like pattern was evident in the finished steel, the sword of Damascus!

Barrelmakers tried a similar stunt. They "built up" a barrel by winding a steel bar in a coil around a mandrel, heating and hammering to weld the edges together. This created the so-called "Damascus" barrel. The "twist" or wound pattern was prominent in the finished product.

To refine this process somewhat, more than one "iron" or rod was used in the buildup. Also, each rod was twisted upon itself before it was wound around the mandrel. The object of the twisting was to create a firmer bond of the edges during the constant heat and hammer forging. The resultant patterns were more intricate and lacy in appearance. A finely-patterned Damascus barrel became a matter of pride to its owner. This, plus a highly colored case hardened receiver and the addition of a good piece of stock wood, became the acme in handsome sporting guns. Today's collectors now look for these "beauty marks" when acquiring high-class pieces.

gun barrels is very much like an old method



Top: A barrel blank drilled and turned from bar stock. Center: The first barrel from Ithaca's new GFM electronic forger. Bottom: Steps in forming this "three iron" Damascus barrel run from left to right.

The "twist" barrel, while good, was not strong enough for modern high pressure cartridges. It was replaced by the so-called "fluid steel" barrel. The ancient hammering was over—or so it seemed.

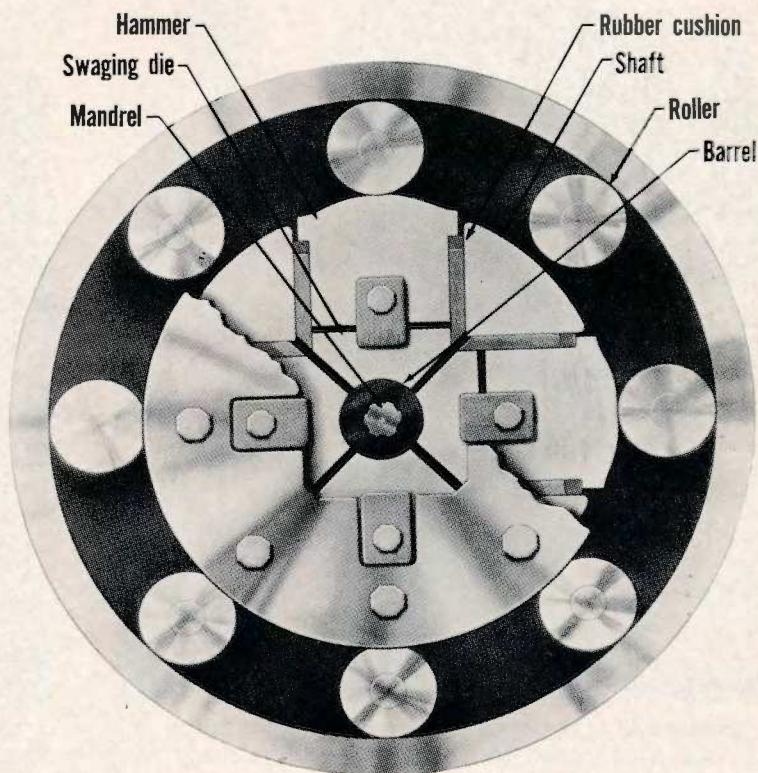
Perfection of the deep hole drilling process soon led to a far different procedure for barrel manufacture. If you try to run a turning drill through a long section of steel, it has a tendency to "run out" and create a crooked or off center hole. The trick is to hold the drill stationary and rotate the work! The barrels so drilled have consisted variously of full length forged billets, bar stock with the breech end enlarged by "upsetting" with an end hammer and regular pre-formed round bar stock.

The process consisted of "trueing up" by turning followed by deep hole drilling, reaming and either inside

polishing (for shotguns) or cutting the rifling grooves by a tedious (but good) method called a "hook" cutting and doing them one-at-a-time. This old rifling method produced splendid barrels. It was time consuming because only a very fine steel shaving was removed at each pass of the cutter. The tool was then cleaned, shimmed up, lubricated and inserted for another pass. Barrels of this type were used, with phenomenal results, by all of the old time Schuetzen shooters. This same method, somewhat modernized and speeded up, was also used by most of the gun factories.

The need for faster production soon brought radical changes in the methods of rifling barrels. One of these was the broach. This device could cut all the grooves in one pass. It had multiple

(Continued on page 58)



Above: Weatherby's barrel machine can forge in rifling. Left: Ithaca's similar machine forges shotgun barrels.



GUNS and the LAW

NEW DEVELOPMENTS IN POLICE



This well-equipped riot policeman has a Doron vest, helmet with face shield, and Shok Baton.

ACCORDING TO FBI statistics, in 1966, 57 officers lost their lives and 18,000 were assaulted, resulting in injuries to 7,700 of them. This was an overall figure including all types of law enforcement duty and riot actions. The records for 1967 are not yet compiled, but the figures are expected to be much higher in all categories, due to the numerous riot actions—such as Newark and Detroit—that have taken place. The incidence of sniping and use of firearms is expected to escalate, and all predictions as to future violence are ominous.

Accordingly, modern riot police must now employ helmets, body armor, and shields, of designs used by the ancients. They are also employing riot formations based on the Roman phalanx.

The successful development of any weapon system is usually followed by the appearance of defensive counter measures. To ward off axes, spears, swords, and daggers, the foot soldier of antiquity wore an animal skin, or wood jacket, and carried a shield of like material. The Roman leather tunic was an effective battle garment for its day, but as weapons improved so did the technology of protective body armor. Chain mail increased protection and also furnished a degree of personal comfort. Garments of mail permitted freedom of movement while providing protection against sword, dagger, and spear thrusts. During the Middle Ages, the armor plate suit which completely encased the wearer came to be considered the ultimate achievement in body protection. Unfortunately, mobility was greatly restricted and a fallen knight could not rise to his feet because of the enormous weight which he carried. Nevertheless, the armored horseman was a dreadnaught of near invincibility and was the medieval equivalent to the present day tank. However, the appearance of the crossbow with its relatively high velocity, close range projectile, soon consigned the medieval knight to the junk heap of obsolescence.

Since the era of knighthood the idea of personal body armor has never been completely discarded and is increasing in use today, due to the advent of modern lightweight ballistic metals, fiber glass and ceramic com-



By
COL. REX APPLEGATE

BODY ARMOR...

posites. Body armor has progressed from the skins of beasts, scales and rings of hard material fastened to skins, through quilted cloths, rods and slats of wood and bone lashed together, chain mail, steel armor plate and now has reached the zenith of its effectiveness with the use of ceramic tile bonded to fiber glass plates.

The outward appearance of the various types of vests being used today by the police and military have changed little since medieval times. However, the development of new effective lightweight ballistic materials during the period since World War II has been significant and of vital importance to U. S. law enforcement. Now, not only must the riot policemen be equipped with protective hel-

metts but police departments should have shields and armored vests, for special issue in barricade and sniping situations where they are being fired upon from buildings or other concealed and protected positions.

There has been a lot of confusion and some misrepresentation in advertising, and in press accounts, as to exactly how effective present day armored vests are, and it is for this reason that the following discussion will try to concentrate on the developments as they pertain to law enforcement and their possible use during the predicted violent decade ahead.

Basically, the task of the armor designer is not to cover the entire body of the policeman, or soldier, with a ballistic material as it would restrict his mobility or be so heavy that he would be unable to move. The intent is to protect the most vital areas. Wound ballistic data accumulated from WW II and the Korean War indicate that the great majority of fatal wounds occur in the chest and abdominal areas which contain the heart, lungs, liver and major arteries. Thus the placement of only one square foot of armor over front and rear of the torso can prevent 75 per cent of fatal wounds, provided the ballistic material is heavy enough to stop the projectiles used against the wearer.

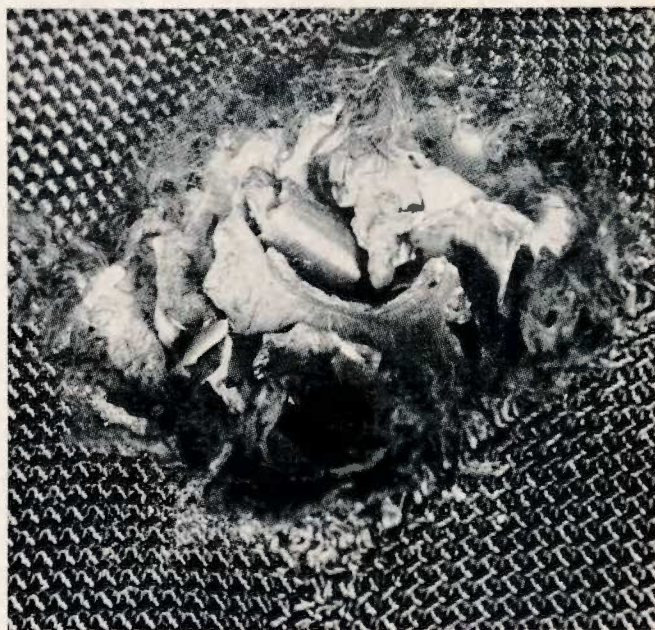
There are no exact statistics as to the types of weapons that have generally been encountered by police during barricade situations and riot operations in the past. However, all indications are that the majority of weapons employed by criminal and riotous elements have been those of the low velocity nature, with bullets travelling not in excess of 1100 feet per second. This covers shotgun pellets, .22 caliber, .38 Special, .45 automatic, and other common handgun calibers.

It is on this premise that a number of police departments have equipped themselves with lightweight types of vests for protection against the lower velocity projectiles. In all probability this is a wise basic decision, particularly when weight, heat, quantities involved, and cost are considered.

(Continued on page 58)



A single 1/8 inch thick Doron fiber glass panel will stop bullets traveling at velocities up to 1100 fps.



Ceramic tile, bonded to fiber glass backing, can stop even armor-piercing .30 bullets moving at 2800 fps.

SHOOTING BLACK POWDER HANDGUNS

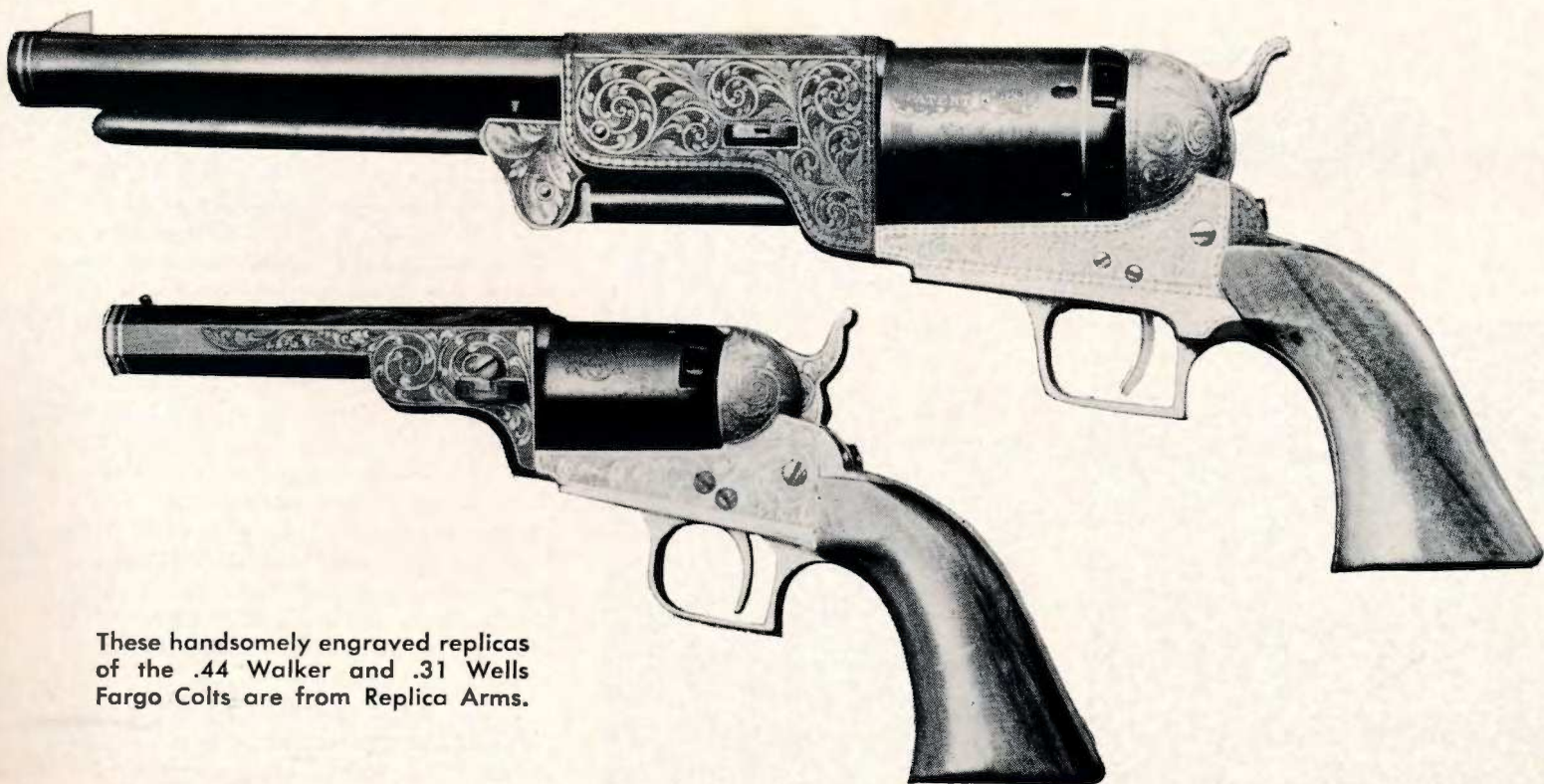
By MAJ. GEORGE C. NONTE



Navy Arms .36 Remington replica.

To be cleaned properly percussion revolvers should be disassembled at least as far as this Colt is.





These handsomely engraved replicas of the .44 Walker and .31 Wells Fargo Colts are from Replica Arms.

WHETHER IT BE an atavistic urge to emulate our great grandfathers or simply a desire to try a **different** form of shooting, the muzzle-loading, black-powder percussion handgun enjoys greater sales and popularity today than at any time since the advent of the cartridge handgun.

To use the word "modern" in describing today's percussion handguns is perhaps not entirely correct. A large assortment of newly-manufactured guns is available—and though manufacturers and materials are modern, design is little (if any) changed from American Civil War days. Reproductions of Remington and Colt revolvers, circa 1860, are sold under a number of brand names, including Navy Arms Company, Centennial Arms Corporation, and Replica Arms, to name the principal suppliers. Centennial guns are produced in Belgium by a firm that once manufactured the same design under Colt license. Both Replica and Navy guns are manufactured in Italy. In addition, single shot pistols are offered by Numrich Arms—an underhammer "boot" pistol—and by Tingle and Replica.

The safety margin of the imported replica revolvers is undoubtedly greater than that of the originals. I have yet to encounter a single instance of a "blow-up" that could be traced to defective materials when **only** black powder was used. While current-production guns lack the fine finish and bright blue of the original models, they appear to be produced to closer tolerances, and

are certainly made from better materials than were available in the 1860's. Consequently, so long as only black powder and proper bullets are utilized, modern percussion revolvers are as mechanically safe as a gun can be. In fact, it is impossible to generate excessive pressures with any amount of black powder that can be loaded into the individual chambers behind a proper bullet. In the discussion of shooting techniques which follows, we will concentrate on revolvers. Single shot pistols are less complicated, and many of the techniques for revolver shooting can be used.

Caplock handguns are available from a number of sources. **Navy Arms Co.** offers replicas of the Colt and Remington revolvers. Both are available in either .36 or .44 calibers. **Centennial Arms** features replicas of the Colt 1860. **Replica Arms** has the Remington and a most complete line of Colt revolvers—from the Paterson, Walker, and 1860 Army, down to the diminutive Wells Fargo, they also offer a single shot target pistol. **Numrich Arms** offers their Hopkins & Allen Boot Pistol in .36 or .45 caliber. **Tingle** makes a single shot target pistol. **Dixie Gun Works** has a low priced "Navy" revolver and several models of single shot caplock pistols. Incidentally, the Dixie catalog (\$1.00) is a treasure chest of black powder shooting information. It should be a must for every black powder shooter. In addition to these, several other firms offer single shot caplock pistols,

BLACK POWDER HANDGUNS



Hopkins & Allen Boot Pistol



Nipples can be checked for obstructions by exploding a cap on each of them. Charge cups are inexpensive and help throw uniform loads.



When shooting cast balls, the sprue cut should be centered in the bore. This helps accuracy by preventing imbalance of the bullet.



A thin ring of lead will be shaved off the bullet as it is rammed into the chamber. Filling the chamber with grease will prevent flash over between chambers and lubricates black powder fouling.



including Intercontinental Arms, Richland Arms, etc.

Accessories are generally available from any of the above, including round ball moulds, caps, powder flasks, etc. In addition, Alcan offers swaged .44 caliber balls, ready to shoot. The Lyman Gun Sight Co. offer their popular moulds in round ball sizes to fit every black powder caliber.

In the revolvers, the Colt design, with its open-top frame and wedge-fastened barrel is quite simple to dismount for cleaning—which is absolutely essential after every shooting session. The Remington design, with its solid frame completely encircling the cylinder, and screwed-in barrel is inherently a stronger design than the other; it also has far fewer screws and parts to become lost or damaged. Both are entirely satisfactory, and aside from sights, a choice between the two must be made on the basis of personal preference.

Unless you are completely familiar with single-action revolver mechanisms, the newly-purchased gun should be completely disassembled and studied—until you know it well enough to tear it down and put it back together properly with a minimum of effort. This can be combined with an initial disassembly and cleaning of the gun to remove all preservative grease before the first shooting session.

Wash all the component parts in non-flammable solvent—or in gasoline, if nothing else is available. If the latter, be certain you do it outdoors.

During reassembly, coat the base pin (upon which the cylinder revolves) liberally with heavy grease. Apply a good grade of gun oil to all pivoting and sliding parts, and some good lubricant at sear notch, mainspring bearing, and bolt cam. A drop of oil on each screw will also facilitate later disassembly. If shooting is to commence within a day or two, do not oil or grease the inside of the chambers or the nipples (cones).

In shooting any muzzle loading gun, all normal firearms safety precautions *must* be observed, and in addition others are required. These will be pointed out as we go along.

To prepare for shooting, assemble the following items and materials; can of FFFG black powder; caps of proper size to fit nipples of your particular gun—No. 11 fits some, but is a bit too large for others, which require number 12; pure lead round balls, which may either be cast or swaged (.44's require .452" balls; .36's, .375"; and .31's, .320"); a small tin or wide-mouthed bottle of soft grease or kitchen shortening such as Crisco; a powder flask with (Continued on page 75)



Baloney with TEST PATTERNS

By CARL W. RADY

I HAVE BEEN banging away with scatterguns since I was eleven. That's 28 years now. To say there are a few guns in my racks would be an understatement. My wife threatens to put the next addition right over my shooting cap, while my head's still in it. Through all these years of handling shotguns, I have yet to test pattern one gun. I don't believe I ever will. Now, if you will just hang on to your recoil pad, I'll try to show you why I don't.

How many times have you heard or read this big fat story. "The only way to know what patterns your shotgun is throwing is by testing it out in the following manner. 1) Tack a sheet of paper, 5 foot square, to the barn door. 2) Mark the center with a black crayon. 3) Pace off 40 yards from this target. 4) Aim your gun at this center spot and fire. 5) Take a piece of cord, a pin, and a pencil. Place the pin in the center of the aiming point through a loop in the cord. Now measure 30 inches of the cord, make another loop, insert the tip of the pencil in this and proceed to draw a 30 inch diameter circle. 6) Take the paper down and count the shot holes in this circle. 7) Find the difference between the number of shot in that load and the number of shot in the circle. This will give you a percentage, which in return, will tell you the amount of choke your tube is actually shooting." According to the story, you should go through this procedure 5 to 10 times

(preferably 10 times), for each shot size and load you use, for a good working average. Then (again, according to the story), run this test on the various manufactured shells, because (it says) the production methods and component parts are somewhat different between the various manufacturers. Right now is where I say "Baloney" to the whole cotton pickin' story.

