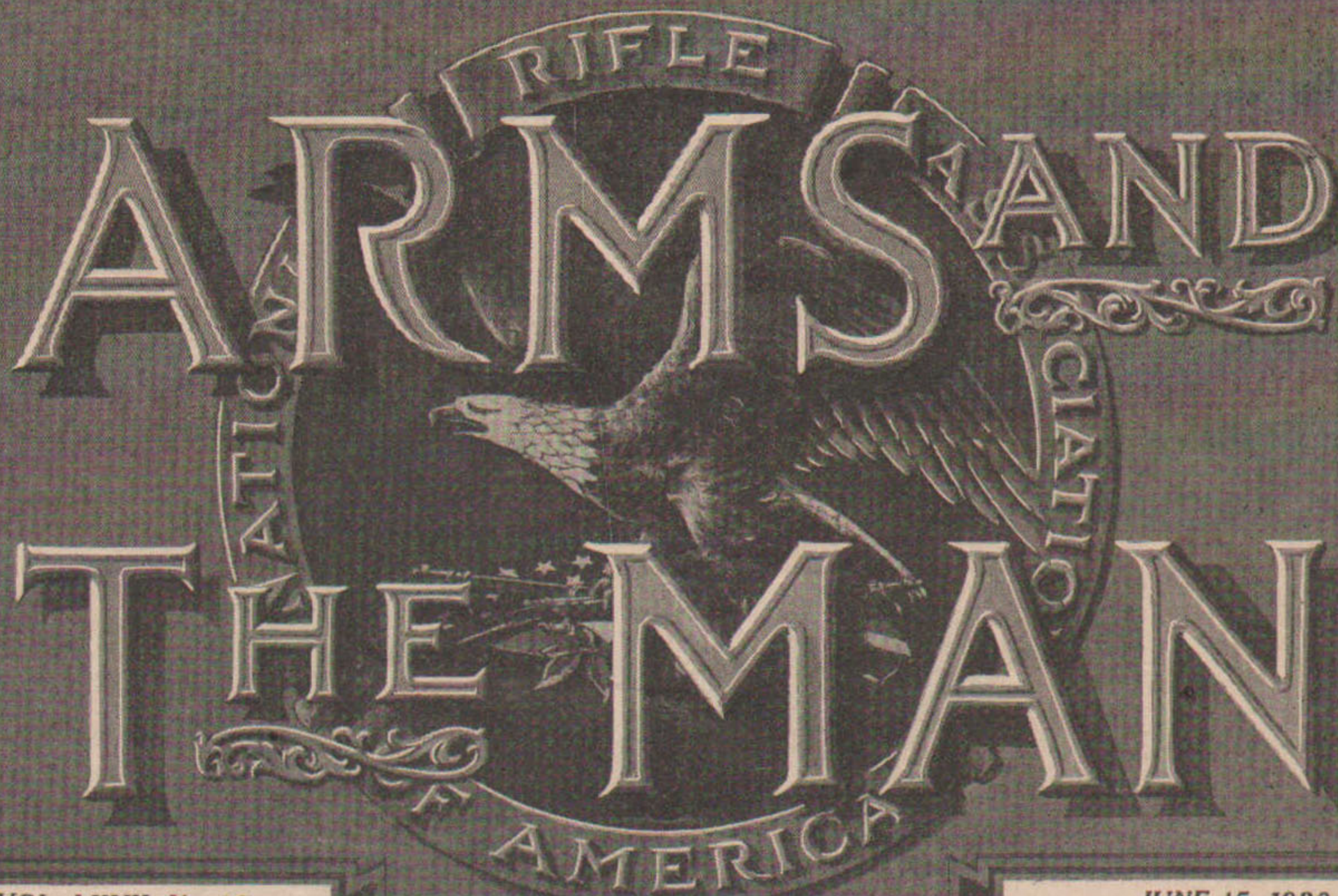


# THE AMERICAN RIFLEMAN'S MAGAZINE



VOL. LXVII, No. 23

JUNE 15, 1920

## U. S. .22 N. R. A. in England

Our English representative writes as follows:

"At the Ham and Petersham competition of the miniature rifle clubs during May, U. S. Ammunition carried off all the honors." The following events were won with U. S. 22 N. R. A. Rim-Fire Cartridges:

TITLE	DISTANCE	SCORE
The Daily Express Cup.....	50 and 100 Yards.....	296 ex 300
The British Commercial Gas Challenge Cup.....	20 Shots, 50 Yards.....	196 ex 200
Explosives Trade Dominion Challenge Cup.....	20 Shots, 50 Yards.....	196 ex 200
Bonehill Challenge Cup.....	10 Shots, 100 Yards.....	98 ex 100
The Police.....	20 Shots, 25 Yards.....	197 ex 200
The Lockhart Ross.....	Team Shoot at 100 Yards.....	373 ex 400
New Zealand Challenge Shield.....	25, 50 and 100 Yards.....	293 ex 300
The Oxo Championship Challenge Cup.....	10 Shots, 25, 50 and 100 Yards.....	389 ex 400

The Benjafield Grand Aggregate—Users of U. S. Ammunition obtained 2nd and 4th places having shot with U. S. at all 50 and 100 yard targets.

The Sandow Challenge Bowl—Team Shoot 25 and 50 Yards—779 ex 800.

The Daily Telegraph Challenge Bowl—25, 50 and 100 Yards—292 ex 300. Users of U. S. Ammunition obtained 3rd and 4th places having shot with U. S. at 50 and 100 yard ranges.

The Skirmisher Challenge Shield—50 Yards. Rapid Firing Team of four using U. S.

Numerous other prizes lower down on the list were won with U. S. Ammunition also. Over 200 of the best shots in England competed."

These world-beating rim-fires are behaving just as well on this side of the water.

UNITED STATES  CARTRIDGE CO.  
METALLIC AMMUNITION THE BLACK SHELLS

111 BROADWAY

NEW YORK



**REMINGTON WINS**

**Olympic Ammunition Test!**

**Breaking all previous records  
at 600 yards.**



**SEE PAGES 12 AND 13**



# ARMS AND THE MAN



The Official Organ of the National Rifle Association of America

Volume LXVII, No. 23

WASHINGTON, D. C., June 15, 1920

\$3.00 a Year. 15 Cents a Copy

## WITH THE OLYMPIC TEAM AT QUANTICO



By KENDRICK SCOFIELD

WHEN the United States Army Transport *Antigone* clears from Hoboken for Antwerp, June 20, she will carry across seas the riflemen who will defend our national reputation as marksmen.

At the Olympic Team training camp which has been established at the big Quantico Marine Corps base, overlooking from the Virginia Shore the sweep of the wide Potomac, these men are now firing the Olympic Games course. They are shooting at unfamiliar metres instead of familiar yards; lining their sights upon strange ring-targets instead of upon the customary "A" and "B" of long military lineage. At their disposal are the finest Springfield military rifles that could be hand-picked from the government stores, ammunition that will ride the wind with greater accuracy than has ever before been attained, and heavy-barrel "free rifles," whose set triggers need only featherweight pressures; for these men must buck the European shooting-game on the home grounds of the best continental shots.

Two weeks ago one of the most hotly contested tryouts in the history of international matches was staged on the Quantico Range. As the result of this elimination shooting the men who compose the service rifle team and the small-bore team to the Olympiad were chosen. Two weeks hence—when the smoke from the *Antigone's* funnels has long faded below the horizon—the revolver and pistol men will take over the range. Those victorious in this contest will probably sail for Antwerp on the transport *Pocahontas* clearing for Belgium July 5.

The 1920 Olympic Tryout at Quantico will long be remembered. From the time that the first of the candidates for Olympic honors reported for practice on May 24, until the last bullet wind-jammed its way from the 300-yard firing line late on the afternoon of the 29th, the contest



The Marine Corps depot at Quantico lies in a bend of the Potomac River.

### U. S. OLYMPIC TEAM, 1920.

#### Officers.

Maj. George C. Shaw, U.S.A., Captain.  
Maj. W. Dulty Smith, U.S.M.C., Coach.  
Captain Paul W. Mapes, U.S.A., Adjutant.  
Maj. W. P. Wheeler, U.S.A., Supply Officer.  
Col. William Libbey, N.J.N.G., Liaison Officer.  
Lt. Commander W. N. McDonell, U.S.N., Medical Officer.

#### Rifle Team.

1st Lt. Thomas G. Brown, U.S.A.  
Capt. A. D. Rothrock, U.S.A.  
Commander C. T. Osburn, U.S.N.  
Sgt. Morris Fisher, U.S.M.C.  
1st Lt. Loyd S. Spooner, U.S.A.  
Rgt. Supply Sgt. Harry L. Adams, U.S.A.  
Capt. F. S. Hird, Q.M.C., U.S.A.  
Maj. E. G. Lindroth, U.S.A.  
Joseph T. Lawless (Civilian), Waltham, Mass.  
2nd Lt. Joseph Jackson, U.S.M.C.  
Sgt. R. M. Henshaw, U.S.M.C.  
Capt. W. F. Leushner, U.S.A.

#### Alternates.

1st Sgt. Dennis Fenton, U.S.A.  
Gun. Sgt. Ollie M. Shriver, U.S.M.C.  
Lt. Commander W. A. Lee, U.S.N.  
1st Lt. Perry S. Schofield, U.S.A.  
Lawrence A. Nuesslein (Civilian), Washington, D. C.

never lacked interest. From first to last it was almost a game of "miss-and-out." Toward the last of the shooting, a point almost meant a place on the team, and while the scores made in the tryout were not record breakers, they show a remarkable consistency in the face of handicaps which called for all the ripened skill seasoned competitors could produce. Throughout the shooting the men battled not only against one another but against their unfamiliarity with the off-hand shooting position, sudden changes of





Principals in the race for individual honors: Center, Lt. Brown; left, Capt. Rothrock comparing "dope" with Lt. Schofield; right, Commander "Cy" Osburn.



light at the targets which played hob during the late afternoons with elevations, and an epidemic of metal fouling to which many otherwise "unaccountables" could be traced. In spite of all this the tryout was one of the best competitions that has ever been staged. The range operation was snappy, the relays worked through without any of the customary delays, except now and again, during the off-hand shooting when the contestants "nursed" their shots, in an endeavor to out-wait the wind. Major W. D. Smith of the Marine Corps, who was executive officer of the shoot, and Major G. C. Shaw, U. S. A., Captain of the team, are to be congratulated upon the management of the affair.

To add interest to an already interesting event, a pretty race for high individual honors developed during the last hours of the shooting between Commander "Cy" Osburn of the Navy and Captain A. D. Rothrock of the Staff of the Camp Benning School of Arms. That both were nosed out of first place by Lieutenant T. G. Brown, who showed remarkable form in an eleventh-hour "come-back," does not detract from the race between the men who finished second and third on the list.

The metal-fouling epidemic caused not only the contestants, but the match officials as well, considerable concern. It recalled the days prior to 1910 when riflemen experienced constant trouble from this cause with the Springfield as those who are familiar with the development of the army weapon well know, this trouble was practically done away with about that year by graphite-coating the powder charge and by a change in the primer eliminating the ground glass component. It also will be recalled that metal fouling in the Springfield recurred in 1913, in the special ammunition provided for the Pan-American Team; and in view of the fact that the Americans lost only on their scores fired from the prone position, it would seem that the contention that nicked bores cost them many points had some basis of fact.

The first of the contestants who showed up at Quantico for practice prior to May 24 used the ordinary 150-grain F. A. ammunition, and no trouble was experienced. But by the time the scheduled practice began on May 24, a shipment of special 170-grain ammunition of known wind-jamming proclivities had arrived and had been issued; co-incidentally "unaccountables" became apparent in the practice strings. The rifles which were used both in the practice shooting and in the tryout were a few ordinary issue rifles from the ordnance stores on the range and Springfields from a lot of 150 selected Star gauged weapons except where the contestants owned their own hand-picked guns. While metal-fouling trouble was more apparent among the men who used the ordinary issue rifles, many of those with carefully selected arms of known accuracy, found their favorite barrels performing prodigies of inaccuracy, and in many cases the cause was readily discernable to the unaided eye in patches and cakes along the bore. At the start off, very little grease was used along the firing line, but the discovery of the metal fouling set practically all of the shooters to lubricating. Yet the epidemic continued to attack greased and ungreased barrels alike, although naturally the better the barrel, the less the fouling. In fact the trouble became so acute that the men who were conscientiously striving to get the most out of every shot, frequently doped their rifles between stages. In all fairness, however, it must be said that there were men on the range, whose rifles seemed immune to the scourge, and who suffered little or no inconvenience from this cause.

As the result of the experience with metal fouling at Quantico, it is expected that the special ammunition loaded for the National Matches will contain a charge of No. 17½ powder instead of the ordinary Pyro. This is a decopperizing powder—progressive burning and containing a component of tin.

The Marine Corps Rifle Range at Quantico lies back of the big depot which rose in war-time almost over night on the banks of the

Potomac about 30 miles below the National Capital. As might have been expected in a Marine camp, no time or trouble was grudged in the construction of the firing line, the only drawback being the fact that the topography of the country made it necessary to shoot in an almost due westerly direction. Firing lines at all distances up to 1400 yards were provided during the war-time activities of the camp, but when the depot was selected as the scene of the Olympic tryout, Major Smith could not find a range which fully satisfied him. He therefore set about construction of two special ranges. He established a special firing line at 300 yards—a decision having been reached that it was the better policy to try out the contestants at familiar ranges—and finding no 600-yard line handy he ordered a steam shovel and set about constructing one where he thought it ought to be. The new 600-yard firing line rises some twenty feet above the level of the surrounding meadow. It is approximately 12 feet wide and has accommodations for the 25 targets on the 300-yard range. While the boys were getting busy on this range, Major Smith set about the construction of special 300-meter and 600-metre ranges on which the team, picked as the result of shooting at 300-yards and 600-yards, is now training.

Nearly one hundred candidates reported at Quantico for the tryout. Most of the aspirants for Olympic honors were old-timers either on the International or National Match teams of the past, but here and there appeared a few tyros who kept pace in the gruelling race remarkably well. Among the old war horses of the game were Hird, Adams and Osburn of the 1912 Olympic; Leushner of the 1912 Running Deer Team, Shriver of the 1912 Pan-American; Schofield of the 1913 International and Stoll of the 1912 Pan-American. From the A. E. F. team of last year there entered Spooner and Lawless—the latter now shooting as a civilian, and Major O. F. Snyder, captain of the victorious A. E. F. Pistol Team.



# Ammunition for the Olympic Team

By Capt. EDWARD C. CROSSMAN

poets have it, which same is a fancy name for sleeping out and wishing to Yuma that you had sense enough to stay home. Eventually all hands got packed away in the old "Squan" house, and in smaller boarding places in the two towns but the separation took a lot of the joy out of the proceedings.

