RIFLE ARMS AND THE MAN

NATIONAL RIFLE ASSOCIATION OF AMERICA

TESTING FOR PRECISION AND RIFLE RESTS

ABOUT THE SMALLER GUNS

EXPERTS PRAISE U. S. ENFIELD
(Conclusion)

THIRTY YEARS AGO WITH THE HAND GUN
Revolvers the Early Experts Used

WITH THE SMALL-BORE LEAGUE

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

VOL. LXII, NO. 19

NRA

AUGUST 4, 1917

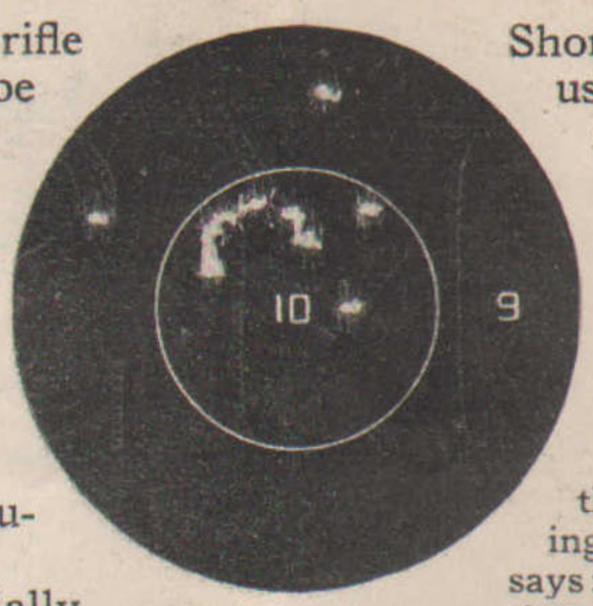
The New N. R. A. "Target" Model

Repeater for the Small Bore League

One of the many good points of this rifle is that ten Long Rifle cartridges may be loaded into the magazine at one time, which permits the shooter to concentrate his entire attention on sighting and aiming. The rifle is also adapted to rapid fire shooting in any position.

The target shown was made in the prone position outdoors at 100 yards. It demonstrates conclusively the accuracy of this excellent rifle.

The new model is chambered especially for the .22 Long Rifle cartridge but the .22 Short and .22 Long cartridges may also be used. The barrel is twenty-four inches in length with sixteen inch twist; pistol grip walnut stock fitted with steel butt plate; take down; windgauge globe and aperture front sight and elevating rear peep sight fitted with target disc. Weight of rifle about six pounds.



10 shots at 100 yds. prone
Reproduction one-half size

T. K. Lee, of Birmingham, Ala., one of the leading American small bore shots, speaking of his practical experience with this rifle, says: "It is a very good rifle. My opinion of it is that it will prove the 'hold' of the most expert. It surely does shoot surprisingly well."

Model 12 C-N.R.A. "Target" Grade Repeater

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It has score sheets which are wonders of simplicity and helpfulness.

It is approved, adopted and issued by the Ordnance Department on requisition for the Army or National Guard, or it can be bought of ARMS AND THE MAN, loose leaf 50 cents, fixed leaf 25 cents, single copies. Reduction on quanties.

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THE PERFECT SCORE BOOK

ARMS AND THE MAN

The Official Organ of the National Rifle Association of America

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Testing for Precision, and Rifle Rests

By E. NEWITT

IT IS essential when testing the precision of arms and ammunition to eliminate all extraneous factors which influence direction. A competent marksman can ensure constancy of direction within the limits of visibility of the smallest spot he can sight on; but the limits of human vision, even when aided by a telescope, especially at distances beyond 100 yards, exceed the grouping qualities of the best modern examples of rifles and ammunition; moreover the process is slow, fatiguing, and too costly for manufacturing requirements. The machine rest, so long as it is rigid in itself and holds the rifle rigidly, ensures absolute constancy of direction, but in many cases restrains the vibrations of the rifle unnaturally and thereby often introduces a source of inaccuracy otherwise non-existent. The best of machine rests are complicated, expensive, and ponderous pieces of mechanism which most users would be glad to dispense with were other equally efficacious means available.

The late Lord Kelvin in a treatise on Geometry stated in effect that a perfectly unconstrained rigid body has six degrees of freedom. In addition to three independent translations, viz. (1) upwards and downwards, (2) backwards and forwards, (3) sideways a rigid extended body can rotate on three axes, viz:— ⌀ ⊕ ⊖ . Supposing such a body is caused to maintain touch with any fixed point at once loses its three possible motions of translation, six immovable points may then be so arranged relatively to each other than when touched simultaneously by an extended rigid body (such as a rifle) it will be restrained in its three possible directions of rotation, and can then be replaced pointing in precisely the same direction an indefinite number of times.

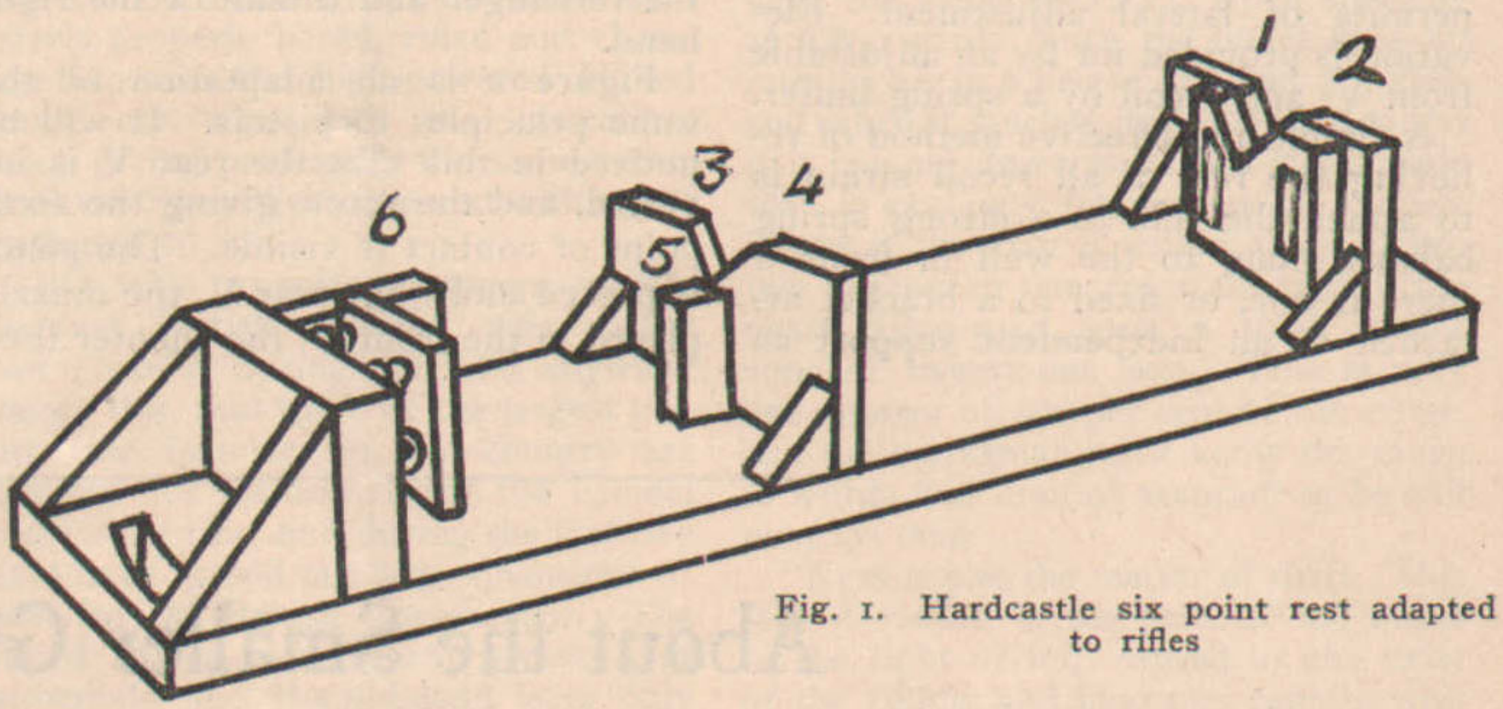


Fig. 1. Hardcastle six point rest adapted to rifles

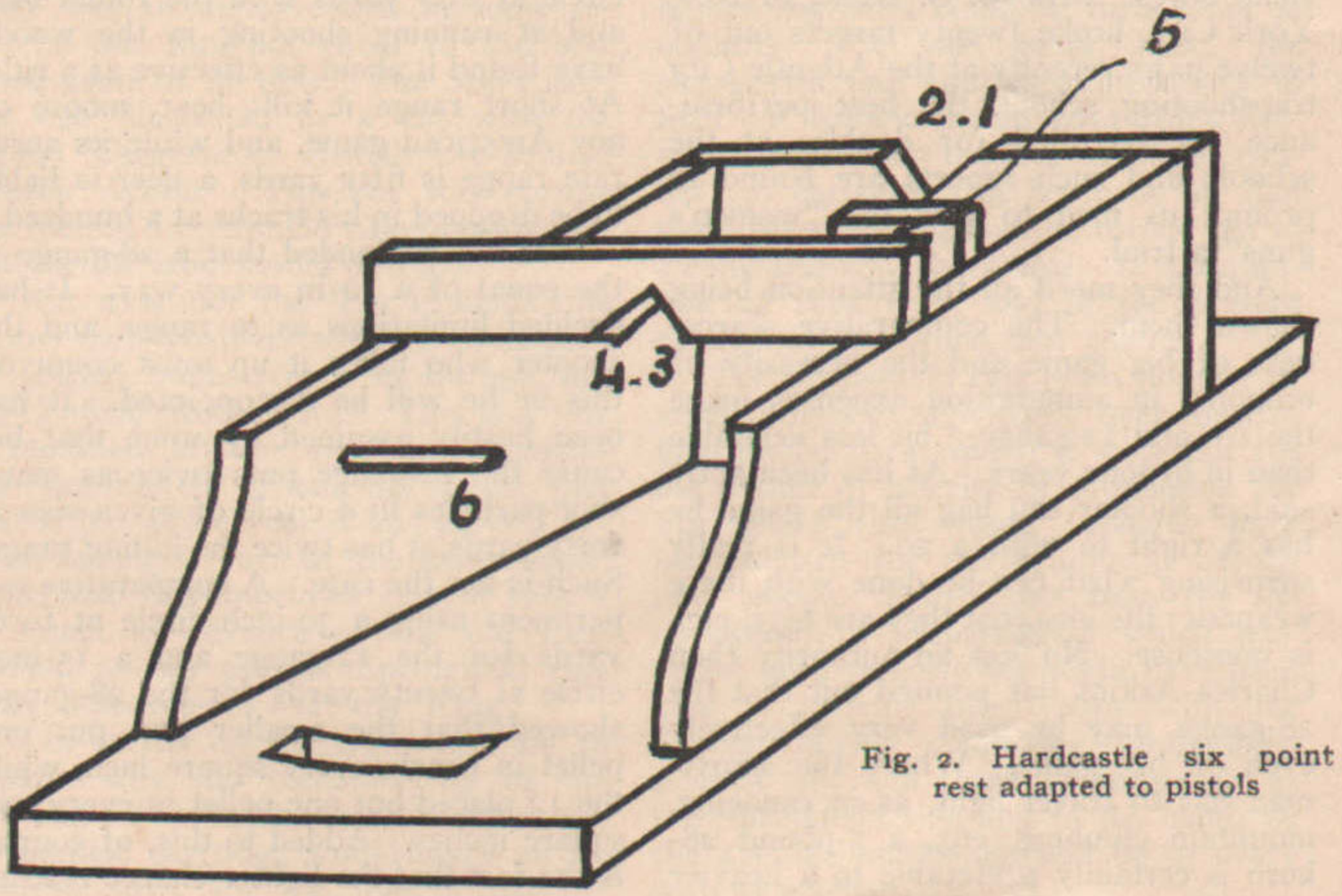


Fig. 2. Hardcastle six point rest adapted to pistols

Curiously enough these principles, somewhat obscured by the heavy scientific language in which they were announced some fifty years ago by Lord Kelvin, admit of the construction of the ideal rifle rest, and the world is indebted to Captain John H. Hardcastle, R. A., the eminent English ballistician who was unquestionably the first to interpret the meaning and apply Lord Kelvin's principles to practical uses.

Captain Hardcastle's six point rest as it is called is at once the simplest and most perfect appliance for ammunition testing, while it is so inexpensive that fifty can be made for the price of one machine rest of the older type. Figure 1 is a diagram of a Hardcastle six-point rest adapted to rifles. It is made of wood and bolted to any solid base of suitable height by

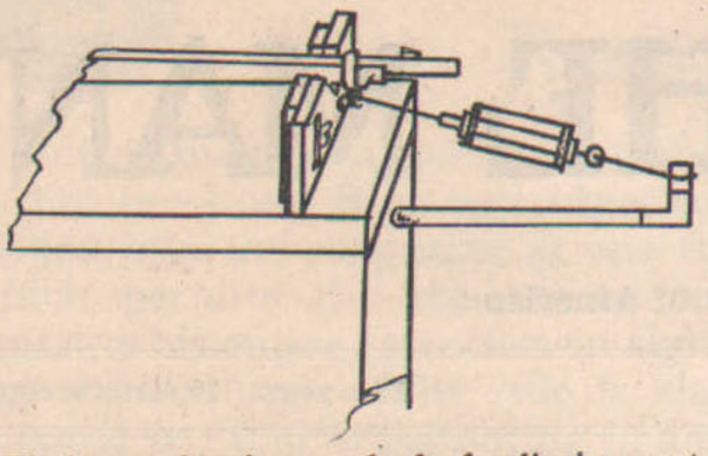


Figure 3, showing method of relieving rest of recoil strain

a single bolt and washer passing through a hole bored in the centre of the base immediately in front of the front V support, and a second passing through the radial slot shown in the rear end of the base, this arrangement permits of lateral adjustment. Elevation is provided for by an adjustable front V, and recoil by a spring buffer.