The average sportsman in the USA shoots a single tube, 12 ga. with a modified choke. This gun is good for anything from quail to Canada honkers. That means it should handle 1 1/8 oz. to 1 1/2 oz. loads with shot sizes #8 through #2 reasonably well.

Let's take a look at some of the loads used on various game. Woodcock and quail usually call for 1 1/8 oz. #8. Grouse, rabbits and doves, a 1 1/8 oz. #7 1/2, with possibly 1 1/4 oz. load on the second shot. Pheasants over a pointing dog, 1 1/8 oz. #6 works fine; cornfield shooting, 1 1/4 oz. load is better. Ducks over decoys, 1 1/4 oz #6 is OK; pass shooting, 1 1/4 oz. #4 and 1 1/2 oz. loads should be used. Geese, 1 1/4 oz. #2 and 1 1/2 oz. loads. Now, this isn't all the game handled with a scattergun, but let's assume the average man has a chance at these.

Right now I'm going to take out my little stub of a pencil and show you how ridiculous this age-old story of test patterning is. First, the game and conditions above requires 9 dif-

ferent loads. The preferred number of fired shots per load is 10, so 9 times 10 equals 90. There are 3 major manufacturers of shells, 3 times 90 equals 270 fired shots. A modified choke should handle patterns from 55 to 65 percent, 60 percent is average. The average shot in the loadings above is 270, to 270 times 60 percent equals 162 shot holes in the 30 inch circle. Now, if we made this test we would have to count the shot holes in the targets. How many are there? Let's see—270 fired shots times 162 shot holes equals 43,740. This is considerably more than a half a dozen, wouldn't you say? That's a hell of a lot of holes to stick a pencil in.

I tried out a few shots on paper, not to test pattern, but to find out the time required to count holes. The average was 2 minutes 47 seconds per sheet. So, if we multiply 270 shots times 2 minutes 47 seconds, it would come out to be more than 12 1/2 hours.

The quality control of our firearms industry is top-notch. They turn out shotgun barrels with machined accuracy that is pretty hard to question. Their shot shells are the best in the world. With the new plastic hulls and shot collars to help control patterns, what more do we need?

I don't think a person would have much use for a shotgun after spending 12 1/2 hours counting the 43,740 shot holes; he'd be too blind to shoot any game.

TOO MANY SHOTGUN GAUGES!



The Marquis de Valdesevilla, a Spanish noble, uses 14 gauge guns.

FIFTY PER CENT of all the shotguns made these days are 12 gauge; another 25 per cent are 20 gauge. The remainder is a hodge-podge, including the 16 gauge, 28 and .410. There is no production of a 10 gauge in this country although there is a trifling importation. Quite a long time ago we had other gauges; there was a 14 gauge, an 18 gauge, a 24 gauge, a 32 gauge and even a 9 mm. At the other end of the spectrum was an 8 gauge and a 4 gauge. All of these have now been gone so long the guns are museum pieces and the cartridges, for the most part, are in collectors' hands.

In Spain there is a great deal of partridge shooting among the bluebloods. King Alfonso, who has put in quite a bit of time over in Portugal since Franco took over, was an ardent sportsman. He always shot a pair of Purdey 14 gauge guns. The 14 is a sort of bastard, not as good as the 12 and certainly no better than the present 16 gauge. When a member of the king's party one day asked the Spanish monarch why he was an aficionado of the odd gauge the reply made a lot of sense. "Well, you see," the Iberian royalty explained, "it is common in a hunting party to beg cartridges off the other fellow. I shoot my 14 gauge guns and no one can borrow from me!"

The 14 gauge has now disappeared even in Europe and along with it the other questionable ones. Oddly, however, the 9 mm shot cartridge is still around. Put up in a 2" casing it is fired in single barrel guns. The 10 is still made but more, I suspect, for export than for sale on the Continent. The 16 is more popular than the 20 abroad but the 12 remains the heavy choice by European gunners, including the British. A full 40 years ago some of the first federal game laws put the arm on those gauges larger than 10. We've since evaded the spirit if not the letter of the law by loading 2 ounces of shot into the 3½" 10 gauge shell. The 8 gauge threw 2½ to 2¾ oz. of shot, not a great deal more lead. The original 10, with its 2⅞" shell was many times loaded with only 1¼ to 1⅜ oz. of shot. It was never popular and today, with its walloping big 3½ inch casing and 5 drams of powder along with the hatful of shot, earns scant acclaim.

On the rifle side of the gunning equation we yearly see new calibers come along. Even among the handgun calibers there are new ones. But on the score of new scattergun sizes we seem to have run out of steam. There



Charles Askins

By CHARLES ASKINS

has not been a new gauge for a full half century. The possibilities of any thing along this line are utterly nil. The reasons are plain. The development of the modern shotgun cartridge has been so remarkably thorough that you may shoot a 20 gauge loading in the 12 gauge gun, or a 16 gauge loading or even a 10 gauge powder and shot combo. And all this can come out of the one gun. Why develop a new gauge when versatility like this is within the reach of all?

It was precisely this flexibility that sunk all the old odd-ball numbers. Why the 24 gauge, as example, when the standard 20 could do everything this one would do? Why the 14 or 18 gauges when the 16 could accomplish as much and more?

Once on a time we had what we referred to as standard loadings in the various gauges. The 12 was accepted as a $1\frac{1}{8}$ oz. standard; the 16 threw only 1 oz. of shot; the 20 went $\frac{7}{8}$ oz.; and the 28 was a $\frac{5}{8}$ oz. loading. The .410 came along a good deal later than these others and was standardized at $\frac{1}{2}$ oz. of shot.

This was back in what is now generally referred to as the good old days and times have changed. The 12 is now regarded as standard with $1\frac{1}{4}$ oz. of pellets; the 16 at $1\frac{1}{8}$ oz.; the 20 at 1 oz.; the 28 at $\frac{3}{4}$ oz., and the .410 at $\frac{3}{4}$ oz. But so versatile have the loadings grown that the 12 can be had from a paltry one ounce of shot (Federal) up to $1\frac{7}{8}$ oz.; the 16 from 1 oz. to $1\frac{1}{4}$ oz.; the 20 from $\frac{7}{8}$ oz. to $1\frac{1}{4}$ oz.; the 28 from $\frac{3}{4}$ oz. to a whopping $1\frac{1}{4}$ oz.; the .410 from $\frac{1}{2}$ oz. to $\frac{3}{4}$.

Directly after WW I, a holocaust now a half century in the past, we actually had some 2600 different shotloads. The manufacturers were trying to satisfy everybody and the burden of attempting to put together more than two

thousand different combinations of powder, shot, shell lengths, primers, wadding and gauges became too much. By mutual consent they all agreed to a tremendous reduction. These days we have only a fractional part of these varied loadings and yet manage to have an offering in the five standard gauges that makes it possible for the shotgunner to own one shotgun—like say the 12, 16 or 20—and yet be able to run the gamut from a light 20 bore charge to a walloping good goose-killing round.

Most flexible of all, of course, is the 12. Here the gunner can fire if he likes the pipsqueak 1 ounce of shot. This is a standard 20 gauge. Or he can run up to $1\frac{7}{8}$ oz. of No. 2 and thus be throwing out as many pellets, virtually, as the 10 gauge magnum. The bigger gun only beats out the 12 by a bare one eighth ounce of shot, a mighty small margin out at 60 yards! The remarkable goodness of the 12 is that it handles its great variation of shot charges and powder weights better than any other scattergun. It will shoot light charges, standard charges, heavy charges and magnum loadings equally well. That is precisely the reason why 50 per cent of all the smoothbores sold today are in this gauge.

What is to be said for the 16? Here is a boring only scant fractions smaller than the 12, with a range of shotloads that stretches from a handy ladies' 1 oz. charge to a magnum poundage of a full $1\frac{1}{4}$ oz. and $3\frac{1}{2}$ drams equiv. of powder. Or the 20 which stretches from $\frac{7}{8}$ oz. of lead to a full $1\frac{1}{4}$ oz. of pellets and $3\frac{1}{4}$ drams equiv. of propellant. This latter it will be noted is quite as potent as the 16 and on the lower score manages an even lighter charging—only $\frac{7}{8}$ oz. of shot.

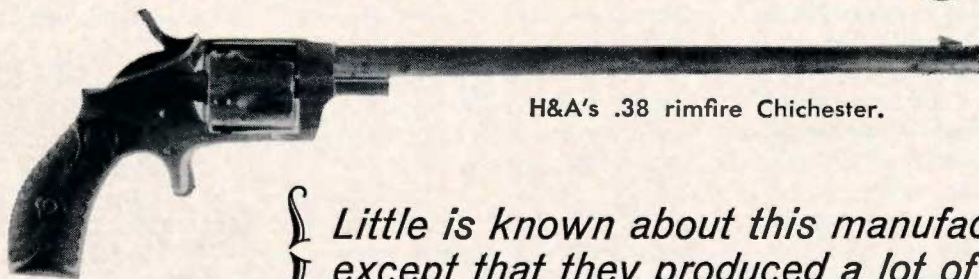
Why since there is a fine range of loadings here isn't the 16 just as popular as the (Continued on page 55)



Guns of HOPKINS and ALLEN



N. Curry & Bro. of San Francisco offered the .22 Blue Jacket 1½ for \$2.00 in their 1884 catalog.



H&A's .38 rimfire Chichester.

Little is known about this manufacturer except that they produced a lot of guns

By C. ELTON SHOMBER



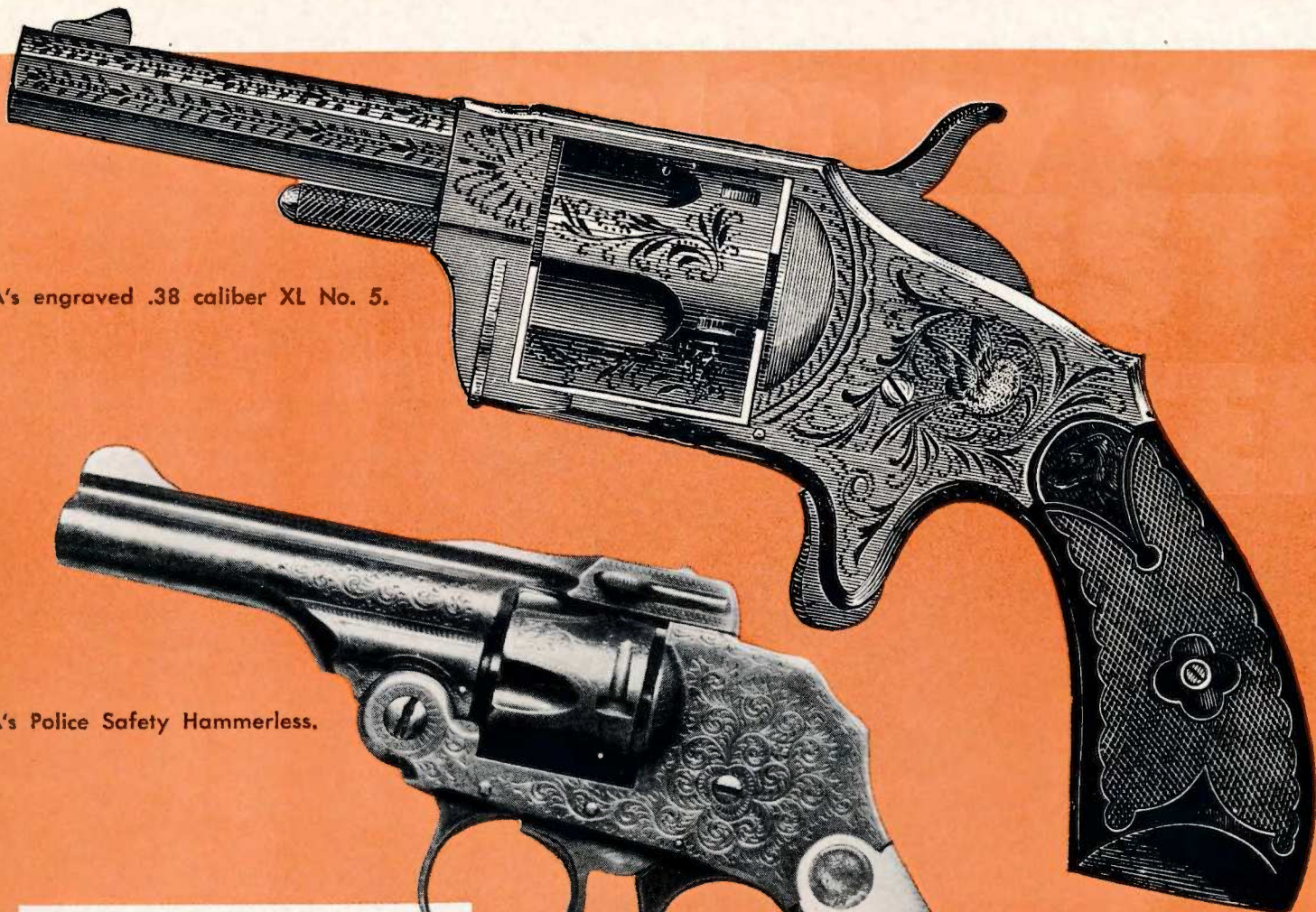
THE COLLECTING OF firearms necessarily brings the gun buff into contact with certain arms about which little or no information can be found. Such a situation exists to a degree with the guns of Hopkins and Allen. While a small amount of written material concerning this company has cropped up from time to time in the last few years, there has been little factual information presented which could be of use to the collector/researcher. In view of some of the misinformation prevalent regarding this firm, it is hoped that the material presented herein will correct some of the misconceptions and erroneous beliefs prominent among collectors.

The firm of Hopkins and Allen was an extremely prolific producer of cartridge handguns as well as other firearms. If the number of H & A guns available to the collector is any criterion by which to judge, the production total must have reached staggering proportions. Such an estimate, however, is useful only as a gauge of overall production, but even in this sense, this company was certainly no fly-by-night operation.

Hopkins and Allen was in operation for some 47 years and outlasted the vast majority of its competitors, no small feat in itself. In the years immediately following the Civil War, a large number of arms companies came into existence, some making a good showing for a brief period and then quickly fading into oblivion. Others folded practi-

cally overnight, taking with them the hope of a quick fortune to be made in the manufacture of guns. Hopkins and Allen was one of the very few organized during this turbulent period to survive beyond the turn of the century.

Hopkins and Allen was the brainchild of Col. Charles A. Converse, an influential businessman of Norwich, Connecticut. In the spring of 1868, Converse, then manager of the Bacon Firearms Company in Norwich, and Samuel S. Hopkins, a machinist, were empowered by Bacon to dispose of some gunmaking machinery. A shortage of potential buyers, however, held up the sale and after some time had elapsed with still no prospects in view, Converse proposed that he and Hopkins themselves purchase the machinery and establish a new arms company. He also suggested that they invite Charles W. Hopkins, a brother of Samuel; Horace A. Briggs, and Charles H. Allen to join the new firm as principal stockholders. (It should be noted that no relationship existed between Charles H. Allen and Ethan Allen, gunmaker of Worcester, Mass.) Without exception, the original founders of the company were journeymen machinists and had worked in that capacity at various arms companies located throughout the New England area. In addition, they had worked together on various occasions and each was acquainted with the capabilities of the others. Since none of these men were strangers to the intricacies of gunmaking, their selection as partners was probably not such a hasty decision as it might appear.



H&A's engraved .38 caliber XL No. 5.

H&A's Police Safety Hammerless.

Guns Manufactured by H & A:

Blue Jacket No. 1; .22, 7-shot
 Blue Jacket 1½; .22, 7-shot
 Blue Jacket No. 2; .32, 5-shot
 Czar, .22; 7-shot
 Capt. Jack; .22, 7-shot
 Mountain Eagle; .32, 5-shot
 Dictator; .32, 5-shot
 Dictator No. 2; .32, 5-shot
 XL No. 1; .22, 7-shot
 XL No. 2; .30, 5-shot
 XL No. 3; .32, 5-shot
 XL No. 4; .38, 5-shot
 XL No. 5; .38, 5-shot
 XL No. 6; .41, 5-shot
 XL No. 7; .41, 5-shot
 XLCR; .22, 7-shot
 XL 30 Long; .30, 5-shot
 XL Vest Pocket; .22, single shot
 XL Derringer; .41, single shot
 XL Single Shot; .22 and .30
 XL Navy Revolver; .38, 6-shot
 Ranger 22 Long; .22, 7-shot
 Ranger No. 2; .32, 5-shot
 Scott; .38, 5-shot (24½" brass barrel with wooden shoulder stock)
 Hinsdale; .38, 5-shot (Same as Scott)

With the exception of the XL Navy, all of the above are spur trigger pistols.



One of the first handguns manufactured by the Hopkins & Allen firm was this percussion revolver in .31 caliber.

GUNS of HOPKINS and ALLEN



H&A's .32 XL Bulldog.



H&A's Vest Pocket Derringer.

Converse's proposal was agreed to by all concerned, but there were, however, two provisions to which he had to agree before the deal was closed. First, he had to procure an advance order for 500 pistols, which, with his business connections, he was able to do within a short time. Secondly, he had to agree to serve for one year without pay as treasurer and manager of the new firm. With these details satisfactorily disposed of, the company officials were then installed. Horace A. Briggs was named president, Charles W. Hopkins the secretary, Samuel S. Hopkins as superintendent of the plant and Converse as treasurer and manager. The necessary arrangements were completed and the fledgling Hopkins and Allen Manufacturing Company was open for business on June 15, 1868, with a working capital of \$6000.

The company was first located at "the Falls" in the vicinity of Norwich and in the beginning employed about 30 people. One of the first guns manufactured was a five-shot, single action .31 caliber percussion revolver with a spur trigger. This gun is almost an exact duplicate of one made by Bacon, even to the frontier scene depicted on the cylinder. Due to the similarity between certain guns made by H & A, Bacon, and the Manhattan Firearms Company, there was undoubtedly a close relationship between the three firms, possibly due to Converse's influence.

Hopkins and Allen apparently took careful note of the Rollin White lawsuits which had been initiated in 1863 and of the consequences upon those arms companies judged guilty of patent infringement. For almost the first year of

their existence, H & A confined their handgun production to percussion models until such time as they (and anyone else) were free to market revolvers with "bored-through" chambers.

The new firm prospered, receiving orders both from this country and abroad. During the period from July 15, 1868, to May 1, 1874, the treasurer paid out to each of the original stockholders approximately \$18,000 in payment of company dividends and for their services. This represented a sizeable return on the original investment of \$1,010 as each partner's share.

