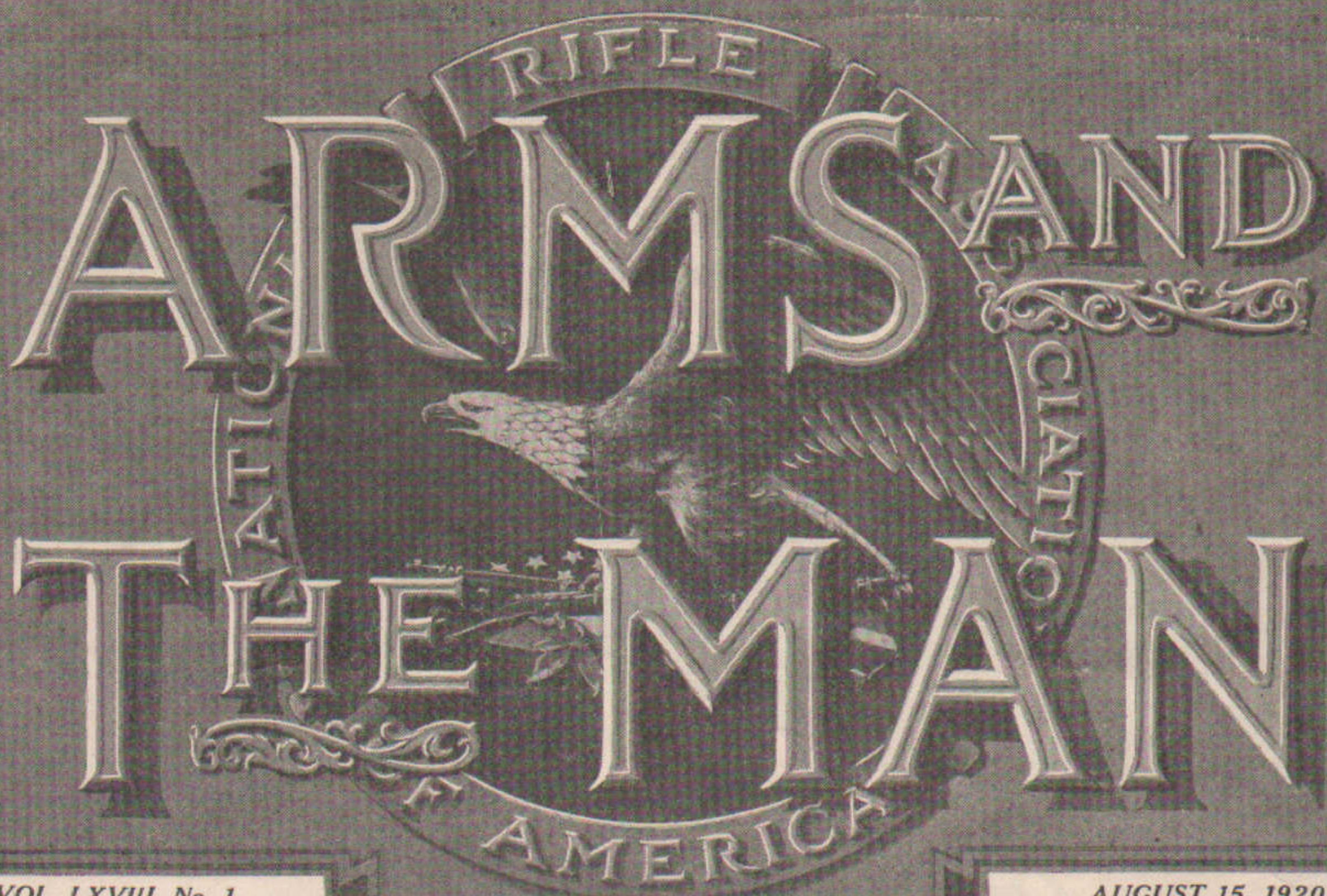


THE AMERICAN RIFLEMAN'S MAGAZINE



VOL. LXVIII, No. 1

AUGUST 15, 1920

Americans Win Olympic Victories

WITH

Remington

TRADE MARK

AMMUNITION

AMMUNITION

Palma 180 gr. .30 Cal. Springfield

.22 Cal. Long Rifle Lesmok

.38 S. & W. Special

The American Rifle Team, shooting with Remington Palma 180-grain .30 calibre Springfield cartridges and United States Army service rifles, won the big military team match at 300 and 600 metres distance, scoring 573 out of a possible 600 points. There were 14 competing teams.

The American Rifle Team was first in the free rifle team match with any rifle and any ammunition with a score of 4873 out of 6000, shooting Remington .30 calibre cartridges.

The American Rifle Team was first in the 300-metre match with a score of 289 out of 300, using Remington .30 calibre cartridges. Commander C. T. Osburn, United States Navy, won the individual 300 metres offhand rifle event with a score of 56 out of 60, shooting Remington .30 calibre cartridges.

The American Pistol Team, shooting Remington .22 calibre Long Rifle Lesmok cartridges, won the 50-metre pistol team match with a score of 2374 out of 3000.

Karl T. Frederick, of New York City, was the winner of the individual pistol match with a score of 496 out of 600, shooting Remington .22 calibre cartridges. Senor Da Cosa, of Brazil, was second, 489, and Alfred P. Lane, of New York City, third, 482, both using Remington .22 calibre cartridges.

The American Revolver Team, shooting Remington .38 calibre S. & W. Special cartridges, won the 30-metre military revolver team match, scoring 1309 out of 1500.

Guilherme Papaeuse, of Brazil, won the individual 30-metre military revolver match, scoring 274 out of 300, with Remington .38 calibre cartridges. Raymond C. Bracken, of Columbus, Ohio, was second, 272, and Karl T. Frederick, of New York City, third, 266, both using Remington .38 calibre cartridges.

Both the Brazillian and French Pistol and Revolver Teams used Remington ammunition.

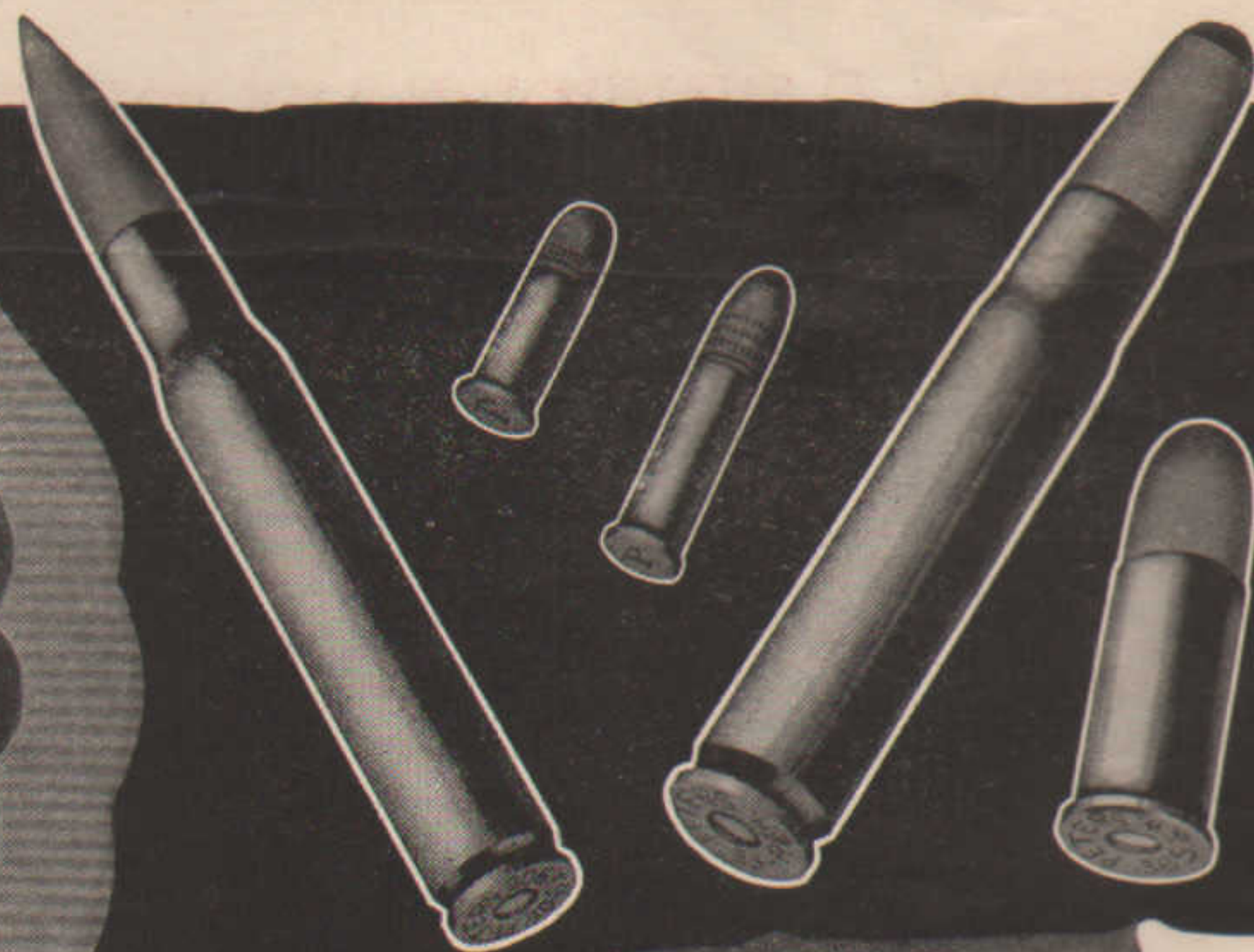


Remington .30 Caliber Springfield ammunition was selected in the official Government test at Sea Girt in May for use by the American Rifle Team at Antwerp.





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ARMS AND THE MAN



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U. S. Shots Score Sweeping Victory at Olympic Games

By KENDRICK SCOFIELD

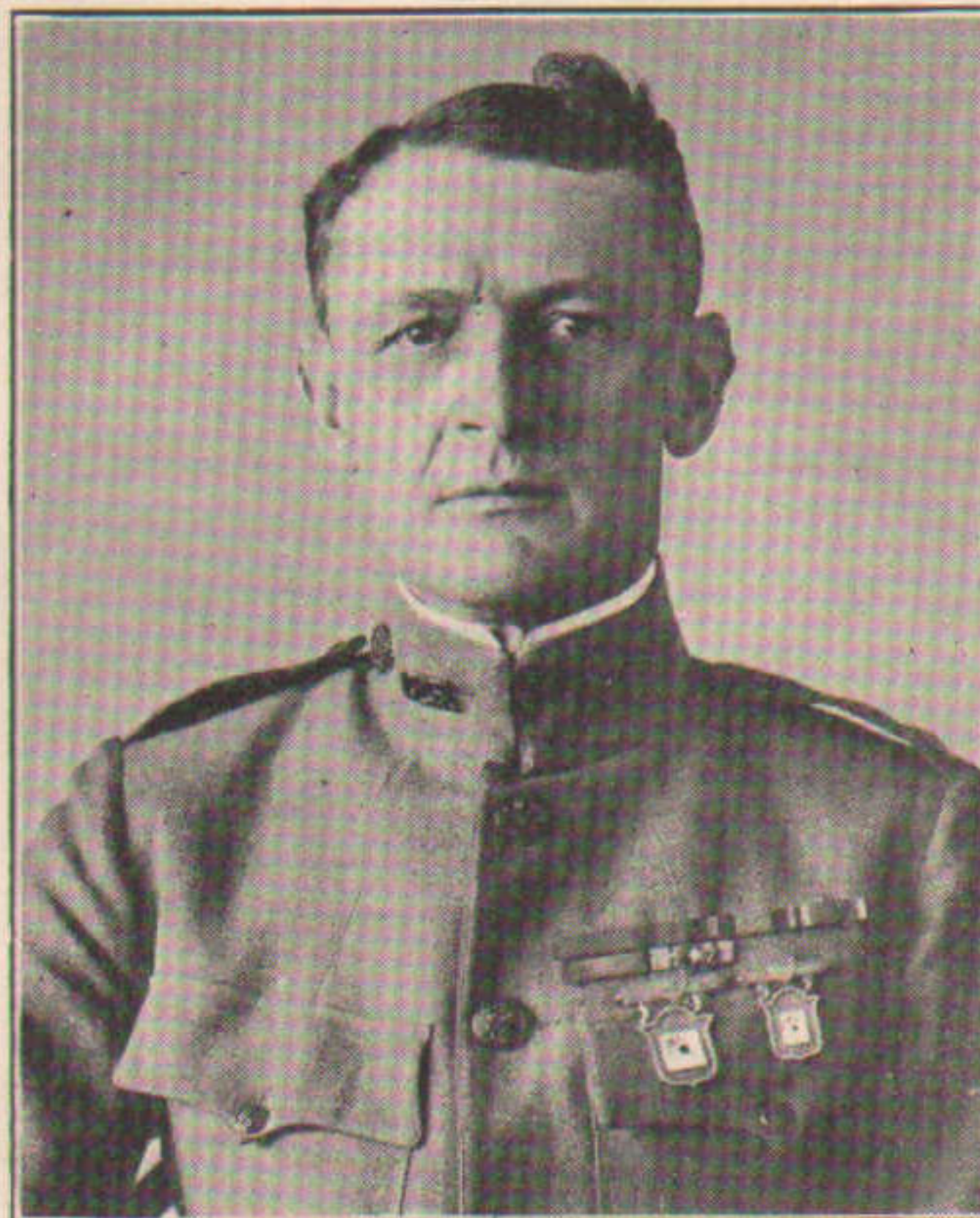
AMERICAN marksmen, armed with American army rifles, pistols and revolvers, have again beaten the world at the shooting game.

Incomplete reports from Beverloo Range, Antwerp, where the marksmanship events of the 1920 Olympiad were staged, show that the United States Rifle and Pistol Teams scored signal victories over all comers.

When the final awards were made August 4, it was found that the Americans had won seven first places out of eight team events and were second in the other. In seven individual matches the American marksmen won four firsts, two seconds, and four

thirds, and in one, they took first, second, and third places. They failed to place, according to despatches, only in one event—200-metre firing from the prone.

land and Finland after three shoot-offs failed to break the tie. Perhaps the most signal of all the victories was that which the United States won in the Military Team Match in which fourteen competitors were entered. In this event, the week of gruelling practice which the American shots had at Quantico following the try-



outs brought its results. The firing was at 300 and 600 metres—the ranges at which both tryout and practice was held—and the riflemen from the United States scored 573 points out of a possible 600. Remembering that the Belgian target is a ring-target, quite different

Scored by points, the result of the shooting stands:

United States.....	43
Sweden.....	11
Norway.....	9
Denmark.....	7
Switzerland.....	5½
Brazil.....	5
France.....	4
Greece.....	2
South Africa.....	2
Finland.....	1½

It will be observed that the men picked at the Quantico tryouts last month rolled up nearly as many points as all their rivals. One-third of a point was divided between Switzer-

Left, Col. George C. Shaw, U.S.A., Captain of the Olympic Rifle Team. Center, Maj. O. F. Snyder, U.S.A., Captain of the Olympic Pistol and Revolver Team. Right, Commander C. T. Osburn, U.S.N., winner of the Offhand Match on a score of 496 x 600.

How Some of the Matches Resulted—

Rifle

Military Team Match—Won by United States, score 573 x 600.

Free Rifle Team Match—Won by United States, score 4873 x 6000.

300-Metre Match—Won by United States, score 289 x 300.

Individual 300-Metre Match—Won by Lt. Com. C. T. Osburn, U.S.N., score 56 x 60.

Pistol and Revolver

50-Metre Team Match—Won by the United States, score 2374 x 3000.

30-Metre Military Revolver Match—Won by the United States, score 1309 x 1500.

Individual 50-Metre Pistol Match—Won by Karl T. Frederick, New York City, score 496 x 600.



Some of the members of the American Rifle Team. 1. Capt. Fred S. Hird; 2. Maj. Elmer G. Linderoth; 3. Sergt. H. B. Adams, 4. Capt. A. D. Rothrock; 5. Joseph T. Lawless; 6. Sergt. Morriss Fisher; 7. Lt. L. S. Spooner; 8. Capt. W. F. Leushner; 9. Sergt. R. M. Henshaw; 10. Lt. Joseph Jackson.

rom the familiar military bull's-eye of American ranges, this score implies most excellent shooting.

In the 300-metre match the American team again scored over all rivals, hanging up a total of 289 out of 300.

It is doubtful whether any American could have felt disgruntled if the United States marksmen had fallen down in the Free Rifle Team Match. In entering this event they were going up against many of the best continental shots trained for years in the art of shooting heavy target rifles—an accomplishment which is radically different from a relatively equal degree of skill with the Springfield. Free Rifle Shooting is "the other fellow's game," so far as Americans are concerned. But in spite of this undeniable handicap, the American score of 4873 points out of 6000 was plenty good enough to take the event.

In the individual events, one of the most important matches went to our national credit through the skill of that old national and international war horse, Commander C. T. Osburn, U. S. N. This was the Offhand Match at 300 metres, an event which drew many of the foremost riflemen. In his ten shots for record, Commander Osburn dropped only 4 points, finishing with a winning score of 56 out of 60.

Devotees of the shooting game will await with interest the publication of complete scores in the Olympic Games. From the fragmentary results that it has thus far been possible to obtain, it is evident that the riflemen captained and trained by Colonel George C. Shaw, U. S. A., himself a veteran of the rifle-range, gave far more than an ordinarily good account of themselves.

The victories of the rifle team, however, should not be permitted to eclipse the splendid performance of the Pistol and Revolver team, captained and coached by Major O. F. Snyder, U. S. A. Major Snyder, who also captained the A. E. F. Pistol Team which bested all competitors at Le Mons, last year, took over the management of the Olympic Pistol and Revolver Team just before they sailed early in July for Antwerp, Dr. R. H. Sayre, who had been designated team captain finding

himself unable to make the sailing at the last moment. With the pistol and revolver team, hours were important, for the sailing date given them was late and there was little time between their landing and the beginning of the shooting program.

All the way overseas, however, Major Snyder kept the team members practicing at targets fixed so that the bullets would go over-side and when the hand-gun team landed the Major was confident that they would have more than a look-in.

One of the first events in which the hand-gun men entered was the 50-metre pistol team match. In many ways they were confronted with a situation similar to that which existed in the Free Rifle Match. European pistol shots are noted for their special, heavy target pistols, equipped with hair triggers, and it will be recalled that through a misunderstanding the men who reported for the Pistol Team Tryout were not advised until they were on the ground that .22 calibre target pistols would be permitted. A special shipment of Smith & Wesson and Colt's target weapons—the latter an entirely new type—arrived in time and practice with the .22 calibre hand guns was started. That the fine special target pistols of Europe offered no insurmountable handicap to skilled American shots armed with good American handguns was evident when the 50-metre team match was over. The United States team won on a total of 2,374 points out of 3,000.

