# RIFLE

# ARMS AND THE MAN

NATIONAL RIFLE ASSOCIATION OF AMERICA

PIGEON GUNS AND PIGEON MATCHES

GETTING THE RANGE

OILING THE GUN

WAR METHODS DEMONSTRATED AT BISLEY

LITTLE LESSONS IN RELOADING

No. 9—Fine Points of Measuring Powder

EDITORIALS and

THE LATEST NEWS OF RIFLE, REVOLVER AND SHOTGUN; THE ARMY, NAVY AND THE NATIONAL GUARD

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# ARMS AND THE MAN

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# PIGEON GUNS and Pigeon Matches

**By C. S. LANDIS**

LIVE pigeon shooting from the traps, formerly was quite a sport, in fact, it once held the place now occupied by clay target shooting.

The mention of live bird shooting will send a thrill through every old-timer at the trap shooting game that reads this magazine, yet many of them will be surprised to learn that the sportsmen of Pennsylvania still hold an annual live bird tournament known as the "Live Bird Championship of Pennsylvania," that draws from 70 to 110 entries each year. I have attended this shoot for many years, and am familiar with the live bird game as it is practiced in one of the two localities in the United States where live bird shooting from the traps still holds its own, and is actually increasing in popularity.

This annual shoot brings together possibly the largest and finest collection of Pigeon Guns to be found in the United States. Probably nowhere else can one see so many examples of fine double hammerless Pigeon Guns in action at one time, and it is a sight that will do anyone good and will bring back memories of the boyhood sport of many an old timer at the shooting game.

The expert live bird shots in Pennsylvania nearly all use the same type of weapon for this work. It is a double hammerless of as high grade as possible and nearly always is built according to the following specifications: two trigger double hammerless 12-gauge, 30 or 32 inch full choke Krupp, or other hard steel, barrels, bored for 3-inch shells.

The gun has a straight grip stock of curly walnut and is made very long and straight in the stock, with an especially heavy trap comb, with a drop at comb of 1¼ inches to 1½ inches, and the gun is bored to throw the shot charge about a foot high at 40 yards, to center the rapidly rising birds.

Such is the weapon of the expert who shoots from 30 yards to 33 yards rise, and who knows that the loss of a single bird will almost certainly cost him the match. The shooters nearly all use Parker, Smith, Fox or Lefever guns built according to the above specifications, although one will occasionally see an Ithaca, a Baker, a fine English double, or a Winchester or Remington pump, but they are the exceptions. The real experts at the game nearly always shooting one of the four generally accepted "standard" pigeon guns.

The standard live bird load for trap shooting is 3½ drams of bulk smokeless powder, usually DuPont, and 1¼ ozs. of number 7 chilled shot, loaded in a 3-inch case; and when one considers that these pigeon matches are nearly always shot in January and February and often in a blizzard blowing off the Susquehanna river, the reader will soon see why the professional, or as he prefers to be classed, "the expert pigeon shot," shoots such an ungodly load, in a special gun.

**"Izzy" Hoffman competing in the Live Bird Championship Match, 1917. In the background are L. B. Worden, John G. Martin, Earl Melrath, and J. Frank Pratt, all famous live bird shots**

A good fast trained pigeon, especially a heavy muscled and feathered "carrier," can and will carry a surprisingly heavy load of shot just far enough to clear the boundary flags and to have a leather lunged referee bawl out "lost burrd" while the spectators crowd around clad in overcoats and arctics, to express their sympathy or to yell in delight as half a dozen bushwhackers pour a volley of shot into the pigeon as it crosses the "no man's land" outside the 50-yard boundary; and let it be told, few pigeons get safely across that "no man's land" for "snipers" are hidden every few yards of its circumference to see that no pigeons escape to suffer as a result of an unfortunately placed shot pattern.

The average state tournament has 80 entries, each of whom shoot at 20 birds, from 27 to 33 yards rise, sliding handicap; their assigned handicap being determined by their previous shooting ability.

The scores depend mostly upon the weather and the condition of the birds; possibly 30 shooters out of 80, will score 18 out of 20, or better. These will be divided between five scores of 20, or "straights" as they are called in pigeon shooting parlance, ten scores of 19 each, fifteen scores of 18 each, followed of 20 or 25 scores of 17. He who misses or loses more than one bird out of twenty, nearly always loses money in a state championship match. The entrance fee being about $15.00 counting shells, but the excitement and lure of the live bird game is such that shooters journey from all over the State to have the honor and thrill of shooting in the State "Live Bird Championship."

The lines of stamping, shouting spectators, the "hot doggie" vendor, the racing setters who bring in the dead birds to the firing line, the "hand" given the more popular and expert of the local shooters, as they go to the firing line, the bombardments and scraps among the bushwackers, out in "no man's

land," the memory of the clean kills made by the experts, the whistle of the wind around the clubhouse as the half-frozen shooters and spectators crowd around the roaring stove to thaw out and tell yarns of wonderful pigeon shoots of past years; all seem to throw a glamour about live pigeon shooting that is lacking in all other sports.

The names of Fred Coleman, Fred Dinger, John Martin, Hepler, Izzy Hoffman, Trafford, Rehrig, Daubert, Wolstencroft, Felix, and many others have been peculiar to the live bird game for the last twenty years in the East, and the presence of all or a good part of the above insure a good fast championship tournament.

The lawyer, the doctor, the business man, and that great institution the American boy, all turn out at the live bird championship. They all go to have a day of it and they all have it, and my friend if you ever have the chance to drop in on one of the old-time pigeon matches, like the Pennsylvania Live Bird Championship, do so. It will bring back almost forgotten memories of a grand old sport, a sport that like the wild pigeon flights and the tremendous duck flights, have, in most localities, gone never to return, but foolish is he who neglects the occasional opportunity to enjoy a day in the old time sport of pigeon shooting at the traps.

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OF the real sport of live-bird shooting —the hunting of the now long extinct passenger pigeon—which foreran both the trapshooting club and the live-bird matches, George W. Peck can tell an interesting tale. Most shotgun men know Peck, who spent his boyhood in regions where the vanished "passenger" abounded. Here are a few facts from him on the wild pigeon:

"Trapshooting first came into vogue in the early '70s, when the North American continent was the natural habitat of the now extinct passenger pigeon.

"Nature, so wise and far-seeing in the matter of protective color scheme for most of her living charges, vegetable and animal, seems to have discounted the future of some animals even though she has given them intuitive resource and, when conditions demand, a decided, combative power coupled with it.

"The wild pigeon of history is a fitting example. Primarily, its enemies were the hawk, owl, crow and similar nest pirates that prey upon eggs in process of incubation and upon young fledglings. Nature's solution to this problem was productivity so prolific that this non-combative, uncamouflaged game bird, during its bi-annual migrations, darkened the sky with its countless thousands and by sheer weight of numbers broke the limbs of trees at the selected roosts.

"Nature may or may not have visualized the future, for her ways are 'past understanding.' Certain it is that God's noblest work, man, took advantage of the circumstance. At his door as night fell, he found thousands of helpless birds crowding into the trees only waiting to be taken in nets, while hundreds of nests needed but to be prodded with poles to yield a harvest of squabs. By day the fields swarmed with the birds, so that only nets and well-baited crates propped up at one end with figure 4 trigger, or the simpler stick, to be jerked out by a string at the proper time, were needed in order to secure hundreds of strong, hard-flying old birds.

"It was at this juncture that man's sporting instinct conceived the idea of the plunge trap. No sport attended the shooting of these birds in the wild state when one charge of shot into a tree would litter the ground with game, but this strong and swift flyer, thrown suddenly into the air, gave the best marksman something to contend with, hence the birth of trapshooting. Not very pretty, eh? Well, read on; evolution is ever working to strike an equitable balance, and trapshooting can today, as a sport, hold up its head.

"Came a day when Nature revolted. The greed, cruelty and blood lust of the game hog—the trapper and netter—had done their fell work. Every year had witnessed tons of this game spoiling at the docks and markets which were glutted. Every year witnessed new devices placed into operation to make the slaughter more effective. Then one season the pigeons failed to return. Mind you, it wasn't a gradual falling off in numbers with final cessation, but an abrupt failure to return, following the year of the greatest abundance of this species of bird. Nor have they ever returned. The very uncanniness of it was startling in the extreme and the superstitious vied with the philosophic in an attempt to arrive at an explanation. True, various sea captains reported sailing for days through miles of dead pigeons floating on the surface of the sea. As this phenomenon was preceded by a terrific sleet storm, it was believed that the birds in their migratory flight were overwhelmed by it, the sleet affecting their pinions in such a manner as to make flight impossible, so that they fell into the sea and perished.

"However, the sport of live-bird shooting had been adopted, and with the passing of the wild pigeon its domestic cousin was utilized, especially as a between-season pastime for the gunner who went afield spring and fall in quest of game. Much was said against this phase of the sport, and with the majority of the people frowning upon it only the customary Yankee ingenuity was required to hit upon a substitute, and the glass ball was the result. There were plain glass balls, balls filled with feathers and balls filled with charcoal dust. Clean trapshooting history then began. The element of cruelty was eliminated, and the name of Bogardus as a record-breaker will live as long as trapshooting does.

"More ingenuity was exercised and mechanical metal 'pigeons' had their day —targets that would drop a disk or tag at the end of a short chain when hit— and finally the true clay pigeon. Saucer-shaped, moulded of red clay and baked in a brick oven, it made a vicious target when animated by the throwing arm of a trap, and as no two of them were baked to the same breaking point, some being hard and others soft, it left an element of uncertainty to contend with which won or lost many a contest to topnotch consistent shooters.

"Because of the expense of manufacture and that same element of uncertainty, this target, the Ligowsky clay pigeon, gave way to the Peoria Black Bird, a machine-moulded target consisting of a mixture of coal tar and gypsum. The Peoria became extinct in the early '80s but was the illustrious forebear of the targets in use to-day. The Blue Rock, Black Diamond, White Flyer and Morrel, though still referred to as clay pigeons in unconscious tribute to the old brood of the brick-oven incubator, have no clay in their composition."

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## AIR RESERVE OFFICERS TO USE ARMY PLANES

Officers of the Air Service, Aeronautics, who remain in the Reserve Corps following their discharge from the regular service, will be permitted to fly army planes even after their release from active duty. This information is of special interest to the army pilots now leaving the service, as most of them had expected that they would have to give up flying or buy a plane. Although something like air livery planes are foreseen in the near future, the present cost of a plane is equal to the price of the most expensive English or French automobile, a price prohibitive to most flyers, and even though an expert pilot might be able to arrange for a "jazz" flight in some ship capable of 50 or 60 miles an hour, if he had been accustomed to flying planes doing from 90 to 135 miles an hour, it would be tame sport for him and of little attraction.

According to present plans, reserve officers of the Air Service, Military Aeronautics, will be called to flying fields for active duty for a period not to exceed two weeks each year. There pilots who have not flown for some time would be sent up, first under an instructor, in order to demonstrate their ability to handle a ship. After the dual-control flight they would be permitted to fly solo during their period of training service.

# Getting the Range

By J. R. BEVIS, Ph.D.

AS long as the game is easily within the point blank range of our rifle it is merely a matter holding to place a vital shot; but when the game is beyond the point blank range of the rifle and its distance is, of course, unknown, one must estimate that distance closely, and the farther away the game is the more closely must its distance be estimated.

The hunter estimates the distance of an antelope at 500 yards and sets his sight accordingly, to hold on the middle horizontal line of the animal, what error may be made in estimating the distance and still hit the animal, assuming the horizontal vital zone of the animal to be 12 inches in width?

It is calculated, Page 80, Bevis and Donovan, that if he over-estimates the distance 27 yards he scores a miss by shooting over, and if he under-estimates the distance by 24 yards he scores a miss by shooting over. The hunter, therefore, must make his estimate within a total distance of 51 yards, 27 yards in front of and 24 yards beyond the 500 yard mark. At 800 yards he must make a much closer estimate, and at 1,000 yards if such a shot is undertaken, a still closer estimate.