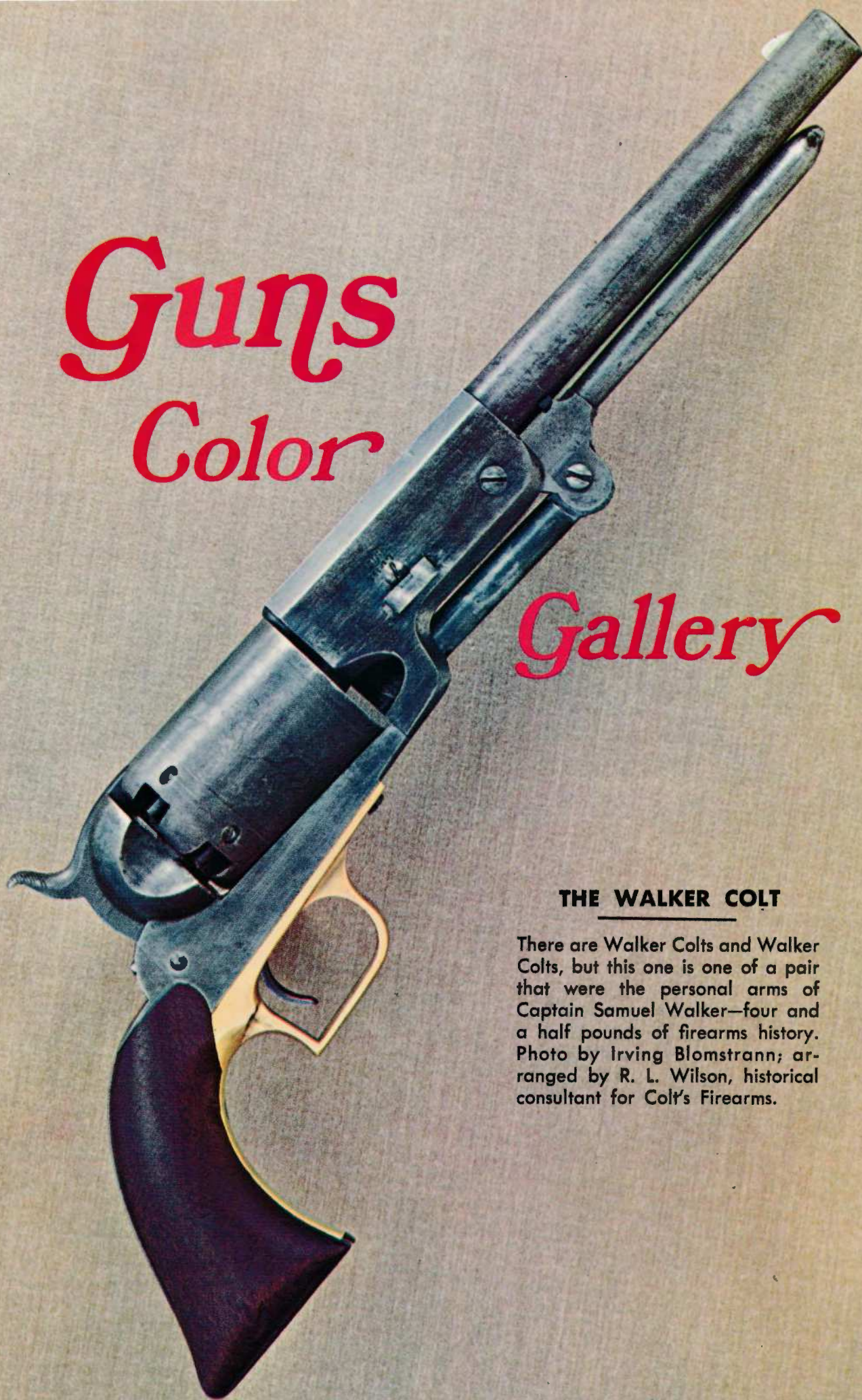
During the unprecedented demand for handguns which was in full swing at the time H & A was established, they took on the task of arming what must have appeared to them to be the entire country. Production orders poured in and the pace was accelerated while the gun market was being deluged with firearms of every type and description. With the expiration of the Rollin White patents in 1869, practically every gunmaker in the country placed some type of revolver on the market. Nevertheless, the demand for H & A's guns was great. Unlike many of their competitors, they were apparently never forced to sacrifice quality for quantity, though the pressure to do so must have been extremely great. Nor did they succumb to the temptation of merely copying another manufacturer's work in order to speed up production, as did a number of their less-imaginative contemporaries.

In November of 1869, Henry H. Hopkins, a brother of Charles and Samuel, joined the firm as a principal stockholder and superintendent of shops. Like his brothers, he was also a machinist, having learned the trade from their father. While in the employ of Allen and Thurber of Worcester, Mass., he had collaborated with Horace Smith (later of Smith and Wesson) and Thurber in the design of a fore-runner of the typewriter.

Hopkins and Allen made use of well over 20 patents in their manufacturing line. One of the primary patents, number 113,053, was obtained on March 28, 1871, by Samuel S. Hopkins for a swing out cylinder (Continued on page 68)

Guns Color

Gallery

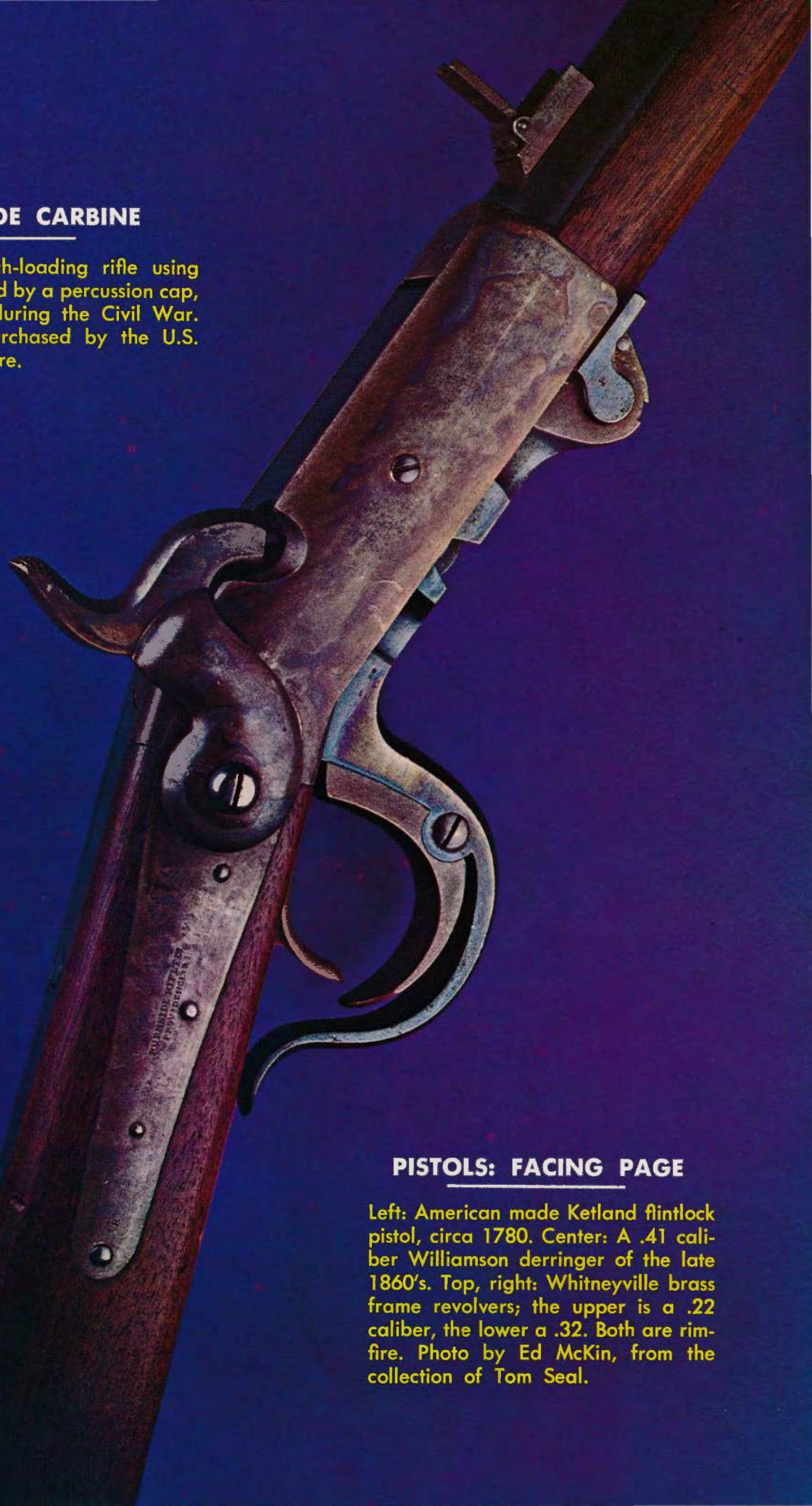


THE WALKER COLT

There are Walker Colts and Walker Colts, but this one is one of a pair that were the personal arms of Captain Samuel Walker—four and a half pounds of firearms history. Photo by Irving Blomstrann; arranged by R. L. Wilson, historical consultant for Colt's Firearms.

THE BURNSIDE CARBINE

The Burnside, a breech-loading rifle using a metallic cartridge fired by a percussion cap, was used extensively during the Civil War. Some 55,567 were purchased by the U.S. Photo by Dr. R. L. Moore.



PISTOLS: FACING PAGE

Left: American made Ketland flintlock pistol, circa 1780. Center: A .41 caliber Williamson derringer of the late 1860's. Top, right: Whitneyville brass frame revolvers; the upper is a .22 caliber, the lower a .32. Both are rim-fire. Photo by Ed McKin, from the collection of Tom Seal.

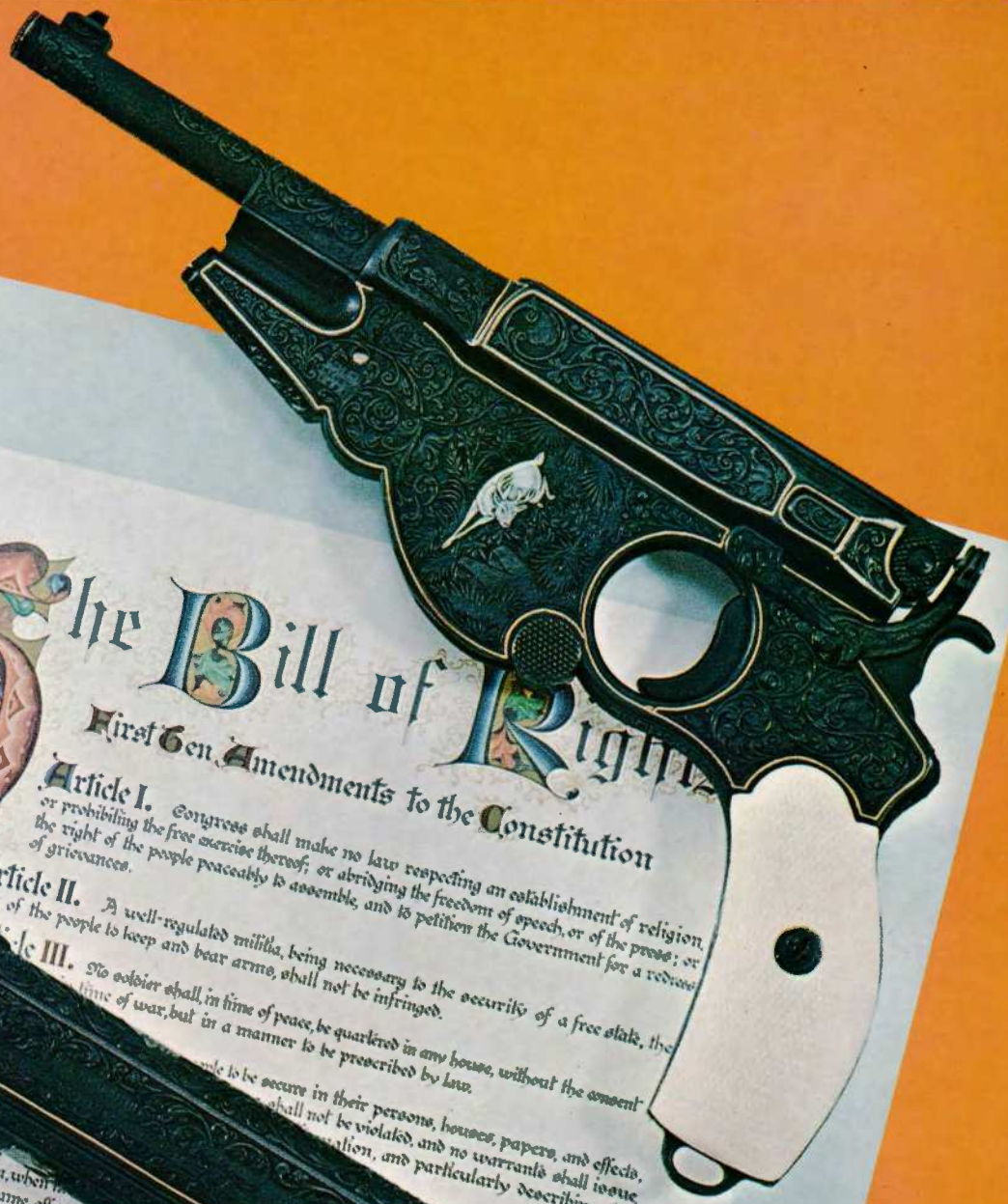






A TRIO OF SMITH & WESSON PISTOLS

Top: A First Model, First Issue, in original gutta-percha case. Center: Another First Model, but Second Issue. The bottom pistol is, again a First Model, but Third Issue. All are in .22 Rimfire caliber. Photographed by Dr. R. L. Moore, from his personal collection.



The Bill of Rights

First Ten Amendments to the Constitution

Article I. Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.

Article II. A well-regulated militia, being necessary to the security of a free state, the right of the people to keep and bear arms, shall not be infringed.

Article III. No soldier shall, in time of peace, be quartered in any house, without the consent of the owner; in time of war, but in a manner to be prescribed by law.

...shall not be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, and no warrants shall issue, but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

Article VI. In all criminal prosecutions, the accused shall enjoy the right of a speedy and public trial, by an impartial jury of the state and district wherein the crime shall have been committed, which district shall have been previously ascertained by law; and the accused shall be informed of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the assistance of counsel for his defense.

Article VII. In suits at common law, where the value in controversy shall exceed five dollars, the right of trial by jury shall be preserved, and no fact tried by a jury shall be re-examined in any court of the United States, than according to the rules of the common law.

Article VIII. Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

Article IX. The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.

Article X. The powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively, or to the people.



FACING PAGE

Two handsome auto pistols, engraved by E. C. Prudhomme. Top: A Bergmann. Bottom: Colt Pocket Model, .38. Photo by Thurman C. Smith.

WINCHESTER 1886 RIFLE

This rifle, in mint condition, is chambered for the .38-56 cartridge. An original box of ammo is also shown. Photographer, owner, Dr. R. L. Moore.



The Tokugawa Hand Cannon



By Fred E. Poe

THIS JAPANESE hand cannon by an unknown armsmaker probably dates from the latter part of the 18th century. The only marking that appears on the brass weapon is on the lower surface, directly under the dog's head (see photo). Translated, the inscription is "Matsudaira."

An inquiry of Mrs. Arline G. Maver, curator of the Museum and Colt Collection of the Connecticut State Library, brought the information that on page 443 of George Stone's "Glossary of the Construction, Decoration and Use of Arms and Armor" the name is said to refer to "Japanese nobles having incomes of from 10,000 to 20,000 kokus of rice!"

Mrs. Maver suggested that I write to the Eastern Arts Division of the Metropolitan Museum of Art, in New York City.

After examining the photographs of the hand cannon, Mr. Randolph Bullock, Curator of Arms and Armor at the Museum, wrote:

"I believe there is no question that the piece is Japanese, and from the character of the chiseling and its general form, I would say that it would be middle or late Tokugawa period—18th or 19th century. I have never seen a piece like it—i.e. cast all in one piece—'stocks' as well as barrel! Nor does the inscription (Matsudaira) help, since it is the patronymic name of a large number of families related to the Tokugawa, most of them descending from Yasuchika. There were many branches and during the Edo Shogunate the Tokugawa conceded to many noble families the privilege of using the name Matsudaira. In fact, in the daimyo 'armory' (bukan) there appear 52 such families! So you can see that identification is not possible without other evidence."

The .36 caliber cannon measures approximately 6 $\frac{7}{8}$ inches long and 1 $\frac{7}{8}$ inches high. It weighs one pound, 1 $\frac{1}{2}$ ounces. I have shown the piece to several collectors and experienced foundry workers. We are all agreed that a sand box-type mold was used, rather than the lost wax process, in making this weapon—unusual in that it was cast in one piece.

Although this hand cannon is of bold and handsome design, on close examination it shows many flaws. The engraving or chiseling of the scrolls on the sides is of rather low quality and there are several bad casting marks which can be seen in the pictures. These holes were filled in with tiny pieces of brass, driven in with a hammer, then smoothed off. There are two small holes on the underside near the muzzle which were never repaired. The workmanship of the dragon on the barrel and the Foo dog's head on the end of the grip is better than that of the scrolls—probably because of the religious significance of these creatures.

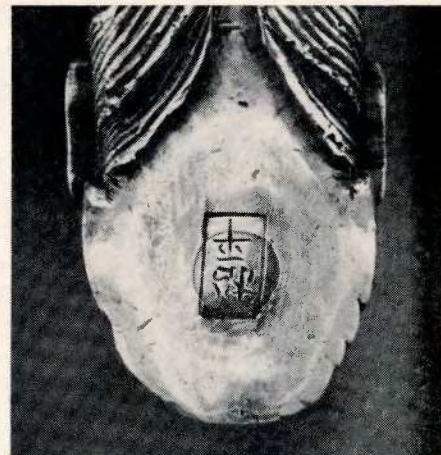
An X-ray shows many internal imperfections. The inside walls of the barrel are wavy and rough, with several bad casting holes near the vent. Shrinkage cracks can be seen, and two foreign pieces of metal running from near the under side to the rear of the barrel chamber—apparently used to support the barrel core material while it was being cast. Core pins on the underside were partially dug out and then plugged with brass pins.

The weapon could be fired in the following manner: first, the prescribed amount of powder was poured in the muzzle, followed by a wad and ball, and driven home. Then, with the cannon in either

hand, the vent hole cover (an unusual feature) was lifted, exposing some of the powder which was then ignited with a match or piece of punk.

Range of this weapon would be fairly short and accuracy of any degree next to impossible. The only sight on the cannon is located directly on top of the dragon's head. The vent hole cover may appear to be a rear sight, but it is far too low to be of any value for this function.

The Japanese Samurai swords of this period were of the finest quality and craftsmanship. To use a powder weapon in combat would cause a Samurai, trained to use bow and sword, to lose face among his fellow warriors. This may explain the tardy acceptance of powder weapons in Japan and the crudeness of this example.



While the Japanese mark is a name, it is as common as Smith or Jones.



A CLOSE LOOK AT THE .264 WINCHESTER MAGNUM



Les Bowman

By LES BOWMAN

IN 1908 I KILLED my first deer, using a single shot rifle powered with the .22 Long Rifle cartridge. This deer was one of our west coast black-tails, not as big as the mule deer found farther inland. I used this rifle for all of my shooting—skunks, rabbits, squirrels, etc. until my mother made me a present of a new .25-35 94 Winchester carbine. Now I felt that I really owned a big rifle and with this gun I killed quite a number of our west coast black bear as well as many deer. This is one of the really “old guns” that I still own and it still shoots as well as ever. I remember I would argue the merits of my rifle over that of the larger caliber .30-30 of some of my friends. I always liked the smaller, faster and flatter shooting .25 caliber bullet.

Our home was in the Redwood country of northern California. The country was mostly brushy, but I was taught to never try for a killing shot through brush, to wait for a clear shot, so the so called brush bucking qualities of a gun didn't interest me too much. I do not ever remember wounding and having game get away from me. This was considered the worst type of careless hunting. You were supposed to be within range and clear sight of your game before you tried for it. This would certainly be a good policy to follow today, when instructing beginners in the sport of hunting.

When I added elk to my list of game animals I decided I needed a more powerful rifle. I considered the .30-40 Krag and the .30-06 but I never could get really interested in the .30 calibers as some of my friends. The .250's, the foreign 6.5's, the 7x57, the .225 H & H plus the .256 Newton, seemed to be sufficient for any game I was then

interested in. My early training had taught me that bullet placement was far more important than bullet size, and later on, I learned that bullet structure was equally important.

As hunting calibers improved and better bullets and powders became available I was more than ever convinced that the .25's, the .270 and the 7 mm's were sufficient calibers for all our North American game, if used properly and with the correct bullets and loadings. I had also been very interested in the qualities of the 6 mm's and used it many years before the advent of the .243 and the .244. I have owned and used several of Charles Newton's rifles from the .256 to the .30 and the .35 caliber. Newton's cartridge design was far ahead of the powder and bullets available during his time. As better powder became obtainable we found out how really good his early designs were, and by this time we had the belted case and a great number of improvements on standard case designs.

The belted case cartridges and new calibers for them were given a decided boost by the various grades and the burning rate of I.M.R. powders, as well as many grades of the newer grades. And now we have several new domestic and foreign powders on the market. Bullet-making technique and design have made a lot of progress recently, with much better designed bullets.

During the past 18 years I have had the best of opportunities to see the effects of calibers, cartridges, bullet types and loadings on actual game kills. We were in the outfitting business in the heart of some of the best big game country on the North American contin-





Rifles in .264 Win. Mag. are powerful enough to take all but the largest of game animals. The author dropped this grizzly with his .264 rifle.

ent. We take a hundred or so big game hunters each year, whose game kills we had the opportunity of examining and evaluating, and kills made by the guides and local friends added many more to this list. This game ranged from rabbits to antelope, deer, Big Horn sheep, elk, moose and bear, including grizzly bear, as well as quite a number of the predators and varmints. Our hunters included experts and novices, some of them exponents of the big bore rifles and some who preferred the smaller high velocity ones.