The Revolver Team Match—the big event of the pistol program, comparable to the Military Rifle Team Match, was the next plum to drop into the American hat. When A. P. Lane, Carl T. Frederick, Lt. L. J. Harant, U. S. A., Sergeant Michael Helley, U. S. A., and Dr. James H. Snook went to the firing point, they found that the Brazilian contestants were using revolvers equipped with

special rear sights which are issued to the Brazilian Navy. The Americans believed that such weapons would be barred. But again American skill bested refined equipment, and took the event on a total of 1,309 points out of 1,500. The individual scores in this event were: Lane 263; Frederick 262; Harant 268; Kelley 256; Snook 261.

In the 30-metre Military Revolver Individual Match, while a Brazilian, Guilherme Papaeuse, was declared winner on a score of 274 out of 300, both second and third places were taken by Americans, Raymond C. Bracken of Columbus, Ohio, finishing second with 272 and Karl T. Frederick of New York finishing third with 266.

Although Frederick finished behind two others in the 30-metre event, he won signal honors at 50-metres with the pistol, shooting a .22 calibre target weapon. At the Quantico tryout, Frederick hung up a score of 491 out of 600 being bested only by A. P. Lane's score of 500. On the Beverloo range, he bettered this previous score, totalling 496 out of 600 and winning the event over Dr. Costa of Brazil who was second on 489 and Lane, who was third on 482.



Lieut. Louis Harant, high man on the American Revolver Team which won the Revolver Team Match, the big event of the pistol program. He scored 268 x 300.

The Accuracy of Various Firearms

By A. P. LANE

HUNTERS and target shooters are continually arguing with each other on the subject of the accuracy or inaccuracy of various firearms and often the whole argument is based on the results obtained from just one or two shots.

There is no rifle or pistol made which will place one bullet on top of the other or in other words hit exactly the same spot each time at a distance of more than a few yards from the muzzle. The test of the accuracy of any weapon is its ability to group its shots closely together, and the relative accuracy of two different rifles or pistols is based on the size of ten or more shots.

Naturally the accuracy of any firearm depends to a large extent upon the condition of the interior of the barrel and the quality of the ammunition used. The finest barrel will not shoot well with poor ammunition, nor will good ammunition make good groups in a poor barrel.

It may be of interest to the average shooter to give the size of ten shot groups which may be expected at various ranges with different kinds of weapons.

A high grade target revolver or automatic pistol will make groups at 50 yards which can be covered by a three or four inch circle. A poor revolver or automatic pistol can hardly be expected to give any degree of accuracy at 50 yards.

The average hunting rifle will make from three to six inch groups at 100 yards.

A good .22 calibre rifle handling the .22 long rifle cartridge will make half inch groups at 25 yards.

The shotgun using a shot shell loaded with a single ball can not be depended upon to hit a circle smaller than ten inches in diameter at 50 yards with any degree of regularity.

Consequently the hunter who attempts to use such a weapon for long range shooting at big game is in most cases wasting his time and what is worse still, often injuring the game in a non-vital spot, which will eventually cause the death of the animal, but which will do the hunter no good.

The real accuracy of any firearm has nothing to do with its ability to place the shots where the weapon is sighted. If you have a rifle or pistol which will make small groups but does not place them at the point on the target where you line up sights, it simply means that you must correct the sights until they line up with the group.

All good rifles are sighted by expert testers at the factory and when they are shipped out the sights are lined up properly for the average man, but that does not necessarily mean that any one can pick up a stock rifle and hit what he aims at with his first few shots, for shooters vary, and sights which may be adjusted properly for one man will give different results with another shooter.

If you are going to spend good money on a big game hunt it is certainly worth while to

test out your rifle beforehand to be dead sure that the sights are set just right for your own eyes.

A common impression among shooters is that a very light rifle or pistol will not shoot accurately because of the heavy recoil which makes the weapon jump away from the line of sight. The fact that a rifle or revolver barrel jumps upwards is due to the point of support being below the line of the barrel. If a barrel is supported directly in line with the axis of the bore, it does not have any tendency to jump either up or down. Consequently it would seem that a light rifle barrel would shoot more accurately if supported in this manner.

A great many tests have been made along these lines and it has been found that there is very little if any difference in the accuracy produced with a light barrel when supported so that it does not jump up when fired.

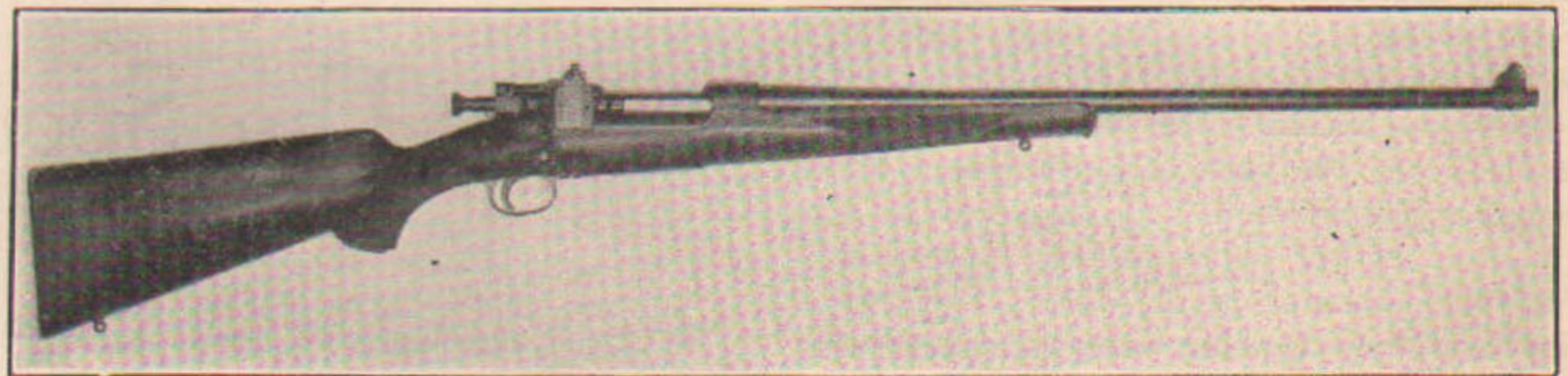
The jump of a light weight firearm does affect the point struck by the bullet with relation to the line of the bore, but the effect is the same for every shot and consequently as far as the shooter himself is concerned it cannot spoil his shooting, since the sights can be adjusted and as a matter of fact are adjusted at the factory to take care of the effect of the jump.

If you place a ruler on the sights of a revolver, you will find that the ruler is not parallel with the center of the barrel and that the barrel is actually pointed downward, which is the correction above mentioned.

A very heavy rifle or pistol will sometimes give apparently better results at the target for two reasons. In the first place the extra weight makes it possible for the shooter to hold with the minimum of tremble. In the second place a slight difference between shots in the pressure with which the rifle is held against the shoulder, will not affect the jump of the recoil to such an extent.

If you are using a light weight rifle or pistol you can rest assured that for practical purposes

(Concluded on page 18.)



DESCRIPTION OF SPRINGFIELD SPORTER CONVERTED BY BARNEY H. WORTHEN

THIS is a Springfield Sporter remodelled by Barney H. Worthen for Commander S. C. Barber, U. S. N.

The stock is of selected Circassian walnut—a piece of excellent grain—with dull London oil finish, Whelen pattern cheek piece, and thick, well curved pistol grip fairly close to guard. The neat horn cap on pistol grip holds an oval silver plate for monogram. The comb is of medium thickness. Dimensions are as follows: Length from middle of trigger to middle of butt plate $13\frac{1}{2}$ inches, drop from line of sight to comb, 1 7-8 inches, drop from line of sight to heel 3 1-8 inches, cast-off $\frac{1}{4}$ inch. The toe of butt is slightly further forward than the heel, perhaps 3-16 of an inch. The well shaped forearm extends a full $17\frac{1}{2}$ inches forward from the trigger giving a particularly symmetrical effect to the arm. The checking of pistol grip and forearm is simply and neatly done, and is just enough.

The butt-plate is of steel neatly and sharply checked, with trap. Recesses under trap hold spare cartridge and spare striker.

The barrel has been left full length and diameter, except rear end under sight band which has been turned down with a neat taper. The owner is of the opinion that the original barrel is none too heavy for the higher velocities and breech pressures now used, if the fine accuracy is to be retained.

The sights are Lyman receiver sight No. 48, with Sheard gold bead front.

The trigger is adjustable, now set at $3\frac{1}{2}$ pounds.

The bolt-knob is well checked on under side.

The rifle weighs eight pounds, the excellent balance of the arm, however, making it appear much lighter.

The bolt lock is one of the most interesting features of the gun. An ingenious bolt lock, understood to have been patented by Mr. Worthen, prevents that slight raising of the bolt handle which so frequently causes misfires. It consists of a small pin inset in the front face of the rear safety lug, which, when the bolt is completely closed, is caused by a spring to engage a small slot cut in the rear end of the extractor. This simple device appears to be a very desirable addition to both military and sporting bolt action rifles and might well receive the attention of those responsible for the design of our Service rifle.

Rifle Shooting in Timber Countries

By RIPLEY

THE big timber countries are often the scenes of much humor, especially when the hunter has learned most of his rifle shooting in open countries. At times the woods are replete with profanity because the shooter fails to perform up to his standard. He never attributes it to a change in environments, but to rifle generally—surely not himself. At that it is tantalizing for the shot who could hit a coyote or other game with ease at long distance on the prairies to find suddenly that he was out of form and unable to hit ordinary running and jumping game.

Whitetails in the Southern woods are provokingly difficult for the man from the West to hit. I have seen hundreds and hundreds of misses by men whom I knew to be experts in their country, but the instant they struck the Southern woods they seemed unable to do anything with their rifles.

One instance is particularly fresh in my memory. He was an excellent shot on big game in the Rockies, but the whitetails of the South fooled him time after time. For days he was unable to solve the problem of the cypress and switch cane, and though every time I heard the bark of his hi-power I expected a kill, in each instance I was as disappointed as he. One morning I went with him to an opening in the cane. I observed him carefully. He shot with the same deliberateness that he exhibited in his shooting at black tails and elk, but every time he failed to harm the agile whitetails of the cane breaks.

Personally I never was considered an expert rifle shot; my scores at the target would never excite envy, but I could hit the whitetails with remarkable facility. I watched my companion morning after morning miss, and suddenly solved his difficulty. He had not grown up in the Southern woods; he was not shooting at feeding game, but at game that was always on the jump in daytime, and that knew how to take advantage of every bit of cover with the same canny precision of a flushed single quail in the brush. Two more things I discovered; he was no judge of distances in the timber, and he had no knowledge of the most necessary method—snap shooting.

Then, when we arrived at camp I told him his faults. He was prone to ridicule me at first, but I was persistent for I knew he had the "makings" of a fine snap shot in timber.

Together we went into the subject, practically. And squirrels were our object. If he could only be taught to snap shoot close to a running squirrel on the ground, though missing quite frequently, he would soon become proficient. It was not a difficult task. He had to learn to coordinate ear, eye and finger. To get on game instantly and press the trigger as quickly—not jerk—is no easy matter. But he was equal to it. Then a bit of a trick in snap shooting I had learnt proved of much service. It was to find the game with the sight instead of the old deliberate way on the prairies of seeing the game, then put-

ting the rifle to the shoulder, aiming with equal deliberation, and pulling. This was brought about by telling him not to look for the game but to depend upon his hearing, and get a look at it only along his rifle barrel. It was an act very close to snap shooting quails, and he soon caught the hang of it and performed wonderfully. But he told me that with him his entire improvement was due to ignoring the game entirely until he had found it with his rifle. When as before he caught sight of the jumping deer in the cane hazels and cypress, before he could hold it was out of sight, and he finally admitted that he had always shot behind the game.

Another thing I find is the cause of many misses in timber is the practice of Eastern hunters suddenly changing their rifles. As soon as they start South on a deer or turkey hunt they must have a much shorter barrel for timber and brush. Their argument is recon-

cilable to conditions, did they appreciate them in their entirety. But it is the immediate change that makes the missing streak prevail. They do not learn their short barrels soon enough. Always accustomed to short barrels unless the game is exceedingly close they fail to align properly as they did before. It is the effect of the difference in length of barrels; and none can ever get over that inevitable fact that short barrels are easy to align at close quarters but a different matter at distances until familiarity conquers the trouble. They simply can't get on the game as they did before; because they do not realize the sudden change in the length of barrel would effect their shooting.

For the Southern woods one sportsman had a Winchester Model 95 cut down to amazing short length. It looked like all magazine and no barrel. The first deer was close and he got it, but he experienced much difficulty in holding on anything further than forty yards. And though he was a mighty deer hunter, he had to conform his shooting both on deer and turkeys to that very insignificantly short barrel.

The Sportsman's Dog

By F. E. BRIMMER

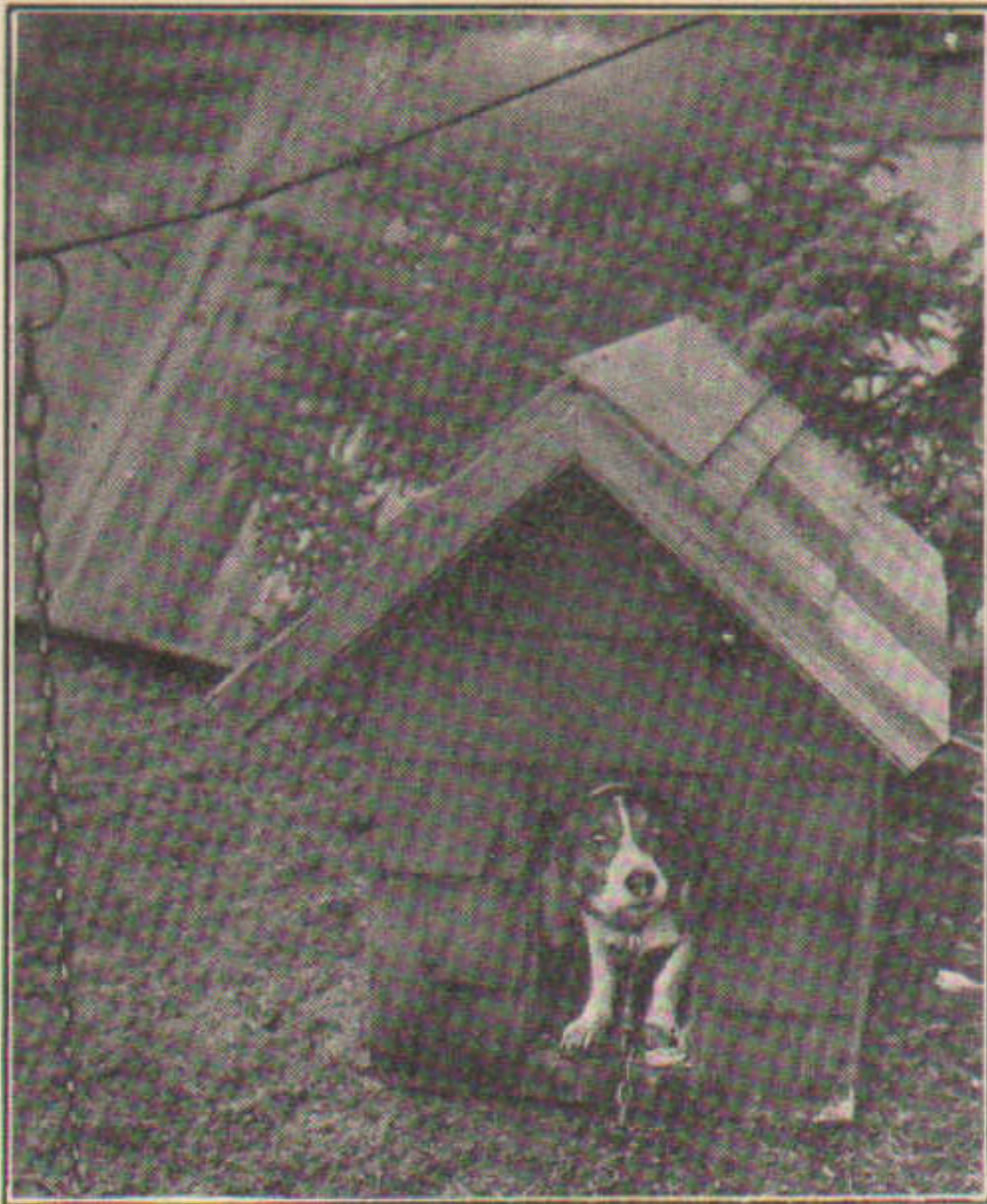
EVERY outdoorsman has a dog. Or if he hasn't then he has said many times that he would make one his outing companion if circumstances permitted. About all the company many hunters want is a beagle, or foxhound, or pointer, or some other breed of canine and the association of the sportsman with his trained helper are the big part to the outdoor chase over hill and meadow. You take in your hands the gun, that most modern tool of civilization that has come down through all the stages of evolution, and you throw into the game you wits to handle the firearm, while the big end of the deal is that faithful friend who points or trails your quarry. That's the sport of the hunt. The gun-man-dog combination. It is the eternal triangle applied to the twentieth century chase afield after game.

Consider that dog. He has a good many rights that must be accorded him if he does the best service for you. In the first place be sure you set a good example for him to follow. If you are quick and nervous then he will develop the same condition and will hunt on the same principle, rushing his bird or messing his trail. If you are cool and careful he will be the same. It is astonishing the way a dog will become like the man who hunts him, especially if that man takes him when he is small and trains him from infancy to perfection when he is four or five years old. For that reason every sportsman ought to train his own bird dog or hound when possible because he will develop certain fixed habits of going at his work that is an exact imitation of the man who trains him. At least select a trainer that goes at his business in the way

you like to have your dog hunt. If he's a speedy hunter then he will teach your canine the same habits and he will never get over them. The best trainer will realize that an excited dog is the worst kind of a hunting companion and will teach his charge accordingly. The fast dog will put up his bird before you get quite in the position you wanted and if he is a hound then he will run the game out of the country. Your dog will hunt just as you yourself hunt if you train him. If you don't then you may have to adjust yourself to him.