A simple and effective method of relieving the rest of all recoil strain is to attach the rifle to a strong spring balance hung to the wall in front if there is one, or fixed to a bracket attached to an independent support as for example that which carries the rest itself. See Fig. 3. Incidentally the amount of recoil might be measured at the same time.

The six points of contact are made as follows: four between the barrel and the sides of the two V's, one between the trigger guard and the block protruding from the rear V, and one between the stock and the screw passing through the board shown in the left-hand side of the buffer support. For low power rifles having no appreciable recoil the recoil buffer may be omitted. In firing the rifle is felt up to the contact points, the shooter's left hand pressing lightly upon the middle of the barrel and firing by pinching the trigger and guard together with the forefinger and thumb of the right hand.

Figure 2 is an adaptation of the same principles to pistols. It will be noticed in this that the rear V is inverted, and the screw giving the sixth point of contact is visible. The pistol is passed under the rear V, the muzzle placed in the front V, the shooter then presses his hand a little upward and forward which insures contact with both V's, and the fifth contact point and twists it a little to the left until the stock touches the screw constituting the sixth point.

Needless to say an inverted rear or front V may be used in the rifle rest, indeed the contact points may be varied in position almost indefinitely to suit any type of rifle, and meet the ideas of the shooter as regards his own personal convenience.

The Hardcastle six-point rest will recommend itself to amateur experimentalists because of its cheapness and simplicity, a rest for low power rifles costing not more than $2. For the rifle and cartridge manufacturer the pistol rest is more rapid than any other rest, but the rifle rest is a little slower and less convenient when loading; on the other hand it is much cheaper, simpler and lends itself to a variety of purposes to which the older type of rest is less well adapted; while it gives better results, and does not wear shaky or damage the rifle.

About the Smaller Guns

By L. E. EUBANKS

JUST as the 10-gauge, so popular forty years ago, gradually gave place to the 12- and 16-gauge, so these latter are being hard pressed by the 20- and 28-bores. The assumption of some writers that the little gun's popularity is a brand-new development in shotgun history is not entirely correct. The well-remembered Colonel Hawker used a 28, and Dr. Frank Carver, than whom no one has ever known shotguns better, did some of his best work with a 20-bore. It was with this gun that he met and defeated D. L. Winston in their series of matches at Ingleside Park. Winston used a 12-gauge, if I remember; but Dr. Carver's piece was not as "little" as its name indicated; it weighed well over 8 pounds and had a 36-inch barrel. He used 3¼ drams of powder, 1¼ ounces of shot, and shells of 3½ inches. Some gun! Captain DuBray, along in the 90's, tried to popularize the 20-bore, but gun men in general did not agree with his ideas on loading.

But the present-day popularity will be lasting. Many things have combined to bring the small bores to the front. The desideratum with gun-makers is a combination of lightness with shooting excellence. Naturally, the lighter a gun can be and yet be entirely safe the better. Probably the progress of trapshooting has done more than anything else to relegate the heavier guns. The clay pigeon is decidedly small game, and a heavy piece is wholly unnecessary. The constantly increasing number of women shooters would, if there were no other reasons, insure lasting popularity for the small bores. Mrs. B. G. Earle, of New York City, broke twenty targets out of twelve pairs recently at the Atlantic City trapshooting school, the best performance yet recorded for doubles at the school; and such reports are bound to prompt us men to give the "women's guns" a trial.

And they merit all the attention being shown them. The comparative scarceness of big game and the necessity of economy in ammunition expenses make the 10- and 12-gauge a bit less desirable than in bygone years. As has been aptly said, a shooter can bag all the game he has a right to with a 20. It is really surprising what can be done with these weapons; the idea that they are toys, etc., is nonsense. No less an authority than Charles Askins has pointed out that the 28-gauge may be used very effectively even on big game. Where the sportsman has to travel light, as in canoeing, mountain climbing, etc., a 5-pound 28-bore is certainly preferable to a heavier shotgun, plus a rifle; and Askins shows how the one may be made to answer for the two. "With loose shot it will account for quail, grouse, waterfowl, turkey or any other winged game, and with solid round ball it is a deadly deer gun up to fifty yards or a trifle further. I have made five-shot targets in a six-inch circle at fifty yards with the round ball, and at running shooting in the woods have found it about as effective as a rifle. At short range it kills bear, moose or any American game, and while its accurate range is fifty yards, a deer is liable to be dropped in his tracks at a hundred."

It is not contended that a 28-gauge is the equal of a 12 in every way. It has decided limitations as to range, and the shooter who takes it up must count on this or he will be disappointed. It has been hastily assumed by some that because the 12-gauge puts twice as many shot particles in a circle of given size at forty yards, it has twice the killing range. Such is not the case. A comparative experiment using a 30-inch circle at forty yards for the 12-gauge and a 15-inch circle at twenty yards for the 28-gauge, showed that the smaller gun put one pellet in nearly every square inch, while the 12 placed but one pellet in every two square inches. Added to this, of course, is the fact that the lighter charge reaches

(*Concluded on page 372*)

Two Experts Praise U. S. Enfield

(*Conclusion*)

TO THE favorable report of General Wingate on the remodeled Enfield of 1914 is added the testimony of Captain A. M. Mattice. In the signed statement sent to General Wingate, the Advisory Expert says:

"In the *Sun* of Sunday, June 17th, under the caption of 'Why Our Forces in France Must Use Inferior Rifle,' some statements are made which are so inaccurate that they should not be allowed to go uncorrected. In brief, it was stated that the rifle with which our troops are to be armed is the British 'Lee-Enfield' rifle, rechambered to use the United States 'Springfield' cartridge.

"In the first place, the Lee-Enfield rifle is not to be used at all. An 'Enfield' rifle is a British army rifle, called an 'Enfield' by reason of the fact that the British Government rifle factory is at Enfield Lock. Similarly our own army rifle is named a 'Springfield' after our Government armory at Springfield, Mass. A 'Springfield' rifle is the current model of army rifle. At the present time it is the United States 'Mauser' type rifle of the model of 1903. Previous to that the 'Springfield' rifle was the 'Krag' of 1898. A good many years previously a 'Springfield' was the old smooth-bore musket, and between then and now there have been many other kinds of 'Springfields.'

"Now a 'Lee-Enfield' rifle is a rifle of the Lee type which was first made at Enfield in 1895. There is also a later model which came out in 1907. The original Lee-Enfield rifle was a good rifle in its time, but it is now twenty-two years behind the times. The model of 1907 was an improvement in some respects, but was not equal to the best small arms of its date. The *Sun's* article was illustrated by a cut with the legend 'Diagram of British Lee-Enfield Breech Action.' This cut was correct for the old Lee-Enfield rifle of 1895, but not for the later model of 1907.

"But it is not the 'Lee-Enfield' rifle of any date whatever which is to be used by United States troops in Europe, but the 'Enfield Model 1914.' This is a rifle of modified 'Mauser' type and resembles the 'Lee-Enfield' principally in the fact that it has a 'lock, stock and barrel,' besides having a part of the same name. Otherwise this improved Enfield rifle is as much in advance of the old Lee-Enfield as our present Springfield rifle is an improvement over the 'Krag.'

"The writer in the *Sun* went on to explain why the rechambering of the Lee-Enfield rifle barrel to take the Springfield cartridge would make an inaccurate arm, for the reason that the bore and rifling of the British rifle are not suitable for the smaller Springfield bullet. This would certainly be the case if anybody were to be so foolish as to attempt such a thing; that is to say, take a gun which had been bored and rifled to suit the .303-calibre British cartridge and change the chamber to accommodate the United States cartridge, which uses a heavier powder charge while shooting a smaller bullet of .30 calibre. But it is not and never was the intention to do anything of the kind. The rifles which are to be used for our troops are to be new Enfield model 1914 rifles made with barrels properly bored, rifled and chambered to use the high-powered United States cartridge with the .30-calibre bullet, giving practically the same velocity as the Springfield rifle and with sights graduated to suit.

"But why provide our troops with a modified British 'Enfield' rifle rather than our own 'Springfield' rifle, anyway? Simply this, that three of the largest private rifle factories in this country are equipped for manufacturing the Enfield model 1914 rifle, and during the last two years have turned out large quantities of them for the British Government. The United States Government armories at Springfield and Rock Island have only a comparatively small capacity for manufacturing the Springfield rifle, and there is not a single private rifle factory now equipped for producing it.

"It would require at least a year to equip a factory with the thousands of necessary special tools, fixtures, jigs and gauges to enable it to begin the manufacture of the Springfield rifle, and it would require at least eighteen months before the rifles could be turned out in quantity. On the other hand, the changes in tool equipment necessary to turn out Enfield model 1914 rifles suitable for handling the United States calibre .30 cartridge can be made so that these rifles can begin to be turned out in a comparatively short time. It is a question of time only, and in the present emergency it is time that counts.

"The Springfield rifle has a number of minor points of superiority over the Enfield model 1914, and if it were not for the matter of celerity of production the Springfield rifle would probably have been chosen for the equipment of the new troops. Had it not been for the opposition to preparedness which prevailed until recently we might have been able to provide our troops with the Springfield rifle. However, the modified Enfield rifle will shoot as accurately as the Springfield rifle and in the hands of the average marksman will be in every way as efficient.

"In addition to his general criticism of our rifle equipment the writer in the *Sun* criticised the lack of telescopic sights for extremely long ranges. Now telescopic sights are undoubtedly of advantage in some special cases for the use of sharpshooters, but an examination of the circumstances of firing at extreme ranges may be of interest. Let us take the Springfield rifle, for example, which is sighted for a little over 2,800 yards.

"Although this rifle has the high muzzle velocity of about 2,700 feet per second (and the modified Enfield will have the same velocity), when shooting at 2,800 yards range the bullet goes up into the air to a height of about 397 feet, and when it reaches its 2,800-yard target it is coming down at such a steep angle that it can only hit a man of average height if the man is within about eleven feet in front or ten feet in the rear of the exact 2,800-yard spot, a total danger zone of twenty-one feet. This is only one-quarter of one per cent of the range, and the marksman must know the range to within that limit of accuracy or he will miss his man.

"Next comes the matter of drift. This is a deviation in the path of the bullet to the right or left, caused by the twist of the rifling, and increases rapidly with the range. With the Springfield rifle the drift is to the right. At 1,000 yards the drift is only about 13 inches. At 2,000 yards the drift is a little over 12 feet, and the sight makes correction for nearly half of this.

"At 2,800 yards the drift is about 35 feet, of which the sight takes care of nearly half, leaving about 18 feet to be allowed for by the marksman. That is to say, instead of aiming at his man he must aim 18 feet to the left of him as nearly as he can guess; or if he thoroughly understands the wind gauge on the sight and is provided with the necessary figures he can make a fairly close correction in this way.

"Then comes the matter of wind. With a wind of only one mile an hour (which is a scarcely perceptible zephyr) blowing at right angles to the line of sight at 1,000 yards it deflects the bullet 11½ inches. At 2,000 yards the deflection is a little over 4 feet, and at 2,800 yards it is about 7½ feet. With a wind of ten miles an hour, which is a very light wind, the deflection is ten times the above figures, making a deflection of about 75 feet at 2,800 yards range, and so on in proportion to the velocity of the wind.

"If the velocity of the wind is accurately known the marksman can make the necessary correction to within a fair degree of accuracy by means of the wind gauge on the rifle sight if he happens to

be provided with the necessary table of wind corrections. But in action the soldier in a protected position can only guess at the velocity of the wind between himself and the enemy, including the velocity of the wind 397 feet up in the air, and may not be able to guess very accurately.

"If the wind is blowing twelve miles an hour and he guesses it is only eight, the deflection due to the difference of four miles which he does not allow for will cause a deflection of about thirty feet at 2,800 yards range. So, if he happens to have the range correct within a quarter of 1 per cent, and has allowed accurately for drift, his failure to guess the wind within four miles of its time velocity will cause him to miss his man by about thirty feet anyway.

"Now, the telescopic sight does not help the marksman much if any in estimating the range; it may help him a little in making his eighteen feet allowance for drift at 2,800 yards, but it does not help him in guessing at the wind.

"Under target range conditions an extremely expert marksman may make fair hits at 2,800 yards range (about 1.6 miles) and a telescopic sight might be of some assistance. But at the same range under service conditions he would be an extremely expert combined guesser and marksman if he could hit a barn door of average size at that range; and possibly a telescopic sight might enable him to hit a slightly smaller barn door.

"This letter is not intended as an argument for or against the Enfield or the Springfield rifle, nor as a vindication of what the War Department or the Munitions Board has done in the matter of rifles, but simply as a statement of facts from which readers may draw their own conclusions. Nor do I wish to accuse the writer in the *Sun* of a willful misstatement of facts, as he may have gotten the 'Lee-Enfield' and the 'Enfield Model 1914' rifles mixed up and so jumped at erroneous conclusions."

ARMS WORKMEN TO BE REWARDED

Col. W. S. Pierce, commandant of the Springfield Armory, has announced the details of a plan for stimulating the workmen at Springfield to greater productivity and increasing to a still higher pitch their loyalty to the institution.

Huge wooden clocks have been placed at the entrances of the two plants, the hands of which will mark from day to day both the actual production and that called for by a tentative production program.

While the piece-work system in operation brings its own pecuniary reward for increased output, those who attain certain standards will receive suitable rewards.