Monday afternoon found a meeting of competitors and the Board on the range, in which the various modifications of the Marquis of Queensbury rules were worked over and agreed on. Although the testing Board of 1919 had recommended using only the mean and extreme vertical measurements in future, to eliminate the high speed of firing that is advisable when taking in the horizontal group measurements as well, the sense of the meeting was that they wanted the good old mean radius figure.

When noses were counted it was found that those in the competition were as follows, with the ammunition entered by each concern:

### For Olympic Games.

1. Remington U.M.C. Company lot No. 19 loaded with 180-grain, flat base, pointed, cupro-nickel jacketed bullet, and Hivel powder.
2. Remington Arms U.M.C. Co., lot No. 20, loaded with 120-grain, flat base, pointed, cupro-jacketed bullet, and DuPont I.M.R. No. 15½ powder.
3. Frankford Arsenal, Olympic hand-loaded 170-grain, flat base, pointed, cupro-nickel jacketed bullet, and DuPont M.R. No. 20 powder.
4. Frankford Arsenal, Olympic 170-grain, flat base, pointed, gilding metal jacketed bullet, and DuPont M.R. No. 20 powder.

	<i>Inches.</i>
Remington Arms—UMC Co. No. 19, 600-yard Mean Radius.....	3.411
Frankford Arsenal Olympic, cupro nickel, 600-yard Mean Radius.....	3.661
Remington Arms—UMC Co. No. 20, 600-yard Mean Radius.....	4.102
Western Cartridge Co., 600-yard Mean Radius.....	4.347
Frankford Arsenal Olympic, Gilding Metal, 600-yard Mean Radius.....	4.456
Winchester Repeating Arms Company, 600-yard Mean Radius.....	4.896
Olympic Games ammunition test of 1912.	
	<i>Inches.</i>
U. S. Cartridge Co., winner, 600 meters (660 yards).....	3.965
Winchester Repeating Arms Co. (2nd).....	4.882
Ammunition test of 1913, 600 yards, machine loaded for the National Match.	
	<i>Inches.</i>
U. S. Cartridge Co.....	4.828
Ammunition test of 1919, 600 yards, machine loaded for the National Match.	
	<i>Inches.</i>
Frankford Arsenal.....	5.19

THE star aggregation of rifle pointers that sails June 21st for Antwerp and the Olympic Games will take along thirty thousand rounds of the best ball cartridges that ever smelled salt water. If your Uncle Sam doesn't add the 1920 Olympic Rifle Match pelt to the many he's got tacked on the old barn, then the fault won't lie with the ammunition.

Over the historic green spaces of Sea Girt the week of May 17th, the 180-grain flat-base bullet of the Remington Arms-UMC Co. won the ammunition test to determine the best ammunition for our Olympic Rifle Team. For the first time in the history of the machine rest tests that commenced in 1908, a Remington cartridge won; but it won so emphatically as compared to the records of competitors in years gone by that one is led to suspect that this company must have been "saving up" for the occasion. No ammunition ever shot through a machine rest test has equalled the record of this Remington bull's-eye puncher.

Although Remington won the test fairly and without question, the Government Arsenal of Frankford and the boyish-looking and much-liked officer in charge of the small arms ammunition work, beat Remington in the vertical measurements. For the first time a cartridge won a machine rest test on mean radius figures, yet had a larger mean extreme vertical than the one coming out second best. Had the test been based on vertical measurements alone as the Board recommended last year, Frankford would have won.

The last machine rest test in which the commercial loading companies entered their products was held in 1914, six years ago, but it was shot only at 1,000 yards for the Palma Match, and there can be no comparison between this test and that of 1920. Since then the world has been at war; arsenals, private factories and all, have turned out billions of rounds of war cartridges, and very few with

the matter of accuracy in mind. The results indicate that all hands have gotten their minds back on the race, just the same.

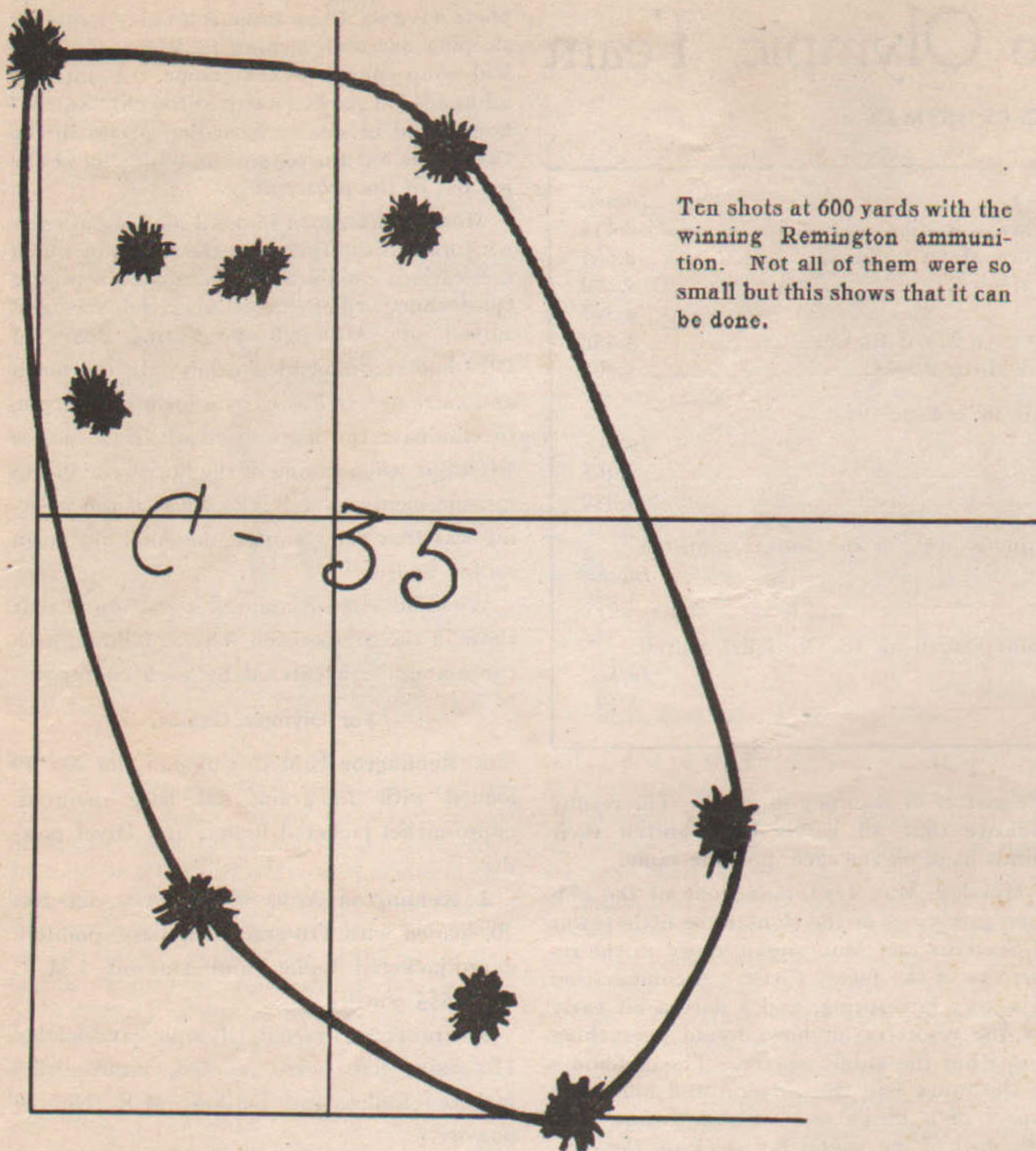
Monday, May 17th, found one of the old-time gatherings of the clan at the little towns of Sea Girt and Manasquan, down in the resort row of the Jersey Coast. A combination of a very late spring, and a date a bit early for the resorters anyhow, found everything closed but the public square. The clubhouse at the range had the cheerful and home-like aspect of a bird's nest of year before last. The dust of the winter lay thick on the erstwhile hangout of testing boards, the Parker House. For a while it looked as if the clan would have to bivouac under the stars, as the



The machine rests in action at Sea Girt

Photo by Landis





Ten shots at 600 yards with the winning Remington ammunition. Not all of them were so small but this shows that it can be done.

5. Western Cartridge Company, 170-grain, flat base, pointed, gilder's metal jacketed bullet, Hercules Hivel powder.

6. Winchester Repeating Arms Co. 150-grain, flat base, pointed, cupro-nickel, jacketed bullet, and DuPont M.R. No. 20 powder.

To the disappointment of everybody, the U. S. Cartridge Company did not enter; it was the first time they have missed a machine rest test since 1908. Likewise, judging by the reports of the past it is about the first time they have missed winning one, as they won in 1908, and thence on most of the time, except a couple of occasions when Winchester "snuck in" first. The disappointment of the Remington chaps was marked, they had come down loaded for bear, and here the biggest bear wouldn't come out of the hole. The reason given by the U. S. was that commercial conditions and a crowded factory prevented their tackling the job in the way she ought to be tackled.

Peters had announced that they would enter, but freight troubles and shortage of material made it impossible to furnish the ammunition had they won, and they reluctantly failed to come up to the starting line.

The Board in its meeting in April at the Frankford Arsenal had decided to permit anything short of murder in the sort of ammunition submitted, any weight bullet, any pow-

der, any velocity, any pressure shy of a mean of 58,000 lbs. Also more than one lot could be entered. The requirements were that each competitor furnish 1,000 rounds for the test, and guarantee to furnish 30,000 rounds of precisely the same quality, in case of winning.

Also at the same meeting the Board decided that the ammunition for the National Matches of 1920 should be a bullet of 170 grains, with a velocity of 2600, instead of the old bullet of 150 grains, with 2700 ft. secs. At this time Lieut. Col. Clay submitted the results of firing a great many hundred targets with various bullets, jackets, alloys of core, and velocities, and the 170-grain, flat base bullet, minus canelure, showed the best accuracy.

So there came down to the machine rest two different lots of ammunition under the Remington brand, and two for Frankford. At the same time was to be fired two machine-loaded lots from the Frankford Arsenal intended for the National Match, but not entered in the test as special ammunition.

At the April meeting it was also decided to issue to each concern desiring to enter the test, ten selected New Springfields from which would be picked the five the competitor desired to use in the test. Each competitor was to use his own special rifles. This was found desirable because of the intent on the part of several of the factories to use gild-

ing metal jackets, which, if shot in barrels containing any cupro-nickel fouling, give poor accuracy.

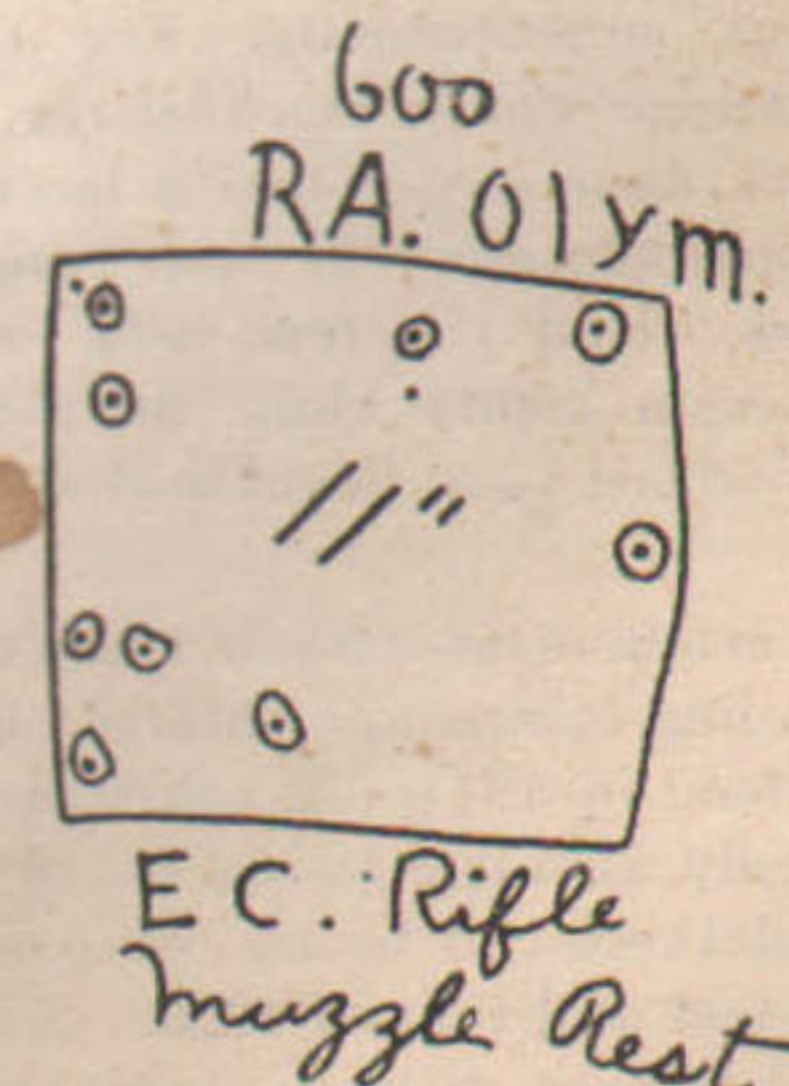
Therefore the various representatives came down laden with New Springfields, carefully picked from the lot sent to them, and to be used only with their ammunition, which was a plan different from the old method of starting in at one end of the line of rifles and rests, and using each rest and rifle in turn to the other end. This is a fair method, but as pointed out, puts the chaps with the gilding metal jackets at a disadvantage when they have to use the rifle just fired with cupro-nickel bullets.

It was finally agreed to fire thirty targets—each target ten shots—using three rifles in the firing, or ten targets through each of three rifles. It was also agreed that each competitor would take a machine rest and retain it through the test.

The range was to be 600 yards, with a little demonstration by the winner at 300 meters after the show was over. Also the Board put over a little joker designed to discourage ammunition giving much metal fouling, but high accuracy, and getting by through frequent doping in the machine rest test, which would not be possible to competitors in a match. Some of the members of the 1913 Pan-American Rifle Team, which lost in the prone end of the Pan-American Match to the Argentinos, insisted that excessive metal fouling lost the match, and the Board had this experience in mind. So it required that no doping with ammonia be done except at the end of a relay—50 shots, with which the sighting—in strings would bring the total as a rule to 70 shots or more. Lubricants were permitted.

The meeting broke up with the dove of peace still sitting on the roof and without a single gent making a move for his pistol pocket. The early morning was to see the first event run off, and all hands went back to the boarding house to put a little keener edge on the old scalping knife.

There were a few parties left here and there about the country, of the old timer brigade that has attended machine rest tests since the one in which G. Washington picked out the fine load of three buckshot and a round ball for competing against the British, but most of



A muzzle and elbow rest group, Remington Olympic ammunition, fired at Daytona.



them were down at Sea Girt. Chief among those missing were General Bird Spencer, presiding officer of the Sea Girt range, who apparently had a run on the bank or something over in his home Jersey town, and Colonel William Libbey, member of the Board, and the most experienced when it comes to machine rest tests.