It isn't a hard task to train a good dog. It does take a lot of patience on the start. As some humorist would say, "The first hundred years are the hardest." I am thinking of a little beagle that is a bird dog and a hound all in one. I got him five years ago when he was a few months old and I took him into the field the first time he was ever in the woods. Of course I saw that he was along with another good dog that I thought ought to teach him a great deal. He did not seem much interested in things and when I put his nose under a brush pile where a rabbit sat he didn't increase his interest and let the bunny run away without chasing him more than twenty feet. That didn't look very good to me as you can bet and I was glad no one was there to see him perform. However I didn't get angry with him because he was young and new at the game. The sound of the leaves under his feet seemed to frighten him and before we got home he was so "dog-tired" that I had to take him under my arm.

But he kept picking up his letters every trip until the second fall he was able to run rabbits



Sanitary kennel for small dog, made warm by shingling dry goods box.

pretty well. Then the third fall I worked him a great deal in bird country. It was only a short time until I could tell at once when he was working on a bird trail and when he was following a cold bunny track. Of course he was working on bare ground and did not bark on the cold trail of the rabbit, but as soon as he had the bunny going he let loose with a good amount of music. On the bird trail he never said anything until he was so close that he thought he could see the feathers ahead, then he stopped and looked. Since he was short legged it was an easy matter to keep close to him and so in shooting range of the birds that he put ahead of him. Today I can tell the minute he scents a trail whether it is a pheasant, a partridge, a squirrel, or a rabbit. It has been something that has come to be a sign language between us. With the pheasant trail he is very excited and I believe the male pheasant must put out the strongest odor of all the wild game of either feathered or fur coats. The partridge does not get his nose so excited but on both birds he zig-zags about hurriedly first this way and that, making a great deal of motion in and out among the bushes but never going very rapidly. He will do the same on the woodcock but can never follow a cold woodcock with the same speed of a cold partridge or pheasant. With a rabbit he is careful and looks for the back track all the while. On the cold bunny trail he circles all about and moves along more swiftly. The squirrel scent leads him to raise his head off the ground and to watch the trees. There is a great deal of sport for me in just working with my dog.

The first thing that a good dog deserves is a warm house to live in. Not the old-fashioned coop with the little round window in front that is a poor excuse for a door as well. The kennel should be double walled and floored and have a window in the rear that may be opened in hot weather to secure ventilation and with a double pane in winter to keep out the cold. Many hunting dogs that live where they are tied up and in a house most of the time

develop weak eyes because of the dark quarters that they are compelled to live in most of the year. The house ought to have a roof that projects well over the entrance so that rain and wind would be kept away from the doorway. Most of all the smaller details of construction, the kennel should be so made that it can be cleaned easily and the quarters kept sanitary and decent for the dog to live in. Many of the disease germs that are carried on a dog's coat may be held for many months, to breed and propagate, in the litter that is in the kennel for his bed. This ought to be changed and renovated in the fall and spring at least and when it is done the interior of the building should be washed with some good disinfectant.

A hunting dog deserves right treatment in the field. He must not be worked too hard on the beginning of the season and in many states a permit may be taken from the Conservation Commission for a small sum that will allow the sportsman to get his dog into the field for training and exercise a month before the season opens. Of course it is not permissible to carry firearms along on these exercising trips. Then when the beginning of October brings the open period for going after the birds and the game the hound or pointer must not be expected to at once show mid-season form and energy. He has gone a little rusty. You would do the same after the long weeks of inactivity along hunting lies. Give him time to get back his stride. Probably he will begin to lose flesh and this is as it should be for his muscles are hardening and the extra fat is leaving. A good dog over-worked has often become the victim of some disease of the lungs, air passages or throat. His weakened condition is a standing invitation for distemper germs, and other diseases to take possession. Wet days in the woods should merit the dog a warm place for several days where he can thoroughly dry out his coat and accumulate energy to throw off the many diseases he may have received germs from.

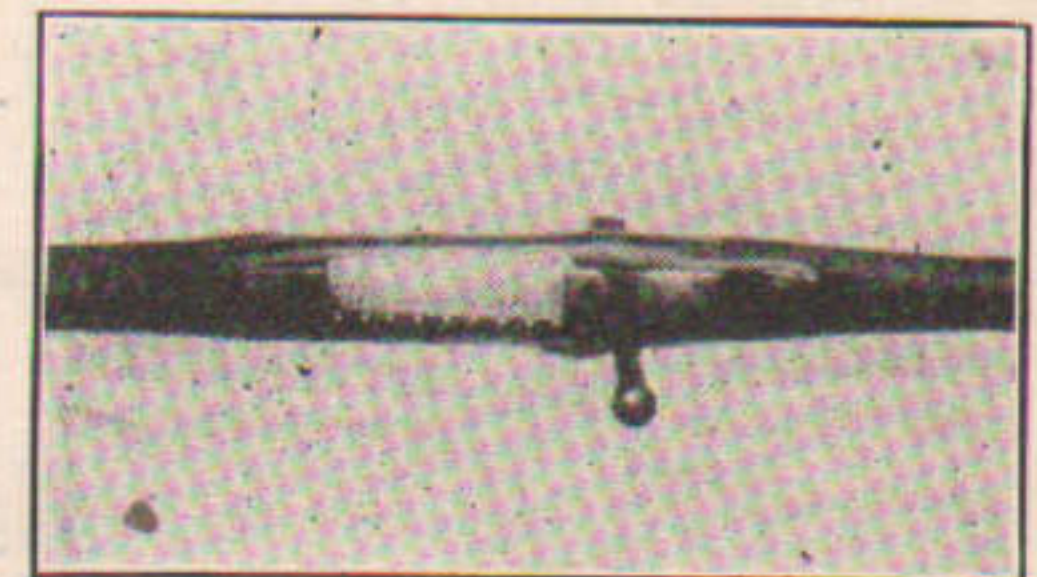
The sportsman's dog ought to have the most careful kind of feeding. This need not be a balanced affair that is too scientific but he should be given enough and no more of good nourishing food. For every breed and size of dog there is a different standard and I am not attempting a treatise on diet. Especially when hunting the dog should be well taken care of. In the morning he should have about a third the usual amount if he is to hunt at his best. At noon he should be given a bite of his master's lunch in the field, and then when he comes in at night should be given the big meal of the day. This should consist in the hunting season of a large measure of raw meat. In the period when the dog is not hunting he should receive meat sparingly, the best form to furnish it to him is on a bone so that he can spend a great deal of his time gnawing the bone. When away from home hunting make sure that your dog is given proper care, food, and shelter. Often a hotel servant will not give proper attention to his charges and you should see that this is not the case when you put your canine into strange hands.

At the close of a hunting trip or the end of a day make sure that the feet of your beagle,

The Annual Meeting of the National Rifle Association of America will be held at Camp Perry, Ohio, August 26, 1920.

foxhound, pointer, or whatever your favorite hunting dog, are as good as when the trip was started. Often a small thorn may be found that would ultimately lead to lameness, or a cut may need attention where a sharp rock has pricked the pads. Look over the coat of the dog thoroughly when the hunt is finished to remove burrs, stick-tights, and other clinging seeds or dirt. A careful "once-over" will determine the amount of punishment that the day afield has given your faithful friend and his care will depend upon the way he has gone through the hunt. Vaseline is a mighty good thing to take along on a hunting trip for scratched nose, torn skin, tender pads, cuts on the feet, or sore ears.

Give that dog the best kind of square and sportsmanlike treatment that you know how to offer. Treat him fair and he will repay you with big interest. Above all things learn to control your temper and a man who can't do that should not own a dog. It is safe to say that he will not own a good dog at all events.



I HAVE frequently read in shooting papers of the method of recording sight settings. Some say to use a sharp pointed instrument and prick sight settings on the stock. Other means of defacing the stock are sometimes suggested.

After looking over my sporting Springfield I decided it was a shame to deface the arm in any way and I finally found a place on the bottom of the magazine floor plate. A little keeper pocket was made by attaching clear isinglass, such as is used for automobile curtains, using small brass escutcheon pin rivets. Into this pocket I slipped a card on which is written my sight settings. It is an easy matter to turn the arm over and read the settings whenever wanted. I am attaching herewith a photograph of the trigger guard and floor plate referred to.

FRANK D. ELWELL,
Secretary, Moraine National Rifle Club.

ARMS AND THE MAN

1111 WOODWARD BUILDING, WASHINGTON, D. C.

SEMI-MONTHLY—ON THE 1st AND 15th DAY

Editor

BRIG.-GEN. FRED H. PHILLIPS, JR., Secretary N. R. A.

Associate Editor

KENDRICK SCOFIELD

Entered as second-class matter, April 1, 1908, at the post-office at Washington, D. C., under the Act of Congress of March 3, 1879.

That a man shall serve his country in time of war is noble, brave and patriotic; but that a man shall properly prepare himself in time of peace to serve in war is all of these things and more. It is noble with a nobility which is real, not ideal. It is brave with a bravery which assumes in time of unemotional peace many burdens, among them that of bearing the lack of appreciation of those who do not consider military preparation or training necessary.

THE OLYMPIC VICTORIES.

WORD that the United States Olympic Pistol and Rifle Teams won a sweeping victory at the Antwerp Olympiad need not occasion any great surprise to those who watched the tryouts which prefaced the selection of these two splendid teams.

The unofficial results of the shooting program indicate that the number of points accredited to the United States is 43. This is almost as many as the total points won by all other contestants. The members of the Olympic teams are to be congratulated on their victory. Such performances will serve to insure to this country her supremacy as a nation of marksmen. Such victories will stimulate rifle and pistol practice among civilians. The honor of being a member of an Olympic Team is one worth striving for, especially since the International teams which have so far represented the United States have built up traditions to live up to which demand the ultimate of skill. It may be that here and there in isolated instances, indifferently good shots have made international teams but such instances are exceptional and it is safe in most

cases to assume that membership on such a team as the Olympic is an unquestionable certificate of skill and a credential of marksmanship not lightly to be disregarded.

While the victories won by the United States Olympic Teams of 1920 are directly attributable to the individual straight shooting of its members, there are at least two important underlying causes which should be considered both at this time and also when Congress considers the question of sending our representatives to the next Olympiad. These are the selection of the team members and the equipment furnished them.

Fortunately, in the present instance, the tryouts were all that could have been desired. The aspirants for Olympic honors were of a sufficient number and were sufficiently representative to make certain that those who made either of the teams—principals and alternates alike—were the best shots who could be found among soldiers, sailors or civilians. As it also happened, by reason of cordial cooperation between the United States Army, the N. R. A., the U. S. R. A. and the firearms manufacturers, it was possible to send our marksmen overseas without the handicap of inferior equipment. The results of the Antwerp Olympiad proves that a careful selection of teams from the ranks of representative marksmen, plus proper arms and ammunition is a combination which barring bad luck, will spell victory for the United States in future contests.

Our national government should not be willing to leave to happy chance the equipment of Olympic teams upon whose members devolves the high responsibility of defending our national honor on the rifle and pistol range. Nor should these teams be permitted to go abroad with nondescript credentials, their expenses paid virtually by public contribution.

Rifle and pistol practice already has many friends in Congress. Each year sees new and important legislation of interest to riflemen placed on the statute books. But most of these laws are concerned only with the encouragement of rifle practice at home; they cannot always be invoked in favor of international teams. Therefore it is to be hoped that legislation will be enacted before the next Olympiad which will permit our teams to go abroad as the unmistakably accredited representatives of a government which is appreciative of the national prestige accruing from such victories as that which our teams won in the Olympic Games of 1920.

N. R. A. Matches on at Camp Perry

Camp Perry, Ohio, August 12.
(Special Correspondence to *Arms and the Man*)

WITH as large and enthusiastic a list of competitors as has been seen at a National Match Camp in recent years the competition program opened on the Camp Perry Range August 11.

Beginning with the Catrow Cup Match—one of the events taken from the Ohio State Association program—the National Rifle Association Matches with the Service rifle, and with the small-bore rifle as well are in full swing. The School of Instruction conducted as a preliminary to the government competi-

tions, closed August 10 after a completely successful session. As a result of the activities of the School, several hundred young men will return to their homes at the conclusion of the big shoot qualified to act as instructors in all branches of small arms practice.

The ruling of the Executive Officer permitting all team members who have attended previous National Matches to delay reporting resulted in many of the experienced riflemen taking advantage of this provision; therefore the camp did not take on its usual crowded aspect until after August 10, by which date practically all team members and unattached competitors were on the ground.

Camp Perry this year is better than it has ever been. The State of Ohio has enlarged the range so that it will accommodate all teams in attendance and the competitors camp has proved satisfactory in every way. The weather through the firing school period was excellent.

The United States Army Air Service will participate in the National Matches. This participation will provide the world's first competitive aerial shooting match and promises to be the most spectacular and unique event of its kind ever held.

The entry of the Army Air Service into this national event is two-fold. It will demonstrate the value of the Air Service in national defense and also will prove instructive to those who are privileged to view the ground and air exhibits.

The ground exhibit is extensive and comprises aerial photography, including a photographic map of the reservation, of which souvenir copies will be distributed; aircraft guns; aerial bombs; anti-aircraft guns; and all different types of airplanes "on the line." These airplanes will be fully equipped with regulation equipment and will be marked with placards indicating the type of plane, its mission, its armament, its speed performance and so forth.

One plane is equipped with eight machine guns, the only one of its kind so equipped in the world, and is a veritable flying arsenal. Future wars will be decided in the air or by the perfection and superiority of aerial equipment. Here one can see the synchronizing gears that allow a machine gun to be fired out through the revolving propeller of an airplane in flight and also the sights that are used in connection with these guns and those that are used in accurately dropping huge bombs from the air. Bombs weighing as much as 1,100 pounds or over half a ton filled with T. N. T. can be dropped from great heights with deadly precision by the use of sights now being perfected.

Again the wireless telephone and telegraph are exhibited and demonstrated. This feature of the recent tremendously successful First Annual Army Air Tournament at Bolling Field was one of the largest attractions. An exhibit and demonstration of the rocking nacelle used in the ground schools during the training of pilots and observers for the Army Air Service is being given.

Among the great exhibits is the automatic cannon. This is mounted on the nose of a well-known airplane where its range is very broad. This cannon is one of the most re-



The Port Clinton Trophy, the silver cup valued at \$350.00 which has been presented by the business men of Port Clinton and which was shot for on August 16, for the first time. The Trophy goes to the best civilian team of six bona fide citizens of the State they represent, the match calling for rapid fire at 200 yards and slow fire at 600 yards.

markable achievements of aircraft armament and is capable of firing 120 one-pound shells per minute.

The aerial exhibit will be the most thrilling to most of those in attendance at the National Rifle Match and it will include aerial acrobatics, competitive flights, closed course air races, wireless control of airplane formations and gunnery both from the ground and from the air. A specially equipped German Fokker D-7 airplane will be used in some of the wireless demonstrations. This plane was captured by the Army Air Service during the World War. Aerial maneuvers will be executed by the Army Air Service and there will be a sham combat in the air, during which all the tricks known to aviation will be demonstrated, including how to escape when cornered and how to fake, and then secure the control of an adversary and shoot him to earth.

The aerial shooting contest is the biggest feature of course. In this event firing at targets from rocking nacelles on the ground will be of extreme interest for it permits close inspection by the spectators. Then the actual fire from planes in the air will be directed against ground objects, silhouette targets and moving objectives. A strict count and judgment of these events will be arranged. Then there will be deflection practice against towed targets. As a final episode a grand attack will be staged in full tactical formation.

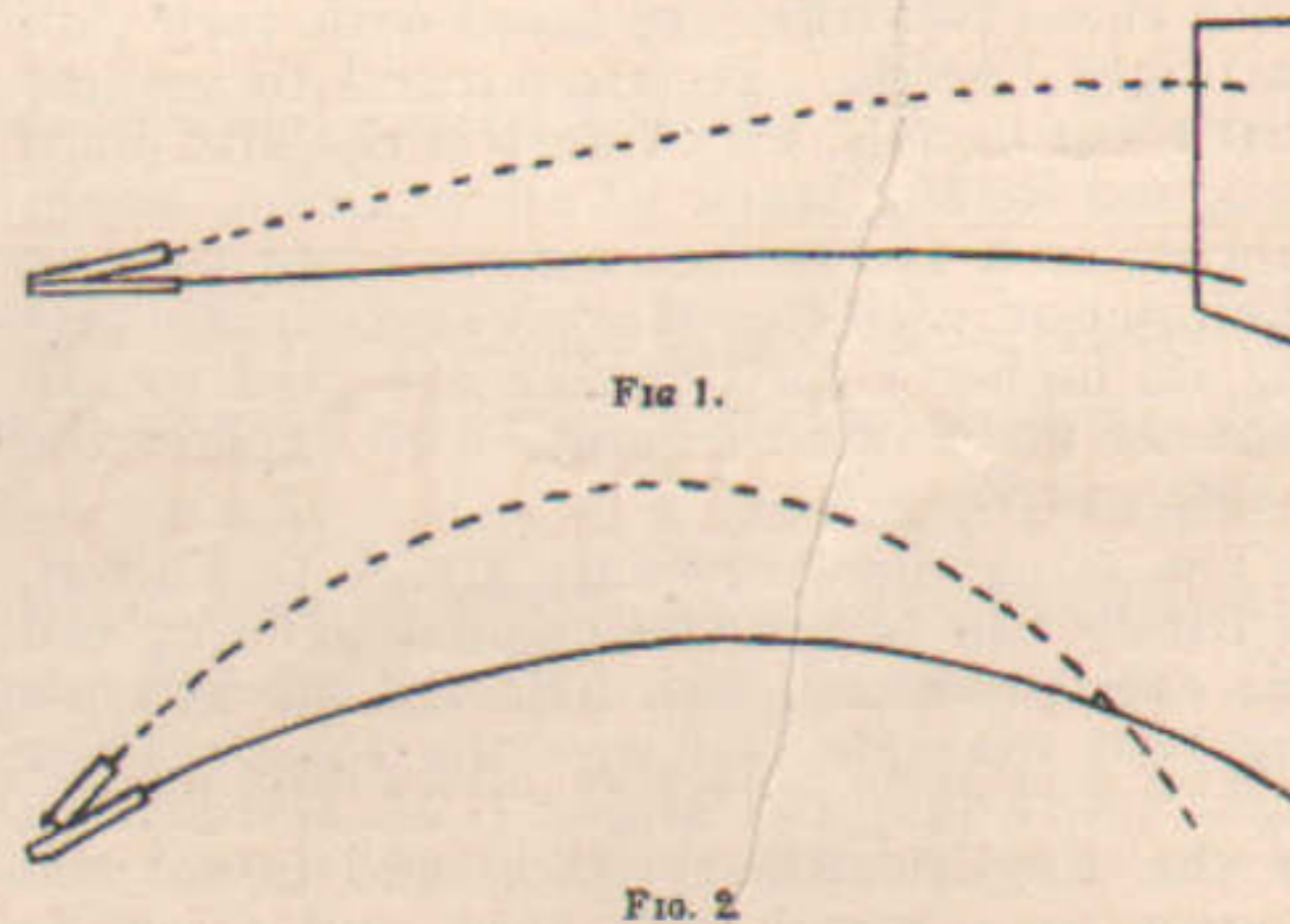
This event and the Army Air Service participation will be a history-making period in the case of both organizations and the success that is assured points to the value of "stretching a point" to attend.