We found that the average hunter did much better using the small, high

speed bullets, which carried great shocking power at point of impact, than they did with the larger caliber cartridges. Also, the best performing lighter bullets were made tough enough to penetrate, yet designed so that they would open up properly to twice or three times caliber size and still retain a high percentage of mass weight. Nowadays, such a bullet is made by all ammunition companies. It is hard to find a bad bullet put out by any of our principal ammo or bullet companies today. However, it is wise to remember that most companies make both game and varmint type bullets and they

should not be interchanged by hunters.

A few years ago Winchester brought out a new line of big game cartridges headed by the new Winchester .458, and then the .338. Both of these caught on fast and are among the world's finest for big and dangerous game today. The third caliber they announced for this new family line of cases kept us all guessing as to what it would be. There were reports that it was to be a 7 mm and others that it was a .25 caliber. As a 6.5 (Winchester calls it the .264 Winchester), it surprised most of us.

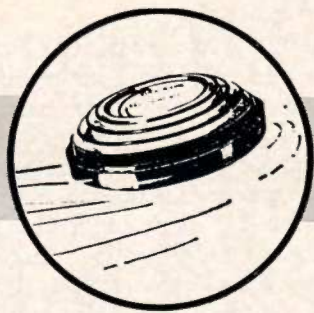
Factory figures gave a muzzle velocity of 3200 fps for this new rifle with a 26 inch barrel using 140 grain bullets. The first guns were brought out with the 26 inch barrel but the public demand was so strong for a shorter barrel length that a 22 inch barrel version was soon announced. Actual tests showed factory loads to be somewhat under the factory figures even with the long barrel and from the short 22 inch barrel it didn't do much more than the .270 Winchester. However, it was a good selling item when it was first brought out. Handloaders made up loads using all weight bullets from 87 to 160 grains. Winchester loaded the 100 and 140 grain weights as standard loads. Many hunters used the 100 grain bullet on big game with very bad results, even though Winchester warned against it in their literature.

It would take a small book to give a complete description of all the different 6.5 rifles and cartridges that have been produced (*Continued on page 67*)

RIFLES CHAMBERED FOR THE .264 WIN. MAG.

(all are bolt action)

Browning High Power
FI Musketeer
Remington M-700
Savage Model 110 Mag.
Winchester M-70 Mag.
Winchester M-670 Mag.
FN Supreme
Herter U-9
Herter J-9
Mannlicher Schoenauer Mag.
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PULL!

By DICK MILLER

WHY IS MONDAY MORNING the busiest time of the week for many gun stores? The answer: that's the day trap and skeet shooters come in to trade the guns with which they couldn't break clays on the weekend.

Because I am no longer a gun dealer, I can reveal one of the most closely held secrets of the trade without fear of being read out of the great fraternity of dealers. What the dealer knows is that there is nothing wrong with the gun that is being traded away by the clay target gunner. The real problem lies with the shooter, and not with the gun. The dealer knows that he can pair the offending gun with another shooter, who will consistently break targets with it.

What usually happens is that the shooter has a bad round, or a bad day, blames the gun, then rushes to the store to trade "the #\$\$% thing" off. Before you join the Monday morning trading bee, my friend, why not check to see if you are doing something that you haven't been doing, or if there are other answers for those lost targets. I am only being truthful by admitting that even though I was once a dealer, I made those mistakes that sent me in search of another gun.

Like the time I shot very poorly, as did my whole team, in an invitational team skeet shoot, sponsored by a club at which I had never shot before. The gun I was using at the time had shot very well for me, and was, as all good trap and skeet guns should be, an extension of me. I shot it easily, without thinking, and without working hard.

Because I was angry at the poor score, I sold the gun on the grounds to a man who had been unsuccessfully trying for some time to buy it from me. It was not until after the deal had been fully consummated that I learned that the shoot management had lessened the tension on their trap springs, with the thought that higher scores might prove a drawing card for the club. The targets were literally floating through the air, where on the other hand the club where I shot most of my practice targets had the springs

screwed down to the last notch, throwing extremely fast targets. I, and my teammates, were simply shooting in front of the slow birds. And, would the man give me my gun back? Your first guess is right. It took me at least two years to learn to shoot another gun as well as I shot the one I sold while angry. The moral here:



"But will you guarantee I'll shoot 25 straight?"

If you hit that bad round or day at a strange club, shoot again on familiar grounds before you show up on Monday morning with a gun "that won't hit 'em!"

Then there is my friend and customer who had a great year over the traps with his pet gun. He won his state handicap championship, and a trophy in the Grand American Handicap. After the Grand, he shot Old Betsy at a pattern board, and when the pie-plate picture on the pattern board was not what he expected (and not what his poorly informed friend thought it ought to be) he decided he could not shoot the gun.

So, bright and early on a Monday morning, old Betsy was traded to me on a new model. But, there is a happy sequel to this story. Bright and early on another Monday morning not long after, when I opened the store, there was our friend, asking with

bated breath if Old Betsy was still in the store. She was. He had decided on the pragmatic viewpoint, that if Old Betsy broke clay targets, which she did, and well, he could and would take her back, pattern board pie-plates notwithstanding.

Back again to the strange field complex, this time in trap, and from my very early trap days: One fine Labor Day weekend, I took my wife, my mother-in-law, and the boys to a shoot at Casey, Illinois, which turned out to be a Calcutta on the handicap event. When the mechanics of a Calcutta were explained to my mother-in-law, she was very much in favor of buying me. My wife talked her out of it, explaining that we had been to a shoot on Wednesday night, where I used three different guns, and couldn't hit my hat.

My thrifty mother-in-law, bless her heart, still scolds my wife, 20 years

later, for having talked her out of winning \$700 on an \$18 investment. What my wife didn't know, and what I didn't know at the time, was that the Wednesday night trapshoot was on a bluff, and that night winds played tricks with the targets. Nothing was wrong with any of the three guns. The problem was with Miller, not the guns.

The loss of my share of the Calcutta money was not total, however, in a way. The man who bought me, since deceased, caused me to get back the gun with which I won a Grand trophy and a Grand Ford purse, in later years.

Not long after the Labor Day event, I shot in a car shoot, for which there were 315 entries. Because I was the fifth shooter in the last squad, I became aware when I went on the last post, that all I had to break was three of the last five to win the car. I missed

three of the five birds, and lost the car, by lifting my head to make very sure that I broke those targets. Naturally, I was angry at the gun, and traded it off. When my friend told me some time later what I had done, I rushed back and retraded for the gun, which was a wise and profitable move.

Moral: Before you join the Monday morning rush hour in the gun store, make sure that you have not been lifting your head from a gun which will break every target if only you remember to do the right thing by it.

THERE is another peculiarity of guns and shooting which causes a lot of Monday morning trading activity. This is the situation in which a shooter who has been having trouble with a favorite gun will pick up a strange gun and for some as yet unexplained reason will shoot the new gun far better than he has ever fired any gun. For a short while, that is. When the honeymoon is over, he can't shoot the new gun nearly so well as the old one.

The moral here is to not go overboard on the strength of one round, one day, one week, or even one month's shooting. Any gun which serves you well must perform over the long haul, and not in one brief flurry. All veteran shooters have seen the phenomenon of the new gun streak, which tails off, many times. I guiltily confess, as in earlier words, that I have bought and sold more guns than I care to admit for the same reason. I never achieved any consistent results until I took one gun, and learned to shoot it, shunning all others.

There is another facet of clay target shooting which is a gold mine for the gun trading dealer. That facet is the difference between practice shooting and tournament competition. I once knew a skeet shooter who must have owned at least fifty guns, one at a time, before he eventually shot well and with a gun which he used on his first attempts at the game.

This man shot beautifully in practice, and miserably in tournaments. When you told him "this is for real," he cheeked the stock with a bear hug, latched onto the forend with a death grip, and his smooth practice swing became a tortured jerk. As the reader would immediately surmise, he was in effect shooting two different guns. The gun he used for practice acquired entirely different dimensions when he froze around it for a tournament.

Your gun must fit you both in practice and in tournaments. If you hold it one way for practice, and another way for tournaments, one of the dimensions is wrong. Before you trade

the gun on Monday morning, make sure you hold the gun the same way for each shot, whether fired for record or for fun.

Some reader is sure at this point to say, "Well, how in the world am I going to find out what gun I can shoot best, if I don't do a little experimenting, and perhaps trading?" Let me make it clear that the gun trading dealer, from whose ranks I am proud to say I came, does perform a real service for the shooter. You can, on those Monday morning trades, find the gun that will break the most targets for you. What I am really saying, in effect, is that you should make sure before rushing off to the gun store on Monday morning, that it is the gun that needs trading.

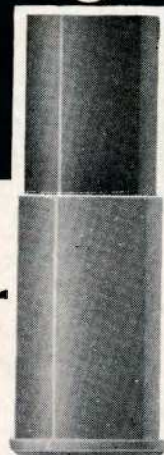
Before trading any gun that has broken a respectable number of targets for you, go back and check your fundamentals. Are you cheeking the gun at the same spot for each shot? Are you putting the gun to the shoulder in the same spot, and as you always did? Has your foot position somehow changed from the days you broke targets easily? Are you shooting the same in practice as in tournaments? Did your sour streak come at a new or strange field? Have you been experimenting, either with new holds, or new guns, and have you lost the feel of the gun that was once trustworthy?

DID the problem that causes you to think of trading your gun come from your own experience, or was it as a result of something someone else (who may have a style that works for him, but not for you) told you? Do you still call for your target in the same way (changing your call can change your shooting, you know)? Did the lousy streak that causes you to want to trade guns come after eating a big meal on the day of a shoot, when you customarily don't eat before shooting? Did your poor scores with a gun you once shot well come during a morning, when you used to shoot only in the afternoon? Did you go to bed early before the big tournament, when you are not accustomed to early retiring, or vice versa? Did your sub-standard score happen only when you were a fast shooter in a slow squad, or a slow shooter in a fast squad?

If you have checked all these, and many more items, perhaps you do need to trek on down to the gun store on Monday morning. I might just be there to meet you. You see, there's this problem I have with that darn gun which won't shoot any more. Maybe we could work out a trade.



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FIREARM'S DESIGN: THE BARREL

(Continued from page 29)

teeth, one for each groove, and each tooth was formed in steps. Each step was a cutting edge with its own chip clearance. The force required to pass a multiple tooth broach through a barrel was considerable and once such a machine was devised, it was a short step to a newer and more novel method.

Tungston carbide is incredibly hard and it is used on cutting edges that must hold up under abuse. This same material, by virtue of its hardness and resistance, now figures in a new method of rifling where no cutting at all is required.

A highly-polished tungston carbide head, or "button," is made with a reversed impression of the rifling

form a barrel, the billet was slipped over the mandrel which tipped forward to receive it. An end weight was dropped on to act as a position retainer. The operator then caused this assembly to be lowered for forging. The billet, heated red hot by electrical induction, was then struck by multiple automatic hammers. In the process, the stubby tube is compressed and elongated into a fully formed barrel.

Upon completion, the hammer marks are visible as a small pattern of flats on the surface of the barrel. The muzzle end, with a flared out "blunderbuss" appearance is called a "tulip," is cut off and discarded. The hammered Ithaca barrel (Trademark

Adopted from the Damascus barrel process,

heat and hammer is the latest thing for some makers.

formed into it. When this negative die is forced through the barrel, it "irons" or swages the rifling impression into the steel. The resulting "pressed in" grooves are mirror smooth and remarkable for their uniformity. A second button, unrifled, is passed through to smooth the land faces and bring them to proper bore diameter.

This method remains very popular due to its relative simplicity, low cost, plus the high performance and uniformity of the finished product. It certainly is a far cry from the early days of heating and hammering!

"If the hammer was good enough for Daddy, its good enough for me"—or with words to that effect, we now advance backwards to the "new" old way of hammering out barrels. This may make you smile but, in truth, some of the latest methods do harken back to the old days of "heat and hammer."

We mentioned the mandrel around which our old time barrelmakers formed their hammered barrel. The mandrel now reappears but the muscle and sweat are gone forever. The first barrel forging machine I ever saw was at the Ithaca Gun Co. It was a large device and operated vertically. The steel billet or "slug" from which the barrel was to be formed was a short section of cylindrical stock with walls about 3/4" thick and had a 1" hole down its length, which was about a foot. To

"Roto-Forge") is now finish turned, reamed and polished.

The Remington plant has a pair of these machines but they operate horizontally. We now find that the mandrel for high power rifle barrels can have the reverse form of the rifling and chamber, and the entire internal form can now be created in the swaging process. I saw the Winchester barrel swaging machines this past fall and they obtain the same results with a slightly different process. The huge machines, very long, are bedded in concrete and the noise level struck me as being surprisingly low. However, it is hardly an area for an aria.

One of my biggest surprises at Winchester regarding barrels, was that all of their special M-94 series with octagon barrels have each flat machined! They do not start with octagonal bar stock as I had supposed. Each blank starts as round stock, like a heavy target barrel, and the flats are milled to form the eight sides.

For the finest accuracy, regardless of the method of manufacture, the lead lap is still considered to be the ultimate in internal finishing. Shotgun barrels, being of smooth internal contour and relatively large in bore diameter, are easily polished by high speed rotating machines or push-pull longitudinal motion. The actual choke, at the very tip of the muzzle, is usually carefully finish cut by reamer. Thus, it is not unusual to observe that in many shotgun barrels, the

length of the bore has a mirror finish but the muzzle end shows faint reamer marks at the choke. This is not a defect but a sign of careful choke control.

Rifle bores, on the other hand, cannot be spin polished because of the lands and grooves. The polishing must be done lengthwise and must precisely follow the helical twist of the grooves. To do this requires a rather unusual trick. A firm steel rod with a husky ball bearing handle has about two or three inches of its tip ground to a reduced diameter with an intentional coarse and rough area. It is inserted in the barrel with its tip just below the muzzle end with a seal just where the rod becomes full diameter. Molten lead is then poured in the open end. This casting, called a "lap," is now perfectly formed to the rifling. It is pushed out of the muzzle just far enough to receive a paste coating of fine abrasive. When it is pulled back into and through the bore, the back and forth motion allows the abrasive to polish the lands and grooves perfectly.

I have watched hand lapping of Winchester Model 52-D barrels at Winchester and the machine lapping of high power rifle barrels at Savage.

With either method this is the key to super accurate barrels and has been used since the days of Harry Pope.

We have now come full circle, from the old hammered tubes through the "improvements" and back to the hammer again. We have even revived the old octagon barrel! Not all factories are using the forged barrel making process. The "button" method is still highly popular, especially on .22's. The forged barrel has proven its worth both in accuracy and dependability. There is also no question in regard to its strength. Here again, the engineers of the various research and development departments are ever alert to any new manufacturing method that can improve the product—and do it at lower cost.

If any company were to try to produce a gun by combining all the bygone methods of manufacture, their own cost would be prohibitive. You and I wouldn't want to pay the high retail cost either. I dare say that we might not even want the gun, after comparing it with the sleek and serviceable models of today. The new and more clever methods of making today's guns have given us a vastly superior firearm. It's the end product that counts!



TOO MANY SHOTGUN GAUGES

(Continued from page 37)

20? Recollect that 25 per cent of all sales these days is for the 20 but at the same time the 16 get scarcely more than half this demand. The harsh facts are that the 16 is on the skids.

It is still made by all the major companies but outfits like Browning offer a single model, Ithaca has only one Model 37 pump repeater in the boring, High Standard has never seen fit to chamber for the round and Stoeger, the great import house, does not ship into this country from its European sources a single shotgun of this gauge. Winchester, Remington and most especially Savage still recognize that 12 to 15 per cent of sales for the boring demand a model or two.

The 28 gauge and the .410 are strange little orphans too. The 28 is a very old number. It was in use before the turn of the century and was favored by uplands gunners. It has never been worth shucks in a duck blind and few indeed have been the marksman so sanguine as to take it afield for anything larger than bobwhite quail and the ubiquitous mourning dove. It has been my observation that the 28 is popular with

the halfpint gunner. Virtually every user of the smallbore I have ever known has been a little runt who was scared to death of the recoil of bigger guns. He was content to labor along with his 3/4 oz. of shot, crippling many, losing many, and with luck finally scraping down some manner of a day's bag.

The 28 these days is strictly for skeet men. These shooters are forced to a firing of this little fellow. Skeet, if it is fired across the board, necessitates the 12, the 20, the 28 and the .410. Sales of the gauge go to the sportsman who has no other choice. He is not only compelled to own and fire this peewee but is limited to the 3/4 oz. load of shot. My opinion is that skeet regulations should be modified to write it off the track. The chances, however, of the skeet fathers doing anything like that are pretty remote.

Like the 16, there is precious little manufacture of the 28. Browning makes their Superposed in a 28, solely to provide skeet gunners with an across-the-board choice, but disdain to offer either of their autoloading scatterguns in the gauge. Remington makes a single 28, it is in the obsoles-

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cent Model 11-48 autoloader. Winchester used to turn out the old Model 12 in 28 but now that the Model 1200 has supplanted the older pump repeater the 28 has faded.

The .410, despite its trifling sales, is made by a good many companies. It is not only a required gauge for the skeet competitor but is looked on as a good boy's gun. And most especially for the fellow just getting started. Papa wants him to be a wingshot so he starts little hippie off with the .410. Or maybe the ever-lovin' bridegroom has just got to get the Little Squaw into the game fields with him and as she is more afraid of getting whaled by the butt end of the shooting iron than anything else he outfits her with the smallest smoothbore.

The facts are that the .410 is the hardest gun to shoot of any shotgun.

Instead of learning on the thing the beginner soon finds he never hits and his enthusiasm goes oozing down in his boots. To try to be a wingshot with the little stinker is like trying to be a pistol whiz by starting with the .44 Magnum. Only the real gee-whiz artists, the top-ranking kings of skeet, can make the .410 behave. It takes a long grounding with the 12 and the 20 before the marksman is ready to graduate to this most difficult of all fowling pieces.

The reason for this is in the trifling shotcharge. There simply isn't enough pattern there to hit anything. It is quite true that the average gun does not weigh any more than a brain wave and the kick is absolutely nil but by the same token the effectiveness is right on a par with the other factors. This, literally, is the gun that should never have been! It is a little stinker, a freak, a dud, a whelp that might better have been still-born. The sooner it sinks without a trace the better.

And sink it shall and along with it will go the 28 gauge and the 16. It will take some time but the handwriting is on the wall. This is indicated by the annual shrinkage in not only the sales of these guns but in the demand for the cartridges. The trend over the past two decades has been steadily downward. The manufacturers are aware of this steady erosion and that is the reason that fewer models are offered each year for these fading numbers. The guns makers and the ammo people are quite aware of the cutoff point. When demand passes a certain well defined point the gun will not only be eliminated from the annual offering but likewise the cartridge will be abandoned too. The firearm will disappear years be-

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fore the cartridge is cashiered. This for the reason that guns remain in useage for a very long time after the last model is run off.

The ultimate abandonment of the 16, the 28 and the .410 is a long way in the future. I'd reckon several decades at the least. But the evidence is at hand that this is coming off. The first to go will be the 28 and it will be followed by the 16. The .410, sorriest of the lot, will hang on the longest simply because of the absurd notion that here is the ideal kid's gun.

This will leave us with our two best and most versatile gauges, the twelve and the twenty. There isn't anything the shotgunner cannot do with this pair. He can shoot anything that flies with either and account for more game brought to bag with fewer shells expended. If he is a halfpint, or a small boy, or a gal built like Twiggy, he can find a 20 with a weight of 5¾ pounds and using the 7/8 oz. x 2½ drams equiv. of powder, and shoot well. And if a man with a penchant for the lofty Canadas, he can shoot a 12 with a weight of 9 pounds and a 30 inch barrel and in it fire the 17/8 oz. x 4½ dram equiv. charge.