I give here a practical and accurate method of getting the range. It is practical because any one may use the method almost under all circumstances, and it is mathematically accurate so that the result obtained by the hunter or marksman depends upon his carefulness. The formula is deducted by trigonometry as follows:

$$\frac{AC}{DC} = \frac{\cot A,}{1} \quad \text{(see figure)}$$

$$\frac{BC}{DC} = \frac{\cot B}{1}$$

$$\frac{AC}{DC} \times \frac{DC}{BC} = \frac{\cot A}{1} \times \frac{1}{\cot B}$$

$$\frac{AC}{BC} = \frac{\cot A}{\cot B} = \frac{\tan B}{\tan A}$$

$$\frac{AC-BC}{A\ \ C} = \frac{\tan B-\tan A}{\tan B}$$

$$\frac{A\ \ C}{AC-BC} = \frac{\tan B}{\tan B-\tan A}$$

But $$AC - BC = AB$$

Hence $$AC = \frac{AB \tan B}{\tan B-\tan A}$$

The method is merely **one of ratio.** Get a transparent celluloid rule about 3 inches long, divided into 10ths, preferably. The transparent celluloid is better because one may see through it and between the division lines. Suppose standing at "A" you see a moose at "C," select a tree "D," or rock or some land mark as near at a right angle as possible with the moose and yourself and as far away as possible from the moose within reasonable limits, say within one-half of your estimate of the distance from you to the moose. Raise the rifle to your shoulder, place the celluloid rule across the barrel and at some convenient distance read carefully between the lines on the rule the distance from the moose "C" to the tree "D." Mark the exact spot on the barrel where the rule was placed. Walk in a straight line toward or from the moose, say 100 or 200 yards, either one, and placing the rule on the same place on the barrel as before, read carefully again between the lines the distance from the moose to the tree.

Apply this formula,—

$$R = \frac{\text{the distance walked} \times \text{the second reading}}{\text{difference of the two readings}}$$

This gives the range from the first reading, from which you either subtract or add the distance walked. For illustration, at "A" the reading was 4 divisions on the rule and the distance from "A" to "B" is, say, 200 yards, where the second reading is 5 division. Then

$$\frac{200 \times 5}{5-4} = \frac{1090}{1} = 1000$$

yards, "C" is from "A," or 800 yards "C" is from "B."

Here at the Camp Perry Range, where we have tried out the method many times, reading at 1,000 yards and then at 800 yards over a known distance of 200 yards, the error of our estimate will

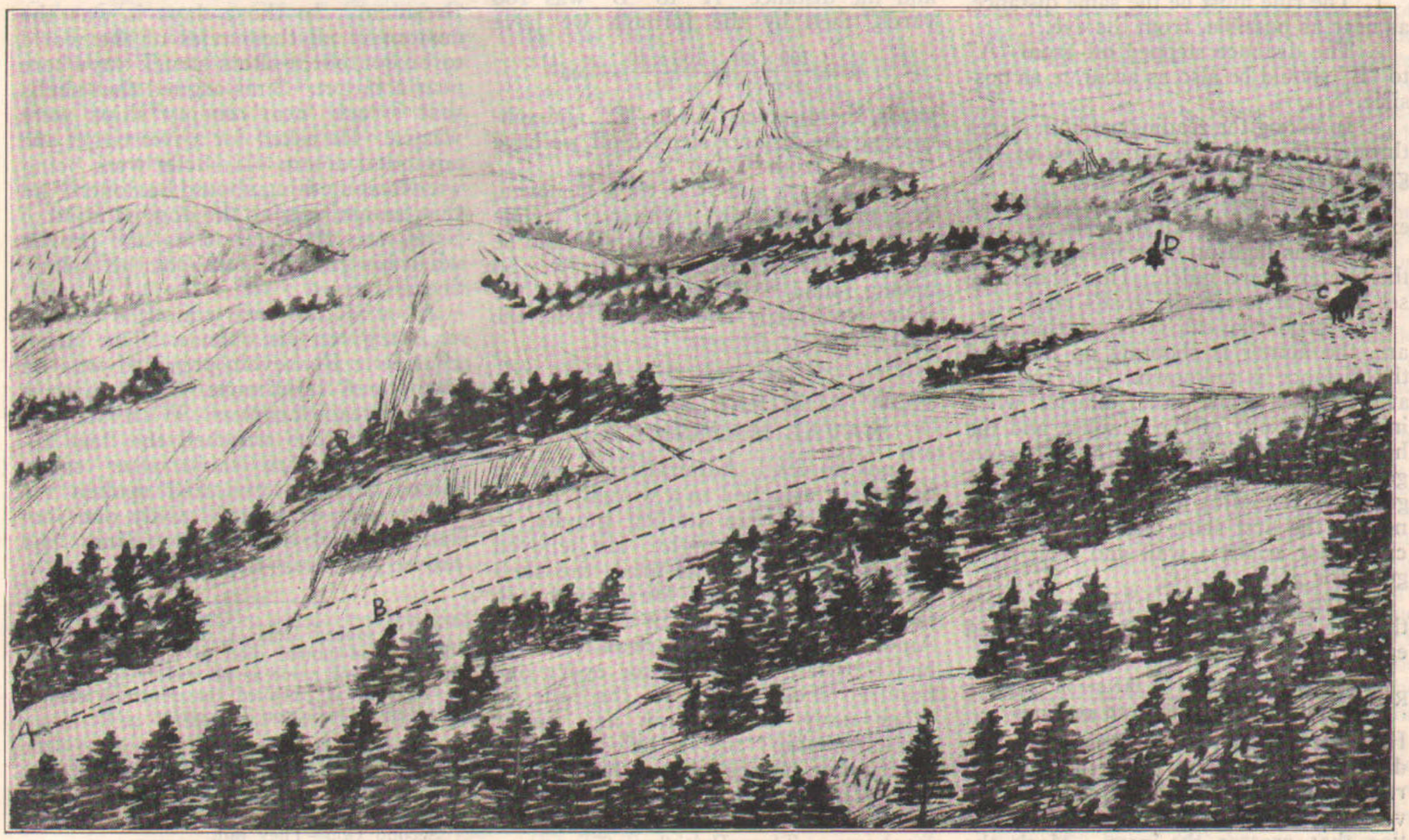


**Diagram showing how the Moose problem is solved by mathematics**

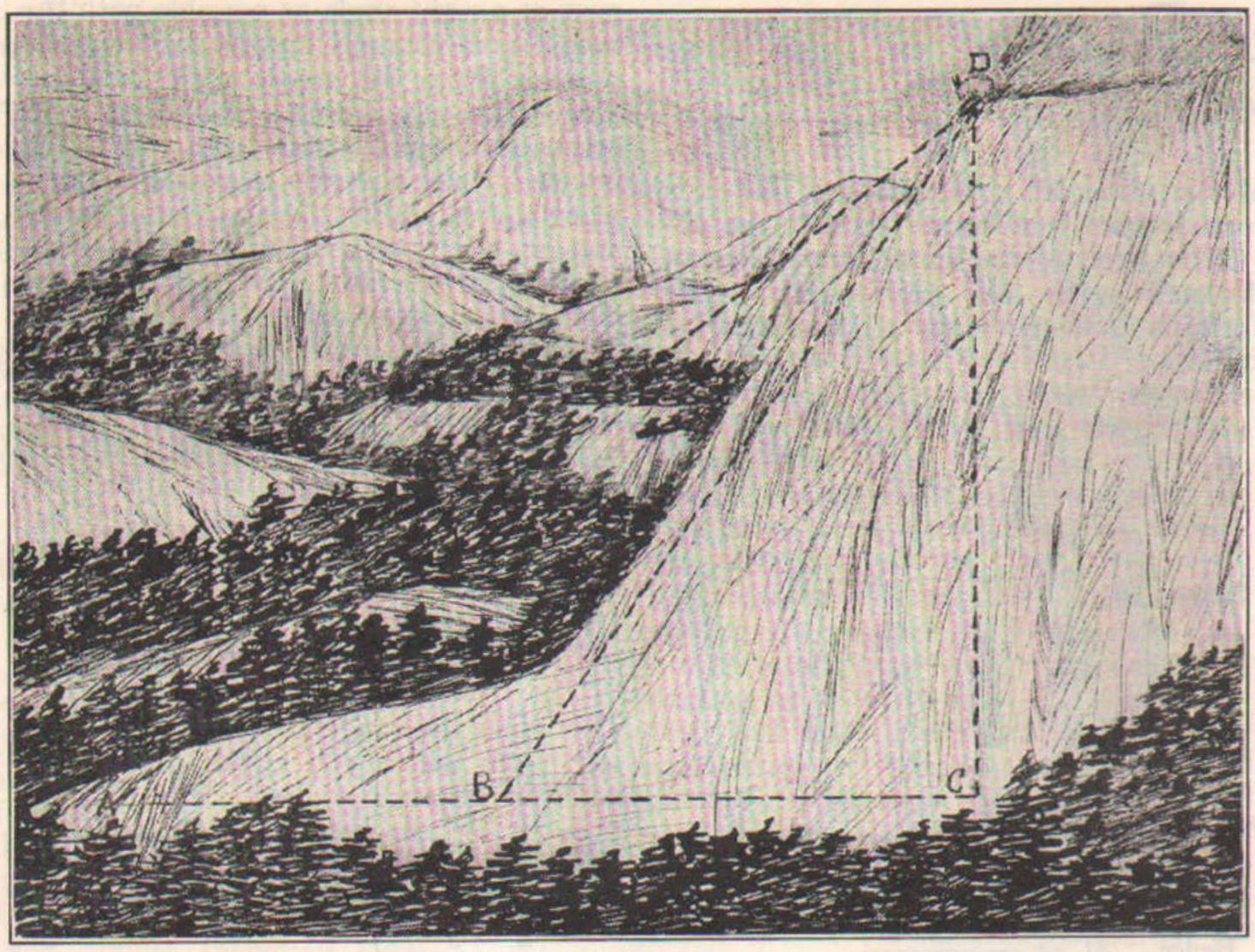


**Diagram to illustrate the problem of the goat**

average approximately plus or minus 7 or 8 yards. But stepping off our distance the error of our estimate average approximately 12 yards, close enough to land a Hun or a full grown deer.

The following factors are conducive to the highest accuracy:

1. The rule must be the same distance, as near as possible, from the eye.

2. The distance stepped off from "A" to "B" should be also as accurate as possible.

3. In taking the readings at both places through the rule the same spot of the game and of the land mark must be used.

If these three factors are carefully executed the result will be accurate.

A goat is high up on a mountain side, the hunter is in a gulch. How should he set his sight to get the goat's goat?

The problematical facts of this case are, the hunter is shooting up hill, and the distance is unknown. The problem at the on-set seems rather difficult, when in fact it is one of the simplest and the hunter should, if he takes a little time, get the goat's goat the first shot, for a goat does not enjoy being a target and if not hit the first shot, usually takes to a crevice or scales a wall and then he is gone for good.

I have shown, in the Moose problem that the range or distance is determined easily by the formula,—

$$R = \frac{\text{distance stepped off} \times \text{the second reading}}{\text{difference of the two readings}}$$

Hold the gun barrel level, pointing in the direction of the goat, place the celluloid rule vertically on the barrel, at some convenient distance, and read carefully the line that crosses the goat. Mark the exact spot on the barrel where the rule is placed, step off in a straight line, toward or from the goat, one hundred or two hundred yards, more or less, and placing the rule again vertically in the same place, holding the barrel level, read the line that crosses the goat. Assuming our first reading at "A" to be 30 and at "B" 40, and the distance "A" to "B" was 100 yards, then by the formula we have

$$R = \frac{100 \times 40}{40-30} = \frac{100 \times 40}{10} = 400$$

yards, the distance "A" to "C," and subtracting the distance stepped off we have 300 yards from "B" to "C."

On Pages 74 and 75 Bevis & Donovan, it is proven that in shooting an incline range "AD" or "BD" the sight should be set for "AC" or "BC," respectively. So having found "AC" or "BC," we set the sight accordingly and holding well, the goat is ours.

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## HOW ADMIRAL SIMS HELPED NAVAL MARKSMANSHIP

Back in 1901 Admiral Sims was a lieutenant attached to a warship of the Asiatic fleet. He studied gunnery—morning, noon and night. He believed that when a gun was fired, the shell should hit something. He knew that in the battle of Santiago, in the Spanish-American War, the American warships had scored but one hit for every one hundred shells fired. At the time no other navy could show any better marksmanship; nevertheless, those ninety-nine misses worried him.

In China he met a young British naval officer who, also, had ideas about gunnery. The British officer was experimenting with a tube that when attached to a big gun fired a very small shell. The tube pointed exactly as the gun was pointed. By mathematical calculation the accuracy of the big gun could be determined by firing the small tube at a miniature target.

Sims was quick to see the possibilities of the idea. He made one of the tubes and attached it to the gun he himself commanded. Because of the great cost of shells it was then, and is now, impossible to have much target practice with the big guns. But Sims drilled his crew day after day with his attachment. If he saw other naval officers smile at his experiment, he paid no attention. And when general target practice was next held the crews that Sims had patiently and tirelessly drilled out-shot the whole fleet.

After that Sims had but one idea: that every gun crew in the navy should be drilled in the new way. He wrote a long letter to Washington. But the Navy Department was busy with a thousand and one routine duties; and, besides, a new idea always has had to struggle hard to oust the old and the accepted. Sims wrote again and again; weeks gave way to months and still he continued to mail his letters. Finally, when there seemed no other way, he wrote to Theodore Roosevelt, then President of the United States. Back came a cablegram ordering him to report at Washington.