The Best from Contemporary Sources

AS EVERY rifle shot is aware, Mark VII ammunition was used at the last Bisley Meeting for the first time in the history of the N. R. A., the results were most unsatisfactory, it being found that neither the Short rifle nor the old Long Service arm would shoot with anything approaching the accuracy

The New Mark VII Ammunition.

which was always both expected and obtained when using the Mark VI ammunition. This did not surprise the average competitor in the case of the Short rifle, because even this weapon's greatest admirers could never claim that it was one of real precision, and for this reason it had never made proper appearance at previous Bisley Meetings, although the Regular Army had been condemned to compete with it in the United Service Cup by the War Office. This was natural. It would have been an impossible position for the Military if the Army team competed with a rifle which had been replaced by an improved pattern. The man in the street would then think that the improvement was not a substantial one, and would have regarded the Short rifle with even more suspicion than he did already. The result was that the Army was severely handicapped, and if anything was proved one way or the other the accuracy reputation of the



The dotted lines indicate the trajectory of the low velocity bullet, and the continuous lines that of the high velocity bullet.

Short rifle was not enhanced. The war, however, showed that the S.M.L.E. was without doubt an excellent rifle for active service. The combination of this established fact and the almost universal arming of all units throughout the country with the Short rifle naturally caused the N.R.A. to fix on it as the essential weapon for competition at the first Bisley Meeting held since the war. But prej-

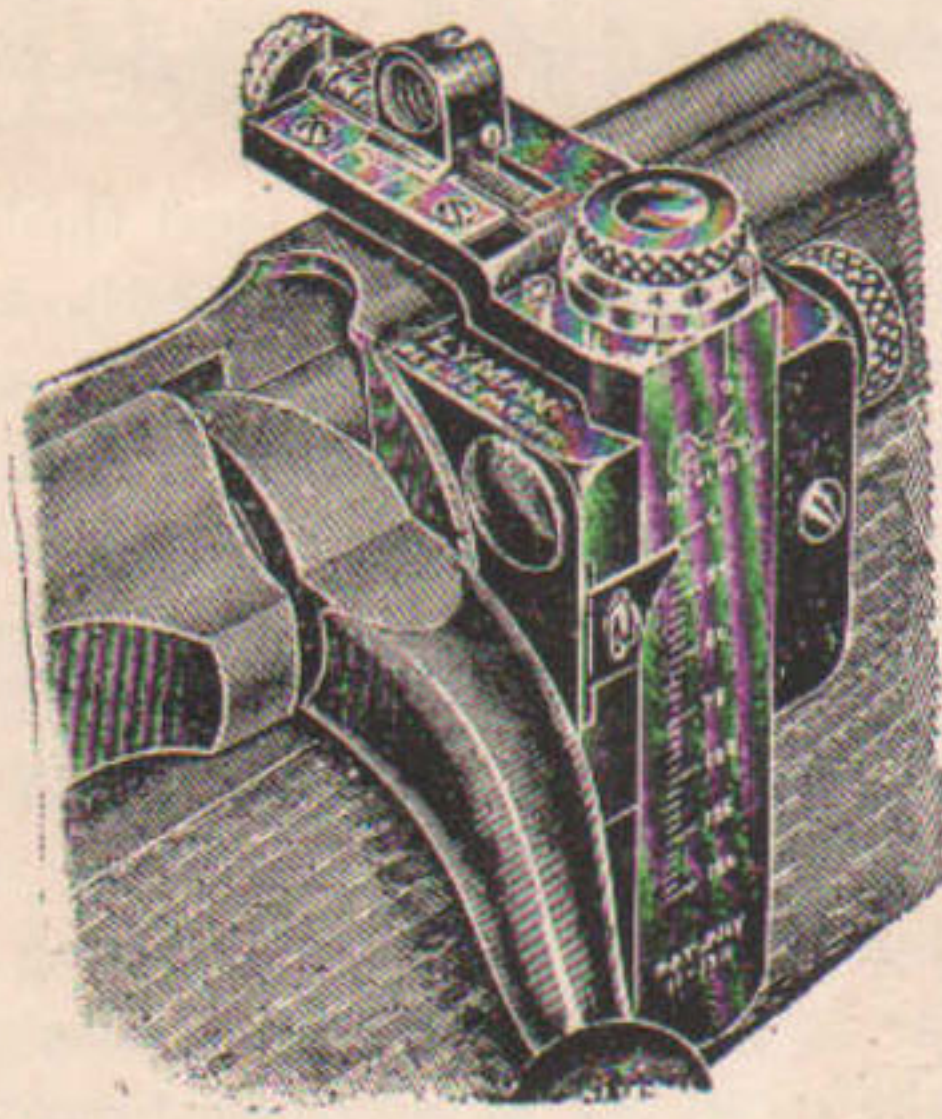
udice dies hard in England, and the old Long rifle was permitted in certain competitions. It is decidedly interesting to note that this arm was almost universally used by all sorts and conditions of competitors in preference to the actual Service arm whenever the rules of the competition allowed.

Accordingly, we found both the Short and Long Lee-Enfield rifles being used regularly at a Bisley Meeting for the first time, and, as already stated above, they were both used with Mark VII ammunition, also for the first time.

We make no apology for this somewhat lengthy recapitulation of fact, because a proper understanding of the past relative history of the two weapons is essential if the full significance of the results obtained is to be realized.

On account of the poor accuracy reputation of the Short rifle far fewer matches were fired at long range, the result being that a proportionally greater amount of interest attached itself to the short ranges. And this is where the great surprise and disappointment appeared.

No one complained of the Short rifle failing to shoot well. It was what everyone expected. But when the Long rifle failed everyone was up in arms at once. This was the weapon which had given such wonderful results in the past, and its latest failure came as a shock to its supporters. At 200 yards it shot no better than the Short. Good shots would suddenly get a low outer in the middle of a shoot. The direction would be all right, yet it was found almost impossible to keep to the inner ring as



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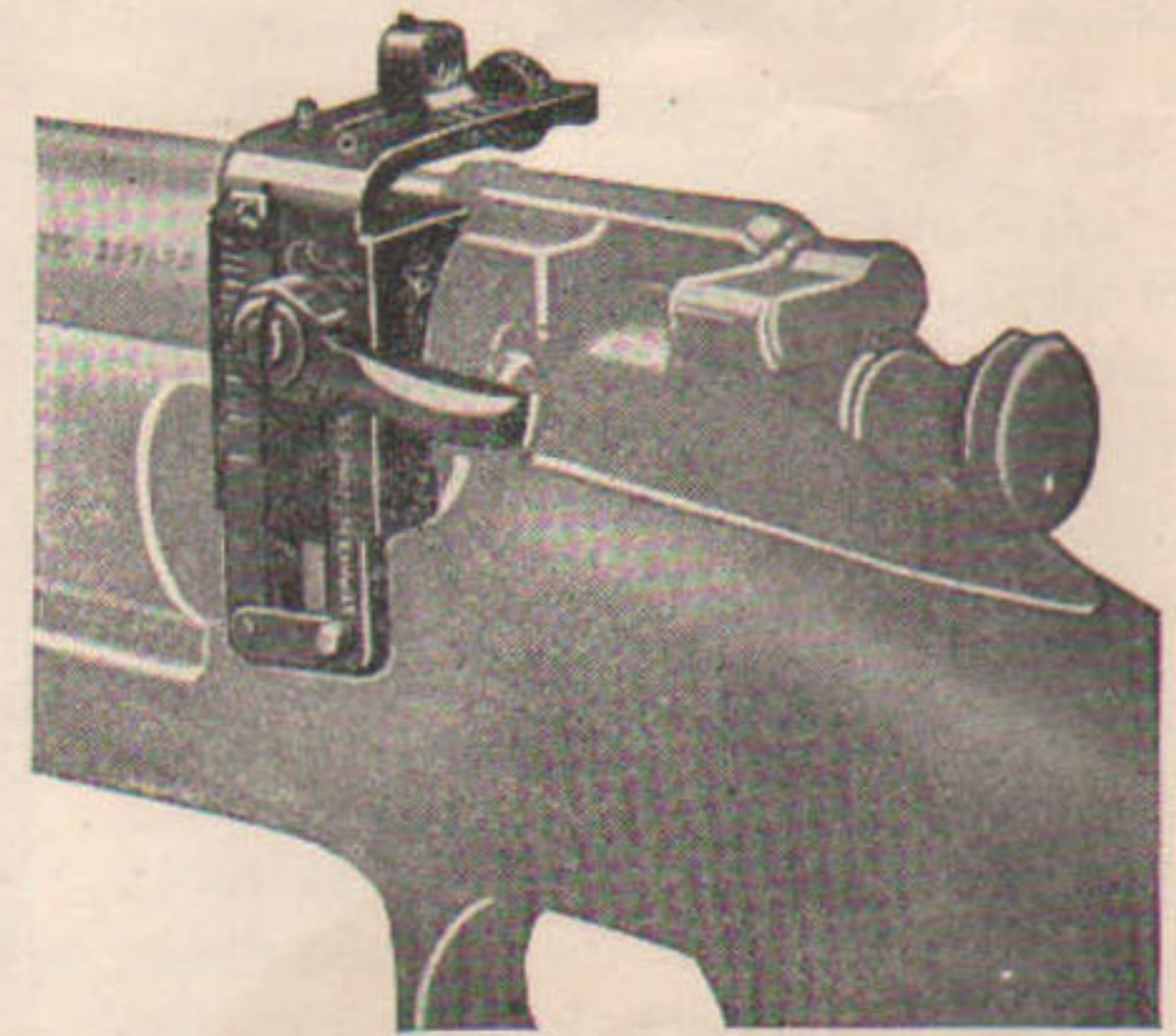
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far as elevation was concerned, and very often shots would find their way into the outer ring at six or twelve o'clock. At 300 yards this phenomenon was almost equally pronounced, but at 500 yards it was not so noticeable; although high and low shots were frequent, they were hardly ever found outside the magpie ring. At first everyone was astounded, and the ammunition was freely blamed. It is interesting to note that it was the quality of the ammunition with which fault was found rather than the type. The majority of men did not think of blaming the Mark VII, although this was its first appearance at Bisley, but rather assumed that the quality was bad.

The next surprise was that the Ross rifle shot as well as ever, though its use at the meeting was prohibited by the N.R.A. Council.

Then came the most surprising discovery of all. The Long rifle shot as well as ever at 900 and 1000 yards. The very rifle which could not with certainty hold the magpie ring at 200 would shoot almost perfectly at 1000 yards. This certainly seemed to knock the theory of faulty ammunition on the head, because everyone knew that the severest test for ammunition was long range work, and the existing supply seemed to pass this test fairly well.

By the end of the meeting it was an established fact that the Long rifle shot worst with Mark VII ammunition at 200 yards, at which range very high and low shots were of frequent occurrence. At 500 the results were better, but far from satisfactory; 600 showed an improvement on 500, and complaints were almost non-existent at 900 and 1000. The

Short rifle gave very similar results up to 600, but it was used so seldom at long range that no data could be established.

Long before the end of the meeting it was realized that the reason of this extraordinary behavior of both the Short and Long rifles would be found when the question of barrel vibration was more thoroughly understood. Both these two rifles are fitted with very thin and light barrels. It was natural to assume that these barrels, which were in the first place designed for the Mark VI ammunition, would vibrate to a far greater extent when used in conjunction with the Mark VII cartridge giving its higher velocity. We are glad to say that we are now in a position to explain the whole cause.

The actual discoverers are Mr. A. G. Fulton, of Bisley, one of the finest shots that England has ever produced, who followed his father's excellent example and won the King's Prize eight years ago, and Major J. H. Hardcastle, of the English Eight Club, who is so well known as a match rifle shot and scientific ballistician. Mr. Fulton carried out his experiments, when Major Hardcastle came to his aid with unrivalled scientific knowledge, and the result of the combination is that they have discovered how to make the existing Short rifle shoot, if not brilliantly, at any rate far more accurately than its greatest admirers could have hoped. Mr. Fulton has asked us to publish his results so as to enable all and sundry to prepare for the next meeting as soon as possible. The generous sportsmanship which prompted him to make known his dis-

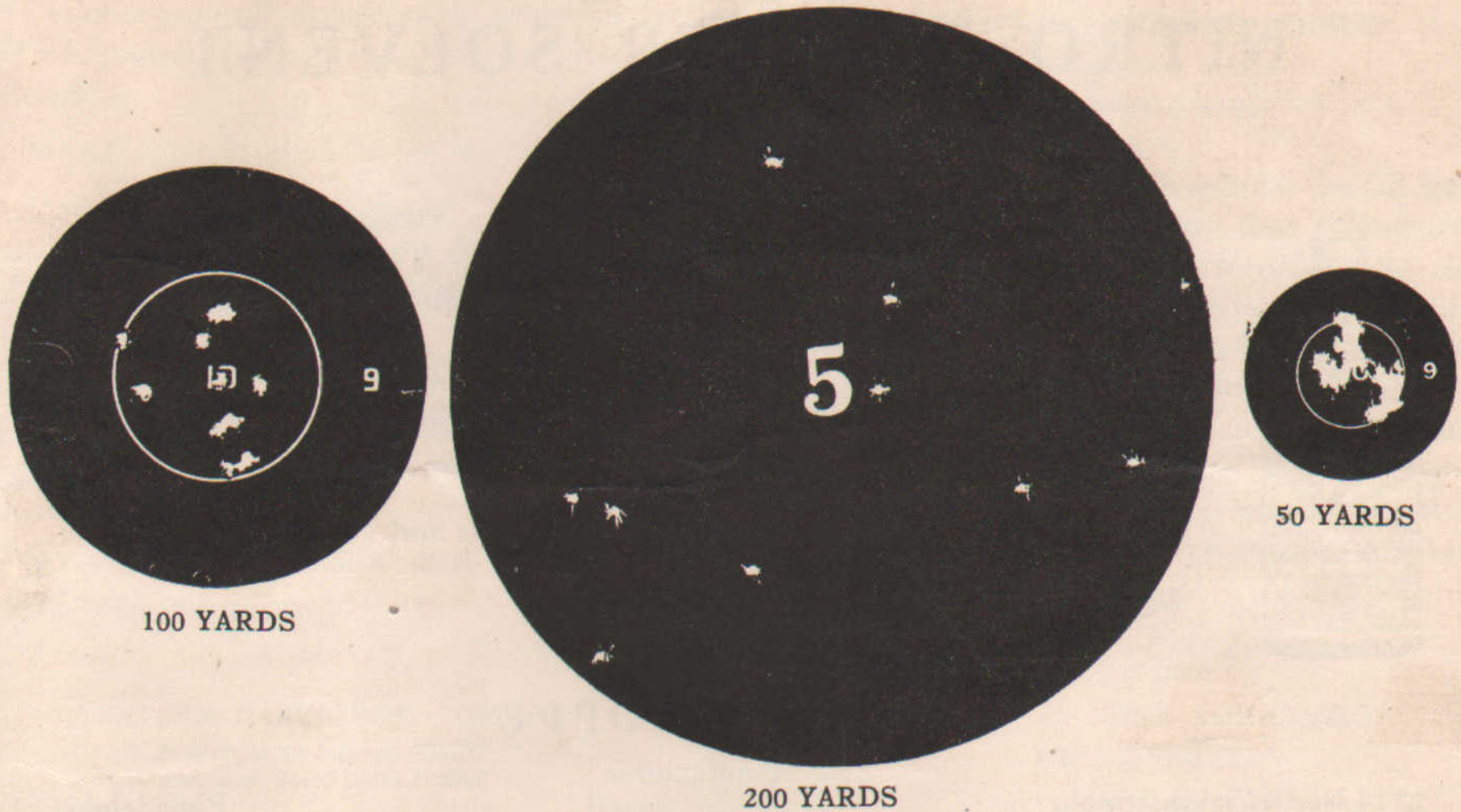
covery at once is an infallible indication of real greatness of character.

Mr. Fulton's experiments can be conducted by anyone. He fired a number of Short rifles at a range of 100 ft. Cartridges were loaded with the following charges of DuPont No. 16 powder, which was the propellant used at the last Bisley Meeting: 32, 34, 36, 38, 40 and 42 grains. The normal charge is 40 grains. Groups of three shots were fired with the same sighting at a range of 100 ft. Five different rifles were employed in this manner. The results obtained with all these five rifles were practically identical. They all shot highest with the lowest charge, gradually shooting lower and lower as the charge was increased. The mean of all five rifles was taken, and the result reduced to minutes of angle.

What do these results mean? The answer, now we have been put on the right track, is obvious. During the passage of the bullet down the bore of the barrel vibrations are set up which make the barrel bend. When the barrel alone is considered this bending is known as "jump", but when the combination of the barrel and action are considered together it is known as "flip." In the particular case under consideration the barrel bends downwards and springs up again as the bullet passes down the bore. This is the "flip" of the S.M.L.E. rifle.

Now the greater the charge the greater the velocity, and the higher the velocity the quicker the bullet travels down the barrel. The result is that when the bullet is travelling

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Due to the limitation of space, these targets are reproduced half-size.

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Writing of the exceptional results obtained with the U. S. .22 N. R. A. Cartridge, Mr. Stokes says:

“Since the Caldwell Small-Bore Shoot of last year, I have been endeavoring to secure a combination of rifle and ammunition that will actually and consistently shoot 1 in., 2 in. and 7 in. groups at 50, 100 and 200 yards, respectively. Using a Peterson barrel in a Ballard action I have been able to get occasional “possibles” at 50 yards, but have been uniformly unsuccessful in getting satisfactory results at 100 and 200 yards, although twenty lots of ammunition, representing five makes, were tried. What I want to let you know is that the new run of U. S. N. R. A., crimped, has produced the results which I had begun to despair of ever obtaining.”

“The targets which I am forwarding under separate cover tell the story. These targets were made with the new U. S. .22 N. R. A. Cartridge, firing done strictly according to N. R. A. match rules, steel sights used.”