FITTING PISTOL GRIPS

By DAVID H. EATON

In Field and Stream

Devotees of the art of revolver and pistol shooting who have attained proficiency enough to be reasonably sure where their shots are going, generally realize the importance of obtaining the same grip on the gun for each shot. Some go so far, after getting away a successful first shot, as to keep the gun in the hand for the balance of the string, doing the cocking with the left hand.

Some hands are so built that the factory stocks are a perfect fit and feel "comfortable," so that the sights come into line naturally. With the majority of hands, however, this is not true, and the shooter wastes much time and mental effort in trying to get the stocks into the hand "just so." The writer's experience has been that his composite showed two distinct groups, after allowing for wild shots which did not get away feeling "right." While this divergence was not large, measured in inches, it was enough to seriously reduce the score. A further study convinced him that this error was due to not getting the same hold on the gun each time. The correction of this error lay, of course, in getting a pair of stocks on which he could get such a hold. The development of this idea has resulted in a pair of stocks, worked in wood from a plaster model, which was obtained by making a cast of the inside of the hand in shooting position over the old factory stocks. With this hand-fitting pair of stocks the writer is able to "call" all his shots, slow fire, when shooting at a target. He is also able to make consistent eight groups at fifteen yards, drawing from a holster as quickly as possible and firing, without conscious aim, the instant the arm is extended. It would be interesting as well as instructive to see what an "expert" could do with stocks built to fit him perfectly.

For the benefit of those who may be interested, and who take pleasure in experimenting, the details of making such a plaster model are given as follows: First, provide a stand to support the end of the barrel while cast is setting, so as to prevent sagging. This should be of such a height that the barrel of the gun barely touches it when held level in firing position. It would also be well to have a target set up at the same level to sight at while making this, and the following adjustments:

Second, thoroughly grease all parts of the gun with which the plaster may come in contact with a heavy grease (vaseline or gun grease). Remove the screw holding the stocks on.

Third, mix plaster of Paris with water and let it set until it becomes of the consistency of soft butter. While it is setting thoroughly grease the gun hand with same grease used on gun.

Fourth, when plaster is of the proper consistency, take a handful, grasp the stock as loosely as possible, and raise the gun to firing position, with barrel resting on the stand above mentioned. Support the gun with left hand until it is in position. Then adjust yourself to your regular firing position, and slightly increase the pressure of the hand on the stock, taking care, however, not to squeeze so hard as to force out all of the plaster. Hold this position until the plaster is set. After the set has taken place, fill in around the hand and fingers with additional plaster, being sure to get all spaces filled between the hand and gun, and shape up the stock roughly to the form you desire.

When the plaster is hard, remove hand carefully. Cut through the plaster carefully, front and back, dividing the stock into right and left-hand pieces, and remove from gun. This gives a rough stock with a perfect imprint of the hand on it. This stock may be finished to form desired, ornamented, and used as a model for a rubber or aluminum casting, or a duplicate may be made of it in wood, using calipers to keep the dimensions right. With this stock on your gun you will have a weapon which falls into your hand naturally, with which you can shoot straight in the dark, and which will be a joy to you and the envy of your friends.

BRITISH "BANTAMS" MAN TANKS

The British recruiting officers have found a new and novel berth for men under the regulation height. It is a post, too, the importance of which is not to be minimized. The London *United Service Gazette* says:

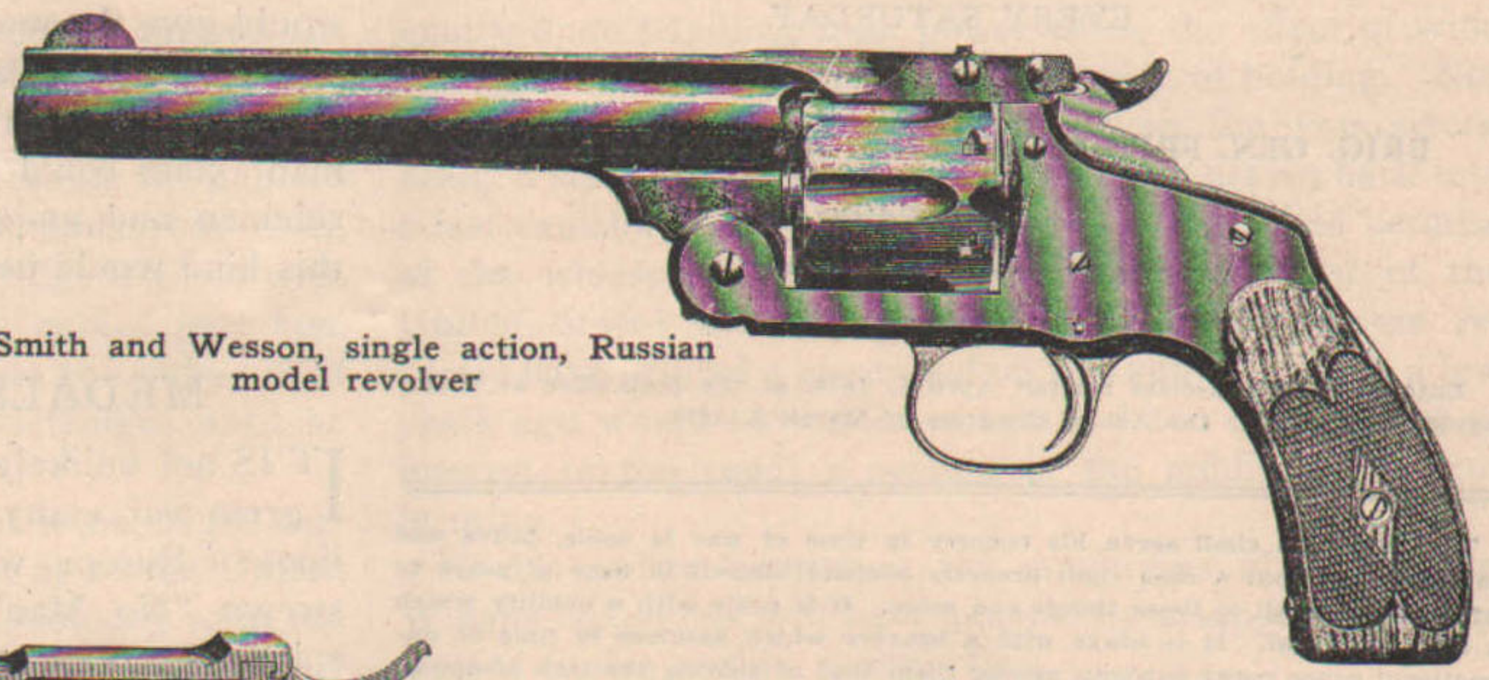
"A comparative midget, less than 5 feet high, belonging to Skelmersdale, who had been previously rejected on account of his low stature, was again sent to the Medical Board to be re-examined, and, to his surprise and intense delight, was passed Class A, with a recommendation from the Medical Board that he be used for service with the "Tanks." Under ordinary circumstances the little chap would not have been called up until the middle of June, but two days later he turned up at the recruiting office, and appeared so overjoyed with his new classification and recommendation of the Medical Board that he insisted upon joining up, although told that he could remain a civilian for another three weeks. Nothing would, however, satisfy him but to send him to Seaforth and don khaki ready for the 'Tanks.'"

Thirty Years Ago With the Hand-Gun

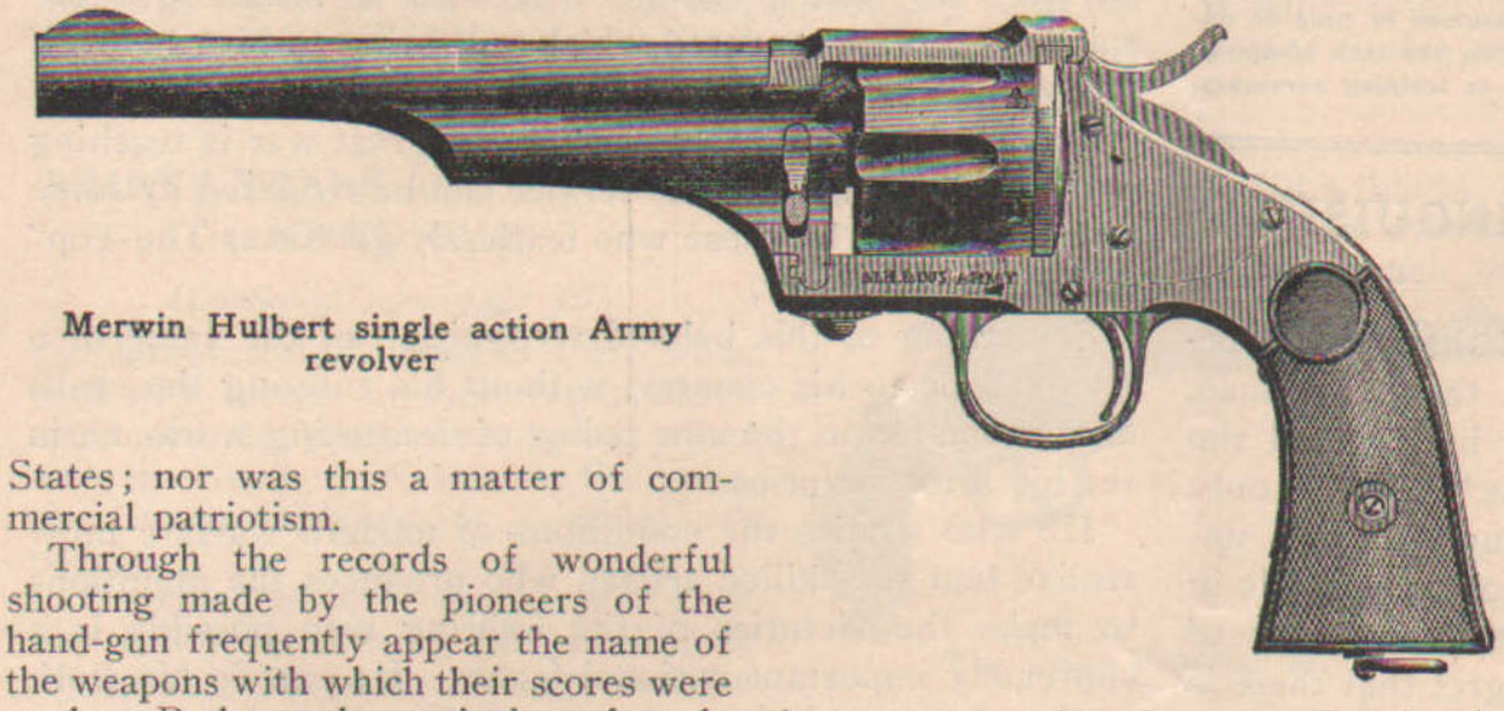
NO. 8—REVOLVERS THE EARLY EXPERTS USED

CHEVALIER IRA PAINE was wont to declare that although he had searched the continent of Europe for revolvers and pistols suited to fine and accurate target work, he was never able to discover a foreign weapon which, either in workmanship or reliability, could compare with those turned out by American manufacturers.

To this testimony as to the excellence of American firearms is added further evidence in the fact that practically every expert American shot of that time selected a weapon made in the United States; nor was this a matter of commercial patriotism.



Smith and Wesson, single action, Russian model revolver



Merwin Hulbert single action Army revolver

Through the records of wonderful shooting made by the pioneers of the hand-gun frequently appear the name of the weapons with which their scores were made. Perhaps the majority of early fine shooting with the revolver was done with the old Smith & Wesson Russian model. A close second, however, was the Frontier and Army models of the Colts, with the Merwin Hulbert and Remington of frequent appearance.

Then, of course, as now, there were many other makes of pistol in use by men who demanded weapons specialized as to calibre and grip to meet individual idiosyncracies. Often these specially built weapons were old Navy sixes remodeled from cap-and-ball to take metallic cartridges. Again they were that type of ancient Colt which demanded exceptional skill on the part of the shooter and which were to all intents and purposes triggerless, being fired by drawing back the hammer with the thumb and then releasing it at the moment of fire, or by the old Western gun-man method of "fanning" with the left hand. These unusual arms, however, had little place in the making of the early standardized pistol-shooting records.

Among the very early pistol shots, the old American model Smith & Wesson revolver was a prime favorite, but the popularity of this weapon was, although many were retained in use, diminished by the appearance of the Russian model, so called because the Russian Government purchased 20,000 for its cavalry about the time that standardized practice began to come into its own. Previously the Smith & Wesson Company had manufactured weapons ranging in calibre from .22 to .45. The .22 calibre had, however, been temporarily discontinued and the Russian .44 seemed to be the weapon which lent itself most thoroughly to the needs of expert shots.

Perhaps Ira Paine and, peculiarly enough, the Frenchman, Gastine Renette, did more to establish the popularity of this arm than any other individuals. This came about because Paine knew that in many makes of revolvers the cylinder actions did not bring the chambers exactly opposite the barrel with each revolution, causing the bullet to "shave" against the side of the barrel, with consequent inaccuracy. He therefore started to test out several types of weapons in order to ascertain which was mechanically the most accurate.

In this he was assisted by Renette, himself a manufacturer of fine arms. Together these experts fired thousands of shots from machine rests and off-hand from every available make of revolver. They finally selected the Russian model as not only being mechanically the nearest perfect arm but also as being the arm best adapted to large calibre, light-charge shooting. Others making tests with this weapon at the time repeatedly sent six shots from a machine rest into a 3-inch circle at 50 yards.