The Arms and Ammunition Testing Board of 1920 was the same as that for 1919, comprising:

Captain Townsend Whelen, General Staff, U. S. Army.

Captain Julian S. Hatcher, Ordnance Department, U. S. Army.

Colonel William Libbey, National Rifle Association.

Major Kellog K. V. Casey.

Captain Edward C. Crossman, U. S. Army.

Colonel Libbey, as stated, could not be on hand at that date, having the minor matter of examinations and graduation of the 1920 Princeton class, and having gotten the habit after twenty-five years or so of sticking on one job until he got that finished. The test wasn't the same with him gone.

Tuesday morning broke as mornings have a habit of doing, and found that Ole Man Winter had gotten gentle Spring on the run and had chased said G. S. clear over the horizon. The calendar and the weather didn't match. It got colder as the day wore on. Having sampled Sea Girt's climate in May, and again in July, I'd say that it must have a good month a year—that one June.

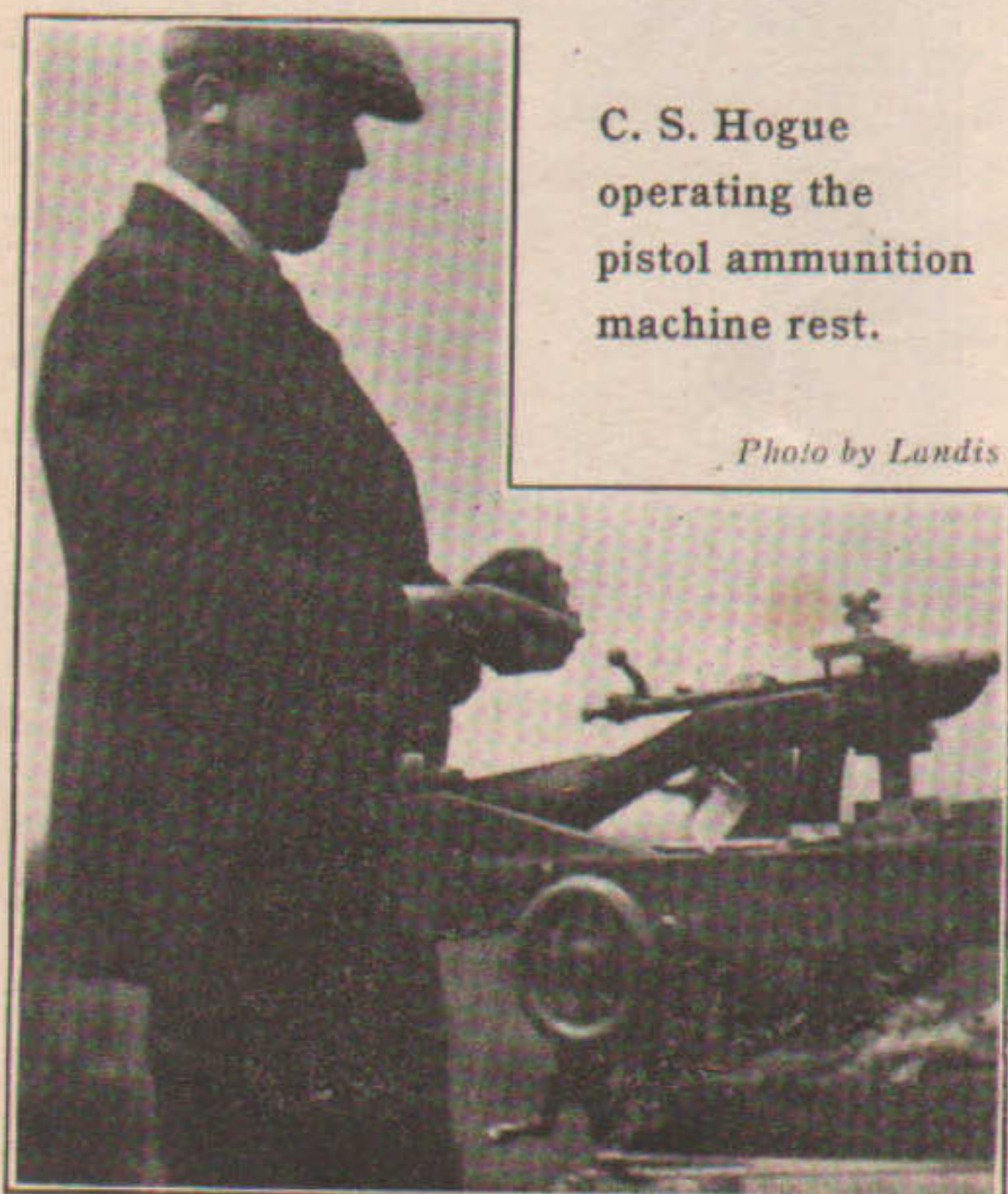
More spectators and adherents of the various candidates came in during the day until the roll call of the convention read something like this: (If I'd known I had to write this story I'd have taken a real census.)

Remington: Jarvis Williams, Jr., Capt. Chas. Van Amburg, Frank Kahrs, Messrs. Dickerman and Priest.

Winchester: Capt. W. H. Richard, Mr. Robertson.

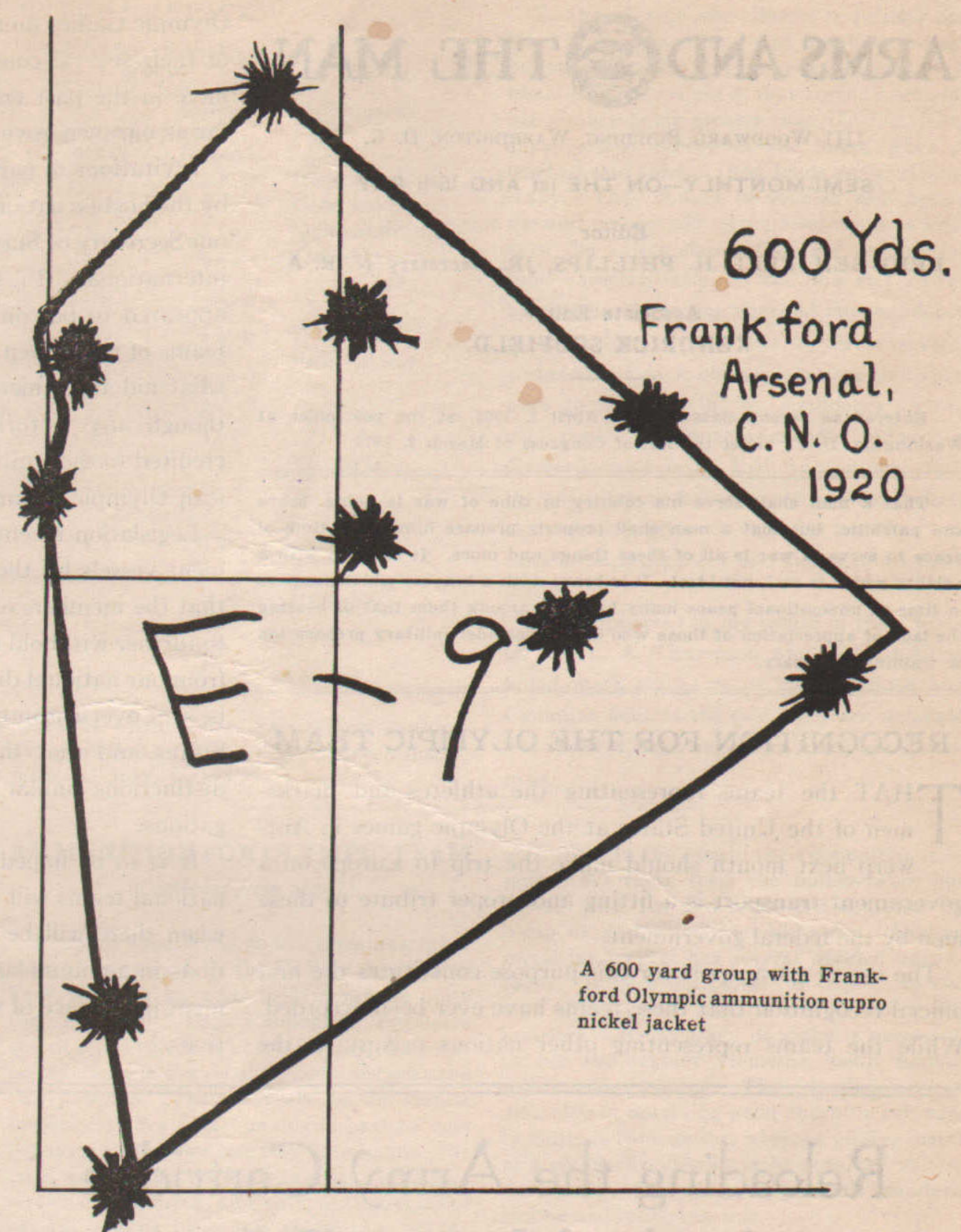
Western Cartridge Co.: C. Riggs, S. Rousseau.

U. S. Cartridge Co. (with their fingers crossed) Jim E. Burns, W. Robinson.



C. S. Hogue operating the pistol ammunition machine rest.

Photo by Landis



Savage Arms Co.: Two squads and one or two over, named J. J. Dooley.

Hercules: Messrs. E. Whistler Everett, C. S. Landis, and Weldin.

DuPont: T. G. Samworth, C. I. B. Henning.

Frankford: Lieut. Col. Wallace L. Clay, George Schnerring, C. S. Hogue, Gus Schnabel, and the usual force of skilled and most competent chaps to handle the targets in the pit, and the measurements thereof after firing.

Delegates at large. Majors Waller and Mathews and Lieut. Col. M. MacDougal, of the Marine Corps.

Colonel W. A. Phillips, commanding officer of the Frankford Arsenal, dropped in during the firing, and was a most interested spectator.

When the boxes were opened, Remington's entry was found to be—as listed earlier in this story—the old Remington 180-grain as shot last year by John Hessian in winning the Wimbledon, loaded with two different powders, Hivel, and one of DuPont's progressive decopperizing powders, No. 15½, the ½ in-

dicating the addition of about 5% of metallic tin and lead to the powder in process of manufacture. As we had shot a great many thousand rounds at Miami and Daytona, loaded with this powder and the M 1919 boat-tailed bullet, we could testify to certain properties it had. Hivel has been used since 1908 for loading heavy bullets in match cartridges, where rapid fire was not used, and where barrel life was to be subordinate to accurate shooting. In its first form as turned out by DuPont it was called NGS2—Nitro Glycerine Special No. 2, and was a cooler form of old W A, in different grain form. There are two forms of it at present, No. 1 and No. 2. One contains 15% of nitroglycerine, the other 20%. Both are very hot and erosive, but they have the hitherto exclusive virtues of extremely even ignition, and lower pressures than straight pyro. The powder has won every accuracy test with the heavy bullet.

(Continued on page 9)



# ARMS AND THE MAN

1111 WOODWARD BUILDING, WASHINGTON, D. C.

SEMI-MONTHLY—ON THE 1st AND 15th DAY

Editor

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

Associate Editor

KENDRICK SCOFIELD

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

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

## RECOGNITION FOR THE OLYMPIC TEAM

THAT the teams representing the athletes and marksmen of the United States at the Olympic games in Antwerp next month should make the trip to Europe on a government transport is a fitting and proper tribute to these men by the federal government.

The use of a transport for this purpose constitutes the first official recognition that these teams have ever been accorded. While the teams representing other nations occupy at the

Olympic Games unmistakable positions as the representatives of their several countries, the teams from the United States have in the past enjoyed only a quasi-official designation so far as our own government is concerned.

Invitations to participate in the various Olympiads are sent by the hostess nation through her diplomatic representatives to our Secretary of State. This in itself makes the affair officially international. In the past however, our government has appeared to be content to permit the athletic teams and the teams of marksmen to get to Europe as best they might, with what aid the American Olympic Committee might give, although any victories which the American teams win are credited to the United States as a nation and not to the American Olympic Committee.

Legislation recently passed, resulting in the use of government vessels by the Olympic Teams, would seem to indicate that the members of the House and Senate have realized that to further withhold recognition of international teams detracts from our national dignity; that our international teams should be sent overseas unmistakably as representatives of the United States, and that this status must be emphasized by certain distinctions similar to those accorded to other national delegations.

It is to be hoped that the time will come when our international teams will be sent abroad in first-class warships, and when there will be set aside for their use certain appropriations in amounts sufficient to insure them against embarrassment in the face of what other nations do for their representatives.

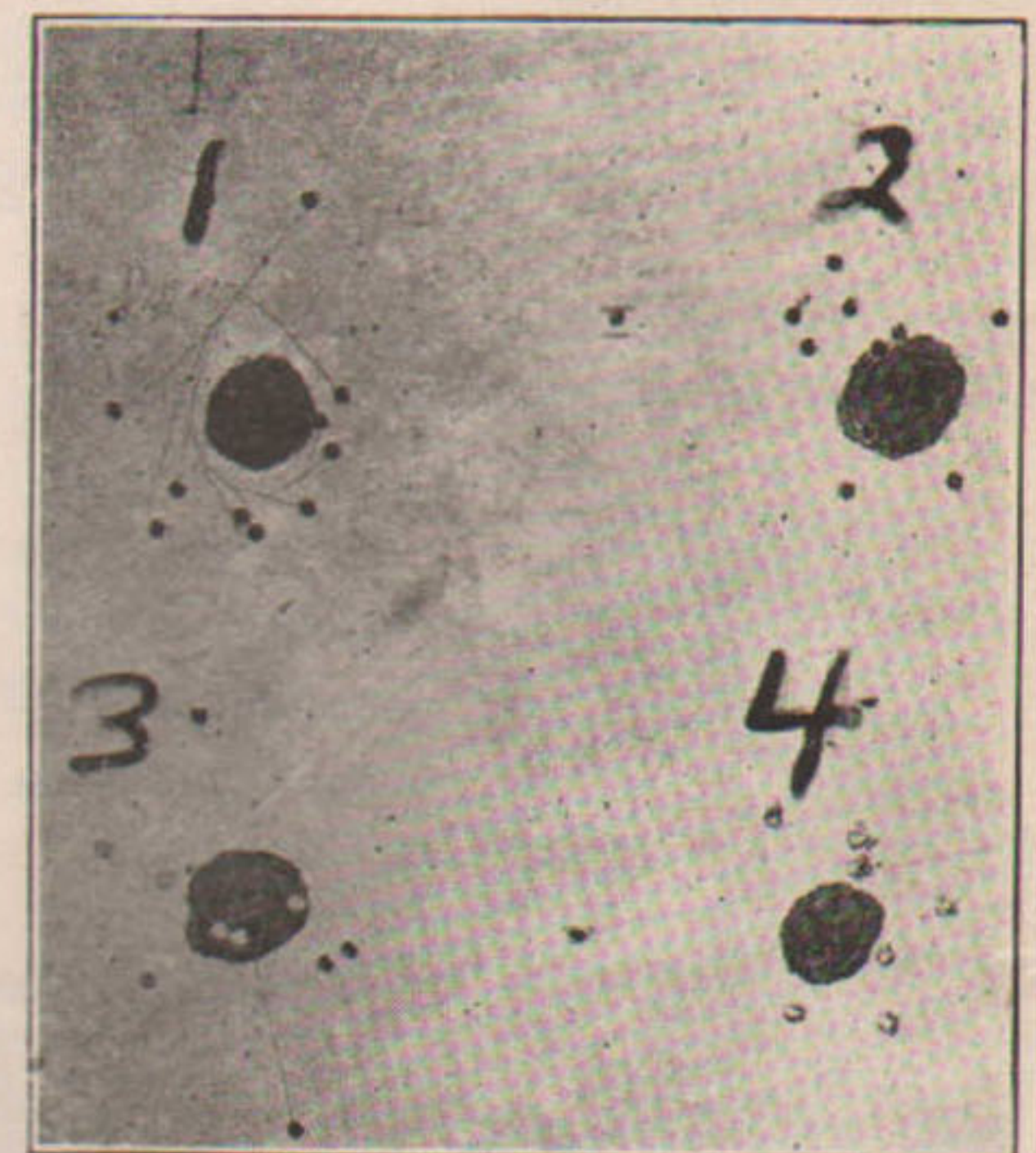
## Reloading the Army Cartridge for the Newton Rifle

By T. T. PIERCE

WHEN Mr. Chas. Newton adopted a form of rifling for his arms differing from most present-day styles of rifling he created a subject for much discussion, learned and otherwise, on the merits and faults thereof. Being life members of the fraternity of rifle bugs here at the National Proving Station with ideas of our own we set ourselves to the task of finding the ifs and whys of some little details of shooting qualities and incidentally to find out why cast bullets perform better in the Government Standard type of rifling than in the Newton. All of which is because we believe a lot in the all-around gun. One gun for more than one purpose—and because we have a habit of loading our Government Springfields with a variety of loads to do things

from noiseless execution of a mouse or grass hopper to smashing through the biggest of the big game that we always hope to meet next season.