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down the bore at its maximum speed it leaves the muzzle before the barrel has had time to spring back after the downward bend produced by the "flip." When the bullet is travelling most slowly down the bore the barrel has had time to recover its position to the greatest extent, and therefore in this case the bullet actually leaves the muzzle when the muzzle is pointing in a more upward direction. In other words, the result of the "flip" is that a high velocity bullet leaves at a low elevation, while a low velocity bullet leaves at a high elevation.

The effect.

Now at 200 yards the trajectory of a Mark VII bullet is very nearly a straight line, even when propelled at a comparatively low velocity due to underloading. The effect is best explained by the accompanying diagram (Fig. 1.)

It is obvious that the effect on the target is an unaccountable high shot for the underloaded cartridge and an unaccountable low shot for an overloaded one.

Let us now consider these same trajectories when the rifle is given a considerable elevation for long-range shooting. The "flip" is the same, and so the difference in the two angles of elevation at which the bullets actually depart from the muzzle is the same as before. Now it is obvious once more that the bullet with the higher velocity will have a flatter trajectory than the one which travels more slowly. Accordingly, if the rifle is given sufficient elevation, there will come a time when the two trajectories will cross, as shown in Fig. 2.

This means that at the particular range at which the two trajectories cross the "flip" of the rifle automatically compensates for variation of velocity, so arranging matters that an extra high velocity bullet is delivered at a slightly lower angle than normal, while an

extra low velocity bullet is sent off with a higher elevation than normal. The effect of this automatic compensation is that overloaded and underloaded cartridges both deliver their bullets on exactly the same spot on the target at this particular range.

A similar set of experiments carried out with several Long rifles proved that the "flip" of the Long rifle had an almost identical effect as that of the S.M.L.E.

Actual experiment and calculation fixed the range at which the two trajectories cross—in other words the range at which automatic compensation occurs—as 900 yards.

The practical effect of the "flip" of the Long and Short Service rifles is a complete explanation of the variations in shooting which proved so puzzling last Bisley.

The normal charge is 40 grains. A 39-grain charge requires about $\frac{1}{2}$ minute more elevation at 200 yards to hit the same spot to compensate for its lower velocity. Owing to the "flip" the S.M.L.E. gives a 39-grain charge nearly $2\frac{1}{2}$ minutes more elevation, and in consequence the resulting shot is 4 inches too high at 200 yards. If, however, the range has been 900 yards the compensation would have been perfect, and a central bull would have been scored with both charges.

Charge variations of a grain are of frequent occurrence in ordinary military ammunition, while every now and then a larger error would account for the wilder shots.

The theory of compensation is by no means a new one. The first allusion to it of which we are aware is made in *The Book of the Rifle*, by Hon. T. F. Fremantle (now Lord Cottesloe) in 1901. On page 318 the author says: "It might be advantageous to arrange for the exit of the bullet to be at such a period" (of the vibration of the barrel) "as would cause it, if delivered with a velocity somewhat below the

normal, to be directed at an angle slightly above the normal elevation, and conversely."

The Ross Rifle Company has also taken advantage of this fact in designing their 280 rifle. The fact that their 303 rifle shot so well at short ranges at Bisley last year does not mean that these rifles are necessarily compensated, although this may be the case. Their heavier barrels would produce a different kind of "flip," which might not so affect the trajectories at the shorter distances.

At the present moment we have only the particular "flip" of the Short and Long Service rifles under consideration, and so it is unnecessary to discuss the peculiarities of other rifles.

It only remains for us now to see how Mr. Fulton overcomes the difficulty of irregular shooting at short ranges. The ideal Service rifle is identical with the ideal sporting weapon in one great essential. Both should shoot absolutely accurately with the ammunition provided up to 300 yards. It matters not in the least whether the rifle will shoot faultlessly at 900 or 1000 yards if it cannot place its shots into a small loophole at 150 yards. No sane man would consider a successful shot at a human being at 900 yards under Service conditions as anything but a colossal fluke, but it is not too much to expect a rifle to place ten consecutive shots in an area the size of the human head at 200 yards. This is just where our present arm fails most lamentably, but by exercising a judicious control of the barrel vibrations an enormous improvement can be obtained.

The most obvious means of controlling this barrel vibration is by altering the support which the barrel receives along its length, but exactly how to alter this support so as to obtain the desired result is an exceedingly difficult problem. Science put Mr. Fulton on the right track, but even so he did not succeed

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and her confidence in them—borne from past experience—was a factor which aided very materially in the result.

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Contains score sheets suitable for all forms of small-bore shooting, so that riflemen can keep all their scores and records as to sight adjustment and weather under one convenient cover. The book also contains all the practical information necessary for expert shooting with any of the more popular or suitable small-bore rifles, and is based on actual firing by Major Whelen, and *not* on usual information as to ballistics, hence is *practical* and *reliable*.

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HEADQUARTERS

CAMP PERRY, OHIO

until the seventeenth attempt. He considered he had succeeded when the rifle which he had doctored showed no variations in elevation when fired with differently loaded cartridges at 100 ft. This meant that "flip" was practically eliminated. As a further test he fired several series of ten shots at 200 yards with most satisfactory results. The means by which Mr. Fulton obtained this end were as follows:

The fore-end was slightly scooped out so as to leave bearing surfaces at only two points. Each bearing surface should be about an inch in length, and their centres should be $4\frac{1}{2}$ inches, and $9\frac{1}{2}$ inches respectively from the muzzle. Support for the top of the barrel was obtained by packing the hand-guard with sheet cork. This packing should not be too tight, but sufficiently so. This sufficiency can be judged by feeling the necessity of employing slight pressure with a finger when fitting the handguard on to the arm. Each packing should be about an inch in length, and there should be two in number, one actually at the muzzle and the centre of the other $6\frac{1}{2}$ inches from the muzzle. The middle band should be fitted as usual. The spring and stud support underneath the barrel near the muzzle should be taken out, as the barrel should not be supported from below so near the muzzle.

An ordinary S.M.L.E. treated in this manner should show an enormous improvement in shooting at short ranges, but, of course, it is quite possible that every rifle will not require identical treatment. The test of success is to obtain an assortment of differently loaded cartridges and shoot them at 100 ft. If there is no variation in elevation all will be well.

It will not be found possible to doctor a Long rifle in this manner owing to the absence of the handguard covering for the entire top

length of the barrel, but it should be remembered that an ordinary Long rifle automatically compensates variation in velocity at long range, so the ideal combination for Bisley this year would seem to be an undoctored rifle (Short or Long, according to the rules of the competition) for long range, and a corrected rifle for distances up to 600 yards. By this means the effects of variations in loading should be reduced to a minimum.

It is not contested for one instant that even a corrected S.M.L.E. will ever give the very fine shooting at short ranges which was obtained with the Long rifle and Mark VI ammunition, which combination had the effect of almost eliminating "flip", but unaccountable shots, high or low, should be eliminated. This would undoubtedly be a vast improvement on the results obtained by the existing combination of Service rifle and ammunition, and the thanks of all interested in the rifle are due to Major Hardcastle and Mr. Fulton for their most important discovery.—*The Field, The Country Gentlemen's Newspaper.*

ARE Sights necessary when shooting the rifle at moving targets? "Ad" Topperwein who is one of the best known fancy rifle shots is emphatic in his statement that they are:

"I have been asked this question a thousand times," he says.

"I have answered the question a thousand times by saying that *I positively do.*

"A great many people who follow the shooting game are under the impression that it is utterly impossible for a shooter, no matter how expert he may be to actually 'catch and line' up the sights on a fast moving target and that all such shooting as hitting small pieces of coal, brick, marble, etc., in mid-air is

simply done by 'instinct' which they claim is acquired by constant practice and that the performer does not see his sights at all.

"Some wise ones even go as far as saying that a good man with lots of practice could shoot just as well if he knocked the sights off his gun and just shot by simply pointing the gun, like one points the finger.

"The sights of a rifle or revolver are put there for a purpose, a very important purpose. They are just as necessary as the rifling in your barrel. Not only must you have sights, but they must be adjusted accurately to make your bullet go straight to the mark. A rifle without accurate sights is absolutely useless as far as accuracy is concerned, even in the hands of the most expert marksman.

"When you meet up with a shooter who claims that he does not use or see his sights, ask him to knock them off. Then watch him shoot. This will tell the story.

"Snap shooting at moving objects with a rifle or revolver is only accomplished with a great deal of steady practice. The eye, brain and finger must work together in perfect harmony and the most important factor is the gun which must be *accurately sighted.*

This is not for the "Old timer," it is for the beginner. If you have already learned to use and love the service rifle, or the high power hunting rifle, this will be "old dope." But for the beginner, the care of high power rifles cannot be too often emphasized.

When a high power rifle is fired, several things happen. The primer explodes, due to the blow of the firing pin. The flash from the primer ignites the powder, which starts to burn at a rapidly accelerating rate. As soon as the pressure has become sufficient, the bullet starts from the shell and slides down the barrel with increasing speed, followed by a rushing column of white hot gases and burning



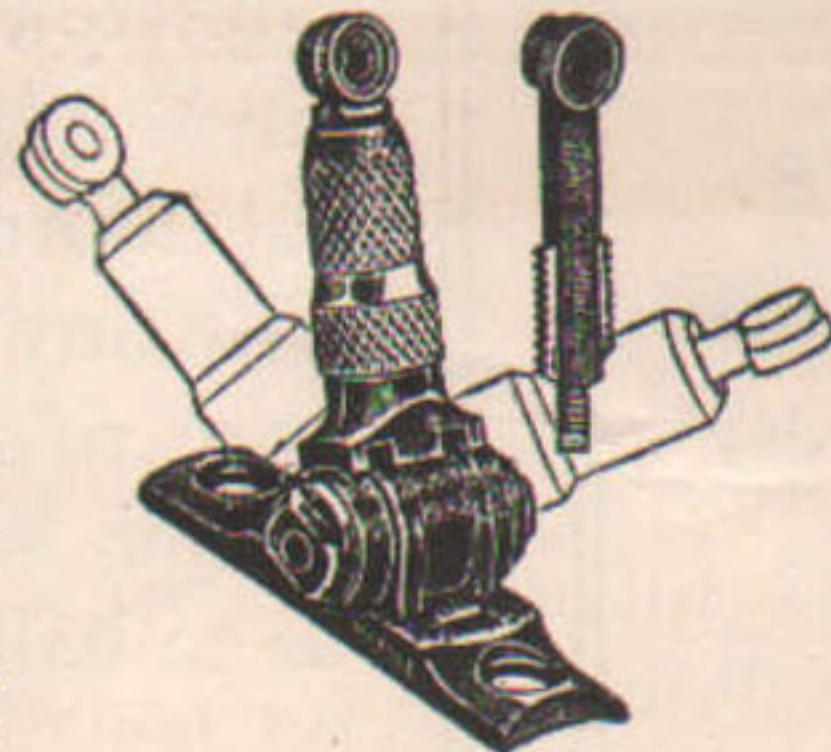
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who know the absolute necessity for removing every vestige of smokeless powder residue from firearms gave Pyramid Solvent exacting tests for over a year.

Pyramid Solvent

more than made good. All agree that it dissolves residues and loosens metal fouling easily, quickly.

After Pyramid Solvent use 3-in-One Oil to prevent rust and to lubricate.

Pyramid Solvent is for sale by most firearm dealers, 3 ounces in a convenient flat can that fits pocket or shooting kit, 35¢ per can. If your dealer can't supply you, send 35¢ and we will send you a can postpaid.



Three-in-One Oil Co.
165 AKG Bdw., New York City.

powder grains. When the bullet leaves the muzzle, the gas expands at a tremendous rate, causing the report. The wear on the barrel is caused not only by actual friction of the bullet against it but the cutting effect of the hot gases and burning powder grains, which is known as erosion. It is an interesting fact that, providing the rifle barrel is carefully cleaned it will last for many thousand shots, but the best cared-for barrel is usually worn out when the aggregate time used by all the bullets passing down the barrel is well under three seconds.

In cleaning high power rifles, two things are of great importance: Cleaning the rifle as soon as possible after the last shot is fired, and cleaning it again the next day.

A proper cleaning outfit consists of a good stout rod, preferably of steel, some nitro solvent oil, a brass bristle brush and some flannel patches which, when used with the rod above mentioned, will fit the barrel fairly tight. The first procedure is to scrub the barrel thoroughly with a brass bristle brush which has been dipped in nitro solvent oil, then let the barrel stand for about ten minutes; in the meantime wipe the action and other metal parts of the gun with an oily rag. Scrub the barrel out with a number of cloth patches. If you can cause the barrel to become actually warm to the hand during this operation, it is well to do so. Then pass a rather loose-fitting patch which has been soaked with nitrosolvent oil through the barrel and put the gun away until the next day. You may notice on the second day an effect which is known as sweating out. This is a brownish coating on the inside of the bore which comes out with the first patch. The second day's cleaning should be along the same lines as the first day, but of course it is not necessary to scrub it so much with the brass brush or with the patches.

Be sure, however, that the last patch that passes through the bore is soaked with nitro solvent oil so as to leave as much as possible in the bore.

A high power rifle should be inspected on several successive days thereafter to make sure that the cleaning has been thoroughly done.

You may notice after a number of shots have been fired that the ordinary cleaning as outlined above does not seem to remove various patches of fouling distributed along the barrel, usually near the muzzle. That is what is known as metal fouling, that is, the bore has rubbed off some of the metal jacket of the bullet. This deposit is composed of a mixture of copper and nickel in rifles such as the Government Springfield, and a mixture of copper and tin in most hunting rifles such as the 30-30 or .30 Remington. There is only one satisfactory method of removing metal fouling and that is by the use of ammonia solution. This solution is made up as follows:

Ammonium Carbonate.....	200 grs.
Ammonium Hydrate.....	6 ozs.
Ammonium Persulphate	1 oz.
Distilled water.....	4 ozs.

It should be made fresh, as it loses its power and will actually damage the bore if very stale. If kept in well corked bottles, it will be satisfactory for use for two or three weeks after mixing. To use this mixture, plug up the chamber with a wooden or rubber plug, then fit a piece of rubber tubing over the muzzle, say three inches long. Pour the mixture into the barrel slowly until it fills up the barrel and the tubing one inch above the muzzle. Allow to remain from 15 minutes to one-half hour. Pour out and thoroughly clean the barrel with dry patches. If this solution is blue in color, it indicates that some or

probably all of the metal fouling has been dissolved. After the barrel has been thoroughly dried out, it should be oiled with a nitro solvent oil and inspected the next day. If the inspection the next day does not reveal any sign of sweating out, the barrel can then be greased and laid away indefinitely. Users of the Government Springfield rifle will be interested to know that a 20-gauge shotgun shell with the base cut off is an excellent substitute for the rubber tube at the muzzle.

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By Lt.-Col. Townsend Whelen

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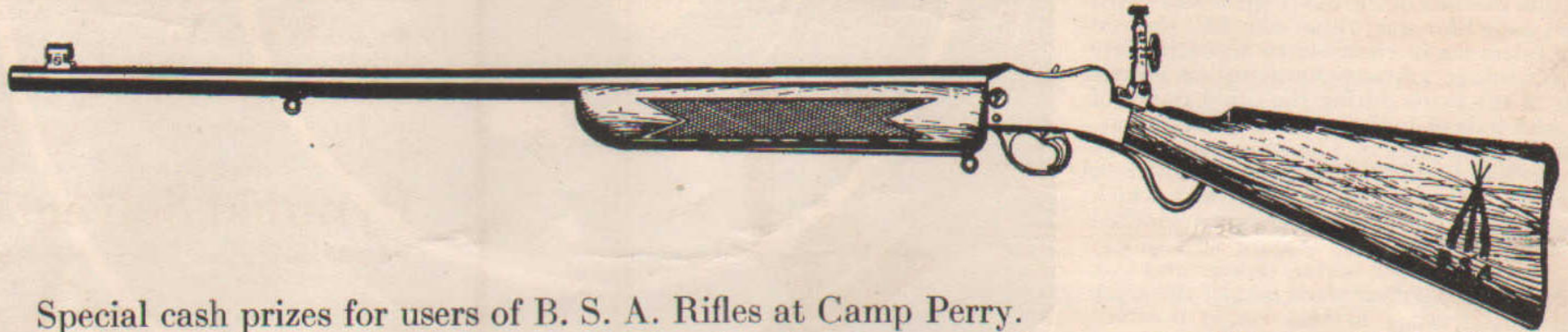
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The B. S. A. Match Rifle, Model No. 12

was first in 16 out of 18 of the single entry matches, first in most of the re-entry matches, all the team matches, and won 98 per cent of all the prizes.

In the 29 matches there were over 300 competitors all free to use .22 rifles of any make, and rifles of all the well known makes were used. All the shooting was outdoors without sighting shots, and the winning scores have never been excelled here or elsewhere.



Special cash prizes for users of B. S. A. Rifles at Camp Perry.

If you use a B. S. A. Rifle you will be shooting for something worth while in addition to the N. R. A. prizes.

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SHOOTING NEWS AND COMMENT



A PLEA for the retention of the older type Winchester rifles and some interesting facts about Capt. Howard L. Harker, the Baltimore shot, come from W. M. Pugh. He says:

"A Western magazine of recent issue, intimates the Winchester people expect before 1921 to discontinue the making of several models of their rifles, favorably known in years past. Just what models and calibres to be included in this list is not made entirely clear but those who know the Winchester line will hope that no radical changes are contemplated. Rifle shooters who have been much afield, generally are strong for Winchesters, each one has his own particular model and this scrapping business is sure going to upset lots of us old-timers who used, knew and liked Winchester rifles, in one or more models and calibres.

"Particular pets have been the 1886 model in light weight .45-70 and .33 calibres; 1895 model carbine in .30-40 calibre; 1894 model in .30-30 and the great old carbine of 1873 in .44-40.

"I have handled the models above noted and am free to say they proved faithful under severe test; only last spring a friend, Mr. Briggeman of the Maryland Rifle Association,

had a stock grade Winchester .30-40 1895 model out to my place for testing. This rifle had been carried and used hard for 2 years in remote frontier localities, a bit neglected too as to prompt cleaning after use, indeed once carried for near 3 months with no cleaning at all; this rifle worked smooth, quick and certain and over my short home range gave scores equal to a fine star-gauged Springfield, in the hands of four of our crowd, visiting that day, all of them fine rifle shots; thereafter we all talked about this splendid old rifle for hours. Nor is this an isolated case as I have had intimate knowledge of both the 1894 and 1886 models giving this satisfaction during and after years of use, afoot and on horseback.