Second only in popularity to the Russian model were two products of the Colt Firearms Company—the so-called Frontier Army model and the old Frontier, both types familiar to the old-timers in the game. Perhaps the Frontier model was the more popular of the two. The chief difference between the Russian Smith & Wesson and the Colts lay in the fact that the Russian model was made up of parts more delicate than those of the Colts. This, of course, while perhaps lending something to the Smith & Wesson in the matter of accuracy, robbed it of the great durability, coupled with accuracy, found in the Colts. The experts of the day usually agreed that more shots could be fired from the Colts, without cleaning, than from any other make of hand-gun.

The Colts then in use were also the result of a longer period of development, Samuel Colt having begun the development of the weapon which was to bear his name as early as 1830.

The Colt Army model and the Colt Frontier model were very similar weapons, except in calibre, the Frontier taking a .44-calibre magazine rifle cartridge with 40 grains of powder and a 200-grain bullet, while the Army model took a .45-calibre cartridge with 30 grains of powder and a 250-grain bullet. The heavier bullet of the Army model, however, was believed to give that arm a greater recoil than was noticeable in the Frontier type.

Differing radically from both Smith & Wesson and Colt was the Merwin Hulbert revolver. While the Russian model was of the "tip up" or break style, and the Colts a stiff-backed weapon with side ejection, the Merwin Hulbert, by pressing a spring forward of the trigger guard and beneath the barrel, pulled apart horizontally. In some models it had also a folding hammer.

At the time standardized shooting be-

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ARMS AND THE MAN

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EVERY SATURDAY

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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.

A SUGGESTION FOR DISTINGUISHED MARKSMEN

TIME and again men who have worked themselves successively and successfully through the marksman, sharpshooter and expert riflemen courses have urged the adoption of a "distinguished rifleman course." This is only natural. Every rifle enthusiast who, through his own unremitting efforts, has gained the highest honors possible in the game, and who perhaps has not the opportunity of entering National Match shooting, feels regret that there is nothing left for him but to repeat over and over his former triumphs with an occasional interclub match to break the monotony.

The promulgation of a "distinguished rifleman" course, however, would not answer the need. As soon as the new course was conquered, the same cry would go up again, and so on without end.

The same, or a very similar question, was apparently vexing the riflemen many years ago, for we find in the annals of early shooting that the riflemen of Massachusetts annually staged a "Distinguished Marksman's Match" on the state Range at South Framingham.

According to some accounts of this Match, the entrants did not win their credentials through shooting any post graduate course, but gained the title "Distinguished Marksman" after having qualified as a sharpshooter of record and represented the state on the Creedmoor range.

It chanced that Colonel W. L. Chase, Inspector General of Rifle Practice for the State, laid down the course of fire in this match along very sane lines. He realized that most military rifle shooting of the time was done at 200 yards off-hand. He therefore fixed 7 shots at 200 yards off-hand as the first stage of the match, adding the same number of shots at 500 and 600 yards. In addition, realizing that far too much importance is placed on shooting at inanimate targets, when the real test of military shooting lies in one's ability to judge unaided the distances over which the shooting is done, Col. Chase included a skirmish run at undetermined distances.

By this plan, those who saw the working of the match declare, much was added to the education of the rifleman in a practical way.

It seems that some such plan might be put into operation by the rifle clubs of various states. If this were done, it would give the man who has shot all courses something to look forward to and to work for each year. The qualifications necessary for admission to the "Distinguished Marksman" class could be fixed by a meeting of representative riflemen and unquestionably an annual state program of this kind would be warmly welcomed.

MEDALS FOR ARMS WORKMEN

IT IS not unlikely that in the years to come, following the great war, many a man who never saw the far-flung battle lines of Europe, who performed no valiant deed in corpse-strewn "No Man's Land," will wear a medal for conspicuous service rendered which will bring to him as much recognition as a battlefield Medal of Honor.

One of the great lessons which the great war is teaching is that just as conspicuous service can be rendered by some man at home as by those who fearlessly go "Over The Top" to hand-grip victory.

Something of this belated recognition of the value of a man can be to his country, without his entering the ranks of war, is seen in the new policy of decorating workmen in the big arms factories.

He who studies the conditions of modern warfare must realize that the skilled artisan who produces the munitions to make the victories of the fighting men possible is a supremely important national factor. He can do his work well, or he can do his work more than well.

The authorities at the Springfield Armory have already announced a policy of rewarding workmen who bring about increased output during this time of national stress.

Such a policy should not only be encouraged, but there is no reason why Congress, while it is providing medals of honor and decorations for distinguished service in the field, should not make provision for recognizing conspicuous services rendered to the nation in time of war by men who are not a part of the regular establishment.

PUBLIC IGNORANCE OF SHOOTING

WALTER WINANS, the noted shot, writing from his home in England to Arms and the Man says:

"The public though intensely appreciative of good work in golf, cricket, and football, is entirely oblivious of the fact that firearms are not made for the purpose of frightening the enemy by the noise of their explosion and that the main thing is to 'hit' and not to 'loose off' as fast as possible.

"Reporters who as a rule consist of the most intelligent of the non-shooting public illustrate this often. When hostile aeroplanes fly over British cities unharmed under fire from anti-air craft guns, the reporters write 'The guns thundered defiance and straffed the aeroplanes as they hurried away,' or 'the searchlights found the enemy aeroplanes which squirmed and twisted to escape them.'

"In a description of a fight between two aeroplanes, the reporter says: 'It got right up behind the other aeroplane

and emptied at least three trays of cartridges at it. I could see a continuous stream of smoke from the gun.'

"The reporter seems delighted and it never occurred to him to remark the bad shooting; that the enemy was not hit in spite of hundreds of shots from a few yards off.

"If it had been a football player who had missed the goal a hundred times in succession he would have noticed that the play was not first class.

"As much noise and bang as possible—that is the public's idea of shooting. An airman brought down his rival, attacking him when he only had one cartridge left and with that he hit his rival in the head as he *rushed past him.* That *was shooting;* but it does not impress the public as if he had pumped half a dozen trays of cartridges until he happened to fluke a hit."

A good deal of Mr. Winans' statement is no doubt correct, not only as applied to England, but as to the United States as well. At any rate it was unquestionably so in the past.

Now, however, due to the widespread activities of civilian rifle clubs, much of the public ignorance regarding shooting has been dispelled.

Now-a-days it is not unusual for one to encounter youths of from fifteen to eighteen years old who can talk intelligently upon handling high power rifles, the effect of wind and light on shooting and the importance of holding. Nor is this common knowledge confined to the youngsters. Many a staid, middle-aged citizen has been drawn back into a fast vanishing youth through rifle practice. And because of the widespread and intelligent public interest in the United States concerning shooting, the newspapers recently have printed a great deal on this subject, which a few years ago would have been considered too technical or of interest to too small a portion of the public to warrant printing.

If this policy continues, the conditions of which Mr. Winans complains will have practically disappeared in the United States within a few years.

THIRTY YEARS AGO WITH THE HAND GUN

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gan, however, the Merwin Hulbert, while used with success by some expert shots, could not be strictly compared either with the Smith & Wesson or the Colts, since it was not bored for .44 or .45 cartridges.

The chief value of the Merwin Hulbert action, as seen by the pistol shots of the day, lay in its strength and the ease with which it could be dismounted for cleaning and assembled afterward. It also possessed several very practical safety devices.

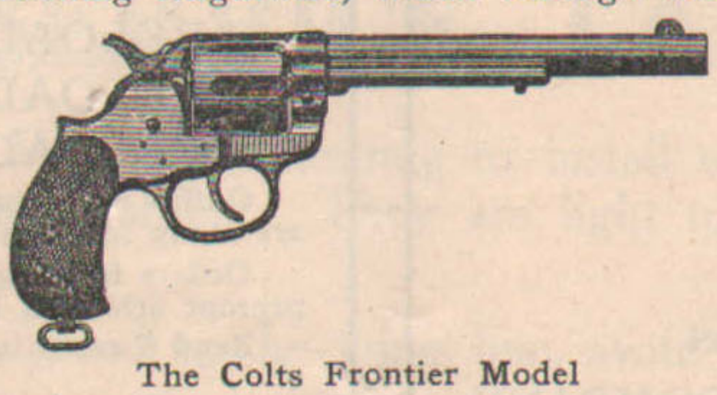
The model of this arm, submitted at the time to the Army Board of Ordnance, was a .42-calibre weapon, with a 7-inch barrel, weighing 2 pounds 11½ ounces, and carrying a cartridge with 23 grains of powder and a 252-grain bullet, although the amateurs who used this make of arm generally held to the .38 calibre.

One convenient feature of the Merwin Hulbert was the ease with which it could be converted from an army or target type weapon to a pocket gun by the simple interchange of barrels.

As to the sights with which these earlier revolvers were equipped, the ordinary service Colts had a sighting equipment adapted to service rather than target shooting. The Merwin Hulbert sights were also part of the weapon, yet many Colts and Merwin Hulberts were specially equipped with sights for target work, according to the ideas of the men who shot them.

With the Smith & Wesson Russian model turned out for target work, however, a special sighting equipment was provided. These sights were designed by Ira Paine, were used by him and were highly regarded until the advent of the coarser Patridge sights.

The Paine sights provided a thin-blade front sight surmounted by a cylinder running lengthwise, which through the



The Colts Frontier Model

rear sight gave the appearance of a pin-head sight. The rear sight was a "U" notch. These fine sights were quite generally used at the time, although some

The Merwin Hulbert action open showing folding trigger

variations were made in the rear sight bar, some experts using a plain bar sight without a notch, but with a platinum line across the center.

POINTS ON THE TORPEDO

THE speed of a torpedo will vary according to the conditions. The largest, such as the Bliss-Leavitt torpedo, has a range of 10,000 yards with a speed of nearly 40 knots. To secure this result means great size and weight. The warhead of this torpedo contains over 300 pounds of high explosive, and the weight of the air in the air flask (used for driving the engine) will be over 200 pounds. The diameter is 21 inches and the length about 20 feet.

The Germans are using a torpedo of about the same size and presumably of about the same range and speed for their warships; but in designing a torpedo for their submarine work they realized that a range of 10,000 yards at 40 knots was unnecessary, for the reason that the submarine can draw up quite close to its target before letting fly. Hence they reduced the power of the engine and the size of the air flask, and increased the warhead charge to 425 pounds. These torpedoes have a range of probably not over 2,000 or 3,000 yards, with a probable speed of about 30 knots. This is the type of torpedo that was used in the early days of the submarine piracy against merchant ships. But when the ships began to arm themselves and the submarine could no longer sink them by gunfire, it became necessary to increase the number of torpedoes carried. This we have learned on good authority is being accomplished by making use of an early type of the 14-inch Schwartzkopf, and sacrificing speed and range by doubling the warhead charge. These torpedoes will probably have a range of not over 1,500 to 2,000 yards.

The distance of a submarine from a vessel when it fires its torpedo depends upon the conditions during the attack. It is difficult to make the correct calculations for hitting a ship many thousand yards distant, and hence the submarine commander tries to edge up to within 1,000 yards—preferably to between 500 and 600 yards before firing. It is doubtful if he would think it worth while to risk a torpedo at over 1,500 to 1,800 yards unless, indeed, the ship attacked was steaming at unusually slow speed.

The depth below the water at which the torpedo travels is determined by the torpedo officer on the submarine. This depth is controlled by a diving rudder at the tail, which is operated by the movements of a diaphragm which is subject

to water pressure—the deeper the torpedo goes the greater is this pressure and thus the greater the movement of the diaphragm. The diaphragm is regulated by a spring, the tension of which is set to correspond with the depth at which the torpedo is to run. So well does this depth-control function, that after the torpedo has been fired it seeks, at once, the predetermined level, and continues to run on that level, which is usually somewhere between 8 and 15 feet, until it strikes the ship. In case the attack is on a vessel of shallow draft, such as a destroyer, the depth mechanism is set so as to cause the torpedo to run only a few feet below the surface.

It should be understood that it is not necessary for the submarine to be at the depth at which the torpedo is to travel; for whether the torpedo is fired when the submarine is traveling at the surface or 20 to 30 feet below the surface, makes no difference to the torpedo, which under the guidance of its diving rudder will descend or rise as the case may be, until it reaches the depth of 12 or 15 feet at which it is set to run. If the torpedo is fired when the top of the periscope is above the surface for observation, the torpedo tubes will be from 20 to 25 feet below the surface of the water, the depth, of course, varying according to the size of the submarine.

It might be mentioned here that the course of the torpedo follows a slightly wavy line, the action of the hydrostatic valve and the diving rudders causing the torpedo to run slightly above and then slightly below its mean line of flight. The ampoitude of this curved line is greatest at the start of the flight, and diminishes to practically nothing as the torpedo gets well under way.

The detonation of the high explosive is caused by a percussion fuse, the striker of which is a small metal rod projecting through the nose, which when contact is made with the ship is driven in, firing the charge.

Lastly, we draw attention to the fact that all of the protective devices designed to stop the torpedo have to contend against very high dynamic forces, for the largest torpedoes, such as the 21-inch Bliss and the 22-inch German torpedoes weigh about 2,500 pounds and travel at a speed of 40 knots. Hence, it is evident that any netting or steel plates that seek suddenly to arrest this onrushing mass must be of very considerable strength.—*Scientific American.*

IT IS "O. D.": "OLIVE DRAB"

It is pointed out that the uniforms now worn by the Regular Army and the militia should not be designated as khaki. This word designates a color, is of East Indian origin, coming from the word khak, meaning dust. It is, therefore, a dust-colored cloth, originating in India. It was first worn by native British troops and later by all British troops on campaign service. It was adopted by the United States Government because of its serviceability and low visibility. About four years ago it was supplanted by the olive drab in both cotton and woolen. This color is supposed to have lower visibility than the khaki, which is lighter in color, and at the time of the change it was claimed to be easier to secure the dye with which to process the cloth. It is a fast vat dye and before the war was entirely imported.—*Textile World Journal.*

TO KEEP ARMY AT WAR STRENGTH

Keeping the units of the army up to fighting strength will be accomplished through a single "reserve reservoir," according to an official statement made public by the War Department.