I am narrow and opinionated in the matter of the 20 and 12 gauges. I shoot only this pair and I find I am outfitted for any game that flies. I kill wildfowl, geese, ducks, snipe and shore birds with the 12 in its fine variations of loadings, sometimes shooting the tiny 1½ charge of No. 9 on the zigzagging snipe and other times charging up with 1½ ounces of 2's for the lordly honkers. Between times I shoot thousands of shots at skeet and go back to a sweet charge of 1½ oz. and only 2¾ drams equiv. of powder.

The 20 I confine to uplands game. Despite a lot of discussion to the effect that the 20 will kill more ducks than the 12, I remain unconvinced. My opinion is that the leading exponent of this theory shoots more wild fowl with his Smith-Corona than he does with his Spanish-imported 20 double gun. For my bird strafing I limit the 20 to uplands species, to the ubiquitous mourning and whitewing doves, and to the quails, both bob and blue. For the glorious bird of peace I shoot, usually, a light loading. The dove is exceedingly easy to grass; I have yet to see a game that falls to fewer pellets. My load is a single ounce of No. 7½ and 2½ drams equiv. of powder.

The bobwhite cartridge for the 20 is the same. The Virginia quail is a much tougher target than the dove but the 1 oz. loading of No. 7½ is quite enough.

The blue quail is quite another fel-

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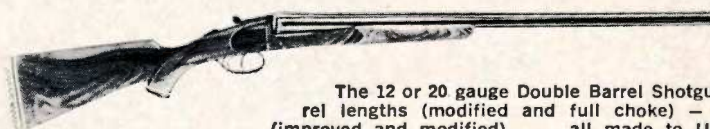
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low altogether. He is tough and hardy and once wounded strikes the ground and runs for a distance and then secrets himself in the mesquite. A dog is needed then and usually we quest for our game without the bounty of the canine. This plucky determination to run once knocked to earth and hide makes it mandatory that the game be killed in the air so that the huntsman may go forward and retrieve his game where it has fallen. For the desert runners I shoot the 3 inch shell charged with 1 1/4 oz. No. 7 1/2. This is pushed along by 3 1/4 drams equiv. of powder (Federal loading) and is, actually, a pretty stiff 12 gauge charge!

Such 20 gauge guns as the Browning, the Winchester Model 101, the Savage, Fox, Mossberg, Franchi, and many others are now chambered for

the three inch casing. The shooter may then switch to the longer, heavier round whenever he is of a mind. It was once thought that when a short cartridge was fired in a long chamber that harm would be done to the pattern. This has since been proven as more theory than actuality.

The time will come eventually when we shall have a choice of only the two gauges, the twenty and the twelve. While on the face of it this may seem like some manner of retrogression, in actuality it will not amount to that. When the guns manufacturers and the ammo makers can drop the three decadent gauges, the 16, the 28 and the .410, it will prove a boon for then they can give more of time and resources to the further perfection of these two winners.



GUNS AND THE LAW—POLICE VESTS

(Continued from page 31)

Police specifications for bullet proof vests, developed since the early 1920's, generally specify that the vest should stop the .357 Magnum revolver bullet which travels at a velocity of 1430 feet per second. Why this has become the accepted standard for vest protection, is not clear. Few criminals have ever been apprehended armed with .357 Magnums.

Currently, police vests are manu-

Most police barricade shields are also being constructed of either steel or fiber glass materials based on the protective requirement of being resistant to velocities up to 1500 feet per second.

During the past year, there has been a significant change in police attitudes towards their protection needs. This has resulted because of the types of riots and sniping encountered in Watts, Newark, Detroit, and from



During tests the Wilkinson vest stopped bullets from a 9 mm Browning.

factured of overlapping steel plates of varying thickness or of fiber glass panels, and are available in varying degrees of thickness, weight, and costs to protect the wearer against velocities up to 1,500 feet per second which includes the previously mentioned .357 Magnum projectile and the 9 mm parabellum which has become increasingly common since WW II.

barricade situations such as that involving the Texas sniper in Austin. Also, it has only been during the past few months that protection which is practical as to weight, cost, and general design has become available to police against projectiles traveling at velocities in the 1800 to 3000 feet per second range.

It is not practical to use steel or

any other materials in the form of laminated plates to contain bullets with muzzle velocities in excess of 1800 feet per second. Excessive cost, bulk and weight, relative to the amount of protection required, result. Steel, weighing in the neighborhood of 12 pounds per square foot, would be necessary to accomplish this pur-

himself against small arms fire. The chief benefit of this projected design is that the infantryman need not be burdened by the weight of the heavier ceramic armor until he actually faces combat. This new concept involves armor panels of different densities and protective qualities to be carried in logistic vehicles and distributed to

While no vest will stop every bullet

some lightweight models do a good job.

pose, and this would be impractical for personal armor. Other metals, which might afford greater protection with a lighter weight, are too costly when considered for mass protective purposes, such as would be required by the infantry and large police agencies.

Increasing use of helicopters during the Viet Nam War, and the vulnerability of their crews to ground fire, created a demand for increased research into protective armor and material against rifles, machine guns, and other high velocity arms. During the past several years, the U. S. Army has directed research toward development of new materials designed to protect against .30 caliber armor-piercing projectiles fired at point blank range. To date, the best material consists of an extremely hard, brittle, ceramic plate, bonded to a fiber glass backing. When the projectile hits the ceramic material, it tumbles and fragments, and most of its kinetic energy is absorbed. The relatively soft fiber glass backing then contains the remaining energy and particles. It is recognized that over 80 per cent of all casualties in warfare are caused by grenade, mortar, artillery, or bomb fragments. Moreover, it has now been determined that certain portions of the body can be left uncovered without serious wounds and fatalities resulting. A considerable amount of research and experimentation is still being undertaken by various Army and Air Force commands to determine the exact anatomical shapes and demands on this new design of armor and also to determine the correct sizes to be put into mass production so that practically all shapes and sizes of men can be accommodated. The newest concept in protective armor, yet to be adopted for the military, involves a basic garment made of ballistic nylon and felt that can be worn for protection against low-velocity fragmentation particles from grenades, mortars, etc. At the same time, by inserting rigid panels of the ceramic fiber glass composite into pockets (integral in the basic garment), the wearer can protect

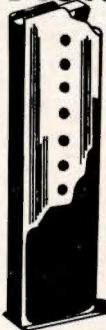
troops just prior to battle. The selection of the correct armor plates for insertion in the basic jacket can then be made with reference to the particular military need. Depending upon the situation, this infantryman's garment will then weigh between 10 and 20 pounds. This type of body armor is not cheap, even under mass produced conditions. Ceramic vests now in use cost as much as \$200 a unit, and armor of the new type could possibly be more expensive. However, protection of human life cannot be measured on strictly monetary terms and the long range military view of body armor is, that if a simple system can be developed, it will eventually become general issue just as the steel helmet and the flak jacket of the combat soldier's gear are now. This is the trend toward the future.

The type of flak jacket being used in Viet Nam, and portrayed daily on TV, is generally made up of a material called ballistic nylon with inserts of overlapping plates of titanium. This thick jacket, while suitable for protection against grenades and fragmentation-type projectiles, does not provide protection against military small arms fire. One of the great disadvantages of flak jackets, in current use is that they are not only heavy (weighing from 10 to 14 pounds), but they are extremely hot. In combat and climatic conditions currently encountered in Viet Nam, this makes their use extremely tiring. This has also led to further decisions to develop newer and better systems to provide not only additional protection against small arms fire, but also to develop a ballistic material that will materially cut down the weight and heat factors, if not the cost.

Protective body armor consisting of overlapping steel plates has been available to law enforcement for many years. Generally, it is heavier and more costly than the newer fiber glass types affording the same protection. A steel plate frontal vest, affording protection against the .357 Magnum weighs approximately 10 pounds. A vest protecting against velocities

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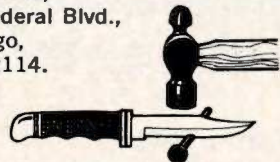


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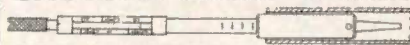
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of up to 900 feet per second, weighs approximately 6 pounds. Various steel armor combinations of front and back sections and crotch pieces are available, as well as special hoods and leg and arm units for bomb squad work.

A civilian-type vest for protection of dignitaries, etc., is currently being offered by Wilkinson's Sword of London. This vest consists of overlapping plates of titanium in a nylon casing which is lightweight, flexible and washable. The vest costs between \$200 and \$300, depending on size, and weighs in the 13 to 18 pound range.

During the Korean War, a new fiber glass material was developed called Doron. This was fabricated into curved 5 inch plates of 1/8 inch thickness. U. S. Marine Corps vests, M52, combining ballistic nylon and the Doron plates were issued during the ending phase of the war, and are reported still in service in Viet Nam, along with the thick, heavy, and hot, ballistic nylon types being used by the Army. Recently, the Doron plates have been fabricated into police-type vests due to their light weight and modest cost, and are now in use by a number of major police departments for special issue, riot and barricade purposes. A Doron vest of the 1/8 inch plate thickness will contain bullets such as the .22 Long Rifle, .38 Special, .45 automatic and similar calibers, and weighs less than 4 pounds. Another vest model, consisting of double 1/8 inch plates, affords protection against velocities such as .357 Magnum, weighing about 6 pounds.

It should be recognized that the above mentioned vests will also afford a good deal of protection against higher velocity bullets such as .30M1 carbine, etc., when impacted at ranges that are not point blank. Due to the curved design of the panels (to fit

body contour) chances of a ricochet are good.

During the past few months, military-style, ceramic-fiber glass composite armor has become available to law enforcement agencies. This armor will stop .30 caliber armor piercing ammunition at point blank ranges. The vests protect front, back and groin, and weigh approximately 23 pounds. Understandably, they are much more costly, but undoubtedly will be of great value in special police-sniper combat situations. It is predictable, with certainty, that civil law enforcement will have an increasing use for both the fiber glass and ceramic armor types.

As a final word, it should be again emphasized that the current military type of flak-combat vest, consisting of thick ballistic nylon cloth, is not suitable for protection of either policemen or firemen against small arms fire. There is a degree of psychological protection, but little else in any combat situation where guns are fired in anger. This is particularly important as there have been police demands for special government issue of this equipment to them, as well as to the National Guard. Press releases state that the Defense Department is now arranging to lend them to civil police authority in riot situations. In my opinion, the military nylon cloth vests of current issue do not afford the required protection and the policemen wearing them will also find them too hot, and too heavy, for justifiable use during the long hot summers ahead.

There is no such thing as a bullet-proof vest—only bullet resistant types are available, and their effectiveness depends on the ballistic material employed and the muzzle velocity of the projectiles encountered.



SHOTSHELL RELOADING

(Continued from page 27)

on good cases with a single stroke of the handle.

POWDER AND SHOT MEASURES: Sooner or later conventional reloading is going to lose some of its charm—and you'll want to experiment with different powder/shot combinations for which you don't have charge bushings. And in many instances, charge bushings of the proper size won't even be available, simply because no manufacturer can afford to produce an infinite variety of sizes. There are many loads recommended in various

manuals for which charge bushings aren't available, so if you want to use any of them, you'll need a measure for powder and shot. Almost any of the conventional, adjustable, volumetric powder measures will serve for both purposes if purchased with the rifle-size metering chamber. You will, however, have to get a powder scale. Adjustable measures cannot be set to throw a specific charge of a given powder by the graduations on the adjusting device. Those graduations are purely arbitrary in value, and the value will change from powder to

powder. You will have to use a scale to accurately weigh the charges when setting up for a specific load.

Use of a separate measure will slow down your reloading somewhat, but most medium-priced tools allow the shell to be removed for separate charging with powder and shot. You simply ignore the charge bar on the tool, and use the adjustable measure when it comes time to put in powder, and later, shot. If you feel like paying for only one measure (and one will do quite nicely, really) then you'll have to process all your cases up through powder charging, then reset the measure for shot and run all cases through the rest of the operations.

Should you get deeply involved in this type of loading, you'll eventually feel you just have to have a separate measure for shot. When that time comes, buy one of the low-priced adjustable powder measures. Ease of operation can be improved by filing a bevel on the leading edge of the bottom of the reservoir where shot sometimes becomes wedged between the sharp edges of reservoir and metering chamber. If you do that, however, the measure will not be very accurate for use with powder. Restrict it to shot.

CHARGE BUSHING ALTERATIONS: If you want to try a load without going to the trouble of ordering a new set of charge bushings, and without buying separate adjustable measures, some bushings can be temporarily altered easily. Bushing capacity can be reduced by lining it with one or more layers of adhesive plastic tape. Simply keep adding layers of tape around the inside of the bushing cavity until the capacity is down to what you want. If you have had the foresight to supply yourself with a set of extra-large bushings, then you can alter them for almost any imaginable load you would want to try. However, when any significant thickness of plastic is used, accuracy of charge weight falls off slightly—not enough to cause any harm, but it does suffer. It is also necessary to watch closely, particularly in the shot bushing, for evidence of the tape working loose and impeding the smooth flow of the charge.

CLEANING CASES: Clean cases will last longer. They will also prolong the life of your dies, and avoid excessive wear in other parts of your tool. If you're playing it cool, you'll catch as many cases as you can right out of your gun, and drop them into a shell bag hanging from your belt. Of course, some shooting doesn't permit this—a fellow would look pretty silly trying to catch that first shell out of



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a self-loader, then get it into his bag fast enough to finish a double at skeet. Even so, it's worth a little extra effort on your part to keep the cases clean from the beginning. But you'll be acquiring cases that have been ejected into sand, mud, dirt, etc.

As soon as you get home with such a batch of cases, get them clean. Paper cases can only be wiped off with a slightly damp cloth; to expose them to any more water can ruin them. One fellow I know has a case tumbler made out of a five gallon oil drum. He dumps a couple hundred 12 gauge empties into this drum, along with a couple pounds of loose cotton waste and shredded rags which have been lightly moistened. After 20 minutes tumbling in that mixture, his cases come out nice and clean. Built-up plastic cases need to be kept dry inside to avoid water damage to the fibre base wad. Wiping is good enough for them, but I have seen a board with nails in it on which a hundred cases could be set upside down—then hosed off with water to rid the outside of dirt and mud. Being upside down, the cases got no water inside. One-piece plastic cases solve the cleaning problem. Simply throw them in a bucket of warm water to which a small amount of good detergent has been added and slosh them around until clean. Then rinse and air dry—don't try putting them in the oven like you might do with metallic cases. Decapping before washing will speed up drying considerably.

CASE TRIMMING: Shot shells most often fail at the mouth. Sometimes even the first firing of heat-sealed plastic shells will result in a good sized chunk being torn out of the crimp area. Such a shell will not produce a good reloaded crimp. Shells will also become badly frayed and abraded at the mouth if fired without a shot sleeve or cup of some sort. Regardless of the reason, you'll often wind up with a quantity of cases which are still perfectly serviceable except for a quarter inch of the mouth that is too ragged to make a good

crimp. When that happens, trimming the mouth back to a clean, square edge will enable a proper crimp to be formed. This applies to both paper and plastic cases.

Such shortened cases can be readily loaded on some tools by simply adjusting the wad column height, and by adjusting the crimp start and crimping dies to compensate for the loss in length. However, some crimp/resizing dies swallow the standard-length case to its rim. Those dies will not finish a crimp on a shortened case without some alteration. If you have enough shortened cases to justify the work of whittling down the die, there's no reason why you shouldn't do it. And in most instances, the shortening required of the die will not prevent it from performing with complete satisfaction on standard length cases when adjusted for them. I ran into one or two fellows who kept two crimp/resizing dies, one shortened.

All that need be done is grind off the mouth of the die an amount equal to that removed from the cases. There are a number of expensive ways you can have this done by a machine shop, but with a little care and patience it can be done by hand on the average bench grinder. Once the shortening is accomplished, the mouth of the die will have to be carefully radiused and polished to allow the case to enter freely. This can be done by hand, but a small hand grinder or flexible shaft tool with rubber-bonded wheels simplifies the job. The cases themselves are easily trimmed by sliding them over a dowel and rotating them against a sharp razor blade stuck in the dowel. A trimmer that works somewhat like this is manufactured by Anderson Manufacturing Company, Royal, Iowa, and costs little.

No doubt as you go along and participate in a few lie-swapping sessions with fellow shotshell reloaders, you'll pick up other tips and ideas concerning methods and equipment for getting the most out of your tool and empty cases. All I can say at the moment is—hop to it, and have fun.



Norm Flayderman Named Springfield Consultant

In a special award ceremony on December 1, 1967, Norman Flayderman was appointed staff arms consultant for the Springfield Armory. The award was presented by Tom Wallace, curator of the Springfield Armory Museum, and Lt. Col. C. B. Zumwalt, commanding officer of the Armory. Flayderman received a testimonial plaque noting that he was "an authority in the field of military arms of all periods" and appointing him staff consultant.



Flayderman receiving plaque.

WILL NATO KILL THE M-16?

(Continued from page 23)

well as around the working parts of the rifle. In order to fire the projectile at a required 3,250 feet per second, chamber pressure of about 52,000 pounds per square inch is needed. Small bits of carbon between casing and the barrel chamber wedge the case in, adding to ejection problems.

The subcommittee said it is not convinced that the modifications incorporated to date will solve all of the malfunction problems. It has recommended, therefore, expediting a thorough and objective test of the weapon system by an independent organization to determine the operational suitability and reliability of the weapon-ammunition combination now in the field and proposed for future use.

Why an independent organization? The Congressional probe found "that the bias and prejudices of individuals associated with Army commands or agencies responsible for development and testing of new weapons made it extremely difficult for higher authority to obtain objective information upon which decisions should have been made relative to the rifle program."

THE Army is now committed to procure a total of over 1,400,000 M-16 rifles. Considering that rifles have a high mortality rate in combat and the fact that there are nearly one half million American troops alone in Vietnam, the firearm's future could well be limited to that war.

In 1966, Colt offered to increase production from around 29,000 units per month to 40,000 and the Army turned it down. The government has now purchased manufacturing rights to the M-16 but no second source production has been made subject to the 1968. Why?

The United States is committed to the NATO standardization of ammunition. The 7.62 millimeter (.308 caliber) round adopted by NATO in 1954 expires in 1968. Adoption of the 7.62 mm round, according to a January, 1963, Army report, was "so severe as to threaten the fall of Churchill's government in England." It is doubtful that the Army can sell NATO on the M-16 rifle firing the smaller .223 caliber American ammunition. It is more likely that our NATO allies will dictate the next standardized round. Barring the unexpected, history will look upon the M-16 as one of the blunders of the Vietnam conflict.

As long as the M-16 hangs around it will be a source of embarrassment to the military and a bone of contention between it and Congress. The powder needed to make the weapon fire correctly is extremely difficult to manufacture, which is why the military changed from the original IMR 4475 to the ball type powder. NATO simply cannot afford to gamble on M-16 ammunition difficulties, especially since less sophisticated industries could increase manufacturing problems.

BUT to some, changing back to the IMR-type powder, rather than continuing with modifications to the M-16, seems to be the more logical course. Rep. Fletcher Thompson of Georgia has written to the Secretary of Defense to that effect. Likening the reported attempts to modify the M-16 to handle the ball powder to the recent TFX fighter aircraft controversy, Fletcher wrote "... in all candor, Mr. Secretary, I must state that this appears to be a rather ridiculous approach to solving a problem when simply returning to the original ammunition would effect the same solution."

Regarding charges that Olin-Matheson was improperly involved in the change, Rep. Richard Ichord of Missouri said that such criticism was "unjustified." During a television interview he said that Olin was not involved in the Army decision to change to ball powder, which is produced by the Winchester-Western division of Olin and by government plants.

However, the Army testified that it changed to the cheaper and less-erosive ball powder because the cleaner extruded propellant could not be loaded in quantity to meet the required muzzle velocity without exceeding safe chamber pressures.

It seems a pity that a basically good weapon has been so mismanaged. In defense of the firearm it must be pointed out that years are needed from development to mass production. The old M-1 and M-14 are good examples. The M-16, after being considered for final development, was rejected for the M-14. When the M-14 proved inadequate and the bright hopes of SPIW failed to materialize, the M-16 was grabbed as a back-up weapon, changed and rushed into production. A war is not the place to build a weapon system on a trial-and-error basis.