Inasmuch as we detected faults and virtues for both types of rifling we believe that our experiments will be interesting to a number of the fraternity and herewith remark that cast bullets give better results in all cases with the Government type of rifling as verified by the firings of approximately 6,000 rounds of experimental load under uniform conditions from muzzle and elbow rest over a range of 100 yards of atmospherical pressure and other elements by various members of our testing force. The ammunition for these experiments was loaded by the Station Ballistics Labora-



tory, and by Mr. L. A. Thompson, of Philadelphia.

Fourteen different weights of cast bullets were used in the following alloys; Soft lead, Ideal standard, Lead and babbitt in 8 to 1, Lead and babbitt in 12 to 1. Various sizings were used, ranging from .306-inch to .313-inch and a good average of results in accuracy is given in the accompanying table.



COMPARATIVE CAST BULLET ACCURACY

Bullet	Weight grains	Powder charge grains	Average 10 shot groups		Remarks
			M. E. R. 100 yards.	Springfield inches	
Ideal No. 311243....	154	12 of Schutzen.....	3	2.8	Good Load
Ideal No. 311243....	154	11 of Schutzen.....	3.4	3.	Good load.
Ideal No. 311243....	154	9 of Schutzen.....	4.	3.1	Light-uniform.
Ideal No. 311243....	154	8 of Schutzen.....	5.5	4.2	Too light.
Ideal No. 311243....	154	12 of DuP No. 75.....	6.	4.3	
Ideal No. 311243....	154	10 of DuP No. 75.....	5.7	4.2	
Ideal No. 311243....	154	8 of DuP No. 75.....	4.6	4.1	
Ideal No. 311243....	154	14 of DuP No. 80.....	6.8	5.2	Poor balance.
Ideal No. 311243....	154	10.5 of DuP No. 80.....	4.5	4.1	
Ideal No. 311243....	154	8.5 of DuP No. 80.....	5.4	5.	
Ideal No. 311243....	154	6.5 of R. S. Q.....	3.6	3.	
Ideal No. 311243....	154	4.5 of R. S. Q.....	8.	7.2	Too light.

25 yards					
Ideal Factory.....	77	2 of Bullseye.....	1.4	0.9	
Ideal Factory.....	77	2 of Unique.....	1.	0.7	
Ideal Factory.....	77	2 of DuP Shotgun.....	.....	.....	Irregular.
Ideal Factory.....	77	2 of Ballistite.....	1.1	0.8	
Ideal Factory.....	77	2 of DuP No. 75.....	1.2	0.9	
Ideal Factory.....	77	2 of No. 3 Pistol.....	1.7	1.	

Our observations were that none but the very hardest bullets will stand for much speeding up with the Newton rifling, the accuracy for example, of 14 grains of No. 80 which averaged 6.8-inches in Newton and 5.2-inches in Springfield. The sharp cornered lands of the Springfield speak for more uniform resistance against twist and the cutting of narrower and more uniform grooves in bullet which gives better muzzle departures than from the Newton, as in the rifling of the latter the bullet shows a pronounced tendency to "creep" in its rotation through the bore, giving an elongating effect of the bullet promotive of uneven side escape of gas at the muzzle.

With the Government standard service cartridge the only differences in accuracy or shooting quality was a slight drop in the Newtons groups, due, we believe, to a difference in groove diameters, that of the Newtons being slightly larger than the Government barrels, and from a study of muzzle flashes we decided in favor of the Springfield barrel for more uniform friction. To this same condition we credit the good results obtained from the Newtons with very large powder charges; un-booked and un-recommended charges that gave dangerous pressures in the Springfield showed about normal pressures in the Newtons.

The photograph here published is interesting in comparing elevations. Four strings of Hi-power loads shot by the writer in continuous shooting, 100 yards, free prone position, six o'clock aim, no changes in sighting position, no cleaning, no spotting and under time of 23 minutes. With .30 '06 Newton.

No. 1—Ten shots 50 grains DuPont No. 15. 220-grain S. P. Bullet. Maximum measurement 5 5-8ths-inches.

No. 2—Ten shots 48 grains DuPont No. 18. 220-grain S. P. Bullet. Maximum measurement 4 inches.

No. 3—Ten shots 48 grains DuPont No. 16. 220-grain S. P. Bullet. Maximum measurement 6 5-16th inches.

No. 4—Ten shots Service ammunition. 150-grain Spitzer Bullet. Maximum measurement 7 3-16ths inches.

AMMUNITION FOR OLYMPIC TEAM

(Continued from page 7)

It is now equalled in its low pressures, other things being equal, by the DuPont progressive lines, but they have yet to demonstrate quite the accuracy. The Remington engineers stated, however, that at the factory there was no difference in the accuracy obtained with the two powders. The difference in the results obtained at Sea Girt was due in part to misbehavior of the rest used by Remington, the base working up between the two traversing screws during firing, and putting elevations of several groups from top to bottom of the paper. These groups had to be counted in, and raised the figures considerably for the 15½ lot. Both lots had a velocity of about 2550 ft. and a pressure of 52 to 53,000 lbs.

Frankford's two entries used the same powder, a lot of service pyro that has proved unusually accurate, one bullet using ordinary cupro-nickel, the other gilding metal. The velocity was 2600 ft. secs., the pressure 48,000 lbs.

Western submitted a cartridge with a gilding metal bullet of 170 grains, very similar in every way to the Frankford gilding metal bullet. They used, however, Hivel as the propellant, and got 2600 ft. secs.

The gilding metal bullet—in other words copper jacketed—looks like the copper jacket bullet put out by the Savage Co. for its .250 and the .22 HiPower. To quote Colonel Whelen on this bullet jacket material:

"Gilding metal is a composition of 90% copper and 10% zinc. Practically all sporting rifle cartridges of velocities not over 2200 feet per second are jacketed with gilding metal, but the majority have the gilding metal plated

To the riflemen who adheres to powder can label recommendations and has had the experience of having to give up a moose or buck blood-trail on account of that animal's remaining vitality being greater than the remaining velocity and energy of the bullet when it reached said animal, these loads are worthy of study. They should be studied well before use and no one will recommend them as safe, even the writer claims they are unsafe—for some shooters—same as the bow and arrow, but personally having clinched my confidence in the safety of their use by firing several grains above each charge from the gun they were to be used in, by confidence in my micrometer measurements of bullet and groove diameters and being hard to convince that there is anything better in game killing bullets than the 220 grain S. P., I get excellent results in both accuracy and smash of all these loads.

I am supported in my praise of these loads by Mr. L. A. Thompson who has, I believe, killed more big game of the American and Canadian field, in the past six years, and said less about it, than any other American sportsman.

with tin. In the case of the ammunition submitted for these tests the bullets were not plated with tin and were distinguished by being of a decidedly copper color. Gilding metal for jackets has several decided advantages. It does not cause the deposit in the bore of any lumpy metallic fouling, which will interfere with accuracy or make it necessary to use the regular ammonia metal fouling solution for cleaning. There is always great difficulty in obtaining good cupro-nickel, particularly in time of war, whereas, gilding metal of a standard quality can be obtained at any time and in any quantity, and the standard can be maintained in war.

"Gilding metal is also much cheaper than cupro-nickel and it probably causes less friction in the bore. It would appear that gilding metal is the bullet jacket material of the future, although further tests will have to be undertaken to determine this definitely.

"There is one noticeable peculiarity about gilding metal bullets. They do not shoot well in rifle barrels that contain any trace of cupro-nickel metal fouling. Therefore, if gilding metal bullets are to be used the rifleman should be certain that his barrel is free from cupro-nickel fouling before starting to shoot, giving the barrel, if necessary, several treatments with the regular metal fouling solution."

Winchester, having in mind their famous "300 meter" load of 1913, put in a 150-grain bullet, endeavoring to duplicate their 1913 product. This was the only 150-grain bullet in the test. Velocity was about 2700 ft. secs.

So they put the rifles into the rests, Frankford having Rest A and E of the five, Western Rest B, Remington C, and Winchester D, the Arsenal having two because of desiring to fire four lots of ammunition. Gus Schnable played a lone hand up on A Rest, Geo.



Schnerring worked Rest E, nearest the shooting house.

Early in the game it became evident that the Remington tribe were going to overlook no bets. They didn't stand off and carelessly throw the rifle at the rest, and then tighten up any bolts or screws in sight. Not they. Putting the rifle into the rest is a religious rite with that crowd—which is one reason they had the high priest, Jarvis Williams, on the job. Mr. Williams is works manager for all the gigantic Remington UMC plant, which is some pumpkins of a job in itself. They didn't send down the fourth assistant hired man or the assistant janitor any more than did the other plants, to make the rifle like Remington goods.

After they burned some incense and some joss sticks, and knocked their heads three times on the ground in front of the rest, and recited three verses from the Koran and sprinkled it with holy water, which I guess was taking in most modern religions, they proceeded with the work of so putting the rifle into the embrace of the rest that at no point would the rifle's collar choke it or its belt cut it, or anything else turn up to make it peeved and cramped.

Putting a rifle into a machine rest is an operation calling for skill, experience and good judgment. It is quite simple to put it in wrong; less so to put it in right. As you probably know, the Frankford type of machine rest, which is that commonly used by arms factories and loading plants, and as used at the test, consists of a slide carrying the rifle, which said slide works in grooves in the heavy iron base. The slide carries a heavy iron recess for the butt of the rifle, a clamp to screw down on top of the butt at the heel, and another to hold the butt at the side. Still another clamp screws down on the receiver ring, and a third holds the rifle just back of the front or upper band. Under the two forward clamps are the heavy steel posts, adjustable in height, and with "U" shaped cuts to receive the rifle.

The little joker is to put the rifle into the three clamps so it is not cramped, sprung or bound, but delivers the bullets in a straight line with the bore, and does not change point of delivery during firing. The best form is not to use all three clamps.

It was noted that Remington and Winchester did not use the butt clamps at all, but did their holding with the receiver and front clamp. U. S., when Jim Burns presides, also cuts out the butt clamp.

Springfield, on the other hand, does away with the front clamp and holds the rifle in the butt and receiver clamp. It seems to be very difficult to get the rifle neatly and evenly tied down at three points and get out its best shooting.

Frankford tied the rifle in all three places. There were those who alleged that had Frankford left off the butt clamp and babied the rifle a bit more, they would have won, but with my machine rest experience limited to a few months at Camp Perry, and a few more at Daytona, I'm about 3 years shy of being able to pass on said opinion. I am satisfied of one little truth—that being that skill in the handling of the rifle and the rest plays a huge part

in the winning of a machine rest test, nearly as much so as the ammunition itself.