There the determined young lieutenant was granted an interview with the President. In those days it was the custom in all the navies of the world to be content if shots struck anywhere near a target. Sims argued that shells that struck 'near' enemy ships were wasted. He asked for a real target and an actual count. If shells were being wasted something should be done. And that 'something,' to the dogged mind of Sims, was the method he had proven when his guncrew out-shot the Asiatic fleet.

After all the weary months he was at last given his chance. The target President Roosevelt provided was an abandoned lighthouse rigged with a great spread of canvas. With fastbeating heart Sims watched the fleet approach and fire salvo after salvo. When the last gun had spoken the canvas was examined. Only one shot had reached its mark. Sims had proved his case.—*Boys' Life.*

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"So," sobbed Ilma Vladoffovitchskioffsky, "Ivan Nine-spotski died in battle. You sav he uttered my name as he was dying?"

"Part of it," replied the returned soldier, "Part of it."—*Boston Transcript.*

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First Gob—In Butts (deluged with sand and cement from a ricochet)—Hey, I thought they just built these butts?

Second Gob—They did.

First Gob—What in h—, are they tearing them down for then?

# War Methods Demonstrated at Bisley

LONDON, ENGLAND,
*November* 15, 1918.

GENERAL officers from Great Britain's overseas armies, headquarters and Aldershot, accompanied by naval officers from his Majesty's ship of gunnery *The Excellent*, were guests of the National Rifle Association of Great Britain at the Bisley Range, November 8, when there was held a demonstration of the methods by which the N. R. A. School of Musketry has obtained such gratifying results during the war. Lord Cheylesmore received the guests of the Association.

Little has been said publicly concerning the work of the Association in preparing men for overseas fighting; but the services have found that the work of the Association was a valuable aid.

"Figures talk," to use an Americanism. The N. R. A. has passed out 15,000 officers and instructors as its contribution to the campaigns. A well-known officer put it thus: "The N. R. A. has been one of the great machines of the war. The efficiency of its methods has been miraculous." This tribute is well merited.

A great institution arose from a mere suggestion. In the first few days of the war Lord Cheylesmore asked Lord Kitchener what the Association could do to help; the War Minister just suggested musketry training for the new armies. Colonel Crosse and Colonel Richardson, the Commandant of the School, put their backs into it, and this and the loyal support of the staff did the rest. Within, roughly, a few weeks of August, 1914, the great scheme was well under way.

On November 8 the method was seen at work, and everyone was much impressed with its thoroughness and with the results achieved. In the demonstration of an attack under the very latest ideas of infantry work were seen the early trench fire, the platoon and sectional commanders taking the men over the top, the gradual advance, and the attainment of all objectives. It may have been merely mimic warfare, but on these rolling heather downs it was made to appear very real. And when the targets were reached there was the deadly result of the intensely accurate fire. The numerous targets exposed represented snipers, artillery, and machine-gun batteries.

Another impressive demonstration was that by the staff warrant officers acting as a Lewis gun section to show the fire power of a highly trained body of gunners. The acumen of the men and their strategy in working round to enfilade enemy batteries brought many congratulations from the distinguished company.

Then there was demonstrated the technical instruction followed in anti-aircraft warfare at a target designed by an officer of the school, the miniature landscape open theatre for a machine-gun course, and the effect of rapid fire.

Another important arm of the service—the revolver—came in for demonstrative work by three of the chief officers of the school. This demonstration was under service conditions at short and long range. The usefulness of the revolver in trench raiding was also brought out very vividly. If the marksmanship, with its astounding results as seen at the School of Musketry, has been transmitted to the men who have passed through, it will account for many of the great raiding deeds of which stories have come home from the front. This revolver business was just wonderful in every circumstance that could be imagined.

All the work shown was most instructive. No wonder the N. R. A. has done its job well if this be its teaching. The task of the National Rifle Association in this special sphere that was set up is now almost at an end. A reorganization for musketry training is in progress. But the Association is leaving to the War Office a magnificent legacy.

The program of demonstrations included:

9.30 a. m.—Field firing competition by 3 teams of 21 students (who did best in classification practices), representing a platoon less one section, under a student officer as platoon commander; starting from 900 yards.

The three teams were criticized before the whole school at a later hour.

11.50 a. m.—Inspection of miniature range fitted up as a model with scaled-down landscape.

12 m.—Inspection instructional target for use with anti-aircraft sights.

12.10 p. m.—Lewis gun section in action, by the instructional staff of the school. To illustrate—

(a) The co-operation of the Lewis gun section in supporting other sections of a platoon.

(b) The independent action of the N. C. O. in charge of the section in carrying out the platoon commander's plans.

(c) The work of the section commander in controlling his section.

(d) The duties of the various members of the section.

(e) The "Fire Power" of a section and the method of employing it.

2 p. m.—Rapid fire by 10 warrant officers of the school staff.

(a) To illustrate accuracy combined with speed (Conditions as Practice 16, Part III, G. M. C., i. e., 300 yards, 1 minute, 15 rounds).

(b) To illustrate great power of rifle at short range at conspicuous target, i. e., 1 minute, unlimited rounds, at 200 yards, 1st class figure target.

2.30 p. m.—Revolver by Capt. C. W. Wirgman. To show progressive instruction and the power of the weapon in the hands of a trained man.

## NAVY PERFECTS NON-RECOIL GUN

Non-recoil cannon, throwing projectiles from 1½ inches to 2-inches in diameter, have been mounted on the latest type of Naval seaplanes. The guns have passed beyond the stage of experiment, having been perfected by experts of the Navy Ordnance Bureau from the original Davis Non-Recoil Gun. The new weapons are in quantity production, the Department has announced and within a short time a sufficient number of medium-calibre cannon to arm all planes requiring them will be on hand. The guns can be used either against hostile aeroplanes or submarines.

The objection to using cannon on aeroplanes has been that the shock of the recoil was so strong that the aeroplane structure was unable to withstand it. The Davis Non-Recoil Gun removes that objection, as it was developed primarily to overcome the difficulties encountered in dissipating the recoil forces incidental to the explosion of the propelling charge.

In the Davis gun the recoil force of the forward barrel is counter-balanced by that of a rear barrel from which a dummy charge is fired simultaneously with the projectile. The principle is not difficult to understand if we consider the explosive forces would counter-balance and little or no recoil shock would be transmitted to the mount. In other words, the Davis gun fires from both ends. It has no breech. The rear of the gun is left open as well as the muzzle. The projectile is fired from the muzzle of the gun and a heavy charge of fine shot fired from the rear of the gun, the propelling charge being directly between the two. The result is that the shock of recoil from firing the projectile and the shock of recoil from firing the fine shot exactly balance each other and if the gun is mounted on an aeroplane it can be readily understood how the plane itself is relieved of enormous stresses.

An interesting development in connection with the firing of the Davis gun is found in the substitution of a Lewis gun for the usual sighting purpose. This machine gun is mounted on the carriage of the Davis gun in such relation to the Davis gun that from a height at which anti-submarine attacks are usually made the bullets of the Lewis gun strike in the same place as the projectile from the Davis gun. In operating this combination the path made by the rapid splashes in the water informs the operator of his point of aim. When the Lewis gun bullet splashes reach the de-

(*Concluded on page* 232)

ARMS AND THE MAN

1111 WOODWARD BUILDING, WASHINGTON, D. C.

EVERY SATURDAY

Editor

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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 the 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.

## WHY NOT A JOINT BOARD OF ORDNANCE?

THE Army, the Navy, and the Marine Corps are emerging from the world war with an adequate supply of arms and munitions of the most improved types, which can be produced at the stupendous rate necessary to take care of the needs of millions of fighting men. This is in marked contrast to the paucity of their equipment at the beginning of hostilities.

The records of ordnance production in each branch of the service constitute a criterion of manufacture which no nation in the world has ever equalled and which none can now hope to even approximate.

But even with this splendid record there has been lost motion which it is possible to eradicate and which should be given careful consideration in the formulation of whatever plans are perfected to control the ordnance branches of our fighting arms when they are placed upon a peace basis.

There is no one expedient which will prove effective in eliminating all lost motion, or in placing our ordnance affairs upon the highest plane of efficiency; but a Joint Ordnance Board, composed of representatives of the Army, the Navy and the Marine Corps, and charged with the duty of acting as a clearing house, would do much toward bringing the production of our equipment to the desired plane of standardization and efficiency.

In time past there has been considerable discussion upon the advisability of consolidating the Ordnance Departments of the several services. That this would be a mistake is evident to any man who believes that healthy stimulation is to be derived from honorable competition. If army genius is able to produce a superior infantry arm, there is no reason why the Army should not be given credit for the achievement, nor on the other hand is there any reason why the Navy should not have the advantage of that achievement provided that the weapon in question is suited to Navy needs. Of course to a certain extent there has been for many years co-operation of a sort between our fighting branches, the Army manufacturing many articles of equipment for the Navy. Since the beginning of the war, this co-operation has increased to a great extent, although it is still of a more or less informal nature, there being no clearing house for the handling of matters of common interest to the different arms, and depending largely upon the ordnance officers of the several arms, dealing through secretarial channels, for its scope and mutuality. If a joint board were created and empowered to bring to the attention of the different departments the activities of each of the other departments, it would result in greater benefits to all would still maintain the friendly rivalry which must be fostered for the good of the services themselves.

There have been several examples during the progress of the recent hostilities of the benefits which might be expected of some definite system for the interchange of ideas. One of the most notable of these examples is to be found in the work accomplished in France by the United States Navy Railway Batteries which co-operating with Pershing rendered signal service to the American arms the climax of which was reached when the giant naval rifles literally took Sedan. Since the signing of the armistice it has become known that few if any heavy American artillery, manufactured in this country, reached the firing line in France in time to be of any value. In fact, the few heavy cannon which got to the war zone, were never put in action. This does not mean that the Ordnance Department here did not perform a wonderful feat of production in connection with our big guns, but it does mean that our forces in the field depended upon artillery of French and British manufacture entirely, with the exception of the several naval batteries. As it chanced, the naval guns out-shot and out-functioned any of the heavy railway batteries possessed either by France or Great Britian, and so were used by the American army to shell Sedan, the result of which bombardment turned an orderly German retreat into an incontinent rout. But the point of the matter is this: by co-operation the Navy supplied the Army with what is most needed—big guns, and so demonstrated the value of this type of battery that several railway units are being added to the Army equipment.

The result of all this is that plans have been perfected to inaugurate a new system of coast defence for the United States, based upon railway batteries similar to those which performed such good service in France. The scheme now under consideration embraces the construction, from existing coastwise railways, of spur tracks reaching strategic coastal points where all the facilities necessary for operating coast-defence railway batteries will be erected. Under such a system the giant guns could speedily be mobilized at any threatened point, and moved about at will to meet any conditions or emergencies which might arise.

## NEW REGULATION FOR ARMY PISTOL PRACTICE

IT is understood that a revision—in fact a rewriting—of the regulations governing pistol practice in the Army is even now well under way.

It is to be hoped that those having this work in hand will bear in mind that the American soldier in France won an enviable reputation as a military gun man by quick and accurate shooting with the Army automatic and that not even the ter-

rible execution of the military shotgun inspired in the Boche the terror that the "Two Gun Man" of the Infantry implanted in the Hun, and that whatever the new regulations may be, they will fail of accomplishing the greatest good unless they are carefully calculated to engender among our soldiers of the future a skill with the hand-gun comparable to that evidenced recently by our fighters in the field.

The great war overturned many pet illusions. The Hun-spawned idea that the rifle was obsolete is only one among many popular military fallacies which the actual fighting disclosed. Heretofore our professional military men have been too prone to regard the pistol and the revolver as a weapon adapted only to mounted fighting or for an officer's side arm, and to either dispute or overlook entirely the value of such a weapon to the infantryman in close fighting. There is no excuse, now, however for any military expert to fail to recognize the value of the pistol in close fighting, and everything possible should be done to make the pistol training prescribed for the army of the future a means of developing quick accurate shooting with the hand gun.

# Little Lessons in Reloading

BY JOHN LYNN

## No. 9—Fine Points in Measuring Powder

THERE is a good deal of haziness about the exact amount of the variation or error in charges of powder as measured by the Ideal No. 5 machine, by dip and by other means, as well as about the effects at the target. It is not only the man who reloads his own ammunition who will be interested, but the user of commercial ammunition as well; some recent investigations have brought out the striking facts.