.41

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BROWNING ARMS COMPANY has added a 3" Magnum 20 gauge to their line of Automatic-5 shotguns. The new shotgun is chambered to handle all 3" Magnum, 20 gauge loads but functions equally well with 2¾", 20 gauge shells. It has a five-shot capacity with 2¾" shells and four with the 3" loads. The new 20 gauge has the traditional hand engraving, is check-



ered on both stock and forearm and duplicates the mechanical operation of other A-5's. The 20-gauge Magnum is available with either a plain matted barrel (at \$184.95) or ventilated rib (26" or 28" length) plus the Buck Special barrel, designed for deer hunting. The ventilated rib version sells for \$199.95. For more information, write Browning at Morgan, Utah 84050.



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IRISH DONEGAL headgear is made in Ireland exclusively for Norm Thompson and imported directly at a one-third saving. This cosmopolitan topper of handwoven Irish Donegal check tweed makes a versatile and friendly traveler. The distinguished Irish



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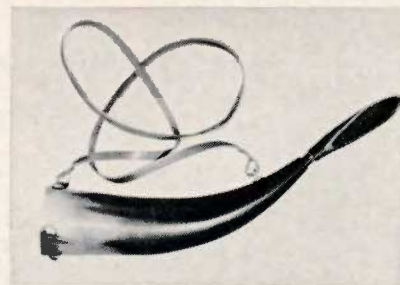


are needed to use the Burnham crow call. It's guaranteed to please or your money will be returned. For \$3.50 you can have both the crow call and a set of "how to" tips with general instructions. To learn more, write Burnham Brothers, Dept. 15 E, Marble Falls, Texas 78654.

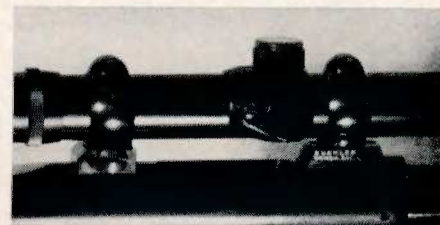


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BUEHLER'S new two-piece scope mounts for the Remington 788 are going fast, forcing the company to make a second production run to meet demand. They use 8x40 mounting screws for extra strength on this base. A new style front base is also being introduced with this run and customer response will determine whether it will be continued in other models. Many rifles have been introduced this year and Buehler, the leader in its field, has bases for all of them. If you have scope mounting problems, then you haven't checked with your Buehler dealer.



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(Continued from page 13)

The shine of the barrels and the impeccable woodwork is something I would expect in a \$600 Daly, and the quality of the bluing is excellent. This gun was purchased new several years ago in Amsterdam, Holland, and the present owner has all the registration papers and test reports, etc. from the time it left Italy until it arrived in Canada. It's been fired twice and shelved and displayed since. From what he tells me and judging from its appearance, it's never been hunted with. Condition is excellent!

Can you tell me something about this gun? What is its worth today and would it be a good investment with an eye to the future? Would it increase in value, rather than depreciate? My friend is asking \$200, although \$175 cold cash might get it. Please inform me and advise me as best you can with your limited time.

R. E. Gale
 Montreal, Quebec.

There are three grades of the Brescia Armi shotguns currently available in Italy, and in gunshops they are offered, new, for \$110, \$120, and \$135. Of course foreign guns incur expenses (taxes, duties, insurance, etc.) when brought in from a foreign country, but there is always the chance of a problem when repair parts are required — and a secondhand gun is a secondhand gun. While I feel that quality guns bought at a fair price today are good investments, in your case I'd stick to guns of American manufacture for which service and parts are available. If, however, you've taken a fancy to the gun, don't go for more than \$150.—S.B.

Long Term Storage

I have a number of guns which I would like to place in storage for some years and would like to know if there is a better way, or some reason why I shouldn't use the following method. This is to coat the bore and outside with a hard detergent-proof floor or car wax, removable with ammonia, apply sperm oil to the action, then wrap in aluminum foil followed by an adhesive plastic wrap and supported by rubber bands or scotch tape.

S. F. Webster
 Hopkinsville, Ky.

Your idea for preparing guns for long storage is probably as good as any. Much would depend on where you intend to keep them. The military used the total cosmoline dipping treatment for years. Overseas shipments were additionally wrapped in heavy wax paper. Ammunition was

packed in sealed metal containers. Of course such precautions were taken to cover the worst of outdoor weather as well as the temporary or long term warehouse storage.

Desiccant silica gel and other moisture absorbing chemicals are now being extensively used for rust prevention, but from my observations are limited to indoor use and as an additive to an otherwise completely sealed packaging.—W.S.

Gunsmithing Schools

I would like to know where and how one can learn the art of gunsmithing. I am aware of the existence of two schools: one in Pennsylvania and one in Colorado. Are there any in the New York City area? Is there anywhere else that this type of instruction is given? How about correspondence courses? To your knowledge, are there any correspondence courses pertaining to this subject that are worthwhile?

I am truly interested in gunsmithing as a profitable hobby and have been having no success at all in obtaining the information I need. Anything you can provide certainly would be most appreciated.

Peter V. White
 Flushing, New York

Check page 68 of the May issue of GUNS for a reasonably complete list of gunsmithing schools. Of these, the Pennsylvania Gunsmith School, 812 Ohio River Blvd., Pittsburgh, Penna., seems to be the closest to you. I know of no such schools in the state of New York. The only correspondence school we know of is the Modern Gun Repair School, Inc., 225 East Washington Street, Milwaukee, Wisconsin. Their listing of subjects indicates that it could be very worthwhile and practical.—W.S.

Duplex Load

In various handloading handbooks there is mentioned the fact that a duplex load of 7 or 8 grains of smokeless powder may be placed over the primer with the rest of the case filled with black powder in such calibers as the .45-70, for use in the trapdoor Springfield. My question is, can any other powder be substituted for the 4759 suggested, such as 4064, 3031, or 2400?

Arvin Chaikin
 Kerhonkson, N. Y.

The previously recommended duplex loading of IMR 4759 and black powder may be safely duplicated by substituting Hercules RE7 powder for IMR 4759.—G.N.



THE .264 WINCHESTER MAGNUM

(Continued from page 51)

in the last half century. Most of these were foreign or military products and heavy or comparatively long and heavy bullets were used in all of them. There has never been much of a demand for them and they never acquired a reputation as game rifles in this country. Nearly all these 6.5's had been in the 2200 fps to 2650 fps velocity range. It was my own observation that all the available bullets, from 87 to 175 grains, had been designed for those slow speeds. With the introduction of the new .264 Winchester, the 140 grain, made by the factory for it, was the only one that was satisfactory at muzzle speeds of 3100 fps or more. The handloaders use of inferior bullets produced many poor kills, which were unfairly blamed on the new .264 cartridge and rifle. In spite of this, use and sales of the .264 Winchester continued to grow.

I believe I was one of the first to test extensively the new .264 Winchester. I worked on various loadings for it using the Winchester 140 grain or the Norma 139 grain bullets almost exclusively. I loaned the gun and these handloads to dozens of our hunters. All had excellent success with it and made good clean kills. With lighter bullets, results were not good due to blow-ups.

During this period of testing I also made quite extensive experiments with various bullets heavier than the 140 grain. I used the 159.5 grain Norma and the 160 grain Hornady for the most of this testing. The best available powders for this weight proved to be Hodgdon's H570 or H870. However, kills on elk were less sure than with a lighter, faster bullet that was built to function properly. We even killed a few moose with this heavy bullet load but were not really satisfied with the results.

This fall I worked up both 125 grain Nosler and 129 Hornady loads for several local users of .264 rifles and three non-resident hunters. All of them were very pleased with the way these bullets performed on elk and sheep. Kills were made at varying distances, from close up to nearly 400 yards. Bullet function proved to be excellent in all cases. Muzzle velocities in all loadings ranged around 3300 fps. Two of the elk hunters also collected a grizzly, along with their other game. The effect of recoil is a bit less with bullets in this lower weight class, and this is a help to a shooter as far as accuracy goes.

The advent of the 7 mm Remington Magnum changed the status of the intermediate caliber quite a bit. Remington brought this rifle out with an excellent 150 grain bullet as well as a round nose 175 grain. A number of bullet companies were making fine, perfectly-shaped 160 grain bullets and good 140 grain game bullets. This combination of caliber and the amount of good ammunition available for it helped to make the Remington 7 mm Magnum an immediate success. Nearly every production gun company chambers for it now and custom gun makers claim that it is their most popular caliber.

However at the time it was introduced we had a number of modern powders ideally suited to the 7 mm and bullet weights which work well in it, while the .264 Winchester we were still using powders that were only marginally suited for it and, most important, bullet weights which were actually too heavy for best results.

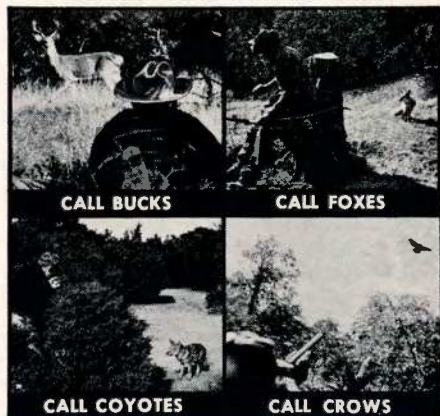
It was only after I had played around with what is now the 6.5 Remington Magnum for a couple of years that it suddenly became apparent to me that the 6.5 was a high shock, high velocity caliber and should have a lighter but far tougher bullet to help it get the job done. I had been using the various 120 and 130 grain bullets available in my 6.5 handload experiments, but except for deer and antelope, there were too many poor kills on big game with them. One day I picked up my old .270 Winchester and began remembering how many head of game I had killed with it over a period of some 35 years and what a good job it had done. I had used the 130 grain bullet for in it instead of a 150 grain, and it seemed reasonable that if the 130 was so good in a .277 size then one didn't need a heavier bullet for the much smaller .264. When Remington later made some 120 grain 6.5 test bullets tough enough for game, they solved this problem.

When Remington first introduced the fine little 600 Series in 6.5 Remington Magnum, at 3030 fps, the 120 grain bullet was the only one they made for it. I have killed game from antelope to elk and moose with that 18½ inch barreled rifle and its 120 grain Core-Lokt, soft point bullet. I then decided to work on loads for the .264 Winchester, using the same bullet and a new one Joyce Hornady had just brought out, a 129 grain.

(Continued on page 74)

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GUNS OF HOPKINS & ALLEN

(Continued from page 40)

arrangement and an improved spring cylinder pin catch, necessary because black powder corrosion would loosen the cylinder pin to the extent that it could easily fall out. This spring catch will be noted on a great many H & A spur trigger revolvers and combined with the date of the patent, is an easy means of identification.

Another patent date appearing frequently on arms made by this firm is April 27, 1875. On that date, patent number 162,475 was issued to Henry H. Hopkins and concerns a safety cylinder which has raised notches placed between the chambers. The hammer of the gun rests between these notches as a safety precaution to preclude the accidental firing of a cartridge under the hammer, a common occurrence in the old rimfire revolvers. Much advertising emphasis was placed on this feature.

A third major patent used by H & A was number 165,098 and was granted on June 29, 1875, to Charles W. Hopkins. It also dealt with safety, being a revolver safety catch. The gun made with this feature, the XL3

Safety Lock, has two notches in the cylinder pin, instead of the customary one. After pressing the release on the left side of the frame, the pin is then pushed in farther than normal until the tip of the pin is seated in a slot machined into the hammer. The gun then cannot be cocked until the pin is retracted to its normal position. The effectiveness of this feature is somewhat doubtful particularly in times of stress, but it probably had a certain appeal.

A study of the patents used by H & A reveals several others concerned safety features for their guns. It is to the credit of the company that they did devote some time and thought to making their arms safer to carry and operate. While the ultimate safety of a given firearm rests primarily in the hands of the user, a certain degree of responsibility must necessarily rest with the manufacturer. Apparently H & A recognized this and attempted to deal with it in a conscientious manner. The same cannot be said for many other manufacturers of the period.

Among the several advertisers of

H & A products were the Western Gun Works of Chicago, Ill.; James Bown & Son of Pittsburgh, Pa.; Toledo Fire Arms Co. of Toledo, Ohio; Black and Owen of Detroit, Michigan, and Merwin and Hulbert of New York, to name a few. Of them all, the latter was by far the largest distributor. Not only did they market H & A's guns with a considerable degree of success, they also had H & A manufacture guns for them using Merwin and Hulbert patents.

Merwin and Hulbert originally began distribution of H & A products in 1871 and continued in this capacity for about 20 years. In 1874, Col. Converse resigned from H & A for unexplained personal reasons and sold his stock in the firm to Merwin and Hulbert for about \$12,000. This explains the close relationship between the two firms in the manufacture and sale of guns and also explains why certain guns made by Hopkins and Allen also bear the markings of Merwin and Hulbert.

One such weapon was the Merwin and Hulbert Model 1876 Army revolver, sometimes called the Automatic Ejecting Revolver. A unique feature of this gun is the method of extracting the fired cases. The extractor is a permanent collar attached to the recoil shield which catches under the rim of each cartridge as it is

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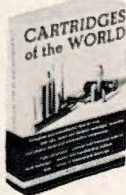
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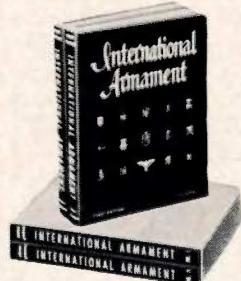
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inserted through the loading gate. When the barrel and cylinder are pulled forward and turned 90 degrees on the center pin, the fired cartridges are pulled free of the chambers and are easily shaken away. Any unexpended ammunition is held in place by the length of the bullets. The cylinder and barrel are then replaced in position and fresh rounds loaded through the loading gate.

In caliber .44 WCF, this gun is a six-shot single action revolver with a 7" barrel. Markings on the barrel and frame are those of both H & A and Merwin and Hulbert. The marking "Caliber Winchester '73" also appears. The gun was submitted for Army trials in 1876 with the Colts, Remingtons and Smith and Wessons in the hope of enticing the government into

which included handguns and single and double barrel shotguns. They also produced rifles in about 25 models ranging from single shot .22's to repeating rifles with barrel lengths of from 18 to 28 inches. Among the rifle calibers used were the .22 rimfire, .25 Stevens rimfire, .25-20 centerfire, .32 rimfire, .32-20 WCF, .32-40 Marlin & Ballard, .38-40 WCF, .38-55 Marlin & Ballard, .38 long rimfire and .38 S & W centerfire.

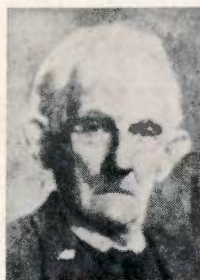
In 1897, the firm was reorganized and became the Hopkins and Allen Arms Company. At this time, Horace A. Briggs withdrew from active control of the operation, but remained a stockholder until the time of his death in 1915. In 1898, H & A began dealing directly with the public and was also incorporated in that year, with one



Samuel Hopkins



Charles Allen



Horace Briggs



Charles Hopkins

making it military. It failed to meet the established requirements but did elicit favorable comment from its testers concerning its workmanship. While it was not officially accepted by the Army, many soldiers purchased them with their own funds for use in the Indian wars. For this reason, the weapon today is prized by collectors as a secondary martial arm.

This same gun with an interchangeable $3\frac{1}{16}$ " barrel, was known as the "Pocket Army" model. With either barrel length, it was a favorite on the commercial market.

By 1878, Hopkins and Allen had outgrown their original quarters and moved to 48 Franklin Street in Norwich, where they remained until about 1884. They moved again, this time to a four-story building at 132 Franklin Street where they supposedly stayed until the firm went out of business. However, some of their advertising for 1908 lists the firm address as 73 Chestnut Street. It is not known how long they remained at this location or exactly what work was done there. It may be that this address was merely a sales office and the plant itself was located at the Franklin Street address.

In 1896, the company added the manufacture of bicycles to their line,

A. H. Brewer as president.

Not all Hopkins and Allen guns bear the name of their maker, some show only the patent dates for their particular weapon while others are marked with both the company name and several patent dates. H & A was one of the few manufacturers of the period who did mark the majority of their firearms with the company name. Many of their competitors placed only a trade name such as Bonanza, Boss, OK, Alert, Mohegan, etc.

At about 6 a.m. on the morning of February 4th, 1900, disaster struck the firm. The "Norwich Bulletin" recorded the tragedy in this manner: "MUNICIPAL CALAMITY—LARGEST FIRE IN THE CITY'S HISTORY—Entire Plant of Hopkins & Allen Arms Company Destroyed—Adjoining Property Gutted—Origin of the Fire Unknown—Loss Will Exceed \$400,000."

Final accounting placed the loss at better than \$500,000. The task of rebuilding was quickly begun and a new five-story plant was soon erected on the old site. Production was resumed and the working capital was increased, however, the company was never again able to approach the level of prosperity it had enjoyed prior to the fire.

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Following the reorganization of Hopkins and Allen, most of the original founders and stockholders retired from active participation. With the exception of Horace Briggs, all died between 1901 and 1908.

The new management evidently did not possess the same degree of business acumen as had the original founders. Sales declined considerably, and even after acquiring the Forehand Arms Company in 1902, the company fortunes continued to dwindle.

In an effort to regain the position it had once held, H & A undertook the manufacture of a new XL series. This line was made up of solid frame, double action revolvers and replaced the outmoded single action spur trigger pistols. They also produced other handguns employing top break construction in both hammer and hammerless models. Some of these later guns also featured folding hammer spurs, a holdover from some of the earlier guns.

One of the weapons on which H & A counted heavily in their comeback try was the Triple Action Safety Police Revolver, which was marketed for \$7.50 in 1907. At first glance, the gun appears no different from any of the several double action, top break revolvers sold by Iver Johnson, Harrington and Richardson or H & A in the early 1900's. However, after the gun is cocked and fired, the trigger returns normally and the hammer then rises above the firing pin, the third action. This novel feature effectively prevents it from being accidentally discharged by any means. To the safety-minded gun buyer of 1907, the Triple Action probably represented the ultimate in revolver safety and precision manufacture. Available in calibers .32 and .38 S & W and with barrel lengths of from 3 to 6 inches, it was advertised as not "made safe but built safe."

One of the smallest arms to be made by Hopkins and Allen was the diminutive New Model Vest Pocket. In .22 rimfire single shot, it has a 1 3/4" barrel and is slightly over 3" in overall length. It has a concealed hammer, folding trigger and the barrel tips down for loading. As the name implies, it was produced as a hideout gun and it fit nicely into the vest pockets of the day. However, this gun also saw extensive use (and leg) as a lady's "garter gun" during the latter years of the 19th century and the first part of the 20th. Highly coveted by collectors of today, it usually sells for about \$40 to \$60, depending on condition.

These guns, for reasons unknown, failed to accomplish their intended purpose, to reverse the downhill trend of the company's sales and production.

In about 1914, H & A discontinued the manufacture of virtually their entire line of firearms and devoted their energies to the production of war material. They obtained a contract from the Belgian government to manufacture the 7.65 mm Belgian Mauser rifle, Model 1889. No information is available regarding the exact number of these rifles made. Mausers bearing the H & A trademarks are relatively scarce today and are considered as somewhat of a collector's item.

In 1915, Hopkins and Allen was sold to the Marlin-Rockwell Corporation. The once-great name of Hopkins and Allen was not, however, destined to remain in the limbo into which it fell following the sale of the company. The name has emerged once again, this time on guns sold by Numrich Arms Company of West Hurley, New York. These underhammer rifles, pistols and shotguns marketed by the firm carry on the tradition begun almost 100 years ago by a few men, a little machinery and a lot of ingenuity.

POINT BLANK

(Continued from page 10)

the action and if the rifle had not been the sturdy Model 700 it might very well have come unglued. After all 50,000 psi of pressure burst loose in chamber and action isn't to be trifled with.