Vacancies in the National Guard, the National Army, and the Regular Army will be filled by men drawn from the one reserve organization. A plan for this is being worked out by the War College and along with it will come a scheme for recruiting for all three bodies through a single recruiting service as a part of the general policy of consolidating on a war basis State troops, the selected army and the regulars into the Army of the United States.

Details of the plan are not ready for announcement, but it is already considered clear that a single reserve organization is the only practicable way to handle the problem presented by two arms of the service—the National Guard and the National Army—with State affiliations and "local pride," and the other arm—the Regular Army—without any common locality origin in its several units.

This problem of unification is assuming importance now that the recruiting service is about to be reduced with the completion of the draft. Drafted men will be used to give the Regular Army and National Guard the men needed to bring each to war strength, although none may be needed for the Regular Army, since about 12 days of enlistments at the present rate of over 2,200 a day will fill the Regular Army.

Unification of recruiting is much simpler than drawing up details of the reserve organization. The National Guard recruiting automatically stops with the call of its units into Federal service, since each unit does its own recruiting, and when the unit goes the recruiting force goes. With the Regular Army it is different because there is a distinct recruiting force. This force now includes about 4,100 men at districts where men are accepted and depots where they are actually enlisted, uniformed, and assigned to duty. The extent to which this recruiting will continue will depend upon the number of men needed for the reserve to fill vacancies in the three branches.

The spirit and letter of the national defense act indicate the lines which will be followed in planning for a unified reserve. State identity will be preserved just as carefully as possible. It may often be impracticable to preserve it absolutely. Maine, for example, has one National Guard regiment. If there are vacancies in this regiment they will be filled by men from Maine if the reserve contains enough men from Maine ready for service in infantry, artillery, engineers, etc., to fill the existing vacancies; but keeping the regiment up to reasonable service strength is more important than keeping it a simon-pure Maine regiment. This general policy will apply to all National Guard and National Army units.

In the case of the Regular Army the situation is simpler because no consideration need be given to locality. Infantrymen from Maine or California can be used to fill any regular infantry regiment.

ABOUT THE SMALLER GUN

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the 20-yard target at a far higher speed than the other does the 40-yard mark.

Mr. Askins' experiments were carried farther; he wished to find the range at which the 28 would balance the 12 at forty yards. Testing the smaller gun at thirty yards, where it covered about 21 inches square, he found that it patterned one pellet on every two and thirteen-twenty-fifth inches, as compared to one pellet on every two and eleven-hundredth inches for the 12. This advantage for the latter is slight indeed, and is more than offset by its inferiority of striking energy. The charge of the 28 at thirty yards is traveling 700 feet a second when it strikes; that of the 12-gauge 618 feet at the forty-yard mark. Since a combination of striking energy and pattern is the most desirable quality in a shotgun, the 28 is hard to beat for close-range work.

Not all men will appreciate the 28's advantages until they try it. "Get your bird quick" should be a motto, and it is undeniable that faster swinging—more rapid handling in every way—is possible with a 5-pound piece than with one weighing half as much again. Shortening range shortens lead proportionately, and anything which simplifies leading is vitally important in the use of "scatter guns."

Make up your mind to work within 35 yards and you will find the 28 very satisfactory. Its tendency always is to speed a man up. But no matter how expert you become with it at 30 or 35 yards, never flatter yourself that you can go much beyond this effectively, for there simply is not enough shot carried to maintain any density of pattern when the charge travels far.

Many men overload the 28 gun. It is possible to load up a heavy one of, say, 6½ pounds with 2¼ drams of powder and ⅞ of an ounce of shot, but it is not best for the gun. In the long run, a medium load is best for any gun; and it is better to take the maker's word and use the standard load than to wreck a favorite gun by extreme experiments. I am appending a gun-maker's table of loads as compared to gun weights, for which I acknowledge indebtedness to Mr. Askins.

Powder	*Shot*	*Gun*
1¾ drams	½ ounce	4 pounds
1¾ "	⅝ "	4½ "
2 "	⅝ "	5 "
2⅛ "	⅝ "	5½ "
2⅛ "	¾ "	6 to 6½ "

BRAVERY MEDALS IN MUSEUM COLLECTION

The conferring of decorations and medals for distinguished conduct in times of war has been well-nigh universal since the beginning of organized warfare. This is well illustrated by a remarkable collection of decorations and medals conferred by some thirty-five nations for various war services, recently received by the United States National Museum from Mrs. Boggs, widow of the late Lieut. Thomas Kelly Boggs. Lieutenant Boggs, who assembled this collection of 212 medals and decorations, was himself the holder of five badges representing his military service during the Civil War and membership in patriotic societies.

Lieutenant Boggs first enlisted at the age of 22 in Philadelphia, on April 14, 1861, and was chosen the second lieutenant of Company H, 23d Pennsylvania Volunteer Infantry. The regiment having been mustered out at the expiration of its three months' service, he at once re-enlisted and was appointed first lieutenant of Company C, 23d Pennsylvania, and served with it until its discharge at the close of its three years' term, September 28, 1864. He then applied for a commission in the regular army, and was nominated and confirmed as a lieutenant in the 14th U. S. Infantry. By some oversight he was not notified of his appointment until 1867, when it was too late for his acceptance.

At the battle of Fair Oaks, Va., on May 31, 1862, he was shot through the right thigh, receiving a serious wound. This disability prevented his marching for a distance and therefore his acceptance of promotion to captaincy, which was repeatedly offered to him. He was able, however, to continue as Adjutant. He served under Grant at Vicksburg and also as Assistant Adjutant General of the U. S. forces at Johnson's Island, Lake Erie, in 1864, and as inspector on the staff of Generals Getty and Abercrombie.

At Gettysburg, he arrived on the afternoon of the second day with the 6th Corps, after a continuous march of 32 miles in 30 hours, and his brigade, commanded by General Shaler, was sent to re-enforce the sorely pressed and outnumbered brigade of General Greene, of the 12th Corps, left by General Slocum to hold the front at Culp's Hill, while he hastened away with the rest of the corps to strengthen the center.

On the morning of the third day, Shaler's Brigade was directed to send a regiment to what would have been certain annihilation by the rebel masses in front under Johnson, of Early's Corps. The regiment to be sent on the forlorn hope was the 23d Pennsylvania, of which Lieutenant Boggs was then adjutant. He volunteered to cross the battlefield alone to where General Shaler's headquarters were located at considerable distance and explain the situation. By almost a miracle, Adjutant Boggs delivered his message and returned unharmed. The unwise order was countermanded and the regiment was saved. A little later, Early's entire force of six brigades was driven away from Culp's Hill by a combined attack.

For this daring and perilous service, Adjutant Boggs won high commendation from his superior officers.

The Boggs collection of decorations, medals and tokens represents 35 countries: United States, Argentina, Austria, Belgium, Brazil, Chile, China, France, Germany, Baden, Bavaria, Bremen, Hanover, Hesse-Cassel, Hesse-Darmstadt, Nassau, Prussia, Saxony, Saxe-Gotha-Altenburg, Saxe-Coburg-Saalfeld, Saxe-Weimar-Eisenach, Schleswig-Holstein, Great Britain, Hawaii, Italy, Japan, Mexico, Netherlands, Portugal, Roumania, Russia, Servia, Spain, Turkey, and Venezuela. A number of these medals bear dates as far back as 1790, and the majority of them represent events of the first half of the nineteenth century. Some of the most important happenings of European history are commemorated by certain of the collection, such as a silver medal awarded in Nassau in 1815 for service during the Battle of Waterloo; a bronze badge from France, inscribed "Alsace-Lorraine, France: Justice"; an English silver medal awarded for service at Sebastopol during the Crimean War, 1854; two Russian medals awarded for services in the two wars with Turkey, 1828-29 and 1877-78, and many others commemorative of equally important events.

Decorations issued by the governments of Great Britain, France, and Germany are the most numerous in Lieutenant Boggs' collection and are a particularly interesting series. A great many of the important events in the history of Great Britain from 1809 to 1900 are represented by some sort of medal, including a number of the East Indian uprisings and the African wars. Some of the French medals date back to the French Revolution and the series tells nearly the complete story of France's history from that period down to the present time. The German medals, made mostly of bronze, steel, and iron, cover quite thoroughly the history of that warlike state for the last hundred years.

The whole series is of real interest as a phase of the world's history represented by those men of all times who have merited by their actions a mark of appreciation by their government.

Here is an old definition of a "rookie"—anyone who has been in the service ten minutes less than yourself.—*Boston Transcript.*

Off Hand From the Clubs

The Boy Scout As a Marksman

By CLIFTON LISLE

Assistant Executive Officer, Main Line Rifle Club of Pennsylvania

AS is generally known, the Boy Scout Movement in America is non-military in character. There are no fire-arms employed in its order of drill or in its work when a-field. It has been found by such eminent authorities as Major General Sir Robert S. S. Baden-Powell and our own National Headquarters that more good will result from a study of outdoor life, proper camp sanitation, first aid and all the kindred phases of Scouting than from a premature attempt to turn boys between twelve and eighteen into badly drilled soldiers.

Experience at home and abroad has justified the wisdom of this course. It must not be supposed, however, that no allowance has been made for the inborn love of shooting peculiar to every healthy boy or for the necessity of training the youth of the land how to handle a fire-arm properly. All this has been taken into account and given ample scope under the head of the Boy Scout Merit Badge for Marksmanship. A word or so about that little known angle of Scouting may prove of interest.

To begin with, all Scouts to attain a Merit Badge of any kind must first have passed through the initial stages of Tenderfoot, Second Class and First Class ranks, comprising a total of twenty-nine different examinations. This ensures a thorough foundation for future work. In actual practice, it generally results in qualifying only such boys as have reached their fourteenth birthday or thereabouts. This is of especial advantage in the matter of marksmanship.

The Scout, a First Class, wishing to win this particular Merit Badge, must fulfill the following conditions. He must "know the Boy Scout marksmanship code and agree to follow same." He must "make not less than 38 points standing out of a possible 50 points in ten shots; and 42 points prone, out of a possible 50 points in ten shots; or a total score of 80 points out of a possible 100, at a distance of fifty feet from the end of the rifle to the target." Finally he "must produce evidence that all practice and the test have been conducted under a range officer whose appointment has been approved by the National Court of Honor." The conditions governing the practice and test call for "any single shot, 22 calibre rifle, with sightings other than telescopic in front of firing pin, weighing not over ten pounds, recommended." The target must be the "fifty foot Junior Marksmanship target, two to five counts." These are supplied to the Scouts free of charge by National Headquarters through the courtesy of the National Rifle Association. In the test, the two positions called for are off-hand and prone, described as follows: "Standing. All parts of the body to be free from artificial support. Prone. Head toward target, forearm and rifle must be free from all artificial support. Use of strap allowed in prone position only."

The Boy Scout Marksman Code is a gem of its kind. It could well be learned and followed by every user of fire-arms in the country. The Scout promises upon his honor "never to—1st. Thoughtlessly point my gun at any human being under any circumstances. 2nd. Handle a fire-arm without first examining to make certain it is empty. 3rd. Load a fire-arm while persons are in front of me. 4th. Shoot at or kill a harmless animal or bird for the mere pleasure of killing. 5th. Skylark with fire-arms in hand or while engaged in target practice. 6th. Engage in aiming or snapping the hammer except with the fire-arm pointed toward the target. 7th. Shoot in the open without first taking every precaution for the safety of others. 8th. Be unsportsmanlike when engaged in contests of skill with fire-arms. 9th. Lay aside a fire-arm without cleaning after being used. 10th. Take anything for granted and always bear the above rules in mind."

As an encouragement to more general shooting, such Scouts as have passed their Merit Badge in Marksmanship are urged to keep up with their work and try for a "Junior Marksman's Lapel Button," issued by the War Department through the National Rifle Association of America. In all work certified to by the duly appointed Scout Range Officer, it must be clearly stated that the conditions of the said Association have been adhered to throughout. Such is the practice and training with fire-arms laid before the Boy Scouts of America. Little chance of vain show or parade, yet the danger element reduced to a minimum and the opportunity for a real development of skill put at the disposal of every boy who has reached the First Class grade.

At the range under my charge, the following methods are followed. Each boy as he presents himself for instruction is asked whether or not he has handled fire-arms before and, if so, to what extent. Uusually the same line of training is given to all, no matter what their previous experience may have been. If some know part of it already, a review will do no harm. The beginner is next given a regulation Springfield rifle—the Service weapon except that the barrel is bored for a 22 calibre instead of the full-sized cartridge, the 22 calibre being inserted in a metal holder the exact size of the regulation round of ammunition. The nature of rifling, its purpose and so forth explained, the boy is told how to set his bolt for magazine fire or for single shot and, finally, how to remove the bolt altogether. As soon as he can do this properly, the patch box in the stock is opened and explained. Lastly, comes the cleaning and that is by all odds the most important thing he learns. The beginner is urged to get in the habit of doing it correctly at the very start. The rifle should be grasped in the left hand at about the opening of the breech—just where the cartridge is inserted when loading. The butt should be made to rest securely on the left thigh a trifle below the hip bone and well towards the front of the leg. With the thumb of the left hand, pushed upwards against the little square of metal that controls the bolt. At half way between "on" and "off" it stops and the bolt is free to be withdrawn. Meanwhile, with the right hand seize the handle of the bolt, the closed fingers being uppermost, the knuckles downward. This will avoid dropping and possibly breaking the bolt. In replacing it, the same procedure is followed. Once the bolt is out of the gun, lay it down where it will not get dirty or, what is even worse, gritty.