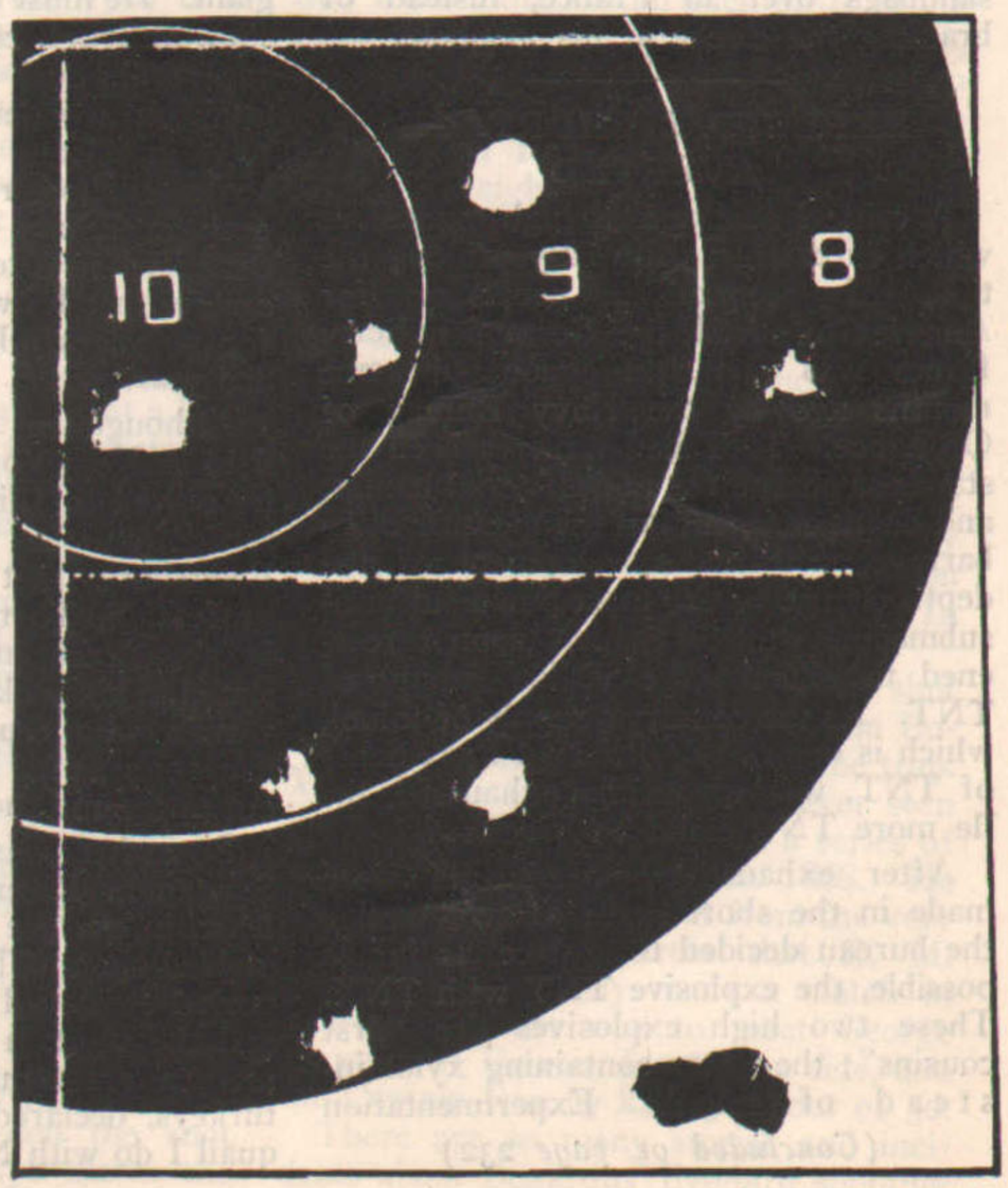
One big factory at present is allowing a tolerance of 2 grains either way, making a total of 4 grains in the powder charge for the .30 Springfield ammunition. With a lot of pyro powder requiring 48 grains to develop the standard 2,700 feet velocity, the permitted charges range between 45 grains and 50 grains. Actually most of the charges vary only within about half a grain, but the man who knows the target game will understand what sort of a score could be made with this ammunition.

I believe such a large tolerance is more than is usually permitted in the loading of ammunition for high-power rifles, but even if the usual is only half as much, a serious error is introduced in accuracy. Ammunition for the .30-40 Krag, .30-30, .303, .22 High Power and .250 Savage, .303 British, .32 Special, .25-35, .32-40 and .38-55 High Power and other similar rifles is loaded in the same manner and with similar or proportionate tolerances.

With a dip measure or scoop it is possible to secure charges accurate to within 6 to 8 per cent, but no closer. This means that a 50-grain charge will vary about as described above; and a 30-grain charge about 2½ grains. With the Ideal No. 5 machine, the variation is much smaller. In it, Government pyro powder, or its equivalent, du Pont No. 20, one of the hardest powders to measure accurately, in a 48-grain charge will vary about one-fifth of a grain on the average and the maximum will not be more than one-half grain (less than 10 per cent). With fine-grain bulk powders like Marksman or du Pont No. 80 the maximum variation will be only one-fifth grain, and the average less than one-tenth grain (one-fifth of one per cent). Shotgun powders and revolver powders measure almost as well, except that certain of them with very thin grains persist in getting between the cylinders of the machine and its sleeve and in consequence give greater errors. Ballistine and Infallible powders, for instance, in a recent test in an Ideal machine set to throw 100 grains of the former, varied 6/10 to 2½ grains. In shotgun loads, the variation of course would have been proportionate, or about one-fourth of these amounts. The variation always follows the size of the charge in proportion.

No other type of measuring device (aside from this revolving cylinder Ideal type) works to within anywhere near the accuracy mentioned. As the Ideal measures are hard to get now, it is to be hoped other makes of similar principle will be placed on the market. If reloading is to be done in comfort and with proper success, certain equipment must be provided—and one vital point is a pair of scales that will weigh to within a tenth of a grain. Another, little less vital where the reloading runs into the hundreds of cartridges, is this powder measure. To the man who reloads, these tools are like the micrometer calibre to the machinist. Loading *can* be done with the powder measure alone, by using the Ideal equivalent weight tables, but when accuracy closer than 1 to 2 grains is required, the scales must be used to check adjustment of the measure.

There is a knack in operating the No. 5 type of measure by which its accuracy can be increased. The lever should not strike against the back-top on the machine at the end of the upward stroke, but against a felt pad or spring fixed to the bench separately, or lacking such a stop, slowed and stopped gently by hand




**Two 5-shot groups, 100 yds., Springfield rifle, showing variation in striking point of bullet due to variation in powder charges.**

**Group 1 (upper) was made with 50 grains of powder; group 2 (lower) with 46 grains. The variation is about 2½ inches.**

when far enough up. The length of time the lever is up influences the exact sizing of the charge, as does the speed with which the downward motion is started and completed. The reservoir should be kept nearly full. The jarring weight should not be used unless necessary to shake out the crumbs of each charge. A swift but gentle upward motion of the lever, followed promptly by a quick, complete downward motion, without hesitation, knocking or catching, will insure accuracy. Any jarring introduced in any one movement must be induced in all without variation.

The bulk powders are the easiest to measure; the dense, tubular-grain powders the hardest. No. 80, Marksman and other bulks measure exceedingly well; Nos. 18 and 21 excellently; No. 20 good; Nos. 15 and 16 should be weighed, but may be measured with fair satisfaction in charges not the maximum. Lightning and Sharpshooter measure fairly well. Du Pont No. 13 and No. 10 are too coarse-grained to measure at all.

The extent of inaccuracy caused by a variation of 4 grains in the Springfield standard powder charge is indicated by the accompanying target. Here there is a difference of 2½ inches per 100 yards. These groups were shot on purpose to establish the amount of variation, and were made with carefully loaded ammunition and fine holding. They prove the reason why bullets sometimes drop out of the bull when the hold is dead at six o'clock—and why we sometimes get some hair off of the back or belly of our deer or bear instead of the heart shot intended. They also may make clear why some of our bullets smacked into the sandbags over in France, instead of braining the Boche at his loophole.

## EXPLOSIVE SHORTAGE AVERTED

A critical shortage of high explosives which threatened to greatly prolong the time of preparation necessary for America to smash the German military forces was met and conquered some months ago by the Navy Bureau of Ordnance. TNT had hitherto been the standard charge for mines, aerial bombs, and depth charges; but the gigantic mine barrage, with the development of the depth charge as the most powerful anti-submarine weapon known, soon threatened to exhaust the visible supply of TNT. As the country's supply of toluol, which is one of the principal ingredients of TNT, was practically exhausted, little more TNT could be produced.

After exhaustive experiments were made in the short space of two weeks, the bureau decided to replace, as far as possible, the explosive TNT with TNX. These two high explosives are "first cousins"; the latter containing xylol instead of toluol. Experimentation

(*Concluded on page 232*)

# The Father of Trapshooting

By STONEY McLINN

In the *American Shooter*

WHEN Capt. Adam H. Bogardus was touring the United States in 1888, introducing clay-target shooting to American sportsmen, little did he think that he was destined to be known in later years as the father of American trapshooting, a great, nationally organized game. But the large shotgun army in America must recognize in Captain Bogardus the leader among the pioneer exponents of the sport which is now occupying a most prominent position in the eyes of our nation.

True enough, the doughty captain perhaps was best known as a live-bird shot, and later as a skillful breaker of glass balls. But he—the sportsman who admitted in his book, "Field, Cover and Trapshooting," that "for many years he was prejudiced against live-bird shooting"—welcomed the clay target and was anxious to see it used at the traps instead of the live pigeon.

Therefore, we trapshooters gladly recognize our parent and pay homage to the valiant sportsman who did so much to rescue shotgun shooting from the roadhouses of the live-pigeon era, where it was stained by the gambling—the crookedness which was certain to be practiced when thousands of dollars might change hands as the result of a match.

Captain Bogardus was a remarkable man. For many years he was a physical giant. He must have been a natural-born shot, although constant practice and his superb physical condition helped him to establish wonderful records. Born in 1833 in Albany county, New York, he began to shoot ruffed grouse and woodcock at the age of 15 years; and as he took part in a tournament in 1898, it is certain that he was an active marksman for 50 years. He died in 1913, in his 82d year.

Although he started to shoot in the field in New York in 1848, it was when he moved to Illinois, in 1857, where he settled on the Sangamon River, near Petersburg, that he made shooting his profession. There was "game of all sorts in abundance in Illinois," the Captain stated in his book, and continued, "hardly a man who could kill snipe and quail except myself. Lots of men used to go out to see me shoot."

Bogardus was the pioneer, in the Sangamon River section of Illinois at least, in the use of what we now know as bird shot. The field shooters of that period employed the larger 1's or BB's, and the Captain wrote that one sportsman, a great hunter of deer and wild turkeys, declared: "What little I do at quail I do with No. 1 shot, and for prairie chicken I use BB's," and insisted that No. 8's would not kill game. "But he changed his opinion when he found by experience that I could kill ten to his one," related Bogardus.

About 1859 the father of trapshooting moved to Elkhart, in Logan county, Illinois, where he continued his field shooting and became a truly great hunter. He also overcame his prejudice against live-bird shooting, and later became a famous glass-ball and clay-target shot while residing in Elkhart.

The most interesting facts about Captain Bogardus are to be gleaned from his book. There are living today many old-timers who knew the captain, had talked with him and watched him shoot, but they cannot, or do not, tell some of the things which make him so different from the present-day shotgun cracks.

For example, Bogardus sneers at the "gun bug." He wrote: "I could never see any use to the shooter in a long, theoretical or practical description of the principles and details of guns as they are made. It is no more essential to the marksman or young sportsman that he should understand the mechanism and mode of manufacturing guns than it is that he should determine whether the Chinese or Roger Bacon first invented gunpowder before he shall fire a shot off." The Captain started with an old musket—"flint-lock, of course, and probably one of those specimens of 'Brown Bess' which had been used in wars against the French and Indians before the Revolution." But as soon as hard work and careful saving permitted him to invest $25 in a muzzle-loader he did so. He kept pace with the gunmakers and expressed the opinion that he was the first man who ever stepped up to shoot a championship match at pigeons with a breech-loading gun.

Now times have changed, and perhaps the trapshooters of today know best, but Bogardus favored a gun weighing 10 pounds. He admitted that it was heavy to carry, but said it would "stop anything that flies or runs this side of the Rocky Mountains if properly charged and aimed, and the advantage of a good solid gun in delivery of fire is very great." He emphatically declared against a gun weighing less than eight pounds. Of course, our "daddy" used a 10-gauge. But it is worth while knowing that he believed in and used 32-inch barrels.

The champion wing shot of America was not a "gun bug," but he did believe that a man who would shoot well must have his gun stocked so as to fit him. He opined that some required a longer stock than others, and that some liked

stocks which were nearly straight, while others could shoot with a gun the stock of which was crooked.

"It depends mostly on the build of the man," he said. "A long-armed man does not want a gun with a short stock. A man with a moderately long neck cannot use a gun which is straight in the stock with ease or pleasure. I choose a stock of moderate length and one that is rather crooked."