In a deliberate test, I loaded a .308 cartridge into a '17 Enfield '06 and fired it. The case is only 2 inches in length, 2.015" to be exact. The '06 goes 2.50 inches, or very nearly so; it is 2.494" to be real precise. After the .308 I fired the .300 Savage, a spittin'

image shirttail relative of the .308. The .300 has a length even shorter, only 1.871 inches in length. The sturdy old Enfield digested these shorties. Although you must carefully position the rim of each cartridge under the extractor to be sure it is held against the face of the bolt and thus can be smacked by the firing pin, there is little indication of high pressure or danger. This is because the shorter cartridges fill the chamber so far as diameters are concerned. Headspace

is not a problem due to seating the cartridge beneath the rim of the extractor before loading.

There is a lot of hanky-panky bandied about on the score of headspace. There is a good deal of unreasoned speculation about excessive headspace and how dangerous it may be with our numerous family of high intensity loadings. The army is more than a little accountable for this for the military holds chamber lengths to small tolerances. It used to be with the old '06 cartridge that headspace could only vary .006", from a minimum of 1.940" to a maximum 1.946". A chamber that showed 1.950" was condemned and had to be returned to the arsenal for a new bolt, or a new barrel.

A lot of things enter into the headspace equation. For example most of our hotrock loadings have a minimum and maximum variation of .006" in manufacture. The ammo peoples have got to have some tolerances when they produce the empty and these run about .006 inch. If you take a rifle with a maximum headspace and then get a case which is on the short side, you have a total variation from the 1.940", which is the minimum headspace, of .012 inch.

Our best bolt action hardware locks up with a number of lugs, usually two but maybe as many as nine. These lugs all turn into the receiver ring

and when the rifle fires, all set back against the ring itself. But what about the forward motion of the bolt when the cartridge is chambered? Some of our latest shooting irons permit the bolt to ride forward as much as .020" before it is checked up. This is excessive but it does occur. This is called forward clearance and sometimes all that checks up the bolt is the soft brass casing slamming into the forward shoulder in the chamber.

If, just for example, you have a chamber that runs 1.942" which is good and tight on the score of headspace, you load a factory cartridge that is .006" shorter than standard, the minimum, and then you slam the bolt home as a fellow will do when he misses with the first shot and must whip in a follower and the bolt has a forward clearance of .012" which is about normal, you have set up a situation where you have .018" of headspace. A lot of longhairs would cast up their eyes in horror if they were told this is pretty common. It may not be good for accuracy but it is so commonplace as to have little bearing on the score of hazard. On firing the round stretches and settles against the face of the breechbolt. It in turn settles against the lugs and the goodness of the modern rifle is such the shooter is completely unaware of what amounts to a theoretical danger.



HANDLOADING BENCH

(Continued from page 11)

happen too often. Increasing the percentage of vinegar will cause the solution to work slightly faster.

Clips Vs. AR Cases

Thousands of Webley, Colt, and Smith & Wesson .455 caliber revolvers have drifted into this country from England over the past couple decades. Resulting from a shortage of reasonably priced .455 ammunition, untold numbers of these guns have been simply converted to handle the venerable .45 ACP cartridge in three-round, half-moon clips. That's fine, so long as the .45 ACP ammo is plentiful and cheap and your accuracy requirements aren't too stringent. In truth, though, military .45 ammo is no longer plentiful or cheap, and most of those guns really don't shoot very well with it when it is. This is especially true of the Webleys and the earlier Colts. Those hard-jacketed bullets start out too small for the grooves of the barrel and simply won't upset enough to fill them.

Handloading is the answer—hand-

loading with lead bullets sized to about .457" diameter. Much better accuracy is produced, and the bullets are much more effective on game or people than the slicknosed military .45, which refuses to expand at any practical velocity. Lyman Bullet No. 454424, cast fairly soft, has always worked well, even better when sized to about .001-.0015" over the measured groove diameter of the gun in question. Several converted Webley's that wouldn't stay on a dinner plate at 10 yards with .45 Ball turned out to be excellent shooters with this bullet. A charge of 3.5 grains of Bullseye produces a shade over 600 fps for a light plinking load, while 6.0 grains of the same powder gets velocity up to around a very respectable 800 fps. Not recommended for the break-top Webley's, 7.5 grains of Unique produces a most healthy 950 fps. That puts it in the category of the lead-bullet .41 Magnum factory load, and no one has yet criticized that one for lack of stopping power.

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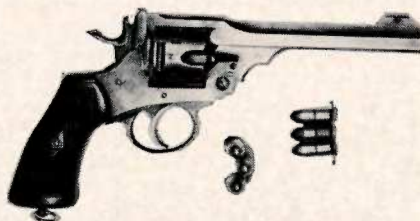
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should go right ahead and reload .45 ACP cases for use in these guns. Sure, they work OK—that is, they go "bang" and the bullet goes out the barrel quickly—but far better results and more convenient loading results if .45 AUTO-RIM (.45 AR) cases are used. There are several reasons for this. First, those &*\$%#*** half-



Half-moon clips make .45 ACP ammo usable, but .45 AR ammo is better.

moon clips can be thrown away. I've ruined more fingernails and blistered more thumbs on them than any other shooting item I can think of. Second, the solid brass rim of the AR case produces much more uniform headspace and ignition. Half-moon clips become bent and kinked after only two or three uses—and from that point on act to cushion the firing pin blow—and you know what that does to primer ignition.

There may appear an economic advantage to using the .45 ACP case, but it isn't nearly as great as it seems. A hundred new .45 AR cases will last you for thousands of rounds of shooting if they are properly cared for, and that figures out to probably less than 1/3 cent per firing case cost. At times, AR cases may be a bit difficult to find, but both Remington-Peters and Winchester Western make them. If your dealer will order them for you, they'll eventually show up—and you'll be glad they did, once you try them.

Hornady Handbook

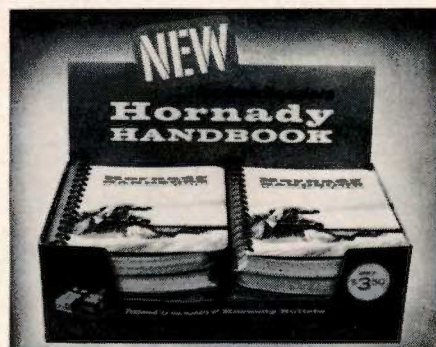
Reloading manuals have come and gone for more years than I have been around. The oldest is the old *Ideal*, and it lives on today in the one published by Lyman Gun Sight Co. And, in the years since the big unpleasantness, many more have sprung up, most of them still with us in revised editions. The latest one of the lot, though, is the *Hornady Handbook of Cartridge Reloading*—all 360 pages of it. That last figure makes it the biggest of any I know.

Joyce Hornady wasn't shooting for just the biggest book of its type—he wanted, as he told us a couple of years back, the best loading manual yet out. Having looked his offering over in considerable detail since its

arrival several weeks ago, I'll have to agree that he has succeeded.

This manual is the outgrowth of extensive test shooting and load development that has gone on for many years in the testing of all Hornady bullets. Many of you are familiar with the printed loading data sheets Hornady has made available on request for several years. The loading data section of the book follows the format of those sheets, listing several loads for each powder with each bullet, with all loads regulated to reasonable velocities (for the caliber concerned) in steps of 100 fps. Maximum loads are identified by being printed in colored or darkened blocks. The data section contains over 7,500 different loads, more than any other manual, and more than any reference I know on the subject except the late Phil Sharpe's classic, *Complete Guide to Handloading*.

Companion to the loading data is a ballistic data section. It is not compiled by cartridge or caliber, but rather by Hornady bullet. For example, the 6.5 mm 140 grain Spire-Point bullet is shown at velocities ranging from 1,800 to 3,200 fps in 100



fps steps. At each velocity, energy, mid-range trajectory, drop, and height of trajectory above or below line of sight (zeroed at 200 yards) for 100, 200, 300, 400, and 500 yards. That is a hell of a lot of data on one bullet. Consequently, no matter what 6.5 mm caliber you might be loading with Hornady bullets, you need know only the velocity to be able to pick out all sorts of good information from these tables—and there is a table for every bullet Hornady makes. Of course, it would be nice to have such a table for all other makes of bullets. Since we don't, it is possible to use this one for any bullet closely similar to those for which the table has constructed. The values you get won't be exact, but they will be close. If you haven't yet seen a copy of this book, we strongly suggest that you trot over to your nearest Hornady dealer and take a good look—you'll probably want one.



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OUR MAN IN WASHINGTON

(Continued from page 19)

Next comes the question: What kind of a new approach? The bill would need to do only one simple thing—a federal law which really backs up local law stops the violation of local laws through the interstate purchase of firearms. This can best be done by putting all such transfers of sales under the protection of the Federal Post Office Department. The local postmaster is the one federal employee capable of seeing to it that interstate sales are in accordance with local law.

Next comes the question: Can such a law be enacted? The first thing would be to by-pass the confusion surrounding the legislative route of the existing legislation. Because of wheeling and dealing by the supporters of additional gun law, there is confused jurisdiction in both the House and Senate. In the Senate the Commerce Committee should have jurisdiction but the legislation has been referred to Judiciary with the understanding it goes back to Commerce before the Senate debates and votes on the subject. In the House, the measure has been referred to Judi-

ciary when its provisions clearly show Ways and Means Committee jurisdiction. Ways and Means Chairman, Wilbur Mills (D-Ark.), has let it be known there will be a fight before Judiciary gets a bill to the House floor, stepping on the jurisdictional toes of his Committee.

A Post Office bill would clearly be within jurisdiction of the Post Office and Civil Service Committee in the Senate and in the House. This would by-pass the jurisdictional confusion.

Next question: Would such a bill be in friendly hands in the two committees? The answer is a definite "Yes!" Chairman of the House Post Office Committee is Congressman Thaddeus J. Dulski (D-N.Y.). He is one of the few big Democrats in the House who stood up for the Hruska compromise and opposed the more stringent administration bill during the House Judiciary hearings. Chairman of the Senate Post Office Committee, Senator Mike Monroney, (D-Okla.) is another lawmaker who feels local regulation is the answer to screening firearms sales in populated areas.

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To enter, the youngster picks up the entry kit from his Daisy dealer which contains contest rules, three practice targets, one record target and a self-mailer entry form. To beat the champs, he squeezes off ten shots from five shooting positions at the record target. An adult must be present to verify the score and sign the entry form. The contest ends February 15, 1968.

Grand prize for the winner and his parents is a 7-day "Astro-Tour" to Houston/Galveston for a visit to the "home" of America's astronauts. Other prizes include Victor golf sets, Heddon rods and reels, Daisy BB guns and Targetex targets.

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(Continued from page 67)

I had a number of local friends who owned .264's, who used them for all their game hunting, so I asked them to try out my handloads with the new lighter bullets. The results were excellent and they were all very enthusiastic about the performance of the .264 with these loads. The lighter bullets made use of available powder, both cannister and surplus. Actually, DuPont has a powder which seems to me to be perfect for this caliber when used with 140 grain bullets. However, it has not been released to the public. I believe the factories can get it in bulk for their different loadings but this is of little help to the handloader in the field.

The 6.5 Remington Magnum is a fine short case cartridge, as used with the 120 grain bullet. Even with the 18½ inch barrel there is very little difference as to energy and velocity between it and the .270, the .284 or the .280. This Model 600 short barreled carbine bolt action was made up for special purposes. It is fast handling and ideal for easy carrying, but it certainly doesn't take the place of the .264 Winchester and neither can it equal what the .264 can do.

My tests with the .264 using factory loaded ammunition in 140 grain, show an average of around 3050 fps muzzle velocity, for rifles with 24 inch barrels and slightly more for the 26 inch barrel. I have found considerable difference in the maximum loads that can be used in Winchester factory rifles, so loads must be worked up for one specific rifle and not selected haphazardly. I have found after many years of experiments that the smaller a bore is the more particular one must be in working up loads for a given case size. My standard loading in my own Model 70 .264 Winchester, with the barrel cut to 23-5/8th inches has been 64 grains 4350, 140 grain Winchester Power Point bullet 3160 fps, average; 67 grains of 4831, 140 grain Winchester Power Point bullet, 3166 fps, average. With 139.5 Norma bullets the above loads had to be cut one grain. No doubt this was due to the harder steel jacket, but velocity was about the same.

Velocity has a great effect on shock. In various bullet experiments, I have found that speeds of approximately 2200 fps (this varies with bullet shape, expansion, etc.) is the beginning point for hydrostatic shock. Above this, shock effect builds up very rapidly. Below this velocity, the effect is almost nothing in many cases. Shooting a slow bullet through an uncovered can of water will just put a

hole in each side but a fast bullet will blow the can completely apart by hydrostatic shock. In checking game kills I have found that the super fast bullets destroy tissue and flesh in a wide channel on each side of the bullet's passage. Such a wound will cause death much faster than one with low shock. My own observations of the kills made at comparative distances, with the 140 grain factory load at 3050 muzzle velocity and my own lighter handloads at around 3300 fps, showed far larger wound areas and more instantaneous kills with the lighter bullets at higher speeds.

I like my .264 Winchester, but I prefer my own handloads using any of three excellent game bullets made in the weight bracket of 120 to 130 grains. These take in the 120 grain Remington pointed soft point C. L., the 125 grain Nosler Spitzer, and the 129 grain Hornady Secant Ogive. The new 120 grain Curry bullet is one that I have found to be exceptionally accurate but I do not know if it will be tough enough for good game kills on large animals at high velocities, as I have not checked it enough.

I do not know if other bullet companies are making their 120 and 130 grain bullets tougher or not but older bullets I have used would not stand up as I wished. The sectional density and ballistic coefficient of the 120 grain pointed bullets in .264 are superior to those of a similar 130 grain .270 bullet, and of course those of the 125 Nosler and the 129 Hornady are also much better.

I have found the .264 Winchester Magnum cartridge to be very accurate in all makes of guns I have used it in. Used in the proper barrel length and with the right weight and structure of bullet it is an exceedingly flat shooting long range cartridge for use on game from antelope to elk. It is especially well adapted for such game as sheep, goat, and caribou.

The .264 is essentially a high speed combination. When it was brought out it was loaded in 100 and 140 grain bullet weights by the factory. The 100 grain load was and is strictly a varmint and predator load. The factory specified this in their descriptive data and warned against the use of it on game of even deer or antelope size. The bullet was just too fragile for such animals. In spite of this, of the hunters who came here with a .264, nearly half of them bought and planned to use the 100 grain varmint loading for all of their game, except elks, and some tried it on elk.

Actually, the .264 is really not a varmint cartridge, with any weight bullet. I do not know of any one who

owns one who ever uses it for this purpose only. Any bullet good enough for deer or antelope can be used for the large predators, such as wolves, bobcats, etc. The use of the 100 grain bullet by owners of the .264 for game, only created a bad name for what is actually a good game rifle. I do not believe it was wise to bring out this type of load at all, as hunters will use it for game, not only varmints. If the factory had brought out the cartridge with well constructed game bullets of 120 and 140 grain weight and left the varmint loading out, the .264 would not have the name of being a poor game killer. For instance, the Remington 7 mm Magnum was brought out with 125, 150 and 175 grain bullets, all constructed for game, not varmints. I don't believe I've heard anything said against it.

I have heard talk of the .264 being hard on barrels. I have never heard any of this talk by hunters who have used a Remington or Winchester rifle in this caliber. Both of these have

stainless steel barrels. My own Winchester .264 has had over 4000 rounds through the original barrel and there is no indication of accuracy fall off, although a great deal of my firing has been with maximum test loads.

To get the best performance, barrel length is important. The first .264's came out with 26 inch barrels but they were not popular and the 22 inch barrel was brought out. This length is too short to burn the right powders efficiently. The 24 inch length seems to be just about right.

Going through my files recently I noticed that out of 23 letters requesting load and rifle information, nine of these were on some aspect of the .264. This is some indication of how many are in use and how well liked they are. The .264 Winchester Magnum is a fine medium game-size rifle. It is at its best with good handloads, using bullets in the 120 to 140 grain weight class. For my own use I cut this closer, to the 120 to 130 grain weights.



SHOOTING BLACK POWDER HANDGUNS

(Continued from page 34)

spout of proper size to throw the correct charge for your particular gun, or a charge cup. A .38 Special fired case works well in .44 caliber, the same case shortened 1/4" in .36 caliber.

For a trouble-shooting kit, you might add a nipple prick, a nipple wrench, screwdrivers to fit all screws, and a cleaning rod and patches, preferably a slotted-tip rod. And if you don't want friend wife objecting too loudly to dirty clothing, a wiping cloth and—if you are truly fastidious—a canvas carpenter's apron.

Swab all oil and grease out of the individual chambers with solvent, and allow some to run through the nipples, clearing grease from them. Wipe the bore out also. These functions can be performed before leaving home.

To make absolutely certain the nipples are clear and the gun will fire, it is standard practice to explode a cap on each nipple before loading. Personally, I make it a practice to explode two caps on each nipple. Set the hammer at half cock and make certain the cylinder rotates freely. Turn the cylinder by hand so a nipple lines up with the capping cut in the right side of the recoil shield. With your thumb, press a cap firmly on the nipple. This is most easily done by holding the gun on its left side, muzzle angled downward, then thumbing the cap firmly onto the nipple. The cap should be snug enough on the nipple

that it cannot be shaken off if the gun is held vertically, yet it must not be so tight that any great effort is required to force it on, or that it stretches or splits in being seated. The cap must go fully down on the nipple and not drag against the face of the recoil shield as the cylinder is rotated. Never let the muzzle point at your own body, or anyone else, during this operation.

All six nipples should be capped in this fashion, then the hammer drawn to full cock and each cap exploded. Smoke issuing out the barrel as the cap explodes indicates the nipple vent or flashhole is clear. If no smoke issues, check that particular nipple by running the nipple prick through it, or looking through it at the sky to make sure light can be seen. Most of the time, firing a second cap will clear a clogged nipple.

To load, make certain no unfired caps are inadvertently left on the nipples. Set hammer at half cock. Hold the gun muzzle up, right side toward you and, with charge cup or flask, pour the proper amount of powder into the chamber nearest the loading cutout. Take a ball and seat it on the mouth of the chamber. It will be large enough that it will not enter. If cast balls are used, orient them carefully so the sprue cut is upward and centered. Now, rotate the cylinder so that the ball comes directly under the

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rammer plunger. Unlatch the rammer lever and with smooth, even pressure seat the ball firmly on the powder. A thin ring of lead will normally be sheared off by the mouth of the chamber, and the ball can be felt grating against the powder as it seats. Use just enough pressure to compact the powder slightly and to seat the ball about 1/16" below the chamber mouth. Continue placing powder and ball in the remaining chambers, striving for uniformity of powder charge and of ball seating pressure. For informal or competitive shooting, only 5 chambers are normally loaded. The hammer is rested on the unloaded chamber.

Get out your grease or shortening, and use it to fill the area over and around each ball—using a knife blade or wood spatula to keep the mess off

**Shooting black powder guns is not difficult
and the muzzle loading fraternity grows every day.**

your hands. The grease should fill the chamber flush with its mouth.

Grease thus applied serves two purposes. It prevents flame from the chamber being fired from flashing over and firing adjoining charges. Though this possibility may seem remote, it can happen if an effective means is not used to seal each chamber. The grease also serves to lubricate the bore and ball and keep the abundant black powder fouling moist and soft. If kept moist, fouling from each shot will be wiped out by the next.

If applying grease in this fashion is too messy to suit your taste, use grease-soaked felt wads under the ball instead. Prepare them by cutting wads about 1/32" larger in diameter than the chamber, then soaking them in melted grease or tallow. Place one in each chamber over the powder and seat the ball on top of it. With powder, ball, and grease in place, cap each nipple as outlined before. Unless shooting is to begin immediately, carefully set the hammer down so that the small safety pins protruding from the cylinder between nipples of Colt-type guns enter the slot on the hammer face. If your gun lacks these pins, or they will not prevent inadvertent cylinder rotation, then your only safe choice is to leave a chamber unloaded and let the hammer down on its nipple. Personally, I prefer the Remington-type gun here, because of the deep safety notches between nipples. The hammer nose is lowered into these notches, and is made more secure than by pins. If at the time you are loading, you know that firing will

not take place for yet a while, then simply do not cap the nipples until you are ready to shoot.