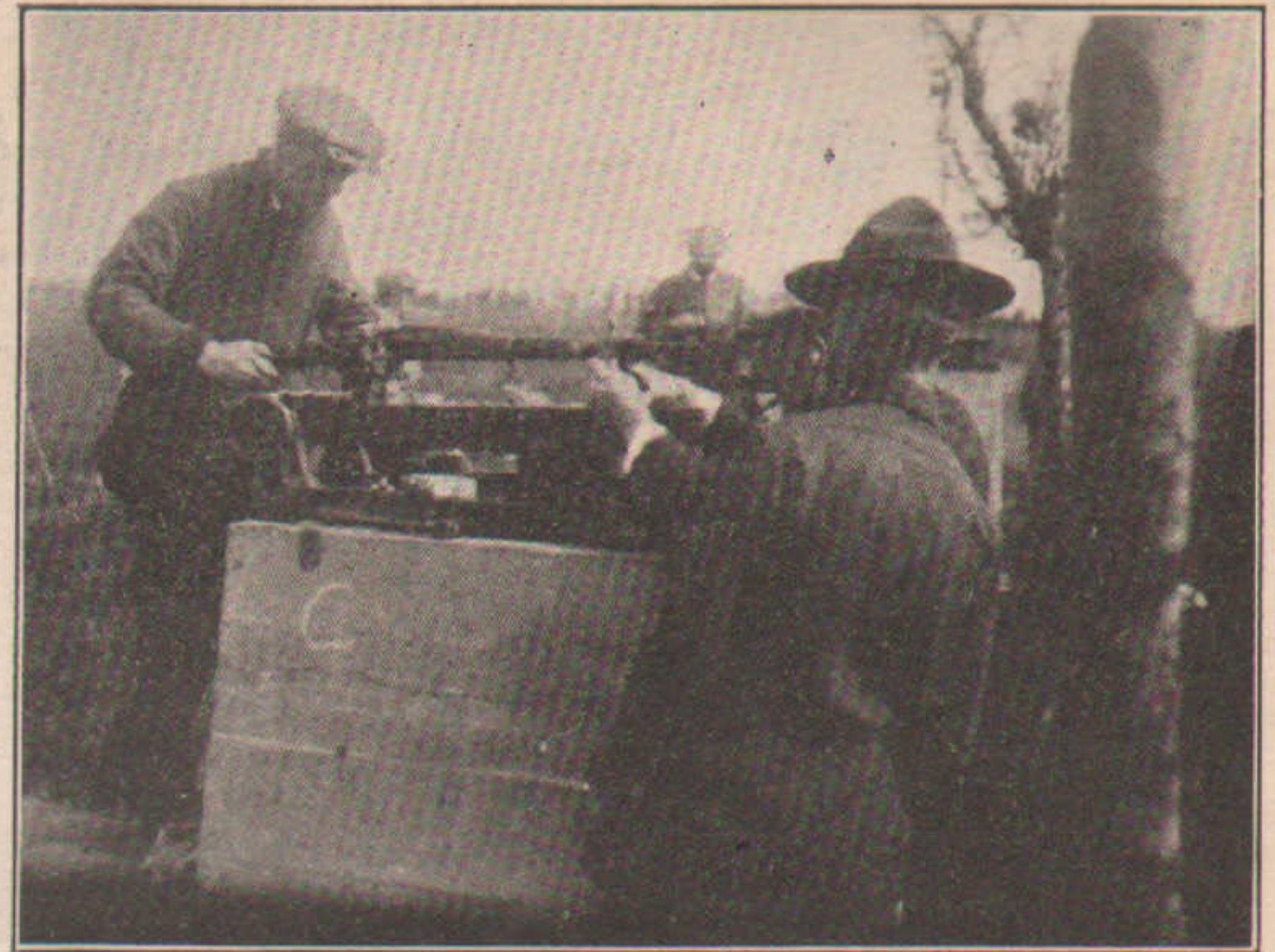
After the careful adjustment of the rifle in the rest, the Remington chaps would measure the distance from the center of the bore at the muzzle to the base of the rest, then tighten down on the front clamp and re-measure this distance to see whether the muzzle had moved down, and if so, how much. And while the three, Williams, Van Amburg and Dickerman worked, Frankie Kahrs and Mr. Priest

circulated around the outskirts of the performance watching for gents carrying monkey wrenches, packages that ticked, or any other possible method of heading off the Remington winning streak. Evidently they felt that nothing but an earthquake would stop them.

The Remington Company had sent down to us at Daytona 50 rounds of this lot just before the test, desiring to have it shot in the Mann rest, and we shot it three days before the Sea Girt test started. As showing how it compared with the Sea Girt shooting the figures may be interesting. At 600 yards, at which all the firing was done, stiff wind blowing, and the shooting slow fire, the Mann rest group measured  $8\frac{1}{2}$  vertical,  $9\frac{1}{4}$  horizontal. With 24-inch barrel Springfield, telescope sight, shot by Captain Wotkyns, the group was  $9\frac{1}{4}$  vertical,  $10\frac{1}{4}$  horizontal. With 30-inch barrel metallic sights, shot by Captain Wotkyns, but shot slower than either of the others, the vertical was 7 inches, horizontal 11, due evidently to wind effect in the considerable time used, two minutes or so.

The mean of the extreme verticals of the 30 groups of this same ammunition in the machine rest test was 10.17 inches so our Daytona results were about the average of those gotten at Sea Girt. For comparison, the mean of the extreme vertical measurements of the 600-yard groups of last year's National Match stuff was 14.40 inches. It is probably not necessary to explain that the extreme vertical of the group is the distance from top to bottom, and that the mean of this measurement for the whole lot of targets is merely the average of all these individual group figures.

When the Remington folks got ready to shoot, they proceeded to dig out some jars of what might have been toilet cream, but contained "goo" too dark for this use even on the hides of Ethiopians. Without doubt this is the most novel form of lubricant yet devised for the 1906 cartridge. It was made up of precipitated tin, some graphite, and a heavy grease for a binder. That is they had nearly the decopperizing qualities of one of the "half" series of DuPont progressive powders.



The Remington crew adjusting rifle in rest

It may be timely here to glance at this tin decoppering idea.

During the war the French discovered that if you put in with the powder of the field gun charges a few pieces of tinfoil the copper deposited on the bore from the copper driving band would forthwith get up and "vamoose." Copper was a serious trouble with field guns, and more so with some of the guns of higher ballistics, like the British 4.7. Copper used to accumulate in those guns until you could see it in hunks. It cut down velocity, and increased pressures besides making the gun a purely neutral gun; that is it would as cheerfully drop a shell into your own side as into the other.

Later they added lead to the tin, the lead seeming to act as a sort of lubricant. The theory is that the tin forms an alloy with the copper in the bore, and said alloy is then easily swept out. The fact remains that it gets out. Mr. Henning of DuPont tells of seeing the whole mass of copper in a badly fouled British 4.7 get up and move out on the firing of a few rounds of decopperizing powder. Another way of applying it was to plate the base of the shell with the tin and lead, which promptly vaporized on the burning of the powder.

Some time ago the DuPont Co. evolved a way of mixing the tin with the powder while it was in the "paste" stage of manufacture, using about 5%. It is apparently quite feasible to add it to plain service pyro, but thus far it has been put out only in the progressive line.

At Miami and Daytona, during the work of Colonel Wilhelm's Small Arms Ballistic Station, we fired nearly one hundred thousand rounds of the two decopperizing powders, 15 $\frac{1}{2}$  and 17 $\frac{1}{2}$ , known then as experimental powders 1083 and 1093. The erosion in machine guns with the boat-tail bullet and these powders was doubtless higher than that of pyro, but at the end, or in the middle or any other stage of a long erosion test, there existed no metal fouling.

The effect is so marked that Frankford removed hunks of metal fouling several times by

(Continued on page 17)





# "No such shooting has been done since the invention of gun powder"

THAT'S the verdict of one of America's greatest riflemen, Capt. W. H. Richard, on the winning of the N.R.A. Indoor Matches for 1920 by the Quinniac Rifle and Revolver Club team.

In ten matches the five-man team totalled 9,991 x 2,000.

In ten matches Capt. A. A. Clouet scored 1,999 x 2,000.

In six of the ten matches perfect scores were made by the team, 1,000 x 1,000.

In the seventh match nine of the ten shooters

entered made perfect scores—a team total for ten men of 1,998 x 2,000.

And in the ninth match every one of the ten shooters made a perfect score, 2,000 x 2,000.

This world's record shooting was done at 25 yards indoors, at the standard half-inch bull's-eye, each man shooting 20 shots a match and changing his own target after every four shots.

The entire shooting was done with the Winchester .22 calibre Bolt Action Box Magazine Rifle—or Caldwell fame—and Winchester "Precision 75" ammunition.

Ammunition is accurate in proportion to its uniformity. Winchester Precision is scientifically designed to make every cartridge the twin of its neighbor. That's what makes it so everlastingly accurate.

Bullets and shells are made with minutely micrometered tools and gauges, which are discarded on slightest sign of wear. Hand operations replace machines where superior uniformity can be secured.

Only expert operators do the machine work on equipment set up and adjusted by experts. Furnished in two loads:

"Precision 75" for accurate shooting up to 100 yards.

"Precision 200" for accurate work from 50 yards to the extreme range of .22 calibre rifles.



QUINNIAC RIFLE AND REVOLVER CLUB TEAM

BACK ROW—Reading from left to right: V. Richard, H. A. Neilson, F. J. Haas, Capt. Ward, A. Klocker, P. R. Littlechale, W. B. Curtiss, J. H. J. Adams.  
FRONT ROW—W. H. Richard, R. J. Gussman, A. A. Clouet (Captain), W. O. Breuler, G. E. Wilcox.

**WINCHESTER**





*Remington*  
TRADE MARK

# Olympic Ammunition

## BREAKING ALL RECORDS

At Sea Girt May 18 and 19, 1920, Remington .30 Cal. Springfield 180 grain Palma Match Ammunition won over all competitors with the finest record ever made in an official test at 600 yards. This is the same ammunition used in winning the Wimbledon Cup Match at 1000 yards last year at the National Matches at Caldwell, New Jersey.

*See article*

**THE REMINGTON ARMS UNION METAL WORKS**

The Largest Manufacturers of Firearms

WOOLWORTH BUILDING



# Palma Wins

# Ammunition Test!

## RESULTS AT 600 YARDS



	Mean Radius in inches
Remington 180 gr. Palma . . . . .	3.41
Frankfort Arsenal No. 1, 170 gr. Olympic	3.66
Remington Palma (different powder) . . . . .	4.10
"Competitor A" 170 grain (Commercial Manufacturer)	4.35
Frankfort Arsenal No. 2, 150 grain . . . . .	4.46
Frankfort Arsenal No. 3, 150 grain . . . . .	4.75
Frankfort Arsenal No. 4, 150 grain . . . . .	4.80
"Competitor B" 150 grain (Commercial Manufacturer)	4.89

*(Competitors "A" and "B" are Commercial Manufacturers)*

on page 5

## METALLIC CARTRIDGE COMPANY, Inc.

Arms and Ammunition in the World

NEW YORK CITY



## WITH THE OLYMPIC TEAM

(Continued from page 4)

From the Marine Corps there entered a score of men whose names are familiar from frequent appearance in the National Matches prize lists. The contingent of civilians was perhaps smaller than may have been expected, only six of the contestants shooting under this classification. Of them Lawless and Blade were former service men, while Neusslein of the District of Columbia is an experienced Schutzen shot and Morgan, also of Washington, D. C., was a member of the 1919 Dewar Trophy team. The National Guard shots were represented by a contingent from the famous New York 71st, and representatives of the state troops of New Jersey and Kansas.

The rifle range at Quantico, whereon were trained in marksmanship practically all of the Soldiers of the Sea, destined for overseas service, was found to be especially well suited for the kind of elimination contest upon which the selection of the 1920 Olympic team was predicated. The Sand Rats knew their job and operated the range to the maximum of efficiency. The Range Officers and scorers were up to the minute at their tasks and a big blackboard score-board such as is familiar to National Match riflemen kept the unofficial standing of the contestants abreast of every stage. And the contestants had as little to complain about in the matter of quarters as they did in the matter of range operation. Several buildings were prepared for their occupancy and their personal comfort well looked after.

The program of the tryout called for practice from May 24 to May 26 inclusive; the last three days was devoted to firing for record.

The course of fire for each day called for 10 shots offhand, 10 shots kneeling and 10 shots prone at 300 yards; 20 shots prone at 600 yards and a return to the 300-yard firing line for 10 shots offhand and 10 shots kneeling. Close approximations of the Belgian targets for 300 metres and 600 metres were used. These targets are of the decimal type. The target used at 300-yards during the tryout has an inner bull counting 6, approximately 12 inches in diameter, and a five ring, approximately 24 inches in diameter, both of which are blacked in, and concentric circles 36 and 48 inches in diameter, counting respectively 4 and 3. The 600-yard target showed a blacked-in bull counting six in an inner circle 24 inches in diameter and 5 in its outer circle 48 inches in diameter, with a 4-ring 72 inches in diameter.

The range on which the contestants gathered for their first record scores on May 27 lies at the foot of a red clay bluff, on which scraggly pines maintain their shaky foot-hold, and where, slashed and ploughed by jacketed bullets, it constitutes an effectual backstop. Before the shooting started it was understood that the course would be fired through on each of the three days of record firing. At the end of that time, it was announced, the twelve high competitors would be designated to constitute the service rifle team to the Olympic

Matches. In addition to these, the Captain of the Olympic Team, Major Shaw, would designate five other shooters from the competitors on the ground as alternates. The selection of these alternates was to be considered from the standpoint of their skill with small-bore rifles. Ties, it was announced, would be decided by the shooting on the last day of the tryout, first by the off-hand scores, second by the kneeling scores, and if ties still existed, by the total at 600 yards. If there still remained ties to be decided, they would be determined by the total score at 300 yards.

The shooting during the first day developed only fair scores, but the totals were close, the difference in standing between the high man and the twelfth man down being only 6 points. The three practice days, judging from these first totals, did not seem to have been sufficient to have taken away all of the strangeness of off-hand shooting, and although the weather conditions could not be complained of, a good off-hand score was 55, with the highest standing total 57. Most of the points dropped then and thereafter were clipped from the totals during the off-hand stages.

The high dozen contestants at the end of the first day's shooting showed:

1. Sgt. H. L. Adams, U.S.A., 394.
2. Sgt. M. Fisher, U.S.M.C., 392.
3. Gy. Sgt. O. M. Shriver, U.S.M.C., 392.
4. 1st. Lt. J. L. Tupper, U.S.A., 390.
5. Capt. R. Arnett, U.S.M.C., 390.
6. Sgt. D. Fenton, U.S.A., 390.
7. Capt. F. S. Hird, U.S.A., 389.
8. 1st. Lt. P. S. Schofield, U.S.A., 389.
9. Commander C. T. Osburn, U.S.N., 389.
10. Marine Gunner J. J. Andrews, U.S.M.C., 388.
11. Capt. W. C. Stoll, U.S.A., 388.
12. 1st. Lt. J. K. Edmundson, U.S.A., 388.

Strung down along the field of a hundred or more shooters were many men who were to give the boys in the lead at the jump-off considerable concern in later stages of the shooting. At the end of the first day Rothrock stood in 30th place; 1st Lieutenant T. G. Brown, U.S.A., in 25th place and Sergeant Henshaw in 43rd place, with Spooner, Lawless and Jackson nearer the top.

The second day of the record firing, Friday May 28, dawned under a chill Scotch mist which rolled in from the river. The first relay on the firing line shot on indistinct targets through pea-soup air, but by 9 o'clock the fog had gone leaving a good dull light. There was no wind to speak of, and for an hour or more "possible score" conditions prevailed. Still the off-hand stage gave the contestants no little trouble, and as before a score of 55 standing was better than the average.

By the time the contestants had moved back to the filled-in log firing point at 600 yards, the almost ideal conditions which had prevailed for a time gave way to a bright light and a mirage visible to the naked eye as it danced along a worm rail retaining fence against the side of the back-stop, and which under the glass showed itself a boiling mass of vapor, running suddenly this way or that to the whim of puffy air currents. By the time

the second relay was on the line, the wind had picked up in strength enough to justify correction, but it took a brave man to slap on even  $\frac{1}{2}$ -point so uncertain was the duration of the puffs. To complicate matters more, the mirage at the butts did not tell the whole story; midway across the range there swept treacherous cross currents whose existence was hinted at by the movement of the trees to the left of the range, and which were usually in variance with the story told at the targets.