Bogardus did not believe in snapshooting, either in the field or at the traps. He said that a successful shot must look along the rib of the gun at the bird and take aim. He insisted that he sighted his birds in his matches against time, where speed was most essential, and also when he stood between two traps, 40 yards apart, which were pulled simultaneously; and that "in cases where the bird can be plainly seen, it should be distinctly aimed at."

Captain Bogardus apparently did not believe that "good shots are born and not made," for he said that "anyone who is well enough to walk abroad and carry a gun may attain fair proficiency as a wing shot." He was willing to admit that some men enjoyed a natural gift, and with great practice became dead shots—masters of the art of shooting. But he gave as his opinion that there are very few who may not become good shots if they "follow proper methods and practice much in pursuance of wise instructions."

"Teach the boys how to shoot" was Bogardus' plea, and he decried the disinclination of parents to permit lads to have guns for fear of accidents. "The handling of the gun prevents accidents with guns instead of causing them," he wrote. "It is a million to one that a boy who shoots or is learning to shoot will never shoot one of his sisters or friends. Such things are only done by those who have nothing to do with firearms in their proper places."

The father of trapshooting believed in "shadow shooting." He suggested that the boy practice the handling of a gun just as if it were loaded, until he could bring it up to his shoulder clean and well. He cautioned against permitting the muzzle to point toward a person, however, whether the gun be loaded or not.

One of the most surprising things about Captain Bogardus' extraordinary career as a trapshot was that he shot with one eye closed. Nowadays the novice always is taught to keep both eyes open at the traps, and some of our foremost instructors of today insist that one cannot be a top-notcher until he learns to shoot that way. Read what Bogardus wrote on that subject:

"I have heard men say that it is best to shoot without shutting one eye. For my part I cannot see it. One eye is certainly quite as good as two when it is taking aim along the gun at the object, and, I believe, *a good deal better*. In snapshooting both eyes are often open when the fire is delivered, but even in that most good shots instinctively shut the left eye at the instant of firing."

Many trapshooters of this day and generation might profit by the Captain's suggestion that they guard against undershooting a straightaway. He said the young shooter must remember that a bird flying away is rising for some distance. He also remarked that misses at birds which present side shots (quartering birds, we call them) are usually owing to shooting behind the bird. He wrote: "The young shooter, as I observed before, must allow for the forward motion of the bird he aims at," which is expressed in such a homely and easily understood manner that it is well worth repeating in this article. If novices always sighted carefully and remembered that the bird was rising and going away from them, they would advance in the clay-target game much more rapidly.

The misses which occur at quartering birds, due to the failure of the shooter to lead the object so the centre of the charge will be upon the bird when the shot reaches him, doesn't always alarm the sportsman who is in the field where game is abundant. But when a man "misses at the traps, where there are $500 or $1,000 depending upon his gun, he is apt to cogitate over the reasons of these things," Bogardus thought.

Captain Bogardus knew, by long experience, just where to shoot at each bird. Present-day experts declare that the shooter only guesses that he leads a bird a certain number of inches or feet, but our "daddy" was not afraid to risk a positive mathematical statement, as he did in the following paragraph:

"At easy, slow-flying birds, going right or left from the trap, I hold three or four inches ahead of the bird. It is well known by those who attend the great pigeon-shooting tournaments and matches that I generally kill all such birds, while some other men, who are very good shots, often miss them. The reason is plain to my mind: They shoot a little behind the bird. At a fast-flying crossing bird I hold from eight to ten inches ahead; at a quartering bird from three to four inches."

Your twentieth century expert will not risk a statement that he leads a bird a certain distance measured in inches. One tells you that he often shoots two or three feet ahead of a quartering bird and breaks it. Another will insist that he keeps his gun moving and shoots directly at the bird. The wing-shot champion didn't *guess* or make rash statements. In his own mind he was convinced.

It was after he had been a field shot for more than 18 years that Captain Bogardus first shot live pigeons at the trap. As a matter of fact, he had never seen a pigeon trap until he entered a series of sweepstakes at St. Louis in 1868. He must have been successful from the very beginning, for he wrote that R. M. Patchen immediately made a match in which Bogardus was to meet George Stanton, of Detroit, for $200 a side, and the Captain won by killing 46 out of 50.

There are so many stories and incidents about Bogardus' live-bird shooting

career that it is impossible to relate all of them. But there are some which must be told to make this story complete. For instance, one of his early matches was with Abraham Kleinman at single and double birds. Bogardus shot from a buggy at 21 yards, the horse on a trot or run when the trap was pulled. Kleinman shot from the ground at 25 yards. The Captain won. Later he shot two other matches under similar conditions, won one and lost one. He said that his shooting from a buggy at plover, grouse and geese had made him very quick and effective.

At live birds Bogardus was willing to shoot against time. In 1869, one year after he started in the game, he agreed to kill 500 pigeons in 645 minutes with one gun, the stakes being $1,000 a side. He won, the time being 528 minutes, or eight hours and 48 minutes, which means that he had one hour and 57 minutes to spare. In the third century he scored 75 consecutive kills. In the last 105 birds he killed 100, and in the seventh hour killed 95.

In this great exhibition of skill and stamina the shotgun king used a muzzle-loader—and did the loading and cleaning himself. They tell a story about the fellow who, when offered a bet that he could not eat five dozen oysters at one sitting, excused himself for 15 minutes. When he returned he accepted the bet, and when asked where he had been, replied: "Oh, I just went out and ate five dozen oysters to make sure I could do it."

Captain Bogardus must have been the original of that story, for before he agreed to kill 500 pigeons in 645 minutes he tried the stunt. He wrote that in practice he accomplished the feat in five hours and seven minutes. But he used two guns and had a man to clean them, though he loaded them. He missed only 34, which means that he killed 500 out of 534.

Long runs were also easy for the Illinois champion. A bet of $1,000 to $100 was made that he could not kill 100 consecutive birds in three attempts. His gun broke and he failed the first time, but he won on the second attempt. He also agreed to kill 40 pigeons in 40 minutes, load his own gun and gather his own birds. He triumphed by killing 53 in 20 minutes and 40 seconds.

In 1870 Captain Bogardus first saw the wing-shot championship badge, held by Ira Paine, of New York. On January 21, 1871, they shot for it on Long Island. Paine retained the title by killing 88x100 to 85 for the man from the Middle West. Another match was immediately made, the men to shoot at 100 birds each, group traps, for six consecutive days, the stake $500 each day, and either party refusing to go on to the end of the sixth match to forfeit $100. Bogardus won the first contest, 80 to 62, and Paine paid forfeit rather than continue.

The title-holder was not averse to novelty matches. One of these was against four top-notch gunners and was shot in Chicago. The quartette shot at 50 birds each, their total kills to count. Bogardus shot at 200. He won by killing 178, while his opponents were credited with 176.

And now we come to that era in Captain Bogardus' wonderful career when he shot at inanimate birds, and this, of course, is of greater interest to trapshooters. Historians tell us that the first manufactured moving target for shotgun shooting was the glass ball. The balls and trap were imported from England about 1866, but were so crude that Yankee sportsmen set to work to bring about improvements. In 1872 Bogardus began to give glass-ball shooting exhibitions, and he used a moderately priced trap which bore his name and which he is said to have constructed. He performed so well and his feats were so interesting that soon glass-ball shooting was popular. Therefore, it is a fact no man can successfully deny that Captain Bogardus introduced shooting at inanimate targets and is indeed the father of trapshooting.

Chevalier Ira Paine accompanied Bogardus on his tours, and they frequently shot against time. One of the Captain's best performances was the breaking of 5,500 glass balls in a few seconds under 7 hours and 20 minutes. He used a gun with two pairs of barrels, one pair, 10-gauge, shooting 4 drachms of powder and 1½ ounces of No. 8 shot; the other pair, 12-gauge, with 3½ drachms of powder and 1 ounce of No. 8 shot. Bogardus loaded for himself and changed barrels 55 times.

His real record was 4,844 out of 5,000 glass balls in 6 hours 13 minutes and 45 seconds. This never was equalled—is a world's record.

Captain Bogardus, in company with Dr. W. F. Carver, next toured the country in 1881 to introduce the Ligowsky clay pigeon. This was the first successful saucer-shaped inanimate bird sprung from a trap in a skimming manner and with a rotary motion. And they do say it was a tough old bird to "kill."

The two famous marksmen, Bogardus and Carver, shot 25 matches in 25 U. S. cities east of Omaha, and the sport at once became very popular; in fact, its real strides forward began in the course of and immediately following the Bogardus-Carver tour.

Earlier in this historical sketch it was said that Captain Bogardus was known to have shot over the traps in 1898. Jack Fanning, the New York professional, is authority for this statement, and he was among those present and competing.

A live-bird tournament was held at Hot Springs, Ark., in that year. Bogardus was conducting a shooting gallery in the health resort, and when the sportsmen attending the meet learned this, it was suggested that he be invited to enter. He consented. The Captain did not have a gun, but he borrowed one and killed 24x25. This, perhaps, was the last time he shot in a tournament.

One cannot help but read with amazement the feats of marksmanship credited to Captain Bogardus. It was not so much his skill, although that was remarkable, but his endurance which placed him in a class by himself. Present-day trapshooters would not dream of attempting to equal his records.

Certainly, trapshooters may well be proud of the fact that the game had a father who was worthy of the name—in every way.

## NAVY NON-RECOIL GUN

(*Concluded from page 227*)

sired spot where the aeroplane pilot desires his Davis gun projectile to strike he pulls the trigger.

In addition to the Davis gun, a heavy aeroplane bomb has been developed for anti-submarine warfare, which has not only all of the qualities of an aero bomb, but those also of a depth charge. When an aeroplane sights a submarine and attacks with bombs, the bombs will explode if a direct hit be obtained upon the submarine. A submarine attacked from a height is a rather difficult target to hit and these bombs compensate somewhat for that. Should the bomb miss the submarine it will detonate on reaching a predetermined depth and will thus have the effect of a depth charge.

Formerly, bombs were of a more or less delicate nature and impact with the surface of the water was sufficient to detonate them. A submarine running below the surface was therefore practically immune from damage from aircraft attack; but these bombs can be set to explode at considerable depth below the surface and in all they make the aeroplane a much more formidable anti-submarine asset than ever before.

The Navy's new bomb sights for aeroplanes are considered to be the equal of anything in use at present. These were developed after exhaustive investigations had been made of all sights in use by our allies and our enemies; the latter from captured machines.

## EXPLOSIVE SHORTAGE AVERTED

(*Concluded from page 230*)

showed that TNX possessed practically the same qualities as TNT.

Industrial investigation disclosed the fact that to fill the Navy's needs of xylol of proper quality it would be necessary to buy up practically all of the country's supply. The Secretary of the Navy decided to authorize the building of a plant for the distillation of xylol. This project will, by 1919, produce sufficient xylol for 30,000,000 pounds of TNX. This single unit of production will increase the available supply of high explosives in this country some 30,000,000 pounds.

# From Club Room and Firing Line

## Why Not a State Championship Shoot?

By RIFLEMAN

THE trapshooters of the several States of the United States have a State Championship shoot each year and the winners and runners-up in this shoot are then eligible to shoot for the National Amateur Championship at the Grand American Handicap. They are, quite naturally, "some matches."

The National Rifle Association occasionally has a National Match and a few of the riflemen from each State get on the State teams, and about all that the other riflemen can do is read the results in ARMS AND THE MAN. This is so exciting that occasionally some club disbands. Why? Simply because they do not have enough to keep them interested.

Suppose that the National Board for the Promotion of Rifle Practice should be suddenly inspired with the idea that riflemen are at least as near human as shotgun shooters and would shoot if they had something to shoot for; that they would provide for a regular annual State shoot in each State, to be held regularly on the same date (date to be set at least six months ahead of time for the first shoot), and that this shoot should contain different matches, such as the Individual State Championship, the Five-Man Team Championship, and the Ten-Man Team Championship, any club to be eligible to enter as many teams as possible and any individual to be eligible to enter for the Individual State Championship. If it was found that this plan was impracticable, why not have each club shoot on its home range on the same dates over the prescribed course, and submit the results covered by affidavits?

Then again, if we would shoot the National Team Match course for each of these three matches, it would be comparatively easy to pick a 16-man team from the results of these three matches that would be a credit to the State that sent them to the National Matches, and nobody would need to waste any time explaining how in the dickens their team won 49th place in the National Team Match when such a shining light as he was gracing the team.

And also, having gotten along this far, it might be found well to hold a National Team Championship Shoot, to be shot for by the teams winning the five- and ten-man team championships of the different States and the winners to be known as the five- and ten-man team champions of the United States, or some other suitable title.

I believe that if the National Board would adopt a course for the grade of Distinguished Rifleman, with added bars or stars, and adopt a system of State shoots as annual events, that they would be enthusiastically received; but preserve us from any more Camp Perry ammunition or weather at them.