The actual cleaning with rod, brush, powder solvent and gasoline takes little time to explain, but most beginning make the mistake of giving the rod far too many revolutions or of not turning it at all, as they ram it through the barrel. It seems hard for them to realize that the rifling makes one complete revolution in about fifteen inches or one and a half turns in the length of the service barrel. At my range, all guns must be cleaned and cleaned properly before and after using and after every twenty shots as well. Once the boys have mastered the trick of removing the bolt, cleaning the barrel and replacing it, they are told the first rule of the range. No bolt or lever is to be closed under any circumstances whatever when the muzzle of the gun is out of the firing port. The strictness with which this rule has been enforced has gone a great way towards avoiding accidents,—no slight problem when one considers that frequently there are eight boys at the ports and perhaps twice as many more waiting their turn at our range here at Wayne.

The last step in the instruction takes up the actual loading and firing of the gun. If the boy is heavy and strong enough to handle it, he retains the 9½ pound Springfield. Otherwise, a lighter Winchester is substituted. All beginners start in shooting "from the bag." They are shown the proper position of the sights and their relation to one another. They are told how to stand, how to place their arms and, above all, how to use their trigger finger properly by hooking it over the metal to the second joint. No one is allowed to form the pernicious habit of shooting from the *tip* of the finger. Especial caution is given that they "squeeze off" the gun rather than snap or jerk it in trapshooting fashion. A full pair of lungs, a steady, even pull, butt tight in the shoulder, they soon can turn the trick like veterans.

After a few lessons from the bag, the boy progresses to off-hand work and prone. The use of the strap, Captain Casey's hold, is explained. The positions of kneeling and sitting are taken up. The working of the long-range sights on the service gun are shown him, together with some elementary description of windage. By the time a few months have passed, the pupil, if he is interested at all, has accomplished wonders. One of the most remarkable instances of progress that has come to my notice is that of the First Class Scout Arthur N. Ferry, Scribe of Troop 1, Paoli, Pa., and already the possessor of several Merit Badges. After less than three months shooting, this boy of fourteen made a score of 47 out of a possible 50 points in ten shots. It was from the bag, it is true, but under the almost impossible handicap of a broken right elbow, compelling him to shoot left handed and with the left eye! That is but an example of what is being done by boys under eighteen.

No article on Junior Shooting in this neighborhood would be complete without a word of appreciation and thanks to Captain E. B. Cassatt and Mr. F. G. Okie of the Main Line Rifle Club of Pennsylvania. These gentlemen have put three ranges and unlimited ammunition together with expert musketry instruction at the disposal of all boys between twelve and eighteen years of age and they have done so at absolutely no cost to the boys themselves! The amount of good being accomplished as a result is quite beyond calculation. The

interest of the boys is proven by the fact that often more than a score are gathered together at one range. The high guns in the Junior Contests so far have been without exception those of Boy Scouts,—something that seems to bear out the contention of the Movement Leaders regarding this phase of Scouting. It is to be hoped, however, that Scout Marksmanship will steadily grow in favor elsewhere and more and more interest be attached to the winning of this particular Merit Badge as time goes on.

Los Angeles Accepts Challenge

Some one of the members of the Los Angeles Rifle Club is willing to enter a match against Carl Schroder of the San Diego outfit, as is evidenced by this letter from the Secretary of the Los Angeles Club:

EDITOR, ARMS AND THE MAN:

"I note with somewhat mixed feelings in your issue of June 30th, the following happy statement from the San Diego Rifle Club:

"'Carl Schroder, crack shot of the club, made the remarkable score of 222 points out of a possible 250, leading the entire team at the finish. Schroder holds the highest official record score of the club for 300 yards, target A, 500 and 600 yards, target B. Mr. Schroder has issued a challenge to any person in Southern California including the personnel of the regular army at regulation shooting. Schroder is said to be one of the best rifle shots on the Pacific Coast.'

"Also I note as substantiation thereof,

	300	500	600	200 RF	300 RF	Total
Schroder ..	44	46	46	38	48	222

"Being strictly a person of peace and knowing that good shots are scarce and being glad therefore when one bobs up, I should not write this missive, save for the fact that the foregoing statement in your valuable paper may give the impression that the rest of us in Southern California cannot make 222 over the 'regulation course,' inasmuch as Mr. S. is alleged to be one of the best shots on the coast. You'll observe that the person writing the San Diego letter took in more territory as he went along.

"I am somewhat minded of the colored person who kept announcing that he could lick any man in that block, then in that ward, finally taking in the city, and eventually the state also. At that point a little Irishman from the other end of the state stepped up and smote the colored brother on the jaw, and he took the count. Later on he recovered, sat up, felt his jaw tenderly, and moaned 'Lawdy, yawdy, dat's de time I took in too much terr'tory.'

"I trust that Bro. Schroder has not taken in too much territory, but just because of old times when we in the Los Angeles Rifle & Revolver Club used to have a few fair to middlin' shots, I am addressing this note to you to state that I feel that we can in this club still scare up a man or two who can nearly equal Bro. Schroder's wonderful score of 222 ex 250. In this list I have in mind A. L. Thomson, winner Fourth place in the National Individual at Jax last fall, G. L. Wotkyns, high man for the interclub of 1915 for the entire country, Dr. Felsenthal, Ray Jackson, I. O. Gardiner and others. As basis for this belief I find that in the interclub of 1915, in hot competition before an outside officer, the low man for the ten men representing this club had 220, high man 243, average 226. For 1916 the club averaged for the ten men 232, low man 223, eleventh man 223, high man 242.

"In view of this fact I am plucking up enough courage to advise that if Mr. Schroder will set forth to greater extent the range over which this match is to be held, and the date desired for this regulation shoot, we will endeavor to demonstrate to a waiting multitude the fact that 222 and one of the best shots on the Pacific Coast have little in common. Mr. S. may be as described, but if so he will have to travel at a gait somewhat in excess of 222 or even 232. The shot to represent this club will be named when we find to whom the engagement will be convenient, but if the real rifle shots are all away on vacation, and the list dwindles down far enough, I will have to drag out the old fusee and prove that the best shot in Southern California, whoever he may be, will have to put on more than 222 to qualify for the title.

"I would suggest in view of the high cost of ammunition and the difficulty of replacing burned out barrels that the course be the sporting one as used at the National Matches at Jax in 1916, and as planned for 1917, that is 20 shots rapid fire on the A target at 200, 20 shots at 600, and 20 shots at 1000, no sighters and no practice the day of the match. Firing on the silhouette with the battle-sight justifies much practice because of the trickiness of said battle-sight groups as those in the interclub matches know, while zeroing in for the 200 A with the peep sight is far less difficult.

"Rifles to be the service, with minor modifications the shooter may desire such as wider front sights, rear sight service.

"Lest this letter be misconstrued permit me to say that Mr. Schroder is really a splendid offhand shot, one of the best in the game, and in all probability a far better shot than the piffling score of 222 would indicate.

"EDWARD C. CROSSMAN, *Secretary.*
"Los Angeles Rifle & Revolver Club."

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. Will the United States Enfield "lock open" after the last shot is fired from the magazine?

A. Yes, the rifle having no magazine cut-off, the bolt remains open after the last shot is fired.

Q. I am desirous of obtaining a sight for my Krag which is better than the one with which it is now equipped. What type of sight should I order?

A. Many of the Krag rifles were equipped with sights Model of 1902. If this is so in your case, a model 1901 sight would be preferable. The Lyman Gunsight Corporation also have a receiver sight adapted to use on the Krag.

Q. Where can targets be obtained upon which to shoot the new N. R. A. out-door small-bore qualification course?

A. The course is as yet a tentative one. There may be changes in the targets before its adoption. For that reason, no targets have been provided and it is necessary for those wishing to try out the course to make their own targets. This, however, is easily accomplished by referring to the description of the targets which accompanied the announcement of the course.

Q. What makes of rifle are best adapted to the demands of the new out-door small-bore course?

A. Reports received from rifle clubs whose members have tried out the new course indicate that satisfactory shooting has been done with Winchester muskets, Stevens and Remington rifles.

Q. What is the routine to be followed in the organization of a Home Guard contingent?

A. The matter should be taken up with the local authorities if arms are desired, through the governor of the state, since the laws governing the issue of rifles to Home Guards place this power in the hands of the State executive.

Q. Where can Patridge Sights be fitted to revolvers or pistols?

A. We do not know of any gunsmith doing this work at present. The inventor of the sights, E. E. Patridge, at present can be addressed at Mingo Hill, Rangley, Maine. He undoubtedly could supply the information.

These clubs were admitted to membership in the National Rifle Association of America during the past week:

CIVILIAN

Kansas

Haven Rifle Club—R. G. Hemenway, secretary; W. H. Kirkpatrick, president; R. E. Dimond, vice-president; Augustus Myers, treasurer; J. Frank Astle, executive officer. Membership, 37.

Massachusetts

Norwood Rifle Club—E. J. Schulte, secretary; Hon. J. Cameron Forbes, president; Ralph E. Bullard, vice-president; Walter F. Tilton, treasurer; Clarence A. Bingham, executive officer. Membership, 218.

West Newton Rifle Club—Sidney B. Thomas, secretary; William L. Puffer, president; Abbott C. Mead, vice-president; Warren S. Kilburn, treasurer; Chester B. Pratt, executive officer. Membership, 75.

Nebraska

Warren Rifle Club—Roy Hendren, secretary; John Nelson, president; Leonard Byrd, vice-president; O. R. Roberts, treasurer; J. E. S. Carson, executive officer. Membership, 25.

New Jersey

Overpeck Minute Men Rifle Club—John C. Marsh, secretary; Michael Laboves, president; Roy L. Blakeslee, vice-president; Lucien Lemaril, treasurer; Thomas J. Carroll, Sr., executive officer. Membership, 12.

Protection Rifle Club—William A. Carty, secretary; R. W. Whitham, president; Harry J. Hasselbauer, vice-president; J. D. Bruland, treasurer; C. H. Benedict, executive officer. Membership, 200.

New York

Waverly Rifle Club—A. J. Heath, secretary; Berton N. Genung, president; W. H. Gobel, vice-president; A. E. Foster, treasurer; C. L. Gregg, executive officer. Membership, 22.

Oregon

Forest Grove Rifle Club—H. E. Ferrin, secretary; W. H. Hollis, president; A. E. Scott, vice-president; J. A. Thornburgh, treasurer; C. W. Creel, executive officer. Membership, 86.

BOYS' RIFLE CLUB

Maine

Long Lake Lodge Rifle Club—Harold C. Amos, secretary; Edwin V. Spooner, president; Corning Benton, treasurer; L. Sherwood Irwin, captain. Membership, 26.

With the Small-Bore Outdoor League

RESULTS of the second stage of the small-bore outdoor league series are beginning to show fair shooting on the part of many of the half a hundred teams engaged in the shooting.

As yet, there has been no possible score among the more than two hundred high men, and totals of 190 or better are not of frequent occurrence, all of which testifies that the course is calling for considerable skill, especially in the rapid-fire sitting position, since most of the "points off" seem to pop up in those strings.

In the second week's shooting, T. K. Lee, of the Birmingham Athletic Club Rifle Association, carried off high honors with 195. The others who during the second match made 190 or better included O. M. Shriver, 192, and W. C. Stokes, 190, both of the Washington, D. C., Rifle Club; W. E. Kessler, of the Kiowa Shooting Club, Des Moines, Ia., 192; J. R. Briggs, of the Ashburnham, Mass., Rifle Club, 194, and G. L. Wotkyns, of the Los Angeles Rifle and Revolver Club, 193.

As might be expected, the second week's shooting brought considerable shifting to the score as it stood at the end of the first week, there not only being changes in the aggregate through the inclusion of scores of clubs whose targets were received too late for compilation last week, but also in the weekly match.

The results of the second week's shooting are:

1. *Brooklyn, N. Y., Rifle Club:* L. J. Miller, 188; P. F. Lahm, 187; L. J. Corsa, 186; H. Otto, 185; W. Coffin, 182. Club total, 928.

2. *Birmingham, Ala., Athletic Club R. and R. Ass'n:* T. K. Lee, 195; Roy Shelnutt, 191; A. F. DeFuniak, 185; Melcen Jones, 179; Frank Flinn, 178. Club total, 928.

3. *Washington, D. C., Rifle Club:* O. M. Schriver, 192; W. R. Stokes, 190; C. F. Himmler, 187; A. Winter, 180; R. Alderman, 177. Club total, 926.

4. *Massachusetts Rifle Association, Boston, Mass.:* J. H. McAlen, 188; H. H. Bennett, 187; N. C. Nash, 185; H. Marshall, 184; A. Meidner, 180. Club total, 924.

5. *Kiowa Shooting Club, Des Moines, Iowa:* W. E. Kessler, 192; Fines, 183; C. H. Kessler, 180; B. G. Limms, 178; A. T. Carter, 174. Club total, 907.

6. *Milwaukee, Wis., R. & P. Club:* H. W. Mansfield, 182; N. E. Dahm, 180; Emil Teich, 180; John F. Kleine, 178; F. Teich, 178. Club total, 898.

7. *Toledo, Ohio, R. & P. Club:* H. G. Affleck, 188; R. W. Roberts, 182; Bruce Carlson, 180; H. S. Crawford, 176; Henry Yonker, 167. Club total, 893.

8. *Manhattan, N. Y., R. & R. Club:* David J. Gould, Jr., 187; H. M. Pope, 184; Alfred M. Seeley, 180; K. H. Fichtner, 175; J. C. Couzens, 166. Club total, 892.