At the end of the morning shooting, Adams retained his lead, but Mullaly of the Marines

(Continued on page 16)



### N. R. A. RANGE CLOTHES

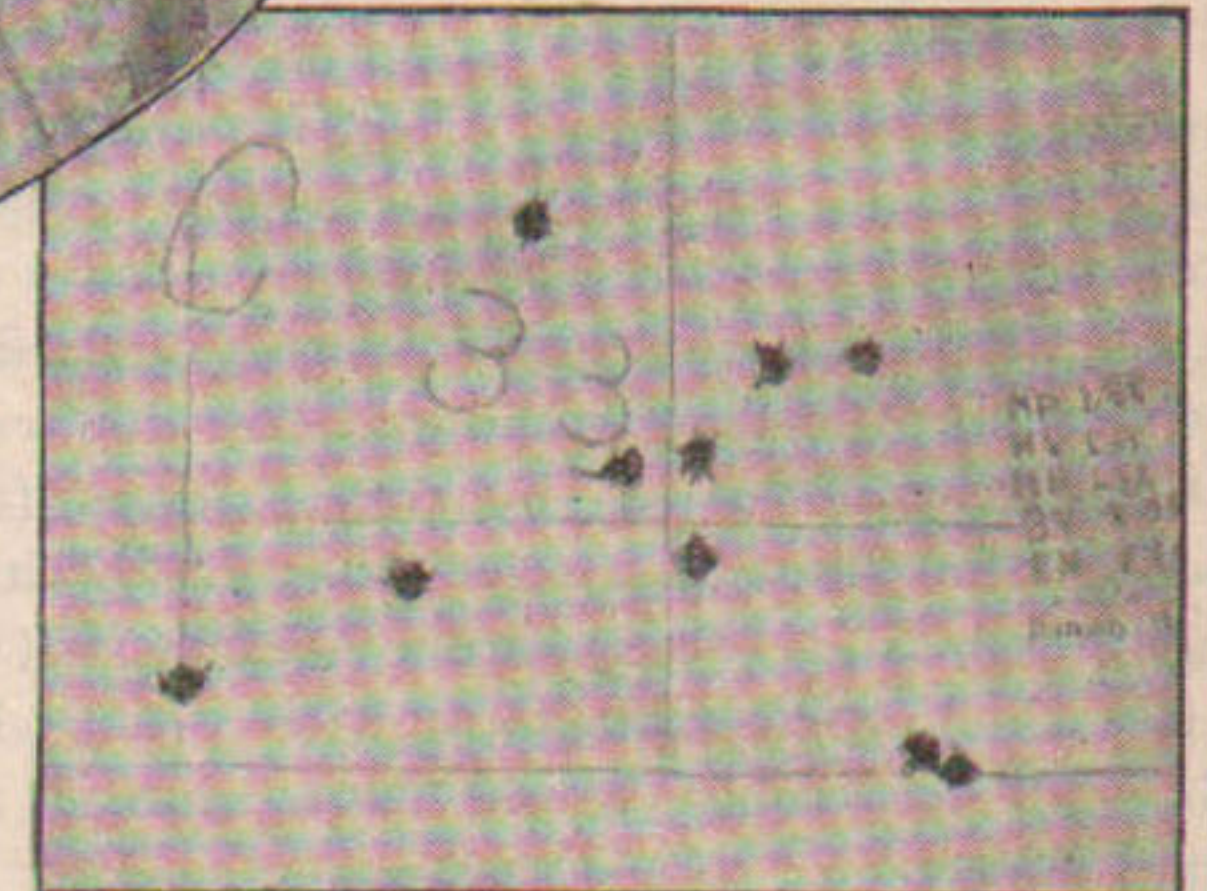
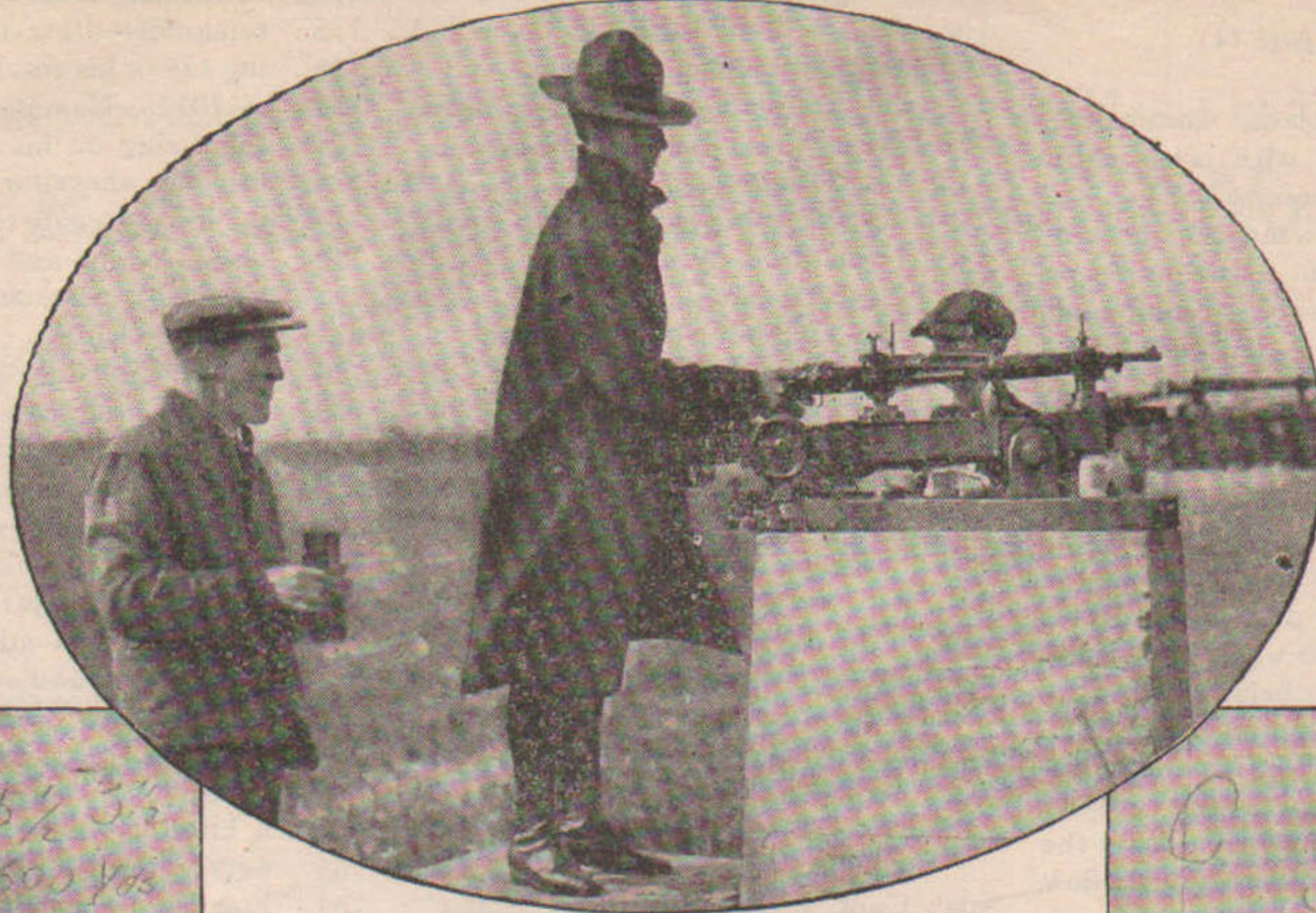
Style: SENIORS	
N. R. A. No. 600	Coat ..... \$7.50
" " 601	Breeches ..... 5.00
" " 602	Spiral puttees .. 3.00
" " 603	Canvas leggings 1.50
" " 604	Olive drab shirt.. 5.00
" " 605	Hat ..... 3.50
" " 606	Web belt ..... .60

Style: JUNIORS	
N. R. A. No. 650	Coat ..... \$6.50
" " 651	Breeches ..... 4.50
" " 652	Spiral puttees .. 3.00
" " 653	Canvas leggings 1.25
" " 654	Olive Drab shirt 4.25
" " 655	Hat ..... 3.25
" " 656	Web belt ..... .60

### The Sigmund Eisner Co.

Salesrooms                      Factory  
105 Fifth Ave., N. Y. C.      Red Bank, N. J.





Top: Testing ammunition loaded with Hercules Powder at the Sea Girt try-out.

Left and Right: Two targets made from machine rest at 600 yards with ammunition loaded with Hercules Powder. Mean Radii, Left 2.11; Right 1.88 Inches.

## The American Olympic Rifle Team will shoot Hercules Powder

The ammunition tryout, held at Sea Girt, N. J., May 18th and 19th for the purpose of selecting ammunition for the use of the American Olympic Rifle Team was a clean sweep for Hercules.

The lot of cartridges loaded with Hercules Powder that was selected gave the following remarkable results for 30 consecutive 10-shot groups fired over the 600-yard range:

Mean Radius	Mean Radius	Mean Radius
4.81	3.41	3.35
2.44	3.83	3.30
2.95	3.11	3.82
4.05	3.46	3.21
2.83	3.14	2.97
4.25	3.14	4.33
4.78	3.66	3.01
3.66	1.88	3.90
3.15	2.32	3.50
3.94	2.11	4.02

Average—3.41 inches.

Due to the different ranges over which they were tested it is difficult to show how much more accurate this ammunition is than that which was furnished to past Olympic Teams but the following results show its great superiority to the winning lots made for the National Matches in past years for which figures are available:

Year	Mean Radius at 600 Yards
1909	4.80
1910	4.93
1911	5.09
1913	4.83
1919	5.19

A study of these figures will show that not only the average but also *each target* made with the 1920 Olympic ammunition was *better than the average* made in all similar tests since 1910.

*This record speaks for itself. It shows the wonderful success that we have attained in perfecting the manufacture of smokeless powder.*

### HERCULES POWDER CO.

1005 Orange Street  
WILMINGTON DELAWARE



WITH THE OLYMPIC TEAM

(Continued from page 14)

had forged into second place, Commander Osburn into fourth place, with other shifts here and there along the line-up.

During the interval between the morning and afternoon shooting, the Assistant Secretary of War, Benedict Crowell, accompanied by Brig. Gen. F. H. Phillips, Jr., and several General Staff officers arrived at the range where the party were luncheon guests of Brig. Gen. John A. Lejeune, the commander of the post. During the afternoon, Secretary Crowell was an interested spectator on the firing line, taking a personal interest in the shooting and for the most part spending his time behind the score boards where the results of the off-hand shooting were being chalked up.

The afternoon was hot and still. The mirage was not as heavy as during the morning, but the shooters experienced greater difficulty than at any previous time from the strong light, and the quick changes of shadow as a result of having to shoot almost due west. During the 300-yard shooting, Friday afternoon, the lines between the competitors tightened, and there were evidences in the care which each man took with every shot that all friendship would cease during the final stage.

The start of the pretty three-cornered race between Commander Osburn, Captain Rothrock and Lieutenant Brown began during Friday's shooting, when Osburn, who had stood 9th from the top of the list at the close of shooting Thursday, hung up off-hand scores of 54 and 55, backing them up with good shooting in the other stages. Rothrock, on off-hand scores of 54 and 56, so close was the shooting, was able to work his way up from 30th on the list to fourth, while Lieutenant Brown, 25th on the previous night's list, scored 56 and 53 on his off-hand shooting, and landed in sixth place.

The Friday night bulletin of the shooting carried bad news for many of the hopelessly outclassed contestants and from looking over the list it became painfully apparent that the final stage of the shooting would permit a contestant to pull a bad shot only once. A few who believed there was no hope for an eleventh-hour come-back dropped out, but the majority of the field stuck to the finish.

The standing of the 40 high contestants at the start of the final stage was:

1	Comdr. Osburn, C. T., U.S.N.....	787
2a	2nd Lt. Mullaly, E. L., U.S.M.C.....	785
2b	Gy. Sergt. Schriver, O. M., U.S.M.C.....	783
4	Capt. Rothrock, A. B., U.S.A.....	783
5a	Sergt. Adams, H. L., U.S.A.....	781
5b	1st Lt. Brown, T. G., U.S.A.....	781
5c	Sergt. Fenton, D., U.S.A.....	781
8	1st Lt. Spooner, L. C., U.S.A.....	780
9a	Sergt. Fisher, M., U.S.M.C.....	778
9b	2nd Lt. Jackson, J., U.S.M.C.....	778
9c	Capt. Hird, F. S., U.S.A.....	778
9d	Maj. Lindroth, E. G., U.S.A.....	778
13a	Mar. Gun. Faragher, J. J., U.S.M.C.....	777
13b	Capt. Miller, R. O., U.S.A.....	777
15	Mr. Lawless, J. T., Civilian.....	776
16a	Mar. Gun. Andrews, J. J., U.S.M.C.....	775

16b	Sergt. Ioergar, F., U.S.A.....	775
16c	1st Lt. McCroskrie, F. U., U.S.A.....	775
16d	Capt. McKone, S. A., Kas. N.G.....	775
16e	1st Lt. Walker, W. W., U.S.M.C.....	775
21a	Sergt. Creekbaum, L., U.S.A.....	774
21b	Lt. Comdr. Lee, W. A., U.S.N.....	774
21c	1st Lt. Schofield, P. S., U.S.A.....	774
24	Capt. Stoll, W. C., U.S.A.....	772
25a	Capt. Arnett, R., U.S.M.C.....	771
25b	Mr. Loughlin, J. F., Civilian.....	771
27	Capt. Brown, C. M., U.S.A.....	770
28a	Sergt. Dyer, O. L., U.S.A.....	769
28b	Capt. Leushner, W., U.S.A.....	769
30a	1st Lt. Edmundson, J. K., U.S.A.....	768
30b	Capt. Fagg, L. W., U.S.A.....	768
30c	Sergt. Henshaw, R. N., U.S.M.C.....	768
33a	Mr. Nuesslein, L., Civilian.....	767
33b	Capt. Walters, L. D., U.S.A.....	767
35a	Lt. Tupper, J. L., U.S.A.....	766
35b	Sergt. Zaine, J., U.S.A.....	766
37a	Pvt. Melnick, S., U.S.M.C.....	765
37b	1st Lt. Martens, C. C., N.Y.N.G.....	765
37c	Gy. Sergt. Nordstrom, C. R., U.S. M.C.....	765
40a	Capt. Richards, W. P., U.S.M.C.....	763

The last stage of the match opened Saturday morning with little or no wind, but 8-mile puffs from 5 o'clock developed before the first relay had left the line, and as a consequence the shooting began to drag, each contestant attempting to outwait the tricky wind. The steady rattle of shots along the firing line changed to desultory and scattered reports and the cut-throat final was under way.

Its rather unusual to hear riflemen "cussing out" long strings of 5's; but long strings of sixes were what was needed at this stage of the game and they were more than middling difficult to obtain. Half an hour after shooting began, the wind veered to 3 o'clock, and by the time the second relay reported, the average for the off-hand work was nearer 45 than 55 and scores of 42 and 43 out of the possible 60 decorated the names of some of the usually most consistent shots. It was also easily to be seen from the score boards that the standing at the end of the second day's shooting would be no criterion at the finish, and many a good man's foot slipped during the morning, sending his hopes of Antwerp glimmering.