Actual shooting of the caplock revolver is no different than that of any other single-action handgun. Pull the hammer to full cock, align the sights carefully, then hold and squeeze. Sights on these modern guns are copied directly from the originals, consequently, are not particularly conducive to fine shooting. Certainly they handicap the inherent accuracy of a properly loaded gun. Considerable improvement can be achieved on the Remington-type guns by filing the rear sight notch to a neat, square form. After which a flat-face blade can be attached in lieu of the original front sight. The Colt-type guns present another problem, in that the

original sight is simply a very small v-notch in the hammer nose. Deepening and widening this notch will help some, but the sideplay in the hammer limits accuracy.

Modern, adjustable target sights may be fitted to any of the reproduction caplocks, but this is properly outside the sphere of this dissertation. Personally, I prefer to shoot these guns with the original sights. This may handicap my scores, but it does not in the least reduce the immense pleasure I get from the shooting.

If your caplock has been properly prepared—chambers free of grease and nipples properly cleared—and properly loaded, misfires will be conspicuous by their absence. However, as fouling builds up from successive firing, you will probably eventually pull the trigger to be greeted only by the "crack" of the cap—the charge and bullet remaining right where you loaded them.

When that happens, more often than not exploding a second or third cap on the offending chamber will ignite the charge. If it does not, further measures are in order.

Take the nipple prick and thrust it through the vent into the main charge. Wiggle it around to make certain that the passage is completely free into the chamber and that some loosening of the powder has taken place. Then, holding the gun muzzle down, dribble fine granules of powder into the vent. Fill the vent full, but do not attempt to tamp the powder down. Place a fresh cap on the nipple and attempt to fire. In my own experience this

(Continued on page 78)

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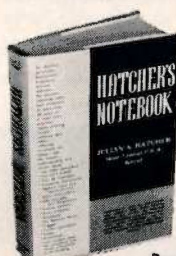
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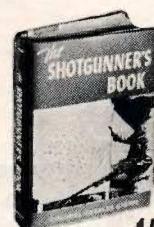


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(Continued from page 78)

action has fired the charge just about every time.

If it does not, remove the cylinder from the gun and use your nipple wrench to unscrew the nipple. Clean it thoroughly and set it aside. Take your nipple prick and work through the nipple hole to break up and remove a portion of the rear of the powder charge. Pour fresh powder into the base of the nipple hole, and reinstall the nipple. Fill the vent with powder granules as outlined above, then replace the cylinder, cap, and fire. I have yet to encounter an instance where this action would not clear the chamber. However, should you be so unfortunate as to have a misfire that does not respond to these treatments, simply ignore that chamber until you get home. Once there,

good idea to carry cleaning gear along to the range. Complete disassembly and cleaning isn't usually necessary to restore reliability. Remove barrel and cylinder (cylinder only in the case of Remington types) and wipe all exposed surfaces free of fouling and/or unburned powder. Swab the barrel with wet bristle brush until clean, then dry. Clean the chambers in the same way, taking special care to get all fouling out of the nipples. Put a little fresh grease on the base pin if necessary, wipe the rest down with an oily cloth, and reassemble. The gun will again be ready to go.

Except in extremely arid climates black powder fouling may promote rust in a matter of hours. The higher the humidity, the quicker rust will develop. Because of this, the gun should always be cleaned no later

quickly from the heat of the parts, however there will be pockets and screw holes that remain wet for hours unless given the oven treatment. Given 20 or 30 minutes in the oven all metal will be absolutely dry. Then, while parts are still hot, spray with your favorite gun oil. When cool, wipe and reassemble.

This method of cleaning takes far less time and effort than one might imagine. I do not find it inconvenient or particularly demanding—and it absolutely guarantees that no rust will develop for many weeks, even though the gun be completely ignored in the meantime.

So much for the bare mechanics of loading and shooting. But there are other factors to consider. First, the question of bullets. The round ball has proven in most instances to provide better accuracy than the conical bullet. Conical bullets were supplied in the prepared cartridges used during percussion days, and essentially the same forms (and moulds for them) are available today. I suspect that their relatively poor accuracy is due primarily to the fact that because of their shape they are often canted in seating and that they are likely to enter the bore at somewhat of an angle. The spherical bullet, on the other hand, is relatively free of this trouble. Pure lead bullets have always given better accuracy than those made from harder alloys.

Cast balls are often carefully trimmed so the sprue matches the curvature of the surrounding area. So long as the sprue is centered as described earlier, I cannot see that such careful pruning serves any useful purpose. It has been recommended that balls be rolled between glass or steel plates to improve accuracy. I have not found that this has any measurable effect on accuracy, and can actually cause wide variation in diameter and roundness.

Swaged lead balls are available in .44 caliber (.452" dia.), and the various sizes of swaged buckshot serve for the smaller bores. These balls look rough—in that they have been tumbled loosely together in packaging and shipping and are coated with graphite. They don't look as if they would shoot as well as a smooth gleaming cast ball. However, they run more uniform in diameter, weight and density than the average cast ball. Not only does their use eliminate the job of casting—which can be irritating and time consuming—but in my experience they generally produce slightly better accuracy.

The matter of powder charge is always good for an argument. Quite



Dixie Gun Works' Navy Revolver

drill a small hole into the ball, then turn a woodscrew into it and drag it out by brute force. If you are shooting a single shot, you'll have to remove the ball in the field. A variety of corkscrews are available which can be fitted to your cleaning rod. And they really work.

One other malfunction may occur, though rarely. If only a small portion of the powder charge burns, perhaps due to the balance of it being contaminated by oil or grease, the ball may come to rest somewhere inside the barrel. By far the safest way to remove the ball is with a stiff cleaning rod. My shooting kit contains a maple dowel as large as can be accommodated by the bore, and this is used to force the ball out from the muzzle after removing the cylinder. In Colt-type guns, the barrel is usually removed and the ball forced out from the rear. Never try to shoot out a stuck ball. More likely than not, any such attempt will result at least in a ringed or bulged barrel.

Normally a properly loaded gun may be fired for many cylinders-full before becoming too fouled for proper functioning. However, if you anticipate a great deal of shooting it is a

than the evening of the same day on which it is fired. There are solutions offered for sale which are alleged to prevent rusting if sluiced liberally over all fouled areas. This may well be true, but if you are too lazy to clean the gun the same day you shoot it, you deserve all the rust you get.

Cleaning must be complete and thorough. Completely disassemble the gun, putting all pins, screws and small parts in a wide-mouth container several inches deep. I find a pint Mason jar ideal. Wipe off the grips (stocks) and set them aside. Put all other parts in a basin of hot water, add any good detergent and scrub off all fouling. Take particular care with the bore, chambers, nipples and frame recesses. Put a small amount of detergent into the small-parts jar, fill it half full of hot water, put on a lid and shake vigorously a few times. Remove lid and run in hot tap water until all residue and suds are gone.

Rinse all parts in the hottest water you've got. Drain by dumping the parts into a large metal collander or strainer, then set the whole thing in the kitchen oven with the temperature control set at about 200-250 degrees. Most water will evaporate

light charges are preferred by many for target shooting to 25 yards, with a heavier charge used beyond that range. The full charge for which the gun was originally designed is seldom used except for hunting or "showing off." Taking averages of the guns in my rack, full charges with round ball are generally 27 grains in .36, and 38 in .44. The accompanying

the big .44s with FFG. I have for years used FFFG in all calibers, and can see no improvement with the other granulations.

A powder flask with spout filed to correct length to throw the desired charge is the simplest method of getting powder into the chambers. Some shooters who are particularly concerned with maximum uniformity of

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Caliber	Bullet	Granulation	Charge	Velocity	Remarks
.36	RB	FFFG	25 gr.	1005 fps	Full Charge
.36	RB	FFFG	16 gr.	—	Target
.36	CB	FFFG	15 gr.	700 fps	Full Charge
.36	CB	FFFG	12 gr.	—	Plinking
.44	RB	FFFG	38 gr.	990 fps	Full Charge
.44	RB	FFFG	22 gr.	—	Target
.44	CB	FFFG	26 gr.	820 fps	Full Charge
.44	CB	FFFG	18 gr.	—	Plinking
.44	#454424	FFFG	30 gr.	800 fps	Full Charge

ALL LOADS WITH FRESH POWDER AND CRISCO OVER BULLET.

table shows the velocities produced by these charges.

For paper punching and general plinking at ranges up to 25 yards I have found 10 grains best in .31 caliber, 16 in .36, and 22 in .44. Lesser charges have been recommended by some, however, I do not like to shove the ball too deeply into the chamber. Most chambers are not particularly smoothly bored and the ball suffers additional mutilation in being shoved deeply into them. Also, the deeper the ball is seated in the chamber the farther it must travel before engaging the rifling. Long travel here is not

powder charge carry adjustable volumetric measures to the range. Others pre-measure or pre-weigh charges at home and carry them to the range in small plastic or glass vials. I have found that by careful and uniform use of a flask I can throw charges that vary no more than one grain. Charges carefully weighed to plus or minus 0.2 grains have not produced any measurable increase in accuracy. Therefore, I see no point in complicating a pleasant pastime with additional accessories and work.

If there is small game or varmints within a couple of hundred miles



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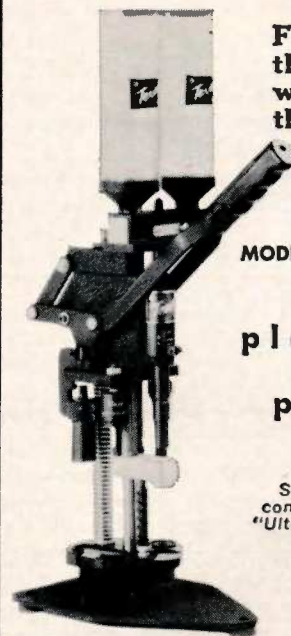
particularly conducive to best accuracy. Deeply seated balls also make it difficult to apply grease properly except by filling the chamber to its mouth. And half a chamber of grease makes for messy shooting.

Some shooters also prefer to use different powder granulations in different calibers. One shooter of my acquaintance insists on FFFFG in his .31 guns, FFFG in his .36s, and loads

you'll eventually want to use your front-loading revolver on them. Because of the conditions encountered, especially rain and snow, loading for the field requires a somewhat different technique than for paper punching. In spite of the claims made for it in its heyday, the percussion ignition system is far from waterproof. If you're hunting in Arizona this may
(Continued on page 81)



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(Continued from page 79)

not be of any concern to you, but where I live showers come up fast. Though the caps themselves are waterproof, we need a way of waterproofing the joint between cap and nipple—otherwise water can seep in under the cap and through the vent to kill the main powder charge. The old timers sealed this gap by rubbing beeswax or tallow over it after seating the caps. That method works, but it is difficult to seal the area between the nipple and the bottom of its cut-out in the cylinder. I have found it far simpler to first make certain the area is dry, then run melted beeswax completely around the nipple. Melted candle wax should serve just as well.

The grease applied around the balls for target shooting will also keep moisture out, but it collects dirt and debris and will also run in hot weather, making a mess of holster or pocket. It will also come out in big gobs from the impact when you jump off a cut-bank or across a creek. The best solution is a greased felt wad under the ball, combined with melted wax around the ball to further seal any gaps.

Carefully loaded in the above manner, a percussion revolver can be carried for hours in the rain, even immersed in water, and still fire reliably.

If you are expecting damp weather and want to get more than five or six shots off before coming home again, invest in a spare cylinder or two. Load the spares in exactly the same manner as above, then place each in its own small cloth or leather bag and carry them in separate pockets. If two are in the same pocket and bang together, there is the possibility of rupturing the wax seal around the nipples. Cylinder changes are made quickly and easily on the Remington type, though the Colt type requires the butt of your knife or some similar instrument to tap the wedge loose, and the use of the loading lever bearing on the cylinder between chambers to jack the barrel off.

Once you've become familiar with the caplock, black-powder revolver you'll have a new respect for it. Properly loaded and cared for it is both powerful and accurate. With a little attention to detail, it is also extremely reliable under severe weather conditions. With a pair of them riding loaded in saddle holsters the cavalryman of the sixties wasn't too badly off—he had ten or twelve powerful, accurate shots that could be delivered as fast as with today's finest single action revolver. His sustained fire power may not have been much by today's standards, but for the first round of the festivities he was a formidable opponent. 

SPEER CARTRIDGES

(Continued from page 25)

the M-14 rifle. The brass was full-length sized between loadings and was fired from the M-14 at full automatic. The cartridge cases were loaded 20 times before any failed and some of them were reloaded many more times than that. This continual working of the brass through full-length sizing and then firing from an automatic rifle constitutes one of the most rugged tests that can be devised for checking the life of brass cartridge cases. One can judge from the results of this experiment that the method of forming cartridge cases by the impact extrusion process is a sound one.

The problem of good case manufacture in these early cartridges lay in the then-available raw brass stock which was not of high enough quality. Several other copper alloys were tried experimentally in an attempt to overcome the problem of poor brass. I have in my collection one cartridge case made of phosphor bronze which is a copper-appearing material. This was used because of its high elasticity, but was very expensive. You may find others. At first I thought that two types of solid slugs were used, but this was not the case. The solid slug was cut from drawn brass rod. This brass stock developed hairline cracks when it was drawn. These cracks were very hard to find in the rod so the solid slug was punched from one or both ends. This operation served to expand the hairline crack and make it easy to see. The concave appearance of the slug is also a result of this operation. What at first appeared to be a second type of slug is really the second operation in forming the cartridge case. It was this solid slug which prompted the slogan "Forged from Solid." Production was stopped for various reasons, chiefly because it was not possible to obtain good raw stock. The hairline crack, or "cold shut" as it is called, could not be completely avoided with the stock being used and available at the time. If you have some of these cartridge cases, you may find an example of this hairline crack.


Since the Speer cartridge is no longer made, the remaining cases made by the company which is now known as CCI have become collector's items. It appears that few collectors know just what was made. The following cartridges were produced from solid brass: .270 Newton, .30 Newton, .35 Newton, .257 Weatherby, 7mm Weatherby, .300 Weatherby and .450

Watts Magnum. These can all be seen in the accompanying photographs.

The major claim for these cases other than being "Forged from Solid" was the concave inner surface of the head. This "reflector," as it is called, was intended to give extra strength in a weak area. Sometimes a "rose petal" imprint may be observed in this reflector. This imprint resulted from a step which was taken in some cases to work harden the head and give the brass just the right amount hardness. Besides the rose petal, another trick was to form the head completely and then go back and bunt it to imprint the headstamp. This afforded an extra operation which helped harden the head. One can judge for himself that all is not a bed of roses when it comes to the production of cartridge cases.

The portion of the die set which imprints the head stamp is called the "head bunting tool." Besides the cartridges mentioned above, bunting tools were made up for the following: .30-06, 7x57, 6.5 Ariska (Jap), .300 H & H Magnum, and .300 x 2.50 B. As far as is known there were no cartridge cases attempted in any of these calibers. I have chased down a couple of rumors that .30-06 was made, but these have proven fruitless.

Besides these cartridges, CCI produced a .38 Special cartridge case with the CCI head stamp. There is a rumor, again unsupported, that there were two variations of head stamp on this. One head stamp, as pictured, was "SP"; the other was reportedly "SPL." I have never seen any of the latter. There was supposedly another bunting tool for the .357 Magnum, but this too was never put into production and if it ever existed, no experimental cases were made.

Local gossip has it that these Speer cartridges now sell for about \$1.00 each on the collector's market if you are fortunate enough to find a collector who will part with any. I won't even let my duplicates go unless I find someone who has a particular cartridge I don't have or who has some production steps from the process. My duplicate Speer cartridges are not for sale or trade on any other basis. If you have some of this brass it will be worthwhile to get it out and count it. You may find a small bonanza tucked away in that old cigar box. It isn't worth much for shooting, but to the collector it is getting rather rare, especially if it is in an unfired condition. 

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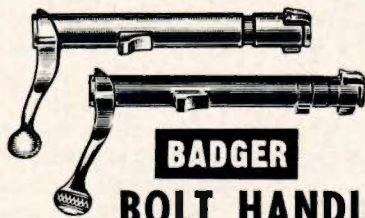
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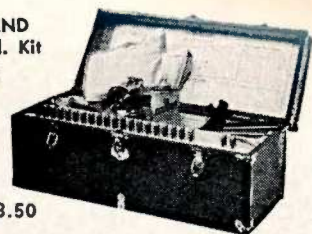
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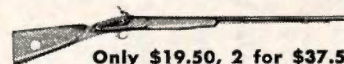
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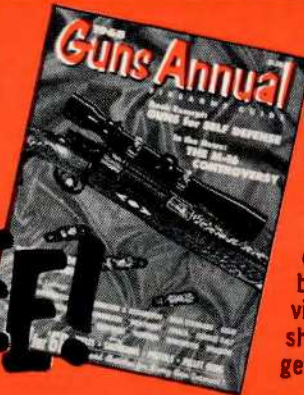


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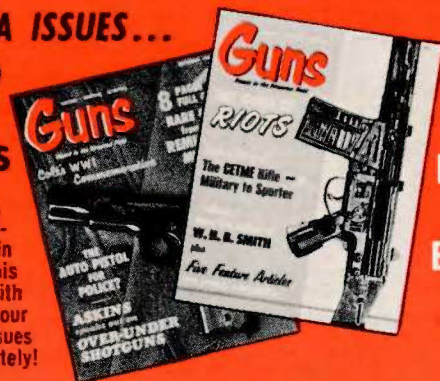
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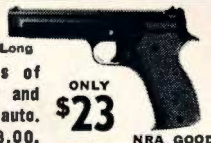


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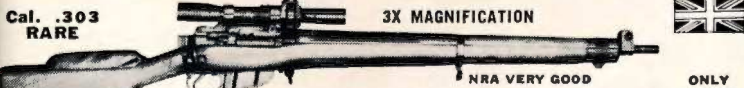


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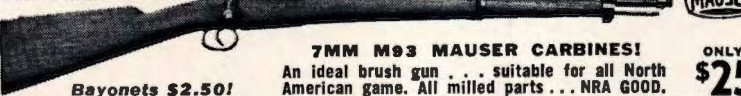
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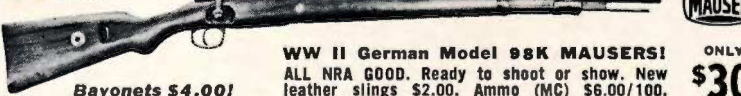
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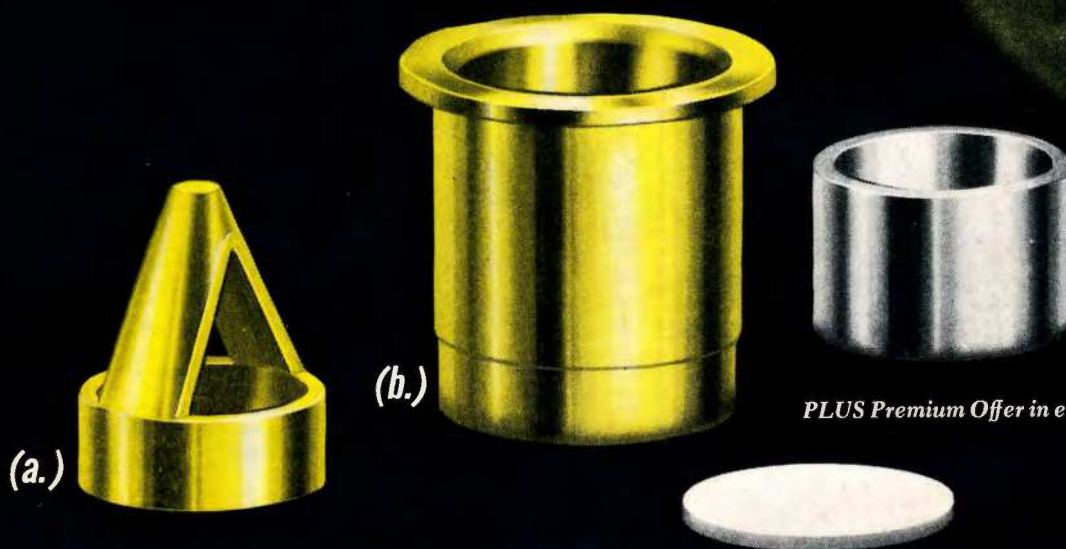
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