To support these statements I would quote from the words of a friend, visiting me last year, one who had covered some of the hardest trails as a railroad constructor on bridge work through Alaska, Southern California and Idaho; doing a bit of hunting in between times, frequently for the necessity of needed meat and a splendid game shot; asked as to his dope about rifles most used through these sections, by those roving about: hunters, prospectors, trappers and railroad men, my friend Charlie got this out of his bulky frame:

'I tell you Bill it's the old Winchester 1895, with Krag cartridge for men and others of my set all the time; nothing gets by if you hold true and shoot quick, even at long range after mountain sheep. They all tumble in the bag when the old 95 Winchester barks'. And I could say to Charlie 'Me too' for a small bit of this country I had ridden over about 1881 and found most of them Winchesters only then it was the old .44-40, yet this lighter powered gun got the game just the same; shorter range of course but then there was so much game you hardly had to put up an effort to sight it, that could be termed hunting effort; 50 to 150 yards the range then and the old 73 carbine would crumple them up every time, when 'Mr. Right' pulled the trigger.

"In closing let us all root for the retention of these good Winchester game getters, long worthy of the name of the best we know. 2.75% is even now hull down on the horizon, soon to pass away entirely and Winchesters must not go into the discard or the places will all be lonely indeed.

Captain Howard L. Harker of Baltimore, Reserve List, has gone to Perry, there to report and connect himself up with the shooting stunts, being pulled off on this old camp ground. The captain had charge of some of the pistol instruction at Camp Benning during the recent big tussle. Then he taught many of 'the Young idea' how to hold, sight and pull, picking up himself much knowledge of the game and how to conduct matches.

"I had the captain out my way this afternoon, to find out if his trigger finger retained its wiggling possibilities and no doubt on this score need be entertained. The Captain sure did give us all a fine exhibition of classy hand-gun work. Lenz and Bash of the Maryland Rifle Association were present and saw the

performance. Shooting was made from a distance of 17 yards on 20-yard S. A. target. We could not get the full 20 yards on account of ground formation. Any way at this distance Captain Harker fired with a 1917 Colt New Service .45 auto calibre, a beautiful score of 96 per cent. Then he fired a 94 per cent with my own Colt .45 auto pistol; winding up with 92 with S. & W. 10-inch .22; so we had all kinds and sizes, something to please each of us and nothing to kick about. The guns and the man shot true to form and as the Captain had only fired once before during the past year at range or other firing, being thereby entirely out of practice, his firing is all the more praiseworthy.

"The score of 94 with Colt .45 auto caused most comment; many think this arm is not accurate and their opinion has value perhaps in relation to some of the hurry up arms turned out and issued for war; these war .45's showed a large tolerance in chamber to accommodate the war vintage ammunition, causing erratic seating of the loads during the rapid throw of slide; with axis of bullet not always the same, thus showing targets of wide dispersion; then too these war pistols had trigger pulls of 5 to 10 pounds. My own .45 auto Colt with which Captain Harker fired has had trigger smoothed down to near 4 pounds, smooth and quick, break, barrel chamber boring tighter and this fine auto has more than once turned the trick at short pistol range in best target revolver class. Of course with its short barrel and sighting base it does not do this at 50 yards.

"Another wonder gun is that New Service 1917 Colt with which Harker made 96; this is a real war gun, was taken overseas and is as rough as an old Man-o-warsman, yet the working of the gun after some smoothing of action by owner is first class, and as to the barrel accuracy, compared with any of the dozens of pistols brought out to my place for test Saturday afternoons by the boys, well the Colt is ready any time for a match."

MORE about .44 Remingtons: this time it comes from Henry Walter Fry, the Englishman whose stories on small-bore shooting abroad have proved so interesting. Commenting on the recent article by Frederick Mears, Mr. Fry says:

"Mr. Mears' account of the conversion of his old .50 calibre Remington pistol to take the .44 Russian Model cartridge was very interesting to me as I have just had one of these old pistols converted in the same way, but to take the ordinary .38 S. & W. cartridge.

"I wanted it .38 calibre and at first was uncertain as to which of the two cartridges I should have it chambered for, .38 Special or .38 ordinary, but finally decided for the latter, believing that in a barrel specially chambered for it that it was fully equal to the .38 Special in accuracy when loaded with smokeless powder.

"The work was done by Peterson of Denver, and is fully up to that celebrated gunsmith's high standard. Like Mr. Mears' pistol, mine has a ten-inch barrel and finely cut Patridge sights but the original barrel and fore-end have been left unchanged.

"It is a wonderfully accurate arm and my estimate of the shooting qualities of the ordinary .38 S. & W. smokeless load has proved to be a correct one. Trying it out at 50 yards three or four weeks ago I made the enclosed ten-shot group firing from seated rest, that is to say seated on the ground with back against club house wall, pistol grasped in both hands and held between bent knees, barrel left free for natural recoil, a perfectly steady hold and inferior only to a machine rest as a way of trying out a pistol.

"You will see that seven of the shots are bunched into a 2-inch group and the other three not far away. Not half bad I think, as we say in the old country.



Target made by Henry Walter Fry, 10 shots, 50 yards, Remington Pistol, 10-inch barrel. Remington U M C., .38 S and W Smokeless Ammunition.

"In my opinion the .38 pistol cartridge which contains greater shooting possibilities than either the .38 Ordinary or Special S. & W. is the old .41 short. This sounds like a contradiction in terms but really is not, as the inside diameter of the 41 Short is .386, so that it is more truly .38 calibre than either of the others whose bullets measure .358. I believe that loaded with $3\frac{1}{2}$ or 4 grains of Bull's-eye and a bullet of 200 or 220 grains and fired from a pistol or revolver specially chambered for it that it would show a fine target accuracy, while as a game cartridge it would have greater killing power than the .38 special on account of the greater striking area of the bullet. As a matter of fact the .38 Special is a black powder cartridge, so is the .41 Long, and neither of them is so suited to burn the high power condensed smokeless powder now used in pistol cartridges as the Short cartridges in the same calibres."

RECENTLY there was published an account of a run of 68 bull's-eyes straight at 50 yards made by Capt. D. V. Ashley, I.S.A.P., 4th Infantry, N.G.N.Y.C., says L. C. Freehauf, Secretary of the Ancon, Canal Zone, Rifle and Pistol Club.

"One of our members, Mr. H. W. Gerrans, of Balboa, Canal Zone, decided that this record was not to stand, and on Sunday afternoon, June 20, 1920, at the range of the Ancon Pistol and Rifle Club, Balboa, Canal Zone, made a run of 95 consecutive bull's-eyes (50 yards), missing the 96th shot with a close 4.

"Mr. Gerrans' shooting was witnessed by several members of the club, two of whom signed the targets. Should you desire to see the targets, we will be pleased to furnish them.

"Captain Ashley's performance was made indoors, so we understand, while that of Mr. Gerrans was made outdoors.

Following are the particulars of the 95 bull's-eyes straight:

Range: 50 yards.
Sighting: Bull's-eye, 3-inch.
Scoring: Bull's-eye, 2-inch.
Rifle: Stevens No. 414, regular equipment.
Outdoors: Light, bright for first 30 minutes, very dull for last 50 minutes.
Time taken to shoot and change targets: 1 hour, 20 minutes.
Time taken to change targets: 30 minutes.
Actual time of shooting: 50 minutes.
Position: Prone on ground, without artificial rests, arm clear and using sling on rifle.
Weather: Good for part of time followed by gusty wind varying from 3 to 6 o'clock.
Ammunition: U.S.R.A. Long Rifle .22 calibre.
Number of targets used: 10.
Number of shots on each target: 10.
Score: 95 consecutive bull's-eyes scoring 5. 96th shot a close 4."

JOHNN LYNN'S article on rapid fire scoring and the comment by Stewart Edward White thereon has brought a suggestion from F. L. Bachelder of Houghton, Michigan:

"Speaking of rapid fire scoring systems" he says "how about determining the score by dividing the actual target score by the number of seconds taken to shoot the string. This method is, I think, original but seemed to work satisfactorily. I would like someone to try it and give an opinion. Maybe the law of inverse squares has a bearing. Ask Bevis.

Facts About Hercules Powder THAT YOU SHOULD KNOW

Nearly all riflemen have read about the Hercules win at the Official Ammunition Try-out held at Sea Girt, N. J., for the purpose of selecting the ammunition for the use of the Olympic Rifle Team. They know that the make that won the test was represented by two samples of cartridges loaded with different makes of powder that compared in accuracy as follows:

	inches
Mean Radius at 600 Yards.	
Cartridges loaded with a Competitive Powder of latest design.....	4.10
The same make of cartridges loaded with Hercules Powder.....	3.41
Advantage in favor of Hercules.....	0.69 inches or 20.2%.

This means that the ammunition loaded with Hercules Powder was 20 per cent more accurate than its competitor at 600 yards. Not once or twice, but for 300 consecutive shots. Both lots were loaded with exactly the same weight, shape and type of bullet. They were fired from the same machine rest, under identical conditions, by one individual and in the presence of the best ballistic experts in America.

It is doubtful if any other official ammunition test on record ever proved such an overwhelming superiority in accuracy for one make of powder.

The bull's-eyes are the shots that count. Remember this when you buy ammunition.

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THE question of utilizing miss-fires has been given careful attention by Charles J. Chamberlain, Secretary of the University of Chicago Rifle Club. Dr. Chamberlain seems to have solved the problem of preventing loss of ammunition by reloading such shells. Incidentally his observations should prove of interest to riflemen in general. Dr. Chamberlain says:

"During the early part of the war this club obtained all the miss-fires from a nearby government range.

"More than 20 qualifications have been made with my Springfield with ammunition which I have reloaded. We pull out the bullet of the miss-fire and use the powder, weighing carefully. You may be interested to know that in about 2,000 miss-fires, 6 were found which had *no powder at all*. In 3 cases, there was so much powder, that the grains were crushed by the seating of the bullet. In many cases the variation from the normal charge was more than 20 per cent. In most cases the powder next the primer was reddish in color, but not damaged, for ammunition reloaded entirely from this discolored powder, was perfect for target purposes. Much of this ammunition was F. A. 3 and 4, 1917.

"My colleague, Prof. W. J. G. Land, has reloaded more of this ammunition than I, and has kept careful records. This may be familiar to you, but I thought the data on the reloading of several thousand miss-fires might be of interest."

THAT an expert rifleman will sometimes so far forget himself as to violate game laws when a particularly difficult and enticing mark is presented is evident in a story which comes from a United States Game warden in New York State. There is no excuse for violations of the kind recorded in this instance

but the incident is interesting from the standpoint of long-range shooting.

The warden's report shows that the affair happened at the east side of the Kensico Reservoir, one of the great artificial lakes that furnish the water supply for New York City. A loon had been feeding near the shore and the officers had been watching it and marveling at the length of time it stayed beneath the surface. The bird had worked out until it was at least three hundred yards from the shore line, when a rifle ball was seen to splash close to it.

To kill or attempt to kill one of these birds is a violation of the Federal Migratory Bird Treaty Act and of the State game law. It is also a violation of the state law to shoot game on any municipal water-works properties, as they are set aside as sanctuaries for all species of wild life. Naturally, the officers were interested in apprehending the shooter.

The loon dove and came to the surface approximately one hundred yards farther out. Another rifle ball struck this time very close to the bird. The bullets hit with a solid, hollow plunk and made a big splash, showing that they were fired from a high-power rifle. They did not ricochet, which proved that they were not fired from the water's edge, but from considerable height. The officers, therefore, concluded that the shots must have been fired from the top of the high bluffs to the east of the lake, which would make the shooter in the neighborhood of half a mile distant from his mark.

Again the loon came to the surface, cautiously showing only his head at first. No sooner had he fully merged than a bullet struck almost under him. The next time he appeared he had no sooner come to rest than the marksman scored a bull's-eye. Without attempting to dive, the loon "skittered"

across the water a few yards and then flattened out, probably drilled through the body.

During this shooting neither officer heard the discharge of a gun. Undoubtedly a silencer was used, which is another violation of the New York law, and probably a telescope sight. All efforts failed to locate the shooter. Other loons were on the lake, but the violator seemed satisfied and did not attempt to kill any more of the birds. It is most remarkable, considering the distance, that a rifleman could place four bullets so close to the mark.

TWO officers of the American Game Protective Association believe that they have located the original peep sight. Perhaps they are unaware that peep sights mounted on the tang appeared on many of the early 16th Century wheel-lock guns and even upon cross bows. Also the kind of sight they describe is very similar in principle to the Winder Tube Sight, the invention of that prince of long range shots, Col. C. B. Winder. However neither of these facts should detract from the interest of the occurrence:

"There are many different kinds of peep and globe sights on the market, but we are inclined to believe that the idea originated in the Cumberland Mountains of Pennsylvania," says the account. "Last winter, in company with Mr. Seth E. Gordon, secretary of the Pennsylvania Board of Game Commissioners, the writer spent several days inspecting Pennsylvania's game refuges and public shooting grounds.

"One morning when coming down the mountainside, we saw ahead of us two men and two boys. The men were apparently carrying poles across their shoulders. However, when we caught up with them, we found that the poles were muskets fitted with the

original home-made peep-sight. These muskets had been bored out to handle a charge of buckshot. Around the barrel and extending its full length had been fastened a piece of tin pipe from two to three inches in diameter. It developed that these men were fox hunters. When a fox was sighted the rest was easy—the gun was brought to the shoulder, but in place of looking over the ordinary sights, the gunner looked down through this tin pipe, and woe be unto the fox that appeared at the other end of the tunnel. The owner of one of the guns said there was 'nothing to it;' that whenever a fox appeared in the opening it meant one more hide to ship to the fur dealer. Mr. Gordon said that this type of firearm was nothing unusual and that there were many guns in the mountains fitted up the same way.

"We do not know how this system would work out in wing shooting. Most foxes we have seen in the wild were moving when sighted, which would amount to practically the same thing, although, of course, calling for a much shorter load."

THE names and addresses of two more gunsmiths who, riflemen say, are skilled in the art of restocking Springfields, have been received. One is Edward Semmence of 1150 West 10th street, Erie, Pa., the other is C. W. Lindsay, of Houston, Texas.

Joseph G. Moyer, of Erie, sends in the name of Mr. Semmence and these facts concerning him.

"Mr. Semmence was brought here from England at an early age, by a company who started to make shotguns in Baltimore, and has spent his whole life in remodelling guns as well as repairing them. Mr. Semmence although now seventy-five years of age and retired for some time, like all other energetic men finds time enough to do quite a little gunsmith work.

"I might add that during his life Mr. Semmence has made stocks and barrels for the most celebrated shots, both in shotguns and rifles, and experts who have looked at my Springfield say they have never seen a finer piece of work. Mr. Semmence is now able to get walnut stocks and can restock a gun in about a week's time, and I think, will be perfectly willing to accept orders for work connected with the above for from fifty to sixty dollars."

Of Mr. Lindsay, R. C. Patterson says:

"He does excellent work on shotguns, particularly fitting single triggers for double guns. He has made to order a number of shotgun stocks and his work appears to me to be of very high class. With the assistance which you have given and the valuable information in your book I believe I will be able to turn out an excellent rifle."

THE ACCURACY OF VARIOUS FIREARMS

(Continued from page 5)

your weapon is capable of as accurate results as a very heavy one, but you must pay particular attention to your method of holding, concentrating always on holding exactly the same for every shot.

There are a whole raft of reasons for missing the bull's-eye. A good many of them are mechanical and the rest are due to the shooter himself.

If a shot is fired from an accurate barrel pointed in the proper direction using good ammunition, the result will be a bull's-eye, and therefore, if the bull's-eye is not hit there can always be found some reason for the miss.

On the mechanical side of the question, a poorly made barrel will cause inaccuracy, and

so will a good barrel in bad condition. It sometimes happens that a good barrel loses very little of its shooting qualities when the breech and the rifling become rusty, but as a general rule the shooter cannot expect to get good results from such a barrel.

A dent on the muzzle of a barrel will ruin it for fine shooting according to popular belief, but as a matter of actual test a burr in the muzzle of a rifle does not spoil the accuracy—it simply changes the location of the group with relation to the sights.

Sometimes a barrel will appear to be perfect when examined from the muzzle and breech, when in reality the forward end of the chamber where the light does not reflect very well, is enlarged to such an extent that the bullet is rarely started properly on its course through the rifling.

A ringed barrel—one which has been bulged by shooting when obstructed—will ordinarily give very poor accuracy indeed, but there have been cases on record where such barrels gave very satisfactory results—just how they could do so, nobody knows.

A good barrel is one which is of the same diameter from breech to muzzle, rifled with the correct twist and chambered properly for



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the cartridge to be used in it. It makes practically no difference whether it has four, six, eight or any other number of grooves, nor within reasonable limits, how deep the rifling is. A right or left hand twist apparently has nothing whatever to do with accuracy.

Low grade ammunition used in a rifle is sometimes responsible for poor results, as it may be loaded with bullets varying in weight and size, and also with varying charges of powder, to say nothing of poorly shaped and badly-fitting shells.

One cause for a great many misses and a trouble which should be carefully guarded against, is a loose front or rear sight. Sometimes the sight is loose enough so that it will almost move by finger pressure and consequently the slightest bump from any hard substance will throw it completely out of line. It is well worth while to inspect your sights carefully both before and after sighting in your rifle.

Black Diamond Gun Grease

Keeps your guns looking and shooting like new, 50 cents, postpaid. Send for testimonial letters and circulars.

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Loads And Re-loads

In this column, conducted by Capt. Townsend Whelen, will be answered inquiries pertaining to target and hunting small arms, hunting licenses, game guides, and kindred subjects. An effort will be made to reply to inquiries direct by mail before the appearance in this column of the answer. The service is free to all, whether the inquirer is a subscriber to Arms and the Man or not. All questions are answered at length by mail. Those portions of general interest are published here.

CAN velocity of .45-120-550 cartridge be increased to about 2,000 F. S. by using one of newer powders? Rifle is Sharps single shot, special smokeless steel barrel. If so, would it be as good a killer as .35 Newton, factory load.

Is factory loaded .30 Newton much superior in killing power to .280 Ross, 143-grain bullet, specially loaded with 60 grains DuPont Improved M. R. P. No. 15, 3300 f.s. velocity?

Is this special load in .280 Ross better killing load than .30-06 Springfield, 180-grain bullet, 515 grains DuPont Improved M. R. P. No. 15, 2700 f. s. velocity?