Commander Osburn, of the three among whom the friendly rivalry had developed, was the first to shoot. He knocked out a 54 off-hand, a 55 kneeling and a 56 prone at 300 yards, giving him a grand total up to this point of 952. Dale Rothrock dropped a point below Osburn's off-hand record, scoring only 53 points, but more than made it up with a possible from the prone and a 57 kneeling, a total of 953, which closed the overnight gap and left him a point ahead of Osburn. Lieut. Brown knocked out 53 off-hand, 56 kneeling and a possible prone, which gave him a total of 950. High up on the list were Jackson, with 946, Mullaly with 945, Lindroth with 946, Adams with 944, Spooner with 943, and Shriver, Fenton and Fisher with 941.

On the 600-yard firing point, the contestants found a wind which called for from a strong half to a full point correction, and the cross currents from the gullies proved troublesome. On his first record shot, Captain

Rothrock went out for a 5, but during the remainder of his string kept in the 6-ring, adding 119 to his total, and bringing his aggregate to 1072. Commander Osburn slipped out of the 6-ring on his first, tenth, thirteenth and fifteenth shots for 5's, scoring 116 and bringing his aggregate to 1068. Lt. Brown dropped only 2 points and his standing at the close of the 600-yard shooting was 1068, tying Commander Osburn.

The final stage of the competition was shot under a broiling sun and was accompanied by a 6 o'clock wind, which was much more favorable for good off-hand scores than the currents with which the shooters had been dealing previously. Buck Fever—that dread epidemic feared by the rifleman no matter how seasoned—was added to the tension of the final hours, and many an old timer went to pieces on his off-hand totals. It was during this time that Lieutenant Brown forged to the front, putting over an off-hand string of 54, a kneeling string of 57, and closing with an aggregate of 1179. Rothrock kept pace with him in the off-hand, but dropped 7 points in the kneeling position. Even this however was sufficient to tie Lt. Brown. Commander Osburn cracked out 56 from standing, and piled up 54 kneeling, yet this was not good enough for better than third place.

At the conclusion of the firing, the twelve high men were announced as the shooting members of the Olympic Team, and five alternates were chosen for the small-bore work.

The Olympic Riflemen began their training as a team on June 3, and will continue until it is time for them to leave for the port of debarkation.

The final scores in the Olympic tryout are:

1	1st Lt. Brown, T. G., U.S.A.....	1179
2	Capt. Rothrock, A. B., U.S.A.....	1179
3	Comdr. Osburn, C. T., U.S.N.....	1178
4	Sergt. Fisher, M., U.S.M.C.....	1169
5	1st Lt. Spooner, L. C., U.S.A.....	1169
6	Sergt. Adams, H. L., U.S.A.....	1169
7	Capt. Hird, F. S., U.S.A.....	1168
8	Maj. Lindroth, E. G., U.S.A.....	1167
9	Mr. Lawless, J. T., Civilian.....	1164
10	2nd Lt. Jackson, J., U.S.M.C.....	1164
11	Sergt. Henshaw, R. N., U.S.M.C.....	1161
12	Capt. Leushner, W., U.S.A.....	1161
13	Sergt. Fenton, D., U.S.A.....	1161
14	Gy. Sergt. Schriver, O. M., U.S.M. C.....	1160
15	Mr. Loughlin, J. F., Civilian.....	1158
16	Capt. Brown, C. M., U.S.A.....	1158
17	1st Lt. McCroskrie, F. U., U.S.A.....	1158
18	Lt. Comdr. Lee, W. A., U.S.N.....	1157
19	Capt. Arnett, R., U.S.M.C.....	1155
20	Sergt. Ioergar, F., U.S.A.....	1155
21	2nd Lt. Mullaly, E. L., U.S.M.C.....	1155
22	Mr. Nuesslein, L., Civilian.....	1154
23	Gy. Sergt. Nordstrom, C. R., U.S. M.C.....	1154
24	1st Lt. Schofield, P. S., U.S.A.....	1154
25	Capt. Stoll, W. C., U.S.A.....	1153
26	Mar. Gun. Andrews, J. J., U.S.M.C.....	1153
27	Capt. McKone, S. A., Kas. N.G.....	1153
28	1st Lt. Edmundson, J. K., U.S.A.....	1151
29	Capt. Snyder, O. F., U.S.A.....	1148
30	1st Lt. Tupper, J. L., U.S.A.....	1147
31	Sergt. Dyer, O. L., U.S.A.....	1147
32	1st Lt. Walker, W. W., U.S.M.C.....	1146

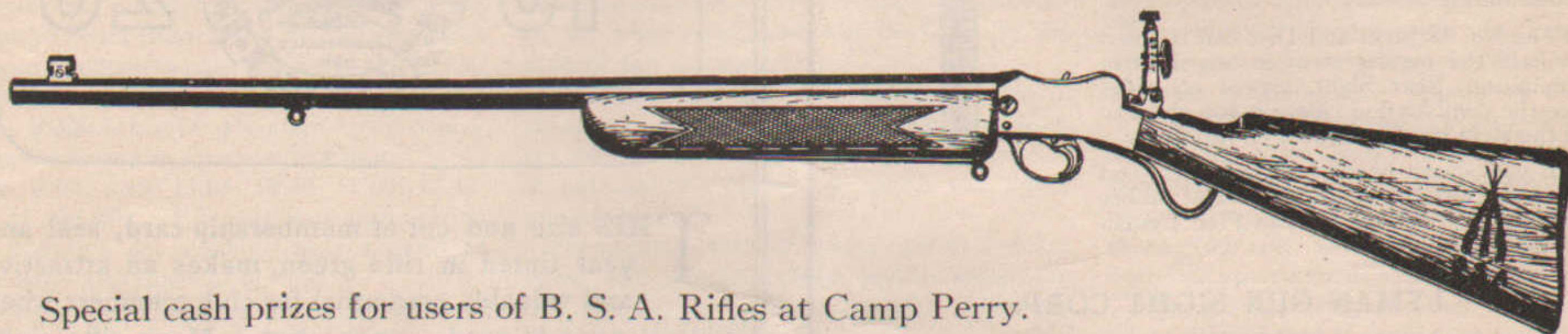


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33	Mr. Morgan, A. M., Civilian.....	1145
34	Capt. Miller, R. O., U.S.A.....	1143
35	Ist Lt. Martens, C. C., N.Y.N.G....	1142
36	Capt. Walters, L. D., U.S.A.....	1137
37	Sergt. Zaine, J., U.S.A.....	1137
38	Capt. Easley, C. M., U.S.A.....	1136
39	Capt. Fagg, L. W., U.S.A.....	1136
40	Capt. Yuditsky, J., U.S.A.....	1134
41	Maj. Wheeler, W. P., U.S.A.....	1107
42	Ist Lt. Shank, G. T., U.S.A.....	1102
43	Sergt. Cullar, E. V., U.S.A.....	1099
44	Mas. Eng. Hinton, T., U.S.A.....	1071

### AMMUNITION FOR OLYMPIC TEAM

(Continued from page 10)

the simple process of firing a couple of sighting rounds of decopperizing powder through barrels in which plain pyro had been used, and so put one over on the Board, as this was not cleaning with ammonia!

It may be remarked here that the term nickel as applied to a metal fouled barrel is wrong. All the nickel there is amounts to little; the deposit is chiefly copper. The British talked for years about "denickelling" a barrel, when they might as well have talked of "deleading" it.

It was at this stage of the game that Towny Whelen decided that the Board ought to be represented in the pit by some member whose

honesty, integrity, virtue and good looks were unquestionable, so I went in. At least I went to the pit, this much of the tale is undeniable.

Here Old Timer Hogue and his force of Frankford hustlers were busy getting up the five sets of targets—sighting and record. The competitor on each rest sighted in on the back target, then when satisfied, waited for the five sighting targets for the five rests to be run into the air. Firing the ten shots took on the average around twelve seconds. Then the portion of the target containing the group was cut out, lettered and numbered, the target taken down and thrown away, and a new target tacked on by the slats used on the four sides.

The first few targets down, told the tale. The pit crew didn't know which outfit had the particular rests opposite to their targets, and their guesses were laughable until the first runner came down for the first five targets, and told them what was what at the firing point. So much for that particular "military secret."

Remington started in strong over on Target C. Western was not so good, and Frankford at neither end showed quite the Remington class. Winchester varied too much vertically to make them dangerous, and were practically out of it after the first half day. Nobody knows what they did to their ammunition, or at what stage their foot slipped, but in spite of

its being hand-loaded stuff, it was not as good as Frankford's machine-loaded ammunition for the National Matches.

Frankford had a couple of chaps in the pit, who worked on the receiving end over at the Frankford proof house, and who stood all day and watched groups come in. They had an uncanny ability to tell you by looking at a target the mean radius of the group—and proved right within a small fraction of an inch.

Their quick and easy method of getting at mean radius figures of a group when it is filled up and normal may interest you.

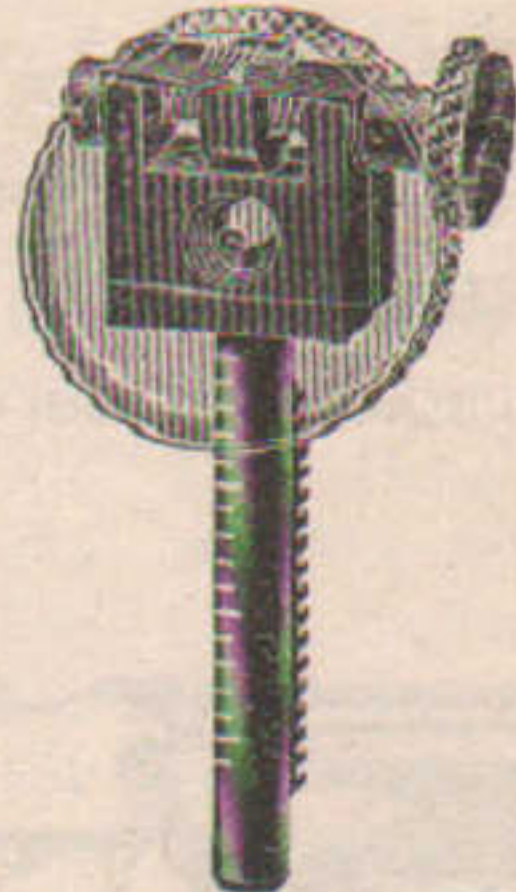
Add height and width figures together, multiply by two, the mean is result divided by ten. For instance group 8 x 9, added together 17, twice 17 equal 34, mean radius 3.4 inches. This is true only when the group is well filled up without the frequent form of a periphery of shots with a hollow center, or a cluster of shots with one wide one. Roughly speaking, a mean radius figure multiplied by three, gives group diameter, but here again form of group means a lot.

The first groups down on the five targets, ran: Frankford National Match, pyro, height 15.30, width 8.05, M. R., 4.82; Western, height 9.60, width 12.95, M. R., 4.52; Remington, Hivel, height 15, width 9.95, M.R., 4.81; Winchester 14.05, width 12.20, M. R. 40.1; Frankford gilding metal, pyro, Olympic, height 11.80, width 8.50, M. R. 4.68.



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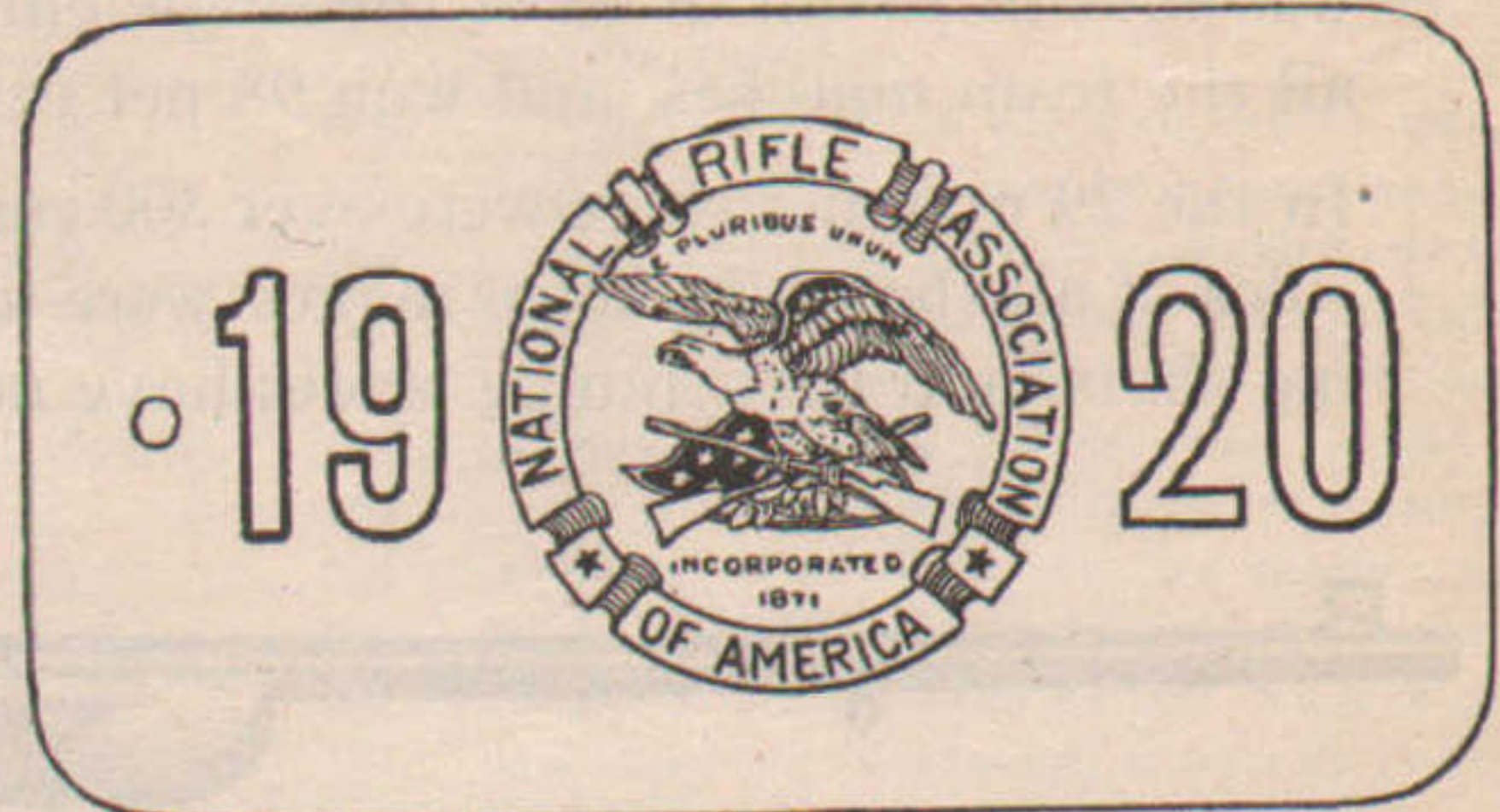
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**ARMS AND THE MAN  
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The very next group for Remington, however, went 5.30 high, and 5.50 inches wide, and that jarred the pit detail. M. R. was 2.44.