### New Colts Tried Out

Two more hand-gun matches have been staged on the San Antonio, Texas, Municipal Range, since the first competition in which the new service revolvers figured. In the initial contest, the arm used was the .45 calibre Smith and Wesson, taking the automatic cartridge. In the second match held November 24, the arm was the new Colt, using automatic type ammunition. In the third match, both revolvers figured.

Picked teams from the Liberty Rifle and Pistol Club of that city and from the 165th Depot Brigade, Camp Travis, participated, the civilians winning by 6 points.

The bullseye was at 20 yards in the pistol event. L. L. Cline led the civilians in point of score with 98 out of possible 100, and Lieut. W. R. Christian made the highest score on the army team, 99.

Following is the individual scores:

LIBERTY RIFLE AND PISTOL CLUB

| | |
|---|---|
| T. A. Rieber | 92 |
| C. F. Barbera | 95 |
| Sergt. H. H. Mitchell | 94 |
| L. L. Cline | 98 |
| Mrs. H. H. Mitchell | 97 |
| Total | 476 |

ARMY TEAM

| | |
|---|---|
| Lieut. J. E. Segar | 98 |
| Capt. J. H. Magowan | 91 |
| Major D. B. Lyon | 88 |
| Lieut. J. E. Ryan | 94 |
| Lieut. W. R. Christian | 99 |
| Total | 470 |

Individual scores:

| | |
|---|---|
| T. A. Rieber | 96 |
| Major D. B. Lyon | 90 |
| Lieut. R. H. Alvey | 78 |

The same teams will shoot a return match in the near future.

The third match, on November 30, resulted in another defeat for the Depot Brigade shots, although the contest was close.

The victory was by only 6 points, the Liberty men scoring 475 and the soldier team 469. The Liberty Club was led by Sergeant H. H. Mitchell and the soldier-team was led by Lieut. W. R. Christian.

Signal features of the team meet were the perfect score of 100 made by L. L. Cline and the marksmanship of Mrs. H. H. Mitchell, who scored a total of 97 points, defeating Sergeant Mitchell by a margin of three.

Following are the scores made:

Pistol match, .45-caliber, five-inch bull's-eye, twenty yards:

| | |
|---|---|
| Sergeant H. H. Mitchell | 94 |
| Mrs. H. H. Mitchell | 97 |
| C. F. Barbera | 93 |
| L. L. Cline | 100 |
| Capt. H. R. Marshall | 91 |
| Total | 475 |

First Group, 165th Depot Brigade:

| | |
|---|---|
| Lieut. W. R. Christian | 95 |
| Lieut. J. R. Riley | 94 |
| Major D. B. Lyon | 91 |
| Lieut. J. E. Ryan | 91 |
| Lieut. J. E. Segar | 98 |
| Total | 469 |

Individual scores, pistol, five-inch bull's-eye, twenty yards:

| | Points | Targets |
|---|---|---|
| Capt. J. H. Magowan | 244 | 250 |
| Lieut. C. W. O'Connor | 190 | 200 |
| Major D. B. Lyon | 178 | 200 |
| C. Fansel | 97 | 100 |
| L. C. Mitchell | 95 | 100 |
| Lieut. W. A. Gillespie | 91 | 100 |
| F. H. Zawarka | 90 | 100 |

Rapid fire: Lieut. J. E. Segar, 47 in 12 seconds, possible 50.

Rifle, eight-inch bull's-eye, 300 yards:

| | |
|---|---|
| C. Fansel | 86 |
| Capt. J. H. Jenkins | 82 |
| Lieut. R. H. Alvey | 82 |

ALTHOUGH the trophy for the Civilian Rifle Club National Team Match has never been provided, a committee of the National Rifle Association having the matches in charge has approved a design for medals to be awarded within the next few weeks to the clubs who won this competition in 1915 and 1916.

The design selected for the trophy was a bronze Minute Man; hence the medals will bear in bas relief a replica of this American colonial character. The medallion will be suspended by N. R. A. ribbon from a regulation N. R. A. bar. Slides will be provided for the medals going to the victors and to the teams which finished in second place.

### Montclair Defeats Caldwell

In a return match which followed a competition some weeks ago, the Montclair, New Jersey Rifle Chub visited the Navy firing line at Caldwell on December 1 and won a match from the range's Blue Jacket team on a total of 1,353 to 1,352. The first match, shot on the Montclair Club range, resulted in victory for the sailors. The scores in the second match were:

MONTCLAIR RIFLE CLUB

| | |
|---|---|
| H. P. Macdonald | 174 |
| H. D. Sheldon | 171 |
| V. T. Frazee | 160 |
| W. Cairns | 177 |
| W. A. Pond | 156 |
| E. L. Allan | 163 |
| G. F. Hewitt | 175 |
| M. W. Huttenloch | 177 |
| Aggregate | 1353 |

CALDWELL

| | |
|---|---|
| A. L. Bowers | 175 |
| W. A. Haight | 179 |
| A. H. Strochmer | 166 |
| R. L. Fryer | 167 |
| F. H. Andrews | 159 |
| R. J. Curtin | 170 |
| H. J. Carlson | 172 |
| A. C. Atwater | 164 |
| Aggregate | 1352 |

### School Boys Shoot in Mud

Prone in the mud of the Caldwell, New Jersey, Rifle Range, schoolboy riflemen from the New York City Metropolitan District on November 29, learned what it means to undertake service rifle shooting under what closely approximated service conditions. The boys had received most of their training on the sub-target gun machines where there is neither report nor recoil, but nevertheless made creditable scores, shooting the U. S. Rifle Model of 1917.

The team of five from the Stuyvesant High School was the winner of the trophy with a score of 444. The boys who were on the winning combination were L. Eltinger, E. J. Finkelstein, J. H. Werner, J. E. Chaudrue and A. Arcuri.

There were ten teams in the competition and they shot from two hours before noon until it was dark. Each boy had twenty shots at the targets, which were set up 2200 yards off, and they were obliged to pull the trigger in a sitting posture, prone, squatting and erect.

While the Stuyvesant boys were returned the winners for the best single team score, Erasmus Hall High School of Brooklyn was

the winner on the aggregate for both first and second teams. The second team from Erasmus surprised the supposed sharpshooters of the first contingent by making a total of 429. This tally, with 405 by the first string, gave the Brooklynites the honors for the combined teams. Stuyvesant's second team could only make 375. Evander Childs High School was even better than Stuyvesant in the double-up system for the first team made 413 and the second 400. Jamaica High School also had a high record in the combination event and the odd thing about it was that both the first and second teams made exactly the same scores with totals of 414 each.

The teams scored as follows:

Erasmus High School, 429—405—834; Jamaica High School, 414—414—828. Stuyvesant High School, 444—375—819; Evander Childs High School, 415—400—815; Eastern District High School, 409—386—795; Richmond Hill High School, 399—387; Emanuel Training High School, 437—305—742. Individual teams: De Witt Clinton, 429; Flushing, 379; Boys, 377; Commercial, 367; Bryant, 319.

The individual leaders were the following:

| | |
|---|---|
| E. Preston, Richmond High | 100 |
| Larson, Manual Training | 96 |
| K. Gray, Jamaica | 96 |
| Wehde, Evander Childs | 95 |
| Sacken, Eastern District | 94 |
| Capitonia, Erasmus | 94 |
| Warner, Stuyvesant | 92 |
| Chaudrue, Stuyvesant | 92 |
| Erdman, Manual Training | 92 |
| Kirschner, Stuyvesant | 92 |
| Petain, Bryant | 92 |
| Arcuri, Stuyvesant | 92 |
| Wetherby, Erasmus | 91 |
| Power | 90 |
| Hollman, Richmond Hill | 90 |
| Holts, Flushing | 90 |
| Mierowitz, Clinton | 89 |
| Salomon, Clinton | 89 |
| Kongla | 89 |
| Johnson | 88 |
| Guedalia, Clinton | 87 |
| Bates, Jamaica | 87 |
| Goldstein, Eastern District | 86 |
| Permalan, Eastern District | 86 |
| Wheeler, Richmond Hill | 86 |
| Barber, Clinton | 85 |
| Fenn | 85 |
| Magid, Erasmus | 85 |
| McKenzie, Erasmus | 85 |
| Wehle, Jamaica | 85 |
| Putnam, Manual | 85 |

### Remington Wins Final Match

The Remington Arms' Rifle Club of Bridgeport had its revenge by defeating the Norwalk Rifle Club on Sunday November 24, at the Wilton range. The score was 262 to 252.

The third and probably last match for the season between these two clubs was held on an ideal day, a great contrast to conditions on both previous occasions. Shooting started promptly at one o'clock which is as early as the law of Connecticut permits.

The longest straight run that has been made at the trapshooting school in Atlantic City, N. J., is 136, by E. F. Voelker, of East Orange, N. J. This was with a .20-gauge gun.

On account of the shortness of the days at this time of the year it was decided to begin with the 500 yard course, each team to consist of ten men, the six highest scores to count for record, then shoot at 400 and 300 yards if light permitted.

Through a misunderstanding among the military authorities, the range had to be divided with members of the Westport Home Guard, who had been ordered to report there to shoot a qualification course. They were permitted to use the 200-yard range after the contesting teams had finished at 500 yards. The 400 yard course of the match was omitted and one at 300 yards, kneeling, substituted, on a range to the eastward, dividing the targets. This course took all the daylight left.

Baker, captain of the Norwalk team was high man, with a score of 48, Sampson, captain of the Remington Arms' team was second, with 46.

There were some unusually poor scores made. All the men were not equipped with their own rifles and used rifles belonging to other members, which caused them to lose points by not being familiar with the trigger pull. One of the best men on the Norwalk team, using a perfectly sighted-in rifle, but one he had never shot before, fell down completely at 500 yards.

These informal matches have stimulated a great deal of interest in this section of Connecticut. There has been a great scramble to get improved sights with finer adjustments and peeps closer to the eye, giving a clearer view in unfavorable weather than is possible with the standard sights issued with the Springfield and Krag rifles.

Plans are being formulated for next season in the hope of interesting other clubs in the state to form a league that will hold matches at stated intervals. There should be plenty of ammunition available by that time and its use in this manner would do much toward stimulating a more general interest among civilian riflemen.

The individual scores were as follows:

REMINGTON ARMS

| | 500 Yards | 300 Yards | Total |
|---|---|---|---|
| Sampson | 23 | 23 | 46 |
| Lewis | 24 | 21 | 45 |
| Thompson | 20 | 24 | 44 |
| Marsden | 21 | 22 | 43 |
| Dunn | 20 | 22 | 42 |
| Paugh | 21 | 21 | 42 |
| Scott | 17 | 23 | 40 |
| Fay | 20 | 19 | 39 |
| Ross | 19 | 19 | 38 |
| Inch | 20 | 16 | 36 |
| Total for whole team | | | 415 |

NORWALK

| | 500 Yards | 300 Yards | Total |
|---|---|---|---|
| J. A. Baker, Jr. | 24 | 24 | 48 |
| Pfleeger | 19 | 24 | 43 |
| S. Baker | 20 | 22 | 42 |
| White | 19 | 21 | 40 |
| Dart | 19 | 21 | 40 |
| Dr. Clark | 19 | 20 | 39 |
| Reynolds | 17 | 20 | 37 |
| Brownell | 17 | 18 | 35 |
| Milne | 10 | 22 | 32 |
| Ganung | 6 | 18 | 24 |
| Total for whole team | | | 380 |

E. N. DART.

### Lakewood Shots to Instruct

Members of the Lakewood Rifle League of Ohio, N. R. A. Clubs, who have made their qualification as marksman or sharpshooter will act as instructors to the Lakewood High School Corps, the Board of Education having accepted their offers of the use of our range with equipment, and the services of those qualified to instruct.

The Annual League Competitive Shoot was held Nov. 10, with three teams entering. Rules called for 5 shots kneeling, 5 squatting 200 yards; 5 shots sitting and 5 prone at 300 yards. Target "A," slow fire. Result was in doubt until the shot of the last man on the Lakewood team. Scores:

WESTERN RESERVE RIFLE CLUB

| | |
|---|---|
| Alger | 68 |
| Stranahan | 74 |
| Lechner | 74 |
| Steaves | 66 |
| Sletzer, Capt. | 85 |
| | 367 |

LAKEWOOD RIFLE CLUB

| | |
|---|---|
| Humphrey | 52 |
| Andrews | 84 |
| Nichols | 75 |
| Short | 80 |
| McKenzie, Capt. | 75 |
| | 366 |

PREPAREDNESS RIFLE CLUB

| | |
|---|---|
| Nelson | 65 |
| Ruhlman | 73 |
| Bedenkop | 71 |
| Beattie | 79 |
| Lower, Capt. | 74 |
| | 362 |

High Score, W. H. Sletzer, Western Reserve Club.