H. N. B., Pikesville, Md.

Answer: If you have a Sharps rifle using the .45-120-500 grain cartridge I think that it would be a crying shame to try to work out a smokeless load for it, or to endeavor to increase the velocity. There are many reasons why I do not think that you can get a satisfactory load of this kind, and you are almost sure to ruin the rifle. Just as it is the rifle is a splendid one, if it is still in good condition. It is a much better killer with full charge and 550-grain bullet than any of the rifles you mention. You cannot beat the big, heavy, soft lead bullet for killing qualities in big game. The only disadvantage will be the high trajectory. Better stick to black or semi-smokeless powder with it.

Of the other rifles and charges you mention, I suppose that theoretically the .30 Newton is the best killer, but practically there is mighty little difference, and the rifleman should choose the rifle which he can hit best with. You cannot beat the Springfield for accuracy, and if in addition you have a Springfield remodelled with a stock which really fits you, you have the very best rifle for all American game.

WHAT are the essential differences between primers suitable for black powder, low pressure smokeless and high pressure powders (or do all smokeless primers come under one class) as regards ignition of charge, corrosive effect on barrel when used with small charges, and resistance to pressure? Are the primers used in high power loads suitable for bulk smokeless powder loads in cartridges such as the 32-40? What are the advantages of non-mercuric primers, are they less corrosive than the mercuric? If so, do they possess this quality to an extent that would allow them to be used with small charges in soft steel barrels without danger of corrosion.

In my 32-40 using Winchester No. 2 1/2 W primer and a charge of No. 1 DuPont, bullet seated in the barrel I got either corrosion or gas cutting though I did not think gas cutting possible with lead bullets. The roughening of the barrel was most noticeable on the corners of the lands for a space of about an inch, several inches ahead of the chamber and on the corners against which the pressure of the bullet does not come. This occurred in spite of the most careful cleaning with a nitro solvent followed by a heavy grease and a repetition of the process on the following day. When I turned to the U.M.C. black powder

primer No. 2 the primers sometimes punctured, blowing grease back in my face.

Can you suggest a black powder primer strong enough to stand the pressure or a smokeless one that will not corrode the barrel? Would a priming of black powder help to keep down corrosion when used with a smokeless primer? Is there any danger of corrosion when using a smokeless primer with semi-smokeless powder?

S. C. S., Springfield, Ohio.

Answer: Smokeless powders are much more difficult to ignite than black powder. I have never found much difference in igniting qualities of the various bulk smokeless powders and the older high pressure powders, but the recent progressive powders are much harder to ignite than the old regular burning high pressure powders.

When smokeless powder was first produced it was found that a stronger primer was necessary. This led to a new line of primers, of which the Winchester No. 2 1/2 W is a good example. Soon it was found that these strong primers, owing to the large amount of mercury in the composition, rendered the brass of fired shells so brittle that they could not be reloaded. This, in turn, led to the introduction of primers which do not contain fulminate of mercury. These are known as "non-mercuric" or "non-fulminate" primers. The No. 9 U.M.C., No. 8 U.S.C.Co., and the F. A. Gov. primers are examples of these.

About this time it was found that the residue or gas given off by smokeless primers was intensely acid, and that it was responsible for practically all corrosion in smokeless powder rifles. With high power rifles there is so much powder gas that this primer gas or fouling is largely neutralized. But with low pressure smokeless powder (particularly in small shells like the .25-20, and to some extent in the .32-40) the primer fouling is not diluted by the powder gases to any extent, and is so strong that it gets in its work on the steel in a very little while, and I do not know any manner of cleaning which will prevent this. This is very evident in .22 smokeless ammunition.

Recently the United States Cartridge Company have gotten out an experimental line of primers which seem to have an absolutely neutral residue. I have been experimenting with them, but the experiments have not gone far enough to determine that they do not cause corrosion. I think that perhaps if you write them a letter, making it "Attention of Mr. James Burnes" and mention my name, you may be able to get some of these primers. They are not yet regularly on the market. I trust that you will be able to do this, and hope that you can carry on some extensive firing with them, and let me know the results because I am much interested in these experiments. I am not positive, but I think that they will solve your problem.

Gas cutting is easily possible with lead bullets when smokeless powder is used. Smokeless powder does not hit the bullet a blow which expands it at once to a perfect gas

dam. Instead it starts its gas very gradually. This gas first expands the shell to the full size of the chamber, and rushes in between the shell and the bullet. This gas actually makes the bullet slightly smaller. The bullet starts forward with gas all around it, and cutting past it. The bullet does not expand to a full gas dam until it has gone three or four inches up the barrel, and encountered the resistance of the lands. Thus you get gas cutting or erosion for a few inches ahead of the chamber, particularly in the corners of the grooves, and on the non-driving sides of the lands, also sometimes in the centers of the grooves. Erosion and gas cutting are the same thing. With smokeless powder you should be sure to use a lead bullet which is full groove diameter, or even .001-inch larger than groove diameter.

Many riflemen have gotten away from troubles by using a black powder primer and a priming charge of about 5 grains of fine black powder with their smokeless load. This seems to work well. If you use a large charge of smokeless powder there is a tendency to puncture black powder primers of some makes. Better try another make if the one that you are using punctures the primers. Also some rifles have a tendency to puncture primers. The Winchester single shot rifle, particularly does this. My Winchester single shot rifles used to either puncture primers, or give misfires quite regularly, until I sent them to A. O. Neidner, who fitted new Mann firing pins in them, and then all my trouble of this sort ceased.

I think that I have given you enough dope now to go ahead and work on intelligently. I should like very much to learn of your experiments, how you come out, and if you find a solution to your troubles. This matter of primer corrosion is something that I am very much interested in.

A FELLOW member of our rifle club and myself have begun reloading for the Krag rifle, hoping to get a load that would equal the Springfield .06 ammunition in speed, if not excel it in that particular, using the 150-grain spitzer bullet. We have started out with DuPont No. 16 improved military rifle powder, 45.5 grains seated the bullet so that the canelure is just covered, we were very careful to weigh each load to the fraction of a grain and sorted our bullets for weight, used clean shells, and primers obtained from the Government marked on the shipping case .30 cal. primers for .06 ammunition. The 45.5 grains of powder leaves but little air space in the Krag shell and as this is a new load to us we were careful in pulling the first shell to see that we were not directly behind the bolt, but when we pulled, nothing happened, much to our surprise, not even a snap that usually comes when a primer is punctured; we drew that firing pin back and pulled again, but nothing doing. We tried two more shells, same result. Next we pulled a bullet from a shell that we had tried to fire, took out the powder, discovered that the primer had fired but that the powder had only been roasted a little around the primer. This was rather disconcerting, we could not understand why primers sold by the Ordnance Department for smokeless powders should fail to warm up No. 16 sufficiently to "set it off". We had some DuPont No. 80 so we placed a few grains of No. 80 in for a primer and then half a shell full of No. 16, with better results, as that gave No. 16 something to start on. What is the matter with the Government primers. They are of copper, packed in a tin screw top, 500 in a case, each primer set neatly into a hole in a pasteboard disc that fits the tin container. Will you please tell us how we can get satisfactory results using the No. 16 powder and the 150-grain spitzer bullet.

H. A. F., Sheridan Wyo.

Answer: I suppose I have fired 3,000 rounds of No. 16, various charges in various rifles, all with the Frankford Arsenal primer. Except in a Winchester single shot, which had

a weak mainspring, I have never had the least trouble with ignition. Not even a miss-fire except in this rifle, and putting a piece of brass under the mainspring fixed this particular trouble all right.

No. 16 powder is harder to ignite than the older powders, but you should have no trouble at all with the Frankford Arsenal primers.

Something is wrong with either the rifle, the primers, or the powder. Try the rifle first. The mainspring may be weak. If this is not the trouble send about 25 of your primers to The Commanding Officer, Frankford Arsenal, Brigesburg, Philadelphia, Pa., for test, telling him exactly what your trouble is. If the trouble is not in the primers then consult the DuPont Company about the powder. This is the only thing that I have to suggest.

It looks to me as though you had done your own part all right. Certainly there is nothing wrong with the directions. Only last Sunday I fired in test 20 rounds from the Krag with 39 grains of No. 16, F. A. primers, and 220-grain gilding metal jacketed bullet; and 40 rounds in the Springfield with 43 grains of No. 16, F. A. primers, and 220-grain bullet. No trouble of any kind. Groups showed fine ignition, that is the vertical error was no larger than the horizontal error.

I HAVE a Stevens Repeating Rifle for the .25 Remington Cartridge, and as you no doubt know, it has an eight-inch twist, in order to handle the 117-grain bullet. I want to use a lighter bullet, so as to get more speed, and am advised that a charge of 33.5 grains of No. 16 back of the 87-grain bullet will give a velocity of 2,925 f.s. but I fear there is too much twist.

H. H. B., Boston, Mass.

Answer: Relative to a high velocity load in the 25 Stevens repeating rifle using 87-grain bullet.

I think that the load recommended to you was intended for the Remington autoloading rifle which has a 12-inch twist. A quicker twist will increase the breech pressure. The mechanism of the Stevens rifle is not designed to stand very high breech pressure. I would rather advise cutting down that powder charge slightly on this account. If you decrease the powder charge to 31 grains of No. 16 powder you will get a velocity of a little over 2,800 f.s., and the breech pressure will be only about 35,000 pounds.

CAN you give me the dope on the new system of rifling gotten out by Ben Holter, of Whitefish, Montana?

I have been taking *Arms and the Man* about 6 months but have seen no mention made of this rifling. There are several of these barrels in Butte. It is claimed that one of them has been shot about 30,000 times and looks to be as good as ever.

I have been thinking of getting this kind of barrel for my Wundhammer sporting Springfield but would like your opinion first.

W. R. B., Butte, Mont.

Answer: Unfortunately I have no knowledge at all of the system of rifling of Mr. Ben Holter. However, I do know Ben Holter well, as he was my first sergeant in the company I commanded in the 30th Infantry, and he obtained his start in rifle shooting under my instruction.

Mr. Holter is such a good shot, and I regard him as so thoroughly reliable, that I feel sure any rifle barrels which he turns out will prove very satisfactory.

At the same time I must call your attention to the fact that the Ordnance Department of the United States Army, as well as the Ordnance Service of England, have experimented with various systems of rifling for many years, and both have come to the conclusion that there are many systems which give good results, and that of these there is scarcely any advantage, one over the other, and no reason

has been found to turn from the systems now in use in each country. When it comes to chambering there is more latitude if it is possible to fit the ammunition to the chamber. But if a standard ammunition has to be used, then I hardly think that it is likely that anyone will devise a system of boring, rifling, and chambering that will have any material advantage over that now used in the Springfield rifle, although they may equal it, and by careful workmanship they may exclude the proportion of failures that always result in quantity production.

In other words I think that Mr. Holter may be able, using his brains and skill, to turn out barrels that are equal in every way to the best Government barrels. So by purchasing from him you may avoid that small chance that exists of getting a poor barrel which sometimes results when thousands are turned out quickly by machinery.

All the above is supposition because I have not seen or tried Mr. Holter's barrels. But I think that after you had had experience with such a barrel you will find that it is not better than the best Government barrel in any way.

IN reloading the .32-40 short range cartridge (that is .32-13-98 in the .32-40 Winchester shell) should the powder be left loose in the shell or retained at base of the shell? If the latter way is used what is the best material for wads?

Answer: I should say that as a general rule powder used in reloading .32-40 short range cartridges should always be left loose in the shell. It is practically impossible to put a wad in the .32-40 shell as it is tapered inside. With very small loads you may find that you will have to tilt the muzzle up before firing in order to put the powder charge in the base of the shell to avoid a hang-fire or miss-fire.

ARMS AND THE MAN, July 15, contains an article "The American Rifle" by Capt. Townsend Whelen in which he states that Lyman 48 can be attached to all models of Winchester. Will you be good enough to forward this to him and have him write me who could attach one of these to my .30 cal., model 1895, Winchester.

J. T. G., Casper, Wyo.

Answer: Any good mechanic can file the inside of the base of the Lyman No. 48 sight so that it will fit and can be screwed on the receiver of a model 1895 Winchester. It is then merely a matter of screwing it on. The sight is rather bulky on this rifle, but we can forgive that for the fine adjustments that it has and for its great strength.

THE American Rifle" says that the W. A. .30 cal. powder with which the Krag cartridges are loaded is unsuited to lighter bullets. Has the government ever changed to a nitrocellulose powder in loading this cartridge? The ammunition we are at present using was loaded in Sept. to Dec. 1905 and is labeled about 1960' at 53'. I am going to reload for my Krag carbine with 150-grain bullets and No. 18 powder as you suggested.

In connection with reloading Krag empties: The muzzle-resizing die of my ideal No. 10 Springfield '06 tool doesn't squeeze the shells enough to make them grip the bullet, leaving the expander out of consideration. The resizing die doesn't seem to squeeze the brass necks to the yield point and they spring back to their former size after each application. Must I get a smaller die?

A mixture of 50 per cent each Japan wax and Carnuba wax seems to be the happy medium between sticking to dirt and not sticking to the bullet. The bullets must be boiling hot (212 degrees) however to obtain a thin coating.

C. L. L., Santa Barbara, Calif.

Answer: The Government has never changed to a nitrocellulose powder for loading the Krag cartridge. The last specifications under which these cartridges were so loaded were so drawn out to practically require that W. A. .30 calibre powder be used. The ammunition loaded in 1905 is undoubtedly loaded with W. A. powder.

I have had a good bit of trouble with "Ideal" resizing dies. Many of them are of inaccurate size and still others wear very fast. A muzzle sizing die, correct for the Springfield shell ought to be correct for the Krag shell. I think I would send your old muzzle sizing die, some shells and bullets to one of the leading gunsmiths in Los Angeles and ask him to make you a smaller die and to harden it well.

WILL you please tell me the velocity penetration, etc., regarding the Savage .32 and .380 and also which you think would make the better gun for a policeman.

O. H. S., Youngstown, Ohio.

Answer: The Savage .32 Automatic Pistol uses the .32 Colt Automatic cartridge, and has a velocity at the muzzle of 964 feet per second, and an average penetration of 5 inches in soft pine. The .380 Savage Automatic Pistol uses the .380 Colt Automatic cartridge, and has a muzzle velocity of 887 feet per second, and a penetration in soft pine of 5½ inches.

My personal opinion is that the .380 pistol is preferable for your use to the .32 calibre. It is about the same weight and size, but much more accurate, and delivers a more smashing blow. Also it is easier cleaned. The .380 Savage automatic is one of the most efficient of all the automatic pistols.

WOULD be pleased to have you give me the muzzle velocity of the .38 Colt revolver bullet. Bullet 150-grain, black powder, 18 grains Would also be pleased to have the muzzle velocities of the following revolver cartridges when fired from revolvers with long barrels. .32 S. & W. 10-88, .38 S. & W., 14-146, .38-S. & W. Special 21½-146, .44 S. & W. Russian 23-246 and .44 S. & W. Special, 26-246.

J. K., Milwaukee, Wis.

Answer: It is impossible to give you exact figures as to the ballistics of the pistol cartridges you mention. In the first place all black powder cartridges are now obsolete, and while their smokeless powder successors give about the same velocity as the older cartridges did, in many cases there has been a slight increase in velocities. The data for black powder cartridges is no longer available. Moreover it is impossible to give any information that would be of any value whatever unless we know in what pistol or revolver the cartridges are to be fired, what the length of barrel is, and exactly what the clearance is between cylinder and barrel. These factors make enormous differences in the velocities of revolver cartridges.

May I refer you to a book entitled "Pistol and Revolver Shooting" by A. L. A. Himmelwright, published by the Outing Publishing Company, New York. I think that the publishers of Outing Magazine can obtain a copy for you. The price is probably about one dollar. This gives ballistic tables for all the modern pistol and revolver cartridges, also the lengths of barrels in which the velocities were taken.

DECEMBER 1916 I got a Springfield Carbine .45-70 with a lot of .45-70 cartridges of the Chief of Ordnance. The carbine and cartridges were shipped to me from the Frankford Arsenal. There are no marks on the cartridges to show what year they were manufactured, but they are evidently of an early date. I want to reload the fired shells, but seem to have trouble to get the right kind of

primer. The primer pocket is shallower than in the factory made .45-70. The Winchester No. 2½ and the Government .30 cal. primers are right in diameter but too tall or long. I cannot seat them in the shell so they will be below or flush with the head of the shells they will do in the Winchester or U.M.C. factory made shells; but instead they will project a small fraction above the length of the head of the shells. I have had the same trouble with some .50-70 shells some years ago but did not reload them. These shells seem to be too good to throw away and I thought you could tell me the right size of primer required. I have the .30 cal. Government and Winchester 2½ but I notice the Winchester and U.M.C. Co's make a No. 2 copper primer also No. 6. Please give what information you can. Also will it be alright to use DuPonts No. 80 sporting smokeless powder in this gun with a 300-grain bullet, about 20 or 25 grains of powder.

C. E. T., Lewiston, Maine.

Answer: Relative to primer troubles with old .45-70 shells: this is a new one on me. Frankly I did not know that any shells had been made in this calibre that the regular No. 2½ size primer would not fit. They are evidently old, very old, Frankford Arsenal shells. Frankford Arsenal might be able to supply you with information about this, but I doubt is they could supply you with any primers, or, if they could I would not be willing to trust primers as old as these would be. More over, such primers would be entirely useless with modern smokeless powders which require modern, strong primers to ignite them. The same would pertain to any primers which you might get from the cartridge companies. It seems a shame to waste good shells these days, but I think that the best way out of it is to sell these shells for old brass after they have been fired.

I think that you ought to get fine results from DuPont No. 80 powder in the .45-70 with a 300 grain lead bullet, about 1 to 16, tin and lead. The bullet should be full groove diameter of the barrel, and be loaded to project a little more from the shell than with factory cartridges. Better start at about 23 grains and work up gradually. 28 grains would not be excessive as far as my experience has gone. When your charge of No. 80 powder gets too much the shells begin to expand at the base. Watch for this, and stop just short of this point.

HAVE you any suggestions in regard to a reduced load for the 6.5 Mannlicher carbine? Henry Bros. of Vancouver, say they can reload very satisfactorily for this carbine with 101-grain bullet of about 1,400 feet velocity.

P. M. A., Winnipeg, Canada.

Answer: Relative to the reduced load for the Mannlicher rifle, I would advise using DuPont No. 80 powder because it is less affected by moisture and dirt in old shells than other low pressure bulk powders, and also because it has always given fine accuracy in reduced loads, provided you fill the shell enough to prevent hang-fires. I would not advise a charge of less than about 15 grains, because small charges are liable to lie in the forward part of the shell, particularly if the muzzle is depressed before firing, and in such cases with a small charge you are liable to get a hang-fire or a miss-fire.