9. *St. Louis, Mo., Colonial Rifle Club:* G. C. Olcott, 188; E. A. Krondl, 181; R. A. K. Traber, 174; L. C. Niedner, 167; T. E. Bunding, 149. Club total, 859.

10. *Ashburnham, Mass., Rifle Club:* J. R. Briggs, 194; G. Willard, 179; G. S. Hollingsworth, 176; Wm. H. Barlou, 165; Jos. Gandreau, 144. Club total, 858.

11. *Canton, Ohio, R. & P. Club:* A. E. Hart, 183; A. N. Scott, 168; C. J. Foltz, 170; W. K. Perdue, 167; E. B. Sunderhaus, 167. Club total, 855.

12. *Scott, Arkansas, Rifle Club:* J. K. Thilbault, Jr., 180; R. L. Pemberton, 174; Henry Thilbault, 171; W. O. Scott, 166; Walter Alexander, 163. Club total, 854.

13. *Norwalk, Conn., Rifle Club:* J. A. Baker, Jr., 181; A. N. Clark, 174; Wm. Pfleeger, 172; W. E. Mathews, 164; J. D. Milne, 163. Club total, 854.

14. *Niskayuna Rifle Club, Schenectady, N. Y.:* F. T. Marks, 186; Robert Bush, 178; Harry Cregier, 174; C. S. Dick, 163; A. C. Bunker, 149. Club total, 850.

15. *Cazenovia, N. Y., Rifle Club:* G. L. Woodworth, 183; H. C. Thorne, 173; F. D. Holdridge, 167; W. D. Weaver, 167; C. F. Huttleston, 157. Club total, 847.

16. *Pentwater, Michigan, Rifle Club:* E. B. Clark, 173; E. Stanhope, 170; P. N. Lagesen, 170; J. B. Hendrick, 165; M. D. Girard, 161. Club total, 839.

17. *California R. C. R. & P. Club, San Francisco:* R. M. Vaugham, 174; Paul Thelen, 169; L. C. Kessing, 169; R. C. Ashworth, 166; H. S. Schmidt, 158. Club total, 836.

18. *Community Rifle Club, Sherrill, N. Y.:* S. Freeman, 180; L. Lee, 168; H. Freeman, 167; W. Tucker, 159; Hallack, 158. Club total, 832.

19. *Denver City, Colorado, Rifle Club:* C. L. Butler, 171; L. G. Pridy, 171; Jos. I. Hansen, 167; C. E. Younkman, 155; T. H. Smith, 155. Club total, 819.

20. *New Bedford, Mass., Rifle Club:* P. Coderre, 168; E. Choquette, 167; Alphonse Durocker, 166; Jos. Blouin, 154; George Breault, 152. Club total, 807.

21. *Citizens Rifle & Revolver Club, Rochester, N. Y.:* G. S. Searle, 166; F. C. Sherman, 165; A. G. Johnson, 160; W. W. Lewis, 158; C. D. U. Hobbie, 157. Club total, 806.

22. *Jacksonville, Fla., Rifle Club:* G. W. Gray, 170; A. H. St. John, 167; D. B. Vincent, 158; J. H. Whitney, 153; A. R. Williams, Jr., 150. Club total, 798.

23. *Hoosier Rifle Club, Indianapolis, Indiana:* Chas. Ridlin, 170; Haddath, 166; W. F. Baker, 166; Chas. F. Ruschanpt, 159; Dr. Druly, 136. Club total, 797.

24. *Franklin, Pa., Rifle Club:* Chas. S. Boswell, 188; F. E. Cathers, 171; W. W. Mackey, 163; C. M. Campbell, 151; J. H. Gilliland, 123. Club total, 796.

25. *The Greater Omaha R. & R. Club, Omaha, Nebr.:* W. B. Riley, 182; Newhouse, 169; C. G. Riley, 151; C. L. Mather, 142; C. A. Darling, 141. Club total, 785.

26. *Antioch, Ill., Rifle Club:* Ed. Garret, 165; B. Worman, 163; G. Olcott, 153; J. Pinowski, 153; N. E. Proctor, 149. Club total, 783.

27. *Akron, Ohio, Rifle Association:* M. E. Fassnacht, 186; M. E. Metzger, 171; James C. Ryder, 155; R. M. Leggers, 127; A. E. Swickard, 118. Club total, 752.

28. *Ontario, Cal., Rifle Club:* F. H. Wallihan, 164; C. H. Card, 161; E. J. Casler, 155; H. E. Strunk, 139; W. H. Tangeman, 131. Club total, 750.

29. *Olig Rifle Club, Reward, Cal.:* S. J. Burris, 169; C. M. Small, 163; H. W. Cullen, 154; B. F. Mattison, 135; A. C. Dambacher, 128. Club total, 749.

30. *Warren, Pa., Rifle & Revolver Club:* J. A. Clark, 163; F. A. Keller, 155; F. W. Jefferson, 147; J. G. Smallman, 146; F. P. Lauffer, 135. Club total, 746.

31. *Gen. Phil Kearny Rifle Club, Kearny, N. J.:* J. Lang, 159; P. Blauvelt, 153; A. Van Houter, 144; John Crook, 142; T. Chappell, 142. Club total, 740.

32. *Highland, Cal., Rifle Club:* D. Roddick, 166; G. W. Fitzgerald, 155; Harold Brown, 146; W. H. Nye, 133; Geo. Corwin, 127. Club total, 727.

33. *Middleborough, Mass., Rifle Club:* A. E. Jumey, 176; Henry L. Pember, 175; R. Jenks, 154; S. L. Brett, 125; R. Wood, 85. Club total, 715.

34. *Joliet, Ill., Rifle Club:* Leo J. Deiss, 189; R. R. Sidell, 169; H. D. Grose, 168; Carl McKee, 152. Club total, 678.

35. *Wilsall, Mont., Rifle Club:* Victor F. Ellis, 151; F. Denton, 142; Chester Denton, 140; C. E. Gilbert, 127; F. H. Brink, 103. Club total, 663.

36. *Holbrook, Arizona, Rifle Club:* C. P. Cooley, 154; T. H. Howard, 118; D. G. Ayon, 116; L. H. Mickey, 112; J. F. Wood, 97. Club total, 597.

37. *Canyon City, Oregon, Rifle Club:* W. C. Mason, 127; J. A. Muldrick, 119; C. O. Guemsey, 119; C. G. Guemsey, 113; Denver Leedy, 107. Club total, 585.

38. *Rochester, Minnesota, Rifle Club:* S. Robinson, 159; Geo. Morrison, 159; Fred H. Young, 157; L. B. Wilson, 156; E. L. Irish, 150. Club total, 581.

39. *Patchogue, N. Y., Rifle Club:* Frank P. Johnson, 148; R. B. Ackerly, 109; Henry L. Rieth, 105; Chas. C. Case, Jr., 105; Jas. H. McKnight, 98. Club total, 565.

40. *Los Angeles, California, R. & R. Club:* G. L. Wotkyns, 193; E. D. Neff, 187; L. Felsenthal, 183. Club total, 563.

41. *Massena, N. Y., Pistol Club:* F. L. Actis, 165; Henry M. Hall, 101; J. V. Walker, 99; J. A. Dewey, 96; George O. Connor, 89. Club total, 550.

42. *Malta, Montana, Rifle Club:* J. R. Piper, 111; J. R. Crabb, 110; R. H. Frank, 104; W. E. Orrison, 104; J. L. Patton, 89. Club total, 518.

43. *Kenosha, Wisconsin, Rifle Club:* H. C. Hart, 147; F. H. Baum, 134; G. H. Ripley, 131; A. E. Buckmaster, 94. Club total, 506.

44. *Chicago, Ill., Rifle Club:* F. B. Roziene, 136; J. Howard, 132; C. M. Ereanbrack, 129. Club total, 397.

NOTE: Several team scores arrived too late for classification.

The aggregate standing of the clubs at the close of the second week is:

	Club	*Total*
1.	Massachusetts Rifle Ass'n, Boston, Mass	1850
2.	Birmingham, Ala., Athletic Rifle Club	1850
3.	Brooklyn, N. Y., Rifle Club	1838
4.	Washington, D. C., Rifle Club	1831
5.	Milwaukee, Wis., Rifle & Pistol Club	1820
6.	Kiowa Shooting Club, Des Moines, Iowa	1808
7.	Manhattan Rifle & Rev. Club, New York, N. Y.	1774
8.	St. Louis, Mo., Colonial Rev. Club	1745
9.	Ashburnham, Mass., Rifle Club	1732
10.	Franklin, Pa., Rifle Club	1704
11.	Scott, Arkansas, Rifle Club	1699
12.	Toledo, Ohio, Rifle & Pistol Club	1698
13.	Canton, Ohio, Rifle & Pistol Club	1694
14.	Jacksonville, Fla., Rifle Club	1685
15.	Cazinovia, N. Y., Rifle Club	1678
16.	California Railroad Commission R. & P. Club, San Francisco, Cal.	1658
17.	Pentwater, Mich., Rifle Club	1656
18.	Norwalk Rifle Club, S. Norwalk, Conn	1655
19.	Denver City, Colo., Rifle Club	1650
20.	Hoosier Rifle Club, Indianapolis, Ind.	1623
21.	Citizens R. & R. Club, Rochester, N. Y.	1615
22.	Community Rifle Club, Sherrill, N. Y.	1606
23.	The Greater Omaha Rifle & Rev. Club, Omaha, Neb.	1586
24.	New Bedford, Mass., Rifle Club	1569
25.	Antioch, Ill., Rifle Club	1546
26.	Warren, Pa., Rifle & Rev. Club	1536
27.	Akron, Ohio, Rifle Association	1533
28.	Ontario, Cal., Rifle Club	1526
29.	Middleborough, Mass., Rifle Club	1509
30.	Niskayuna Rifle Club, Schenectady, N. Y.	1497
31.	Joliet, Ill., Rifle Club	1489
32.	Los Angeles, Cal., Rifle & Rev. Club	1476
33.	Olig Rifle Club, Reward, Cal	1458
34.	Highland, Cal., Rifle Club	1427
35.	Rochester, Minn., Rifle Club	1380
36.	Holbrook, Arizona, Rifle Club	1342
37.	Wilsall, Mont., Rifle Club	1269
38.	Massena R. & P. Club, Massena, N. Y.	1216
39.	Canyon City, Ore., Rifle Club	1132
40.	Patchogue, N. Y., Rifle Club	1091
41.	Kenosha, Wis., Rifle Club	1083
42.	Chicago, Ill., Rifle Club	1064
43.	Malta, Mont., Rifle Club	1047

FIRST MATCH MISSING

Gen. Phil Kearny Rifle Club, Kearny, N.J. 740

SECOND MATCH MISSING

Hopkins, Minn., Rifle Club 865
Litchfield, Conn., Rifle Club 491
St. Johnsbury, Vt., Rifle Club 701
Hydraulic Rifle Club, Cleveland, Ohio 787

NO TARGETS RECEIVED

Saranac Lake, N. Y., Rifle Club.
Mt. Olive Rifle Club, Reedley, Colo.
National Rifle Club, Newark, N. J.
Long Beach, Calif., Rifle Club.

RICOCHETS

On a score of 44 x 50, 10 shots at 25 yards, Joseph Duersmith, of Columbia, Pa., carried off the honors in the Pennsylvania Railroad Rifle Club's revolver match, shot on the Conedago range, July 21st. H. J. Finfrock, of West Philadelphia, was runner-up, with A. J. Soulliard, of Middletown, third. The scores of the prize winners were:

Joseph Duersmith, Columbia	44
H. J. Finfrock, West Philadelphia	40
A. J. Soulliard, Middletown	38
W. R. Snyder, Harrisburg	35
T. B. Eckert, Harrisburg	30
G. W. Grear, Coatesville	27

R. L. Deck, Steelton	22
T. L. Barclay, Overbrook	18
M. J. Cranford, Harrisburg	16
James Morrissey, Middletown	15
S. R. Foy, Harrisburg	12

The Riverside, California, Rifle Club was trimmed July 15th in the competition shoot with the Los Angeles Rifle and Revolver Club, but they were trimmed by such a narrow margin that none of the locals have any apologies to offer. The final score was 805 to 775, and when it is considered that the 30-point margin was divided around among six men and three ranges it dwindles to minor significance.

The six highest scores from each team which counted were:

Los Angeles—	300	500	600	Tot.
Dr. Felsenthal	47	44	46	137
G. L. Wotkyns	45	48	44	137
J. Donaldson	44	45	45	134
J. F. Siefert	43	47	43	133
E. D. Neff	45	45	42	132
Ed Eliot	44	47	41	132
Team total				805

Riverside—	300	500	600	Tot.
Ben Gustin	41	47	47	135
H. O. Higgins	45	46	41	132
F. E. Winship	44	43	43	130
W. V. Darling	43	47	39	129
C. G. Darling	41	45	43	129
N. C. Stebbins	40	44	36	120
Team total				775

These qualifications, under the indoor reentry match in which watch-fob decorations have been awarded, have been reported to the National Rifle Association.

Those making the rating of sharpshooter are:

G. M. Carroll, 187; C. R. Morse, 192; C. E. Hollister, 191; all of the University of Tennessee Rifle Club.

R. R. Clark, 190; Roy M. Shane, 196; both of the Michigan Agricultural College Rifle Club.

H. E. Gribble, 194; Thos. F. Wirth, 191; Eric Kelly, 198; W. W. Kositzky, 190; E. Kositzky, 196; Emil Reutzel, 194; all of the University of Nebraska Rifle Club.

Barton Pope, 194; Maurice Kurtz, 196; both of the Cedar Rapids High School Rifle Club.