The several clubs in the League have qualified four sharpshooters and 18 marksmen, shooting the N. R. A., course. Sharpshooters are Sletzer 173, Walkden 164, Lower 161, and Steaves 152. Marksmen are Short 176, McKenzie 168, Clodell 166, Streeter 165, Sletzer 165, Lechner 165, Steaves 164, Nichols 163, Auten 161, Beattie 159, Alger 157, Walkden 156, Exley 156, Knappe 155, Stranahan 153, Evarts 151, Christianson 151 and Lower 150.

### Los Angeles Shoots the Small Bore

The Los Angeles Rifle and Revolver Club held its monthly prize shoot November 17 at the Glendale range.

Several very high scores were shot with the .22 long rifle at 200 yards in the prone position. John Siefert hung up a range record. He plugged 13 consecutive bulls, which is going some with that diminutive 40-grain bullet. S. H. Hart and F. C. Payne were also some pumpkins; they each shot 47x50.

However the real test was the 10 shot group at 100 yards. That Pasadena gun shark, E. D. Neff, made a beautiful group measuring 2¼"x2½. L. Dezert got away with the second best group.

This rifle shoot was the first one of its kind, something new is always good, each shooter having a chance to catch up if he fell down on one of the events.

The Club shoots its regular prize match every third Sunday. A silver medal going to the highest gun and a bronze medal to the next highest. After a seasons shooting the holder of the most monthly prizes will be awarded a special gold Club medal.

F. C. Payne landed the silver medal and Leon Dezert won the bronze medal.

200 YARDS .22 L. R. OFF HAND

| | |
|---|---|
| Payne | 46 |
| Dezert | 44 |
| Neff | 43 |
| Myrick | 42 |
| McIver | 40 |
| Hart | 39 |
| Siefert | 39 |
| Lembke | 37 |
| Maxwell | 35 |

200 YARDS PRONE

| | |
|---|---|
| Siefert | 50 |
| Hart | 47 |
| Payne | 47 |
| Maxwell | 46 |
| Dezert | 45 |
| Neff | 44 |
| McIver | 42 |
| Lembke | 42 |
| Myrick | 42 |

100 YARDS GROUP

| | | |
|---|---|---|
| Neff | 50 | Points |
| Dezert | 49 | " |
| Siefert | 48 | " |
| Payne | 47 | " |
| Hart | 46 | " |
| Lembke | 45 | " |
| Myrick | 44 | " |

L. DEZERT.

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### Home Defense Company on Range

Members of the 114th Company, New York State Home Defense Reserve, of Hyde Park, had rifle practice November 16th on the new rifle range on the estate of J. Roosevelt, and were later entertained by Mr. and Mrs. Roosevelt at "The Red House," where luncheon was served to Captain Williams and his men. While the weather conditions were not of the best, owing to the haze and no sunlight, some very good scores were made, Private Barrett capturing the several prizes donated by Mrs. Roosevelt and Major G. B. Waterman, but not until he was obliged to shoot off a tie with Private M. Hedgecock. Both had scored 21 out of a possible 25 on their first shots at 200 yards. Major Waterman was in command as range officer and instructor and congratulated the men upon the good showing which they made in the first time at practice with their Ross rifles. The range is an excellent one with 100, 200 and 300-yard stands and the targets are regulation Class A, with a nine-inch bull's-eye.

## SIGHTING SHOTS AND RICOCHETS

FOR the purpose of reorganizing the Tulsa Oklakoma Rifle and Revolver club and increasing its membership in readiness for the winter indoor revolver and rifle contests, meetings of the moving spirits were held November 25. The members of the club have obtained the use of a basement in a downtown building in which a 75-foot range for both rifle and revolvers will be established, and have been notified by the government that an appropriation of rifles and ammunition will be furnished.

The club is affiliated with both the United States Revolver Association and the National Rifle Association, and thereby obtains the support of the government in the furtherance of rifle and revolver target practive. It is the intention of the members to build up the membership of the club and hold weekly competitive shoots on the indoor range.

The club also has the 600-yard target range north of the city, and it is probable, weather permitting, much time will be spent by members in outdoor rifle practice.

The indoor range to be established, will be equipped with five trolley targets and will be made the best in the state. Aside from the regular weekly competitive shoots, the range will be open to members at any time.

A. F. de Funiak was the winner of the Members' Match, shot several weeks ago on the Baylis Rifle Range by the Jefferson Rifle Club of Birmingham, Ala. Twenty-seven members shot, Mr. de Funiak leading by a score of 141, three points ahead of his nearest competitor.

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With a score of 133, Craig J. Brad easily won the Members' Match, shot by the Beaver, Pennsylvania, Rifle Club, October 5, twenty-eight members participating.

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The Members' Match of the Brooklyn, New York, Rifle Club was shot September 29, fourteen members taking part. H. J. Korb won on a score of 140. Korb shot a .22 calibre musket.

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The Ashtabula, Ohio, Rifle Club, held its Members' Match October 4, fourteen members shooting. H. H. Holmes won the medal on a score of 132.

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P. Bankin was the winner of the Members' Match shot by the Beliot, Wisconsin, Rifle Club, September 8. His score was 132, but a single point ahead of P. Everson. Twelve members shot.

With adverse shooting conditions pervailing; strong wind, heavy mist, and little sun, the Members' Match of the Reo National Rifle Club of Lansing, Michigan, was shot on October 5. Eleven members contested, and Karl S. Hart was the winner on a score of 138.

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The Department of Agriculture Rifle Association of the District of Columbia, shot the Members' Match on October 19, twenty-six members firing. H. D. Ruddiman won with a score of 131.

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A score of 127 won the Members' Match for W. B. Worstall when the Zanesville, Ohio, Rifle Association held its annual match October 13, twelve members participating.

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With a score of 126, W. T. Robie, of the Benson, Arizona, Rifle and Revolver Club, won the 1918 Members' Match by a margin of 16 points.

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C. M. Barnes, on a score of 134, was winner of the Members' Match, shot by the Corvallis, Montana, Rifle Club, August 18.

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When the Chicago, Illinois, Rifle Club staged its annual Members' Match on the Fort Sheridan Rifle Range, September 29, eleven members present, John Turner won on a score of 136.

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E. J. Moberg won the Members' Match on a score of 141 when the Ridgeville Rifle Club, Evanston, Illinois, held its annual medal shoot September 29.

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A score of 142 won the Members' Match for P. H. Dillman, when the Fort Pitt, Pennsylvania, Rifle Club shot that event last July.

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David G. Cairns won the Members' Match shot by the Ottawa, Illinois, Rifle Club, November 3. His score was 129. Charles B. Sharp, beat him by one point, but being winner for 1917, the medal went to Mr. Cairns.

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When the Montclair, N. J. Rifle Club shot it's annual Members' Match, twenty members were present, M. W. Huttenloch winning by a score of 134. The match was fired November 5.

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The Members' Match of the Business and Professional Men's Rifle Club, of Boston, Massachusetts, was fired over the Camp Plunkett Rifle Range at Wakefield, Massachusetts, several weeks ago, when W. K. Queen won on a score of 136.

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On a score of 149, W. W. Coulter, qualified as an expert member of the Olympia, Washington, Rifle Club.

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Five expert and four sharpshooter qualifications have been reported by the Ottawa, Illinois, Rifle Club. They are: experts; Fred Johnson, 226; Clyde Allen, 225; C. B. Sharp, 217; D. G. Cairns, 215; E. S. Woolbert, 211; sharpshooters, Edwin A. Ross, 205; Edward Knoll, 198; Albert Boulanger, 196; Albert R. Denny, 194.

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These expert scores have been reported by the Montclair, New Jersey, Rifle Club; H. D. Sheldon, 182; G. F. Hewitt, Jr., 153; J. A. Chambers, 155; C. H. P. Yallalee, 143; Hy Ahrens, 142.

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Twelve qualifications have been reported by the Boston, Massachusetts, Telephone Rifle Club. They are: sharpshooters; C. F. Barker, 201; J. E. Nicholl, 198; W. H. Brown, 190; George M. Barbour, 193; C. F. Follansbee, 192; William C. Jordan, 203; Warren H. Reid, 219; marksmen: J. S. McCullough, 163; William H. Brown, 161; William R. Long, 167; J. E. Nicholl, 179; George W. Lovejoy, 189.

Fifteen marskman qualifications have been reported by the Ottumwa, Iowa, Rifle Club. They are: William Oxley, 175; Dr. H. W. Sellers, 166; E. E. Neff, 150; George W. Cook, 164; Ray D. Utecht, 158; Dr. A. L. Hoaglund, 168; U. G. Myers, 177; John Hulsebus, 186; Carl Herburg, 160; James W. Varner, 195; Art Woter, 150; Otto Saul, 153; S. O. Duree, 153; L. W. Peppers, 150; Charles Davis, 151.

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Report has been made by the West Newton, Massachusetts, Rifle Club, of the qualification of six marksmen. They are: Chester B. Pratt, 168; William L. Puffer, 143; James H. Chandler, 162; Chester N. Reed, 167; Sydney P. French, 150; Ralph M. Billings, 168.

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With a score of 213, F. M. Waterman, of the Mahwah, New Jersey, Rifle Club has qualified as an expert rifleman.

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H. D. Weller and Norman A. Adams, both of the Lanchester, Pennsylvania, Rifle Club, have qualified as expert riflemen. Their respective scores were 241 and 221.

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A report from the Brooklyn, New York, Rifle Club shows the qualification of 15 members of that organization, 11 as experts and 4 as sharpshooters. They are: Experts, F. E. Proscott, 241; L. Miller, 238; L. Corsa, 229; H. Korb, 225; John Gebhard, 218; H. Otto, 217; A. Anderson, 218; F. Dearborn, 215; Charles Gebhard, 211; C. B. Adkins, 211; Irving King, 210; sharpshooters; H. Schneider 207; Judge John Ford, 196; Tollner, 195; S. Griffin, 191.

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Shooting the outdoor small bore course, the North Canton, Connecticut, Rifle Club has qualified four members, two expert, one sharpshooter, and one marksman. They are: experts, Eugene Adams, 223; Oliver Adams, 216; sharpshooter, Miles Messenger, 206; marksman, Clifford Messenger, 178.

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Four qualifications, under the N. R. A. Course, have been reported by the Portland, Oregon, Rifle Club. They are: Experts, E. D. Ritter, 165; H. F. McDonald, 156; marksman, Thomas Whitesides, 185; J. A. Philbin, 183.

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It is unlawful in Michigan, while hunting, to skin or otherwise destroy the identity of any bird.

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North Dakota, by statute, has authorized private individuals to establish enclosed game preserves of not less than two acres for the propagation of deer, elk and antelope.

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Leave some game in the woods for the boys who are "over there." Don't try to shoot everything.

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Conserve the forests. Forest fires can be avoided by taking ordinary precautions.

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Bears are given protection in Alaska, Arkansas, California, Louisiana, Minnesota, Missouri, Pennsylvania, Washington and five counties in Oklahoma.

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Pheasants to the number of 23,398 were imported in 1911. Today not a pheasant is coming into the country, and for a year or so before the United States entered the war very few came in.

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Ground squirrels caused $65,000 damage to crops on Union Island, Cal., this year. They could have been eradicated for an expenditure of $10,000 and an outlay of $1,000 a year thereafter would insure continued freedom. By forethought the agricultural resources of the country could be conserved. This is highly important.

## INQUIRIES OF GENERAL INTEREST

**In this column will appear excerpts from requests for information and for official interpretations, made to the National Rifle Association, the replies to which may be of a generally informative nature.**

Q. Our club is building an indoor range, and the thickest steel we can get here for our backstops is only ⅛ inch. Will this be satisfactory if only .22 rifles are used?

A. You really ought to use ¼-inch steel, even with the plates pitched at 45 degrees. Of course ⅛-inch steel will stop .22 bullets, and if the plate is pitched at the proper angle at first may give promise of being satisfactory. But it must be remembered that a very small area immediately behind each target will receive a tremendous amount of battering—thousands of bullets fired in exactly the same place. Ordinary boiler plate ⅛ inch in thickness will not stand this battering. If you can do no better, rivet two thicknesses of the ⅛-inch stuff together, fastening it at the corners only.

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Q. Does the kick or recoil of a gun occur when the bullet or charge of shot leaves the muzzle, or sooner?

A. It begins simultaneously with the movement of the bullet or shot charge from its starting point.

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Q. Is the straight grip an aid in trapshooting, and if not, what is its advantage?

A. The so-called straight grip on a shotgun stock is a detriment rather than an aid to shooting except when used on a double gun. Its purpose is solely to facilitate changing the grasp of the trigger hand when changing from the front trigger to the rear one. A pistol grip gives a better hold, and this is important, because the trigger hand properly does most of the holding. The forward hand must not grasp the gun so firmly, as this interferes with aiming.

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Q. In long-range rifle shooting, what effect does temperature have? What I want to know is if it affects the rifle, the eyesight of the shooter or the flight of the bullet.

A. It affects the flight of the bullet, precisely the elevation of hits on the target. A hot day calls for lower sight elevation than normal, a cold day the reverse.