For bullet, any jacketed bullet between 100 and 150 grains, which is groove diameter, or nearly groove diameter, which is well made, and which does not have to jump a long distance through the throat before it encounters the lands, should prove accurate. With a bullet as heavy as 150 grains you may have to increase the powder charge to about 20 grains to spin the bullet right, particularly at the longer ranges.

IN the June 1, issue of *Arms and the Man*, Captain E. C. Crossman states some interesting facts about a Model 1919 U. S. boat-tail bullet.

Would you kindly tell me what a Model 1919 boat-tail bullet is? Also if the government allows rifle clubs to sell Krag ammunition to its members, as was allowed before the war, and how much a hundred.

F. S., Sagamore, Mass.

Answer: The Model 1919 boat-tailed bullet referred to by Captain Crossman is a 180-grain, .30 calibre bullet, with a Swiss profile point, and a boat tail base, made experimentally by the Ordnance Department with a view to increasing the range of machine guns, and if possible of getting a bullet which will answer both the requirements of riflemen and machine gunners. The present 150-grain service cartridge has an extreme range of only about 3,200 meters, while this new bullet increases this range to over 6,000 meters. This is an enormous advantage to the machine gunner. A large number of these bullets have been made and fired experimentally at the Small Arms Ballistic Station, but the bullet is still in an experimental stage.

Let me set you straight about Krag ammunition. Krag ammunition may be purchased from the Director of Civilian Marksmanship, Woodward Building, Washington, D. C., by civilian rifle clubs, or by any member of the National Rifle Association. There is no reason why a civilian rifle club cannot purchase the ammunition, and then retail it at the same price to their individual members although I believe that retailing it at a profit, or to others than members of the club would be contrary to the law. The present price on this ammunition is \$18.00 per box of 1,200 rounds. It is not sold in less than box lots. All information relative to it should be addressed to The Director of Civilian Marksmanship, and not to the National Rifle Association. This pertains also to all other matters connected with government rifles and ammunition.

I POSSESS a 1903 Springfield rifle which I would like to have remodelled. My idea would be an imported walnut stock, a la Wundhammer, the dimensions to be the same as given in your book for the average man's rifle—I am 5 feet 10½ inches in height and rather lanky—gold bead front sight, folding leaf rear and a Lyman 103A peep, with windage, on the bolt, the barrel to be turned down and blued under the present rear sight sleeve, and the cut-off removed by beveling off end of magazine carrier. Do you think this would be O. K., and if not could you offer me any suggestions? If you can, they will be most certainly appreciated. I would like to know the best manner of fastening the forestock to the barrel. Can you direct me to any gunsmith who would do this job neatly and cheaply, say about fifty to seventy-five dollars? Money is a rather large object to me at present.

Would a Savage bolt action .250-3000 rifle be as good as the above for black bear and moose? I desire to go moose hunting this year and tentatively have picked out New Brunswick, say Victoria Co., N. B. Do you

think I would have a fair chance at a moose there or can you suggest any place nearer to Pittsburg, Pa., that I could go to and run a fair chance? You see, money is again a large object and I could only spare about \$200 for a trip. Do you think that it can be done at that price?

C. R. G., Dusquesne, Pa.

Answer: The very best place for hunting moose this side of Alaska is that hunting country controlled by Charles L. Barker near Riley Brook, Victoria County, New Brunswick. I have hunted in this country two seasons and you make no mistake in going there. You will have to make arrangements with Mr. Barker for guides, etc. I think that the trip of two weeks will cost you approximately \$250., not including railroad fare.

It is not possible to do this trip for less. All the hunting country in New Brunswick is divided up between the various guides. Only parties taken in by the guides can hunt, as the law provides that a non-resident must be accompanied by a registered guide. The guides generally have more parties than they can accommodate, and naturally they only care to take those parties who are willing to pay their regular rates. There are good guides and poor guides. Lots of the latter. Barker is the very best guide I know of, and he has the very best country. It is full of moose and deer.

There is no time for this year to have your Springfield rifle remodelled for this trip. Instead, I would send the rifle to the Lyman Gun Sight Corporation, after unscrewing the movable base of the rear sight, and have them fit sights to it—an ivory bead or gold front sight, and either a No. 48 or No. 103 rear sight.

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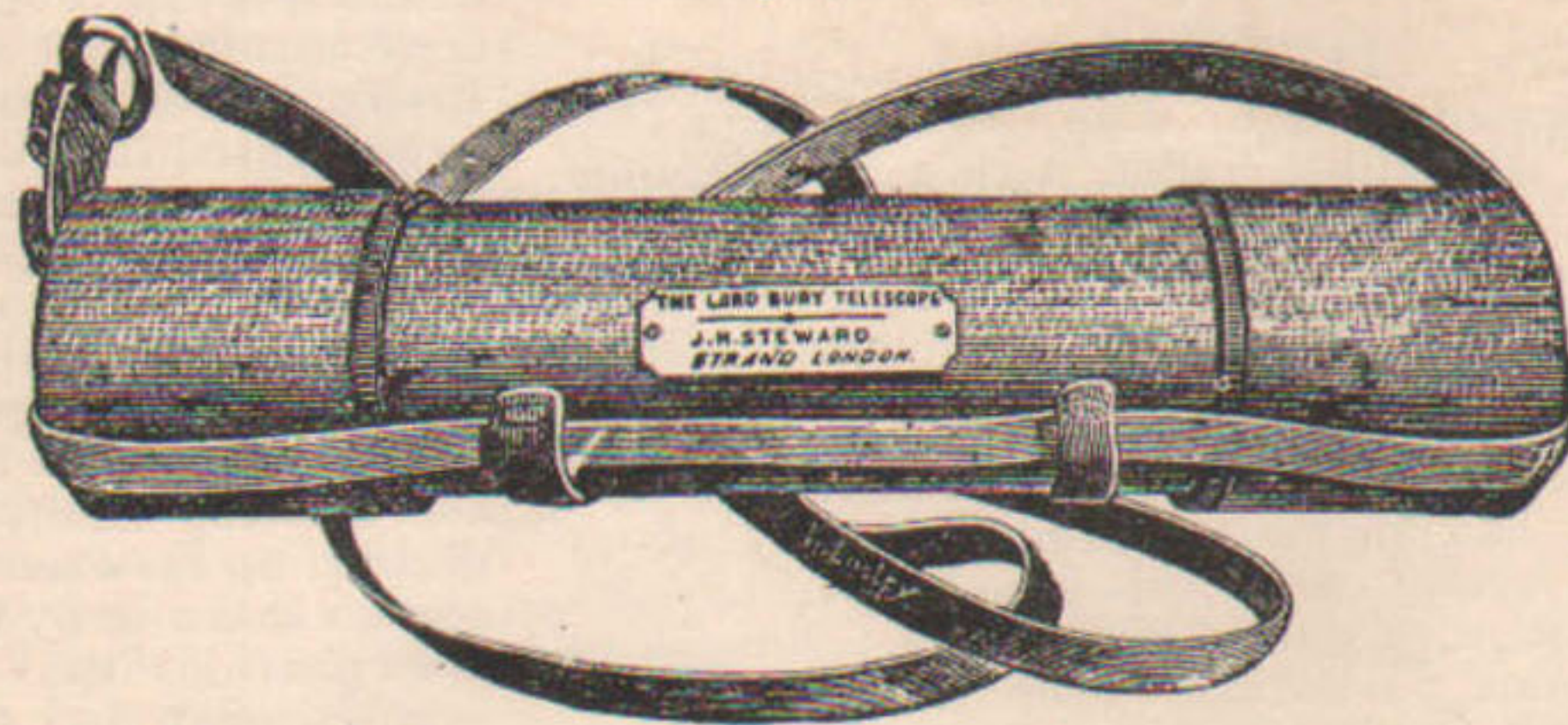
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You do not need a folding sight on the barrel. This can be done in time for your trip.

When you come to remodeling your rifle I would certainly send it to Mr. R. C. King, 155 North Main Street, Los Angeles, Calif. He makes the original Wundhammer stocks, and does the very best work, and his prices are the most reasonable, probably about \$75. Others are charging all the way up to \$160. He also has the butt-plates, barrel bands, sling swivels, etc.

As to dimension of stock, if you have not experience enough to know just exactly what dimensions you need, then I would have the stock made up with the following dimensions:

Length, 13½ inches; Drop at comb, 1 7-8 inches; Drop at heel, 3 1-8 inches.; Pitch, 3 inches.

Please see my articles on this subject in *Arms and the Man* for July 1st and July 15, 1920.

These new members have affiliated with the National Rifle Association of America:

JUNIOR MEMBERS.

Charles Chandler, 104 Ninth street, Oregon City, Oregon. Age 15.

Edwin James Roake, 1105 Washington st., Oregon City, Oregon. Age 14.

Theodore Roake, 1105 Washington st., Oregon City, Oregon. Age 16.

Charles W. Seager, 104 Sleight st., Naperville, Illinois. Age 16.

Edward Schuman, Jr., Sterling, Conn. Age 14.

J. Clark Turner, Galata, Montana. Age 14. Great Falls High School.

Warren S. Anthony, Cooper Road, Harlsdale, New York. Age 14. Sca(sdale High School.

Chauncey H. Ladd, R. F. D. No. 2, Keystone, Indiana. Age 16.

California:

Lieut. Lansdale Post 67 Veterans of Foreign Wars Rifle Club, Sacramento, Calif. Sec'y-Treas., R. Rutherford, R. F. D. No. 3, Box R, Sacramento; Pres., A. E. Waite; Vice-Pres., R. P. Womack; Exec. Officer, J. D. Brown. 10 members.

Illinois:

Chicago Heights Post No. 131 of the American Legion Rifle Club, Chicago Heights, Ill. Sec'y-Treas., Hjalmar Carlson, 24 West 15th

St., Chicago Heights; Pres., G. R. Williams; Vice-Pres., John Miller; Exec. Officer, Clyde Philips. 15 members.

Kansas:

Clifton Rifle Club, Clifton, Kansas. Sec'y, Harry O'Brien, Clifton; Pres., Carl M. Worley; Vice-Pres., James I. Sager; Treas., Frank L. Seelig; Exec. Officer, Carl M. Worley. 35 members.

Jamestown Rifle Club, Jamestown, Kansas. Sec'y, A. B. Stockton, Jamestown; Pres., Clarence Cutshaw; Vice-Pres., Moody Paulson; Treas., John Peterson; Exec. Officer, B. H. Stockton. 13 members.

Minnesota:

Minneapolis Steel Rifle Club, Minneapolis, Minn. Sec'y, George Meehl, 2845 Minnehaha Ave., S. Minneapolis; Pres., Ole Newgaard; Vice-Pres., E. O. Fellows; Treas., A. V. Duncanson; Exec. Officer, W. C. Wilson. 21 members.

New Jersey:

Corp. Chris. A. Mohr, Jr., Veterans of Foreign Wars, Rifle Club, Hoboken, N. J., Sec'y, Herbert Helmers, 413 Monroe st., Hoboken; Pres., Gaspard Segars; Vice-Pres., S. Ariensten; Treas., Edward C. King; Exec. Officer, Ben. Ramson. 15 members.

Veterans of Foreign Wars, Post 111 Rifle Club, Paterson, New Jersey. Sec'y, James S. Robinson, 302 South 2nd st., Lake View, N. J.; Pres., Thomas Flynn; Vice-Pres., Anthony De Costa; Treas., W. Greer; Exec. Officer, Arnold Biggs. 15 members.

New York:

Admiral Coghean Post 36 Veterans of Foreign Wars Rifle Club, Anthony, N. Y. Sec'y, Wm. J. Mohor, 302 East st., Rensselaer, N. Y.; Pres., Joseph A. Burkhart; Vice-Pres., Charles E. Smith; Treas., Geo. W. Decker; Exec. Officer, Walter Lamb. 10 members.

Capt. John Drum Post 273 Veterans of Foreign Wars Rifle Club, New York, N. Y. Sec'y, Thomas J. Gallagher, Room 1129, 24 Walker st., New York City; Pres., Henry M. Curran; Vice-Pres., John Malary; Treas., Harold Schultendorf; Exec. Officer, John Riley. 10 members.

Onondaga Post 102 Veterans of Foreign Wars Rifle Club, Syracuse, N. Y. Sec'y, Willard B. Horey, 689 N. Clinton st., Syracuse; Pres., Chas. A. O'Reilly; Vice-Pres., Hyniec Rubenstein; Treas., Wm. Deege; Exec. Officer, Henry Pfeiffer. 10 members.

Each subscriber to *ARMS AND THE MAN* is entitled when his subscription is paid up for one year, to one free insertion of a half-inch want ad in this column.

All he needs to do is to send in the advertisement for insertion at the same time calling attention to the date when his subscription was paid.

OLD-TIME and modern firearms bought, sold and exchanged. Kentucky flint-lock rifles, old-time pistols, revolvers, guns, swords, powder horns, etc. Lists free. Stephen Van Rensselaer, 805 Madison Avenue, New York City.

WANTED—Weiss binoculars, 6x or 8x; also .38 S. & W. Special reloading outfit; Savage .250-3000 bolt action; Colt .41 derringer. All must be in perfect condition and reasonable price. J. F. Galloway, 102 S. 6th st., Duquesne, Pa.

FOR SALE—Exceptional Bargain—Forty mounted game and song birds, and birds of prey. These birds are finely mounted and are enclosed in case with glass front. Fine ornament for den, lodge or home. Shipped C.O.D., \$150.00. \$25.00 must accompany order. James Nelson, Stephen, Minn.

FOR SALE—Complete set new Ideal .35 Winchester reloading tools, consisting of No. 3 tool with double adjustable chamber, neck resizing die, shell resizing die and mould No. 358318. Price \$12.00, or will trade for 30-06 tools. L. B. Cooksey, P. O. Box 92 W. S. Sta., Youngstown, Ohio.

FOR SALE—.22 Winchester centre fire, S. S., new. Also Sidel scope and mountings. Wanted—Prismatic binoculars and range telescope. W. R. McCay, 839 Morton st., New Castle, Pa.

FOR SALE—Winchester auto loading rifle, cal. .401, with two magazines, Marble's flexible rear and folding barrel sight, Sheard front sight, sole leather carrying case, box cartridges. Condition perfect. Too powerful for use in this country. \$50.00 for the outfit. H. V. Ley, Yreka, Calif.

WANTED—Bullet molds, primers, powder, etc., for Krag reloading. B. C. Grant, Dept. Laboratory, Ft. Sam Houston, Texas.

CLEANING PATCHES for .30 cal. rifle, 15 cents per pkg. Cleaning Patches for .22 cal. rifle, 15 cents per pkg. Ideal Anti-Rust Ropes for all cal. rifles, revolvers, 35 cents each. Ideal Anti-Rust Ropes for all gauge shot guns, 50 cents each. Springfield Nitro Cleaner, 35 cents for 3 oz. bottle. Army & Navy Powder Solvent, 35 cents for 3 oz. bottle. SPITZER GREASER. Spare that pet rifle barrel. Handy vest pocket device for mobilubricating high power bullets. Grease on bullet only, none on shell, fingers or clothing. Nickel plated, price 25 cents each. THE IDEAL CHEMICAL CO., Wilkes-Barre, Pa.

WANTED—Reloading tools, bullet molds for Krag, Springfield '06, .38 Special Marble Game Getter 12-inch barrel with 410 shot barrel. Barrels must be perfect. 44-40 Reloading tools. G. T. Chamberlain, 1st Lt. M.C., 2841 Conn. Ave., Washington, D. C.

FOR SALE—30-06 star-gauged Springfield, Niedner chamber, with 125 reamed shells. Malcolm scope with two objectives 5 and 10 power. No. 2 Winchester mount with Mann-Niedner dove-tail blocks. In new condition and very accurate. A fine outfit for target work. Price \$65.00. f.o.b., Boston. H. H. Bennett, 142 Portland st., Boston, Mass.

FOR SALE OR EXCHANGE—Complete Course in Higher Accountancy including all Lesson Papers, Text Books and Lectures, as produced by the LaSalle Extension University. All in splendid shape. Cost over \$100.00. Take \$40.00.

WANTED—.45 automatic pistol, .405 Winchester, or Winchester for .30-06 ammunition. Must be in first-class condition. T. C. Barrier, Box 52, Statesville, N. C.

WANTED—.30 cal. 06 genuine Sauer Mauser in fine condition. FOR SALE—Brand new 3½ power Stevens telescope for \$17.00. Also interested in trading fine high power rifles. Doran Hinchman, Box 925, Logan, W. Va.

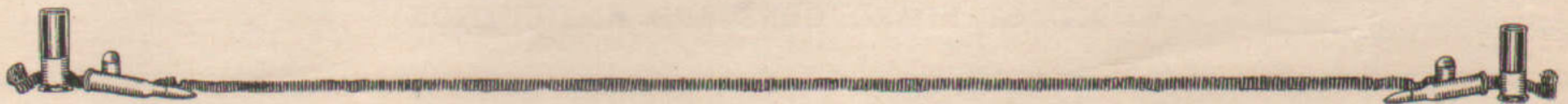


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Lad of 19 makes "Possible" at 100 yards with a .22 Rifle

VIRGIL W. RICHARD, 19 year old son of Capt. W. H. Richard, won the 100-yard match in the American Small-Bore League Championship matches at Tenafly, N. J., July 5, by the sensational achievement of scoring a "possible." Shooting experts declare their belief that this is the first "possible" made with a small-bore rifle on the 100-yard range in outdoor competition in this country. Richard scored his triumph against a field of 222 entries.

Richard's remarkable shooting also won for him the grand aggregate for the three days of shooting at the matches, with a mark of 290 x 300, giving him the special cup for the leading shooter of the matches. He scored 100 in the 100-yard prone, 97 in the 75-yard sitting, and 93 in the 50-yard standing events.

In making these winnings Richard used the new Winchester .22 Bolt Action Box Magazine Rifle and Winchester Precision Ammunition—the combination used by the Quinpiac Rifle and Revolver Club team when it won the National Rifle Association Indoor championship for 1920 with the record-breaking score of 9991 x 10000.

Mrs. Frank Winch won the special shoot for women with a score of 87 x 100. It was her first shooting in a match event. She also used a Winchester .22 Bolt Action Rifle.

Winchester Precision Ammunition and a limited number of these new Winchester .22 Caliber Bolt Action Box Magazine Rifles will be available for the use of the shooters at Camp Perry National Matches this month. The combination for the closest groups in .22 caliber shooting.

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