C. F. Russi, Jr., 194; A. S. Flores, 185; Erwin Meun, 197; Jerome Barloeo, 188; all of the Lone Star, Texas, Rifle Club.

A. K. Thomas, 192; Roy White, 188; E. Grumbach, 188; all of the Morgantown, West Virginia, Rifle Club.

J. Mann, 190; S. D. Kilmare, 197; both of the New York Military Academy Rifle Club.

Dr. H. S. Willard, Ridgewood, New Jersey, Rifle Club, 187.

G. M. Smith, 196; C. P. Kelly, 196; E. J. Dear, 187; R. A. Wade, 196; all of the Erie, Pennsylvania, Rod and Gun Club.

I. S. Guest, University of Pennsylvania Rifle Club, 188.

Edward L. Crabb, Shoshone, Wyoming, Rifle Club, 184.

Ed. Finnis, Kiowa Shooting Club, Des Iowa, 194.

Frank Anselmo, English High School of Boston, Massachusetts, Rifle Club, 190.

Rodney Cullen, Notre Dame, Indiana, University Rifle Club, 190.

L. H. Patty, Pacific Service Rifle Club of San Francisco, California, 198.

I. A. Gehrman, Eastern Detroit, Michigan, Gun Club, 191.

Bernard B. Bulawa, Crane Technical High School Rifle Club, of Chicago, Illinois, 194.

F. R. Whelon, 199; F. L. Pyne, 194; both of the Lowell, Massachusetts, High School Rifle Club.

Benton B. Beil, 195; S. H. Burkhart, 191; both of the Palm Beach, Florida, Rifle Club.

Alfred H. Seeley, 189; Harry M. Pope, 191; J. E. Silliman, 188; all of the Manhattan, New York, Rifle and Revolver Association.

F. Leidgen, 191, and A. Strehlow, 193; both of the St. John's Military Academy Rifle Club, of Delafield, Wisconsin.

Those making the rating of marksman are:

J. A. Bottkol, Menominee, Michigan, Rifle Club, 179.

W. C. Harrison, Central High School, Washington, D. C., Rifle Club, 184.

C. H. Hall, Jr., Asbury Park, New Jersey, Rifle Club, 181.

Borden Helmer, Jamaica, Long Island, High School Rifle Club, 176.

J. Campbell, Kansas City, Missouri, Revolver and Rifle Club, 178.

Carroll L. Wilson, Rochester, Minnesota, Rifle Club, 181.

Guy Sproul, 181; J. Anderson, 178; both of the Shawnee Rifle and Revolver Club, of Lima, Ohio.

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James I. Reynolds, 176; B. Marsters, 182; both of the Jamaica, Long Island, High School Rifle Club.

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THE ROMANCE OF A RIFLE BARREL

The making of a rifle calls for manufacturing skill in a very wide variety of mechanical operations. Few sportsmen realize how many different kinds of machines must be used in the production of the rifle that often seems so very simple.

Rifle manufacture differs from the manufacture of other articles made from steel in at least two important particulars. For one thing, accuracy of a very high order is necessary in firearms and this means that every operation from beginning to end must be carefully watched to prevent any defective part getting into the complete arm and causing trouble for the hunter when he is far from a gunsmith. The other particular that sets rifle making part from any other trade is the fact that it includes the art of barrel making. This art is so peculiar to the manufacture of firearms that the machinery used can not be applied to work on anything else.

You as a sportsman may have looked through the smoothly shining bore of your new rifle and wondered to yourself just how the makers had succeeded in getting it so straight and true and how they cut those wonderful spiral grooves.

The secret of perfection in the making of a rifle barrel is unending care, from the selection of the raw material to the last inspection. Without it no amount of costly material would be able to turn out the right kind of work.

The rough bar of steel from which the finished barrel is finally evolved is rolled while red hot from a short, thick billet. This is done by means of ponderous rollers into which a number of grooves of gradually diminishing size have been cut. The embryo barrel is then treated to remove the rough scale left by rolling and powerful lathes turn it to the proper shape. Drilling is the next operation and you can realize what a delicate job it is to run a drill through such a long piece of steel without having it go astray and come out at the side instead of the end. The drills are, of course, of special shape, and a funny thing about this operation is that the drill stands still and the barrel is rotated at high speed. Reaming operations follow to remove the drill marks and then the barrel is straightened.

In spite of all the efforts of skilled engineers who have been working on the problem, straightening a barrel is strictly hand work, for no machine has ever been made which could take the place of the man with the hammer and V-block anvil. You are probably wondering how the man who straightens barrels tells when they are crooked or where to hit with the hammer to take out the kink. It is very simple when you know, as the instruction books say. All you have to do is to look through the barrel at a black line painted across a window and watch the reflection as the barrel is turned by hand. It may be simple, but the fact remains that very few men ever learn how to do it and the ones who can are exceedingly well paid.

After the barrel is straightened, it is sent to the rifling machines. These machines, which by the way are shockingly expensive, are so made that they run a long bar with a tooth with a sharp edge on it back and forth through the barrel and rotate it at the same time, so that it gradually cuts the grooves that cause the bullet to spin and travel point first. This operation and the machines that carry it out are used only in rifle making and they are absolutely worthless for any other purpose.

It seems hard to believe a fine rifle barrel which almost appears to be a thing of life was once but a clumsy bar of rusty iron, and the owner of every fine rifle should prize it highly as a wonderful example of manufacturing skill.—A. P. LANE.

Trapshots Ready For Big Battle

By PETER P. CARNEY

WHILE the professional shooters of Europe are making somewhat strenuous efforts to reach certain objectives—to be particular, Berlin, London, Petrograd, Paris, Vienna and Rome—a million or so of the more than ten million owners of shotguns in the United States are reading with intense interest the latest (uncensored) dispatches from Chicago, a town in Illinois, where the Eighteenth Grand American (Trapshooting) Handicap tournament will be staged, shot or fought, whichever you prefer, on August 20, 21, 22, 23 and 24.

Of course the Windy City will not be invaded by anything like a million gunmen, but what is lacking in quantity will be made up in quality, and the eight hundred or more shooters who will participate in the battle of Lake Michigan will give an exhibition of gun firing that will make the European war record of one hit in ten thousand shots looks like little Willie's first efforts with an air rifle.

The winners of first, second, third, fourth and fifth places in the Grand American Handicap event on August 23d will each receive a handsome trophy and, respectively, a guaranteed purse of $500, $400, $300, $200 and $100.

During the past few years the prize money for the first five places has amounted to considerable more than these figures because of the increased number of entrants.

All the entrance money is added to the purse given by the Interstate Association.

Usually the entrance fees of the trapshooters amounts to $10,000, and the Interstate Association helps by giving $5,000, which makes quite a few cash prizes for five days' shooting.

The tremendous task of classifying and handicapping every trapshooter in the country who might enter the big argument has been assigned to the following sportsmen of national reputation: Guy V. Dering, Columbus, Wis., chairman; George K. Mackie, Lawrence, Kan.; Benjamin S. Donnelly, Chicago, Ill.: William H. Cockrane, Bristol, Tenn., and Fred Plum, Atlantic City.

One of the most important features of the G. A. H. will be a race for the national amateur trapshooting championship. To earn the right to represent their States in the elimination affair, shooters must outshoot all comers at home, and having won their respective State championships, the champs will be pitted against each other—some forty-five or more representing different States—at Chicago.

How different this is from every other championship contest. Ordinarily a tennis player, a golfer or other player, takes a pot shot at some other one fellow—the "champion"—who has won his title by taking a pot shot at some other "champion." But not so in the shooting game.

The fellow who lands the coveted national honor at the traps must earn it, and earn it hard.

The Maine woods or the Canadian wilds was once the goal of the American gunner for his annual outing, but now the place that beckons him is the Grand American Trapshooting Handicap—the "Derby" of the gun lover.

This will be the fifth time that Chicago has been honored with the blue-ribbon event of the Sporting World. It was first held there in 1907 and played return engagements in 1909, 1910 and 1915. It was in 1915 that the entries for the Grand American Handicap event reached the bubbling-over stage, there being 884 entrants and 839 participants. Last year in St. Louis the entries totaled 683.

While this isn't the most desirable year for record breaking, the trapshooting fraternity of Chicago are inclined to the belief that there will be at least 800 participants in the main event of the week. More than 200 Illinois trapshooters invaded St. Louis for the Grand American last year. This number should be doubled, and there will be more shooters from the Eastern States in Chicago than there were in St. Louis.

Besides the amateurs there will be fifty or more professionals on hand to engage in matches and to demonstrate their prowess over traps set aside for the purpose. These shooters are among the best in the world. Under the rules of the trapshooting, professionals are not permitted to shoot in the regular program, as all the trophies and purses are for simon-pures exclusively.

Ten traps will be used to accommodate relays of fifty shooters, and there will be scarcely a minute of any of the five days when there will not be a half-hundred gunners banging away on the firing line.

In addition to the ten traps for amateurs there will be one trap for the professionals, one for women, and two "Joker" traps for shooters who want to try their skill at targets "wild"—any angle, elevation or distance calculated to fool the contestant. Of course scores over this trap do not count in any of the regular events, the "Joker" being a sort of "side show."

The South Shore Country Club, where the gigantic tournament is to be held, is one of the show places of America. It occupies 67 acres, with three-quarters of a mile frontage on Lake Michigan. It will be on this frontage that the trapshooting will be done, the targets being thrown over the waters of the Lake.

The club house is the last word in clubdom. It is the finest in the world. The main club house has a frontage of 550 feet and takes up 90,000 square feet.

The officers of the South Shore Country Club are: Everett C. Brown, president; C. E. Fox, vice-president; R. B. Upham, treasurer; S. C. Mosser, secretary.

Mr. Brown is a former president of the Amateur Athletic Union, the Chicago Athletic Club and other organizations of standing in the world of sport.

The trapshooting committee that is bending its energies to make the affair a triumph is made up of R. E. Peacock, chairman; Charles Antoine, R. W. Clancy, G. T. French, W. G. Peacock, Carl Horix, E. W. Health, R. H. Morse.

As no admission is charged to witness the tournament, it is estimated that the attendance will reach the 25,000 mark daily.

Scattering Shot

Not many years ago women were conspicuous by their absence in trapshooting matters, but such is not the case today. Thus far eight States have held women's trapshooting championship events, as follows:

State	Winner	Of
Illinois,	Mrs. A. H. Winkler,	Chicago.
Delaware,	Miss H. D. Hammond,	Wil'n.
Oklahoma,	Miss M. Wilson,	Tulsa.
Penna.,	Mrs. F. H. Mellon,	Pittsburg.
Calif.-Nev.,	Mrs. C. E. Groat,	Los Angeles.
N. Jersey,	Mrs. F. A. Johnson,	Atlantic City.
Connecticut,	Mrs. F. F. Rodgers,	Stamford.
Iowa,	Miss E. Wettleaf,	Nichols.

It will be a matter of a few years only when there will be a women's trapshooting championship event held in every State, the same as is held for men, and the women will have a little Grand American all their own. Trapshooting is an ideal sport for women and they should be encouraged in shooting at all tournaments.

The best score made by a woman in championship competition was by Mrs. Groat, in the California-Nevada shoot, when she broke 95 of the clay saucers.

These fair dianas and many more will be found in the Grand American trapshooting tournament, which takes place at the South Shore Country Club, Chicago, Ill., the third week in August. There will be special events for women in this tournament.

Peters Paragraphs

Mr. E. J. Linde, of O'Fallon, Ill., won High Amateur Average at East St. Louis, June 10th, 145 x 150, shooting Peters shells.

Mr. E. C. Griffith, well-known trapshooter of Pascoag, R. I., was High Amateur at the Rhode Island State tournament, Westerly, June 8th, 144 x 150, using Peters shells.

At the Baltimore, Md., shoot, June 6th, High Amateur Average was won by Mr. E. W. Ford, of Washington, D. C., 148 x 150, using Peters factory-loaded "steel where steel belongs" shells.

High Professional Average at Grundy Center, Iowa, June 8th, was won by Mr. Fred Gilbert, 146 x 150, using Peters shells.

Mr. F. W. McNeil, of Redwing, Minn., was High Amateur at Durand, Wis., June 10th, using Peters "steel where steel belongs" shells; score, 146 x 150.

At Moore, Mont., June 3-4, Mr. E. W. Renfro, using Peters shells, won the Parsons medal, 50 straight, the Klepetko Double Target medal, 37 x 20 pair, and was High Amateur on all targets, including doubles, 338 x 365.

At Alliance, Nebr., June 10th, Mr. Wm. Bowman tied for High General Average, 169 x 175, with a long run of 123. Mr. Franz Bendel was second amateur, 167 x 175, and made the long amateur run, 69 straight. The Three-Man Team Match was won by Mr. Moritz, Mr. Thomas and Mr. Marsh, by a score of 72 x 75, and the Sand Hills Championship was won by Mr. Burt Moritz, 25 straight. All these gentlemen shot Peters shells.

5 GREAT RIFLE VICTORIES

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HIGH SCHOOL COMPETITION -	Championship won by Iowa City, Iowa, High School Team, 9,517 out of a possible 10,000
HIGHEST INDIVIDUAL RECORD -	Made by T. K. Lee, of Birmingham Athletic Club Team, 1,999 out of a possible 2,000
ASTOR CUP CHAMPIONSHIP - -	Won by Iowa City, Iowa, High School Team, 980 out of a possible 1,000

These decisive wins, with the World's Record of 4,599 out of 4,600 points, made in 1915 and still held by T. K. Lee, clearly indicate that even in the hands of expert marksmen Ⓟ Ammunition will make higher scores than any other kind.

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