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**These clubs have been admitted to membership in the National Rifle Association:**

### MILITARY RIFLE CLUBS

**Maryland**

The 2nd. Infantry, Maryland State Guard Rifle Club of Baltimore: Colonel Clinton L. Riggs, Commanding Officer; Lieut. Col. Irving Adams; Adjutant Chas. R. Waldecker; Major Chas. K. Duce, Director of Small Arms Firing; Major Jesse Slingluff, Treasurer.

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### BOYS' RIFLE CLUBS

**Iowa**

Iowa City, Iowa, Boys' Rifle Club: James Graham, Secretary; Jacob Maier, U. S. A. Retired, N. R. A. Judge; Joseph Figg, President; Curtis Wright, Treasurer; Wilbur D. Riddle, Captain. Membership 24.

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**North Dakota**

Souris, North Dakota, Junior Rifle Club: Arthur Moen, Secretary; Rudolph Erickson, President; Sewald Mork, Vice-President; Clyde Jirikowic, Captain. Membership 11.

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### LIFE MEMBERS

Edward E. Bard, Perry Point, Maryland.

# Cartridge Loading, Ordinary and Extraordinary

By HENRY SHARP

In this time of shot scarcity an ingenious correspondent believes that he has solved the problem of supplies so far as the shooting of wild geese is concerned—a matter of some little importance in his case, he having a good deal of that form of shooting. He found amongst various impedimenta in the gun-room a mould wherewith bullets had been been made in long-past days by his father for a small-bore muzzle-loading rook rifle. Patient application with this implement has had for result a good sized bagfull of pellets, which, he says, may be compared to S. S. G. as to size; and he now desires to have some hints as to procedure in loading cartridges not only with these large pellets, but also with No. 6 shot, some of which he says he can procure.

With regard to the first query he has put to me—that is, the question of safety—I would say that I never hesitate to fire buckshot from my own guns when certain safeguards have been observed. The first of these consists in ascertaining if the pellets will pack evenly in the tightest part of gun bore, and then, as a secondary precaution against opening out of a choked barrel, I render assurance doubly sure by packing with my own hand each shot load in layers into the cartridge, thereafter insuring a good turnover of case on to a wad of good substance. As I remarked in these columns some years ago, in loading up S. S. G. or other mould shot for killing wild geese or other purposes, the cartridge loader should take extra care to insure both an effectively wadded charge and an ample turnover of the cartridge. I have frequently noted remarkable failures in both respects. Buckshot cartridges are something out of the common run of cartridge-loading; they require appreciative treatment over and beyond that bestowed upon cartridges containing ordinary shot sizes. Weight for weight, large shot takes less driving out of a gun-barrel than small shot, and one of the most useful experiments that the practical shotgun ballistician can carry out so soon as peace comes will be to ascertain the propulsive energy required for different sizes of shot and the best methods for applying that energy. It is held in some quarters that one ounce of shot is much too long a column of lead to fire from a 20-bore in comfort and safety. This sweeping denouncement takes no account of shot sizes, all numbers are included therein. As before suggested, it might allay many doubts if this question of safety was decided once and for all time by securing satisfactory records of the pressures, velocities, etc., resulting from the employment of one-ounce columns of all sizes of shot in a 20-bore, and of proportionate column-lengths in other gauges. A thorough test of this sort is absolutely essential in order to determine the matter of powder charges in relation to shot loads and sizes. Such trial as I suggest is essential, because the pressure set up by the one-ounce column of shot in a 20-bore barrel—as, indeed, proportionate shot loads in barrels of larger or smaller gauge—will vary in accordance with the size of the pellets used. I believe it to be a fact that the smaller the pellets the greater the friction owing to the number of points of contract with the barrel. The retardation caused by the extreme friction of small shot assists towards a quicker and more complete development of powder energy than is secured by the same weight of larger pellets which have fewer points of contact with the barrel. To quote an extreme case, let us, for example, take on the one hand the buckshot mentioned by my correspondent, and, on the other, say, No. 10 shot. With the former we might have less than twenty points of contact with the gun barrel, with the latter there will be several hundreds of such frictional points. These two extremes are not merely useful in emphasizing the contention, they go further in helping us to realise that whilst the smaller shot pellets with an excess of points of contact conduce to excessive pressures, the larger shot pellets with so few contracts may offer resistance insufficient to develop a due propulsive effect in the powder charge. And this latter point should be borne in mind by the wildfowler, and, indeed, all others who load and use buckshot or other large shot sizes. But, whilst specially mentioning buckshot by way of forcible illustration, I would say that the loading of smaller sizes needs some adjustment. One of the most important matters in shot gunnery which urgently calls for a settlement as soon as peace conditions rule once more is the apportionment of powder charges, with due regard to shot sizes. If, for example, 33gr. of Smokeless Diamond will impart the present standard velocity of 1,050 ft. sec., with normal pressures, to 1 1-16 oz. of No. 7 shot, then it will probably be found that such essential ballistic features will be secured with a reduced powder charge when No. 5 or No. 4 shot is used. However, these are matters to which I hope to return in the near future. I must now deal with my correspondent's queries, lest he accuses me of having lost sight of the points he raised.

Some little experience in loading up buckshot or other extraordinary cartridges assures me that certain points which contribute to the make-up of a killing cartridge must not be overlooked. Effective combustion of the powder must be insured, or its propulsive energy will fall short of the requirements of those who seek to have a far-reaching display of power in such ammunition. Without due restrictive measures the powder combustion may be altogether too attentuated to be thoroughly effective whenever large shot pellets are used. The necessary restraint may be secured by means of (a) an increase in the size or the thickness of the wadding; (b) by the imposition of a bigger load of shot; (c) by an increase of depth in the crimp or turnover of the cartridge case. These remarks, however, apply more to the use of black gunpowder and to the bulk nitros which hitherto have been regarded as the most suitable explosives to use with big shot. But the capabilities of the newer 33gr. powders in this direction should by no means be overlooked. For example, in my own long-case 12-bores and 16-bore, as also in the shorter case 10-bores, excellent results may be obtained with a quick powder, such as Smokeless Diamond. With this explosive combustion is more completely assured, and more easily secured, than is the case with the old black gunpowders, or even the bulk of nitro-compounds. But in any case, whichever form of explosive may be decided upon, care must be taken to ensure throughout the series, even charges, a proper proportion and thickness of wadding, and an even and sufficient turnover. In this way, even results may be looked for, which of a certainty is very much more than is to be expected from some samples of big-shot ammunition one finds, here or there. As I remarked in a previous issue, some of this sort of ammunition may be found to have been issued with the merest shred of a turnover; in another brand, possibly, a sufficient turnover has been secured only by a sacrifice of wadding—I have even seen the felt wadding omitted in some amateur-loaded cartridges in order to get in an extra dose of powder or of shot, or both! But such methods with buckshot cartridges will be more likely to defeat the object in view than to secure it—it would be better, far, to reduce the powder with big shot sizes than to increase it whenever the latter course results in a short crimp, or undue reduction of wadding. Moreover, the amateur loader of cartridges must bestow the necessary care upon the ramming of wads, and their even seating upon the charges without excessive pressure. An even pressure must be maintained throughout the series, or irregular shooting will result. This question of wad pressure applies with two-fold force to those powders which are of a highly-compressible nature.—*Shooting Times and British Sportsman.*

## BODY ARMOR TESTED

Body armor, weighing about 60 pounds, and made of bullet-proof steel, was recently given tests at Pictinny Arsenal, New Jersey. The armor is the invention of Dr. Guy Ottis Brewster of Dover, N. J., and consists of a V-shaped plate, with headpiece supported on the body by padded strips of steel which rest on the shoulders and hips. Pneumatic cushions at points distant from nerve centers absorb the shock of striking bullets.

One account of the test which has been made public says: "The arms of the wearer can be folded or held behind the body protected by the armor, but are in reach of pockets containing hand grenades or pistols. The headpiece contains two cross slots to see through. At a test made some time ago a United States ordnance officer, an English officer, a French officer and an armor plate expert were present. Dr. Brewster having donned the armor and taken his position, and the command "fire" having been given Lieut. John K. Roll fired a string at fifty yards. Dr. Brewster swayed, but the bullets did not penetrate the armor, although Dr. Brewster was shaken up. Sergeant Heyer then let loose a string of five cartridges. There was a clanking noise and it was found that the rivets overlapping the hip plate had been sheared off and the plate had fallen to Dr. Brewster's feet. By chance the bullets had found the only two exposed soft metal spots in the entire armor. After repairs were made the target line was heightened six inches. Fifteen shots were then fired. These bent Dr. Brewster back, but he succeeded in keeping his feet, proving that an average man could stand up in bulletproof armor against concentrated machine gun fire. Another test was made two weeks later when two ordnance officers and an Army officer direct from American headquarters in France, an expert on medieval armor, and Lieutenant Pond, of Montclair, were present. At this test, made at fifty feet, no person was inside the armor. This time the burst of twelve bullets, concentrated on one spot, broke through the steel."

## TRAP CATCHES FEATHERED PESTS

A steel jump trap, mounted on the end of a pole, is one of the most effective means of combating hawks, owls and crows, in their wholesale destruction of wild life, the game species particularly. Every sportsmen's club should see that a large number of these traps are maintained on every high, cleared place in the best game cover in the surrounding country. Farmers on whose lands these traps are placed would undoubtedly be grateful to those who put them there, as they suffer heavily from the depredations of these creatures on their poultry.

It is useless to place these traps anywhere except on high, cleared places, as it is only to such spots that these species of vermin resort, in order to make a survey of the country, preparatory to descending upon their prey.

The pole should not be less than 5 feet in height; 8 feet is probably better. Attach the trap to the top of the pole with a piece of common stovepipe wire, using a pair of pliers in fashioning the wire into a staple. It is not necessary to point the ends, as these will go readily into the wood without sharpening.

The wedge at the end of the chain attached to the trap should be driven into the pole so far down that the victim will be unable to get back to the top when he is caught. His struggles will free the trap from the grip of the staple, as soon as he is taken, and he will hang, head down, from the trap thereafter.

To poles more than 5 feet in height, cleats should be attached, so that they can readily be reached for the placing of the traps.

A common error among those using traps in this way is to neglect them. This is almost as bad as not using them at all. Frequent inspection should be made and they should be kept well oiled, to prevent deterioration.

Experience seems to have shown that a No. 1½ jump trap is the proper size to use for this work, as the feet of certain species of hawks are too large to make the No. 1 absolutely certain in action.

In using these traps, sportsmen are urged to wrap their jaws with felt, so that any innocuous bird taken in them may be released.

Coopers and sharp-shinned hawks are the most destructive species known, and they are not protected anywhere. The great horned owl is a serious menace to most feathered wild life and in many States it is not protected. Anyone setting out traps, however, should consult the game laws, or the local warden, before doing this, to be sure that no violation of the law is involved in his action. Less vermin means more game and the vermin will not be made less unless the sportsmen of the country attack the vermin problem in an organized way.

Every sportsmen's club should have a standing committee on vermin, and the first work of the committee should be the acquisition of not less than 100 jump traps and their location on the best game covers in the community. It will not do simply to locate them—they must be constantly tended and relocated, when experience shows such action to be necessary.



## WANTS AND FOR SALE

**Each subscriber of 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.**

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.22-CALIBRE RIFLE BARRELS renewed with a rifled steel tube, $5.00 for 24-inch barrels. Musket barrels renewed for $5.50. Large calibre rifles made to handle the .22 long rifle cartridges. Chas. A. Diller, 24 So. Perry St., Dayton, Ohio.

FOR SALE—Rear sight. Snaps onto present Springfield rear sight, making the new Springfield Rifle the finest hunting rifle in the world. 50 cents postpaid. J. W. Beeler, 3414 Grace St., St. Louis, Mo.

FIREARMS AND ANTIQUES—Buy, sell, exchange old time and modern firearms. Antiques wanted. Steven Van Rensselaer, 805 Madison Ave., New York City

FOR SALE—1,200 rounds 1906 ammunition, A-1 stuff, not "war seconds," price $4.50 per hundred. Box A, Arms and The Man.

FOR SALE—Perfect Springfield, loading tools, 20 loaded shells, 120 primed, m-c. bullets, silencer; 45 auto. loading tools, 370 F. A. empties, silencer, price $45.00. 38-40 7½" S. A. Colt, fine tools and 100 shells, price $22.00; Set No. 1 Win. scope mounts, $2.00; fine percussion target rifle, case and accessories, $12.00; Model '93 7 m/m Mauser carbine, extra rifle barrel and stock, $11.00. McMurdo Silver, Hotel Irving, New York City.

WANTED — Sharps mid-range vernier aperture rear sight and wind guage aperture front sight for Sharps 45 target rifle. C. B. Adkins, 34 Hendrix Street, Brooklyn, N. Y.

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