It happened that Frankford's best lot was to be shot the second relay, after the first relay had fired five targets but the Frankford chaps in the pit didn't know which was which, and gloom settled down in gobs after watching the first five targets come in. All they knew was that F. A. had certain rests in the first relay.

The second relay Frankford again took two rests to fire its two remaining lots, Remington taking the third for their odd lot loaded with 15 $\frac{1}{2}$ . Here Frankford began to put on some real groups, first one down, 8.20 inches high, 8.40 inches wide, M. R. 4.13. In their first five targets, the M. R. figures ran 4.13, 4.07, 3.87, 30.4 (group 6.05 by 4.35) and 2.89. The very next series, in Relay 4, were nothing like so good, and as they had to take a different rifle in each relay and bed it in the rest, the figures show how much rest adjustment and rifle play in a test.

Relay 4, Frankford figures, best lot of ammunition, as above, 5.18, 4.83, 4.07, 3.34, 4.93, M. R. The groups were 14.75 x 11.25; 12.15 x 14.45; 12.35 x 8.55; 11.20 x 10.30; 13.80 x 15.00. The horizontal measurement was entirely too great on these groups, and it was the horizontal that lost the test to Frankford with ammunition that was probably just as good as that of the winner. Not all of this can be blamed on wind, Remington got good horizontals at the same time, and there is little

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difference between 170-grain at 2600 and 180-grain at 2550, when you fire both groups in ten seconds or so.

After lunch found the test still anybody's game. Winchester had thrown down a couple of targets that spelled "fini," the M. R. figures 7.70 and 6.74, and you can't do that very often and win a test. The entire Remington record of thirty targets didn't show a single M. R. figure over 4.81, and only six over 4 inches. Western was coming strong but in and out too much to give hope of winning.

Colonel Julian Hatcher was with difficulty jimmied loose from the rapt contemplation of a new sort of camera, commissioned as Chief Sand-rat Inspector for the afternoon, and departed for the receiving end of the battery. Nobody minded going into the pit any more than in days gone by they minded going K. P.

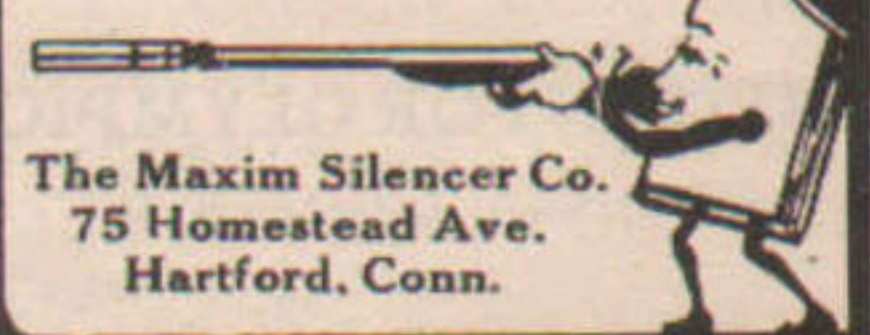
The afternoon didn't show any change in the lineup, Western showing the class of its stuff by the very small groups put on now and then, but losing out by the alternate large ones. The evidence was that some of Western's trouble lay in the rest, and good hearted Jim Burns, on had a few hours as spectator, went over with some suggestions as to this particu-

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lar type of rest. Without any doubt Western had very excellent ammunition, and equally without doubt the rifle or the rest was not delivering all the ammunition had in it.

It was interesting, in the pit, to note the uniform difference, between the good machine loaded Frankford National Match stuff, and the hand loaded, spun bullet, selected case Olympic ammunition from the same plant. At one end National Match came in, at the



other the hand loaded stuff was putting on its targets. Although the machine loaded National Match stuff is the best ever put out for the matches, and much better than that of last year, which in turn was good stuff, yet the difference was plain to see between this and the hand loaded "Pride of Frankfort" shot in Relay 2, 4, 6, etc. and winning the vertical end of the test for Olympic ammunition.

One was averaging 12.47 for the extreme verticals, the other 9.83, and while this sounds small, the difference is quite apparent watching the groups come in.

Possibly the extreme vertical measurements for ten groups of the best Remington lot Olympic test, might interest you, as showing how much room there is left for the American Olympic rifleman to play around in the Olympic 23-inch 6 ring, which is the highest count on the Belgian target: Here are ten consecutive taken from the afternoon's firing:

4.05; 8.60; 5.25; 13.05; 10.60; 11.00; 12.45; 8.65; 11.30; 4.95. I've seen war ammunition that wouldn't do anything near as well at 200 yards—and this was at 600.

Over on the Winchester rest, Cap Richard was losing his sunny disposition, and by noon of the second day, was barking like a dog. Cap had stood over too many rifles firing gilt-edged stuff to be fooled long about the lot he was putting up the range, and while he babied his rest in every possible way, and didn't say a word, it was apparent to those who knew him that he realized he didn't have the goods this year.

Then Jack Dooley told the one about the man who had "Henrietta" tattooed on him, and Cap felt better the rest of the day.

Over on the Remington rest they were faithfully dipping the bullets of the No. 19 lot—Hivel—in the grey paste with the tin in it, and getting no metal. They fired two sighters with the same lubricant when starting a test with their alternate ammunition, No. 20, 15½ powder, but fired the rest of the string dry in each ten shots.

Remington has gotten results at the plant with 15½ that equalled the Hivel ammunition, but something slipped up at Sea Girt. The No. 20 lot, even taking out the first five very bad targets, wasn't shooting with the nitro-glycerine powder lot.

Tuesday evening K. K. V. Casey gave a movie party. In the middle of it, just where they rescue the villain from the forest fire, some miscreant woke up Jack Dooley and wanted to know if he stuttered all the time. "No," said Jack, "Only when I t-t-t-talk."

Wednesday didn't bring any change in the standing of the competitors. Frankford's pet lot, not shot in the same relay as the No. 19 Remington, was showing beautiful elevations, and beating Remington in this department, but in the horizontals Remington had it by enough to give them a mean radius edge of about three-tenths of an inch per group. The trained corps of Frankford computers were keeping up with the targets as they came in from the pits. It is necessary to take nine measurements horizontally and nine vertically to get the center impact, and then ten to get the mean radius, not to mention two more sets for the mean vertical and mean horizontal and

two measurements for extreme vertical and horizontal. But don't imagine that they laid a ruler down and measured each shot and jotted it down on a sheet of paper and added them up.

Instead each man had a little go-devil with a three-quarter inch graduated wheel, and a graduated scale along which the wheel moved, a sort of odometer in miniature, and all the measuring chap had to do was to put the wheel down on the bullet hole and then run her down to the center of impact or the base line or whatever was the basis of measurement. After he did this for ten or nine shots, as the case might be he merely glanced at the inch figure on the scale and the fraction as indicated by the wheel, and there was the total for the nine or ten measurements.

The same J. J. Dooley mentioned before in this story, nearly got into a running match on the way down all that saved him was a matter of nationality—whose, the reader can figure out for himself.

Seems that Jack got into a jam in a ticket office, and a large Yiddish person something like double Jack's size and with diamonds liberally sprinkled over his form, turned around and snarled;

"Dit you shove me?"

"N-n-no I didn't," replied Jack, sweetly, "but I would if I wanted to."

Three o'clock of the second day, one of the blowy chill days that raise Cain with the horizontals, and make the chaps with the husky 180 smile broadly, found the wind-up of the test.

The excellent ammunition of the Remington Arms-UMC Co. had won over Frankford by .25-inch per target of ten shots. On the verticals Frankford had the best of it, but as the test was not conducted on this basis, Remington won fairly and squarely—the best ammunition, backed by the most painstaking care and high intelligence used in the adjustment and handling of the rest. That crew, Williams, Dickerman, the man who turned out the ammunition, and Charley Van Amburg constituted a "hull team an' cross dog under the wagon". They are typical of the hustling and winning concern with which they are connected. Hivel was the powder that turned the trick.

The merits of Hivel for certain purposes, such as turning out absolutely the finest ammunition without regard to barrel life or fouling, are undeniable, but it is a powder that ought to be replaced at the earliest possible moment. It is very erosive, and its very heat does not aid in the metal fouling problem.

It is quite sensitive to heat, and the cartridge that bakes in the chamber of the hot rifle, because of a delay in firing, ought to be taken out and replaced by a normal one. Inasmuch as plain ordinary pyro, made by the DuPont Co. and the 170-grain bullet beat the much touted Hivel on vertical figures, it would seem that we have a powder or powders that outclass it in nearly every department, because it is only in even ignition, which shows on the verticals, and in comparatively low pressures, that Hivel has any claim to the affections of the rifleman.

I examined carefully the rifle on which Remington had kept a record of firing. It had shot 400 rounds of No. 20 ammunition, using 15½ and about 500 with Hivel. The rifle had the most aggravated case of gas cutting I have seen outside of a machine gun, the grooves having supplementary grooves starting up beside the "back" corner of each land. It had, of course, been fired at a very high rate of fire, higher by far than National Match rapid fire, but the comparison between this and barrels fired the same way with other powders was a fair one, and it did not flatter Hivel. It is all right for the Olympic team, in which barrels are entirely subordinate to points, but it is not good medicine for your pet rifle or mine, if the doses are very continued. The few strings one fires at the National Matches of course have practically no effect.

It would appear that the DuPont people have still to solve the ignition problem of their progressive powders, but with this done, these or pyro, constitute the proper propellant for the service rifle, with the addition of the tin that has proved to be satisfactory.

The Government Arsenal, with Colonel Clay, showed that it could turn out gilt-edged heavy match ammunition as neatly as it could make good stuff for war in the highly technical lines of tracer and armor piercer bullets. The difference between the Frankford lot, and the winners is a quarter of an inch a target in mean radius, something easy to put down on a typewriter, but difficult to see in looking over the targets. Colonel Phillips, the Commanding Officer at Frankford and Lieut. Colonel Clay deserve all credit for the splendid stuff they turned out, and for the hard and painstaking work that pointed out the way to make the best ammunition. Frankford ammunition beat any ammunition hitherto turned out, and it took another record-breaking cartridge like that of Remington to beat Frankford.

The extreme vertical figures—30 targets of each make—for the test, are as follows:

	<i>in.</i>
Frankford cupro-nickel Olympic.....	9.83
Remington No. 19.....	10.17
Western Cartridge Co.....	11.27
Frankford Gilding Metal Olympic.....	12.76
Remington No. 20 (15½ powder).....	12.98
Winchester.....	14.26
Frankford (National Match pyro).....	12.47
Frankford (National Match No. 17½).....	13.07

The extremes in mean radius figures for the various competitors is as follows:

Name	Smallest Largest	
	<i>in.</i>	<i>in.</i>
Remington No. 19.....	1.88	4.81
Frankford cupro-nickel Olympic.....	2.04	5.18
Western Cartridge Co.....	2.74	6.66
Remington No. 20.....	2.79	7.64
Frankford Gilding Metal Olym- pic.....	3.01	6.38
Winchester.....	3.04	7.70

At the end of the regular test five targets were fired with the winning ammunition at 300 metres to see what could be expected of it over that much used range in the coming Olympic shoot. The results:

Remington No. 19, mean vertical 1.22; mean horizontal 1.16; extreme vertical 5.25;



extreme horizontal 4.51; mean radius 1.83.

In other words the average of the groups ran four and a half by five and a quarter inches—which is not bad stuff for 200 yards instead of 330 yards.

The next day the Board proceeded to test the various samples submitted for the National Match by the Frankford Arsenal. As the samples had been fired during the test, for the 600 yard figures, they were fired only at 200 and 1000 yards.

200 yards.						
Frankford N. M.						
Powder.	M.V.	M.H.	E.V.	E.H.	M.R.	
No. 20.....	1.08	1.12	4.37	4.07	1.68	
No. 17½.....	1.27	1.76	4.91	4.60	1.90	
600 yards.						
No. 20.....	3.27	3.03	12.47	11.64	4.79	
No. 17½.....	3.37	2.73	13.07	11.61	4.74	
1000 yards.						
No. 20.....	6.73	5.50	28.15	22.81	9.99	
No. 17½.....	8.13	4.69	31.13	18.10	10.24	

National Match ammunition for 1920 will therefore be a cupro-nickel bullet of 170 grains, velocity 2600 ft. per second.

It was finally decided by the Ordnance Department to load it with 17½ powder to insure against metal fouling in rough rifles.

The recoil is slightly greater than that of the service 150-grain cartridge but the difference is hardly enough to be noticed in shooting.



# SHOOTING NEWS AND COMMENT

A TEAM representing the East in C. T. Westergaard's "East vs. West" match was victorious on a score of 24,333 against 24,237, according to an announcement just made. The Eastern Team was selected by Arthur Hubaler and the opponents by Westergaard of Charles City, Iowa. Conditions of the match called for 100 shots per man off-hand at 25 yards on the quarter inch ring target. The scores:

**Eastern Team**

1. Dr. W. G. Hudson, Wilmington, Del.	2462
2. Arthur Hubalek, Sr., Brooklyn, N.Y.	2460
3. Chas. Zettler, New York City	2457
4. H. M. Pope, Jersey City, N. J.	2451
5. John Kaufman, Valley Stream, L. I.	2450
6. A. Hubalek, Jr., Brooklyn, N. Y.	2447
7. G. Hoffman, New York City	2415
8. S. N. Murphy, Grand Gorge, N. Y.	2405
9. P. Lahm, Brooklyn, N. Y.	2403
10. G. Worn, Brooklyn, N. Y.	2385
<b>Total</b>	<b>24,333</b>

**Western Team**

1. C. T. Westergaard, Whiting, Iowa	2465
2. F. Dulleck, Chicago, Ill.	2460
3. W. W. Stone, West Bend, Iowa	2458
4. A. J. Hulbner, Chicago, Ill.	2435
5. F. E. Border, West Bend, Iowa	2434
6. Gus Dulleck, Chicago, Ill.	2420
7. Chris. Jansen, Davenport, Iowa	2417
8. Wm. Muhl, Wheatland, Iowa	2413
9. W. E. Kessler, Des Moines, Iowa	2384
10. O. T. Clarke, Springfield, Ohio	2351
<b>Total</b>	<b>24,237</b>

AT THE close of the third week's shooting in the N.R.A. Outdoor Small-Bore team match, the Lakewood, Ohio, Rifle Club heads the list.

The team standing shows:

**Small-Bore Team Match**

50-100 yards.

	<i>Club total Third Week</i>
1. Lakewood Rifle Club, Lakewood, Ohio	2871
2. Bangor Rifle Association, Bangor, Maine	2857
3. National Capitol Rifle Club, Washington, D. C.	2849
4. Irving Park Rifle Club, Chicago, Ill.	2832
5. Chicago Rifle Club, Chicago, Ill.	2803

6. Jacksonville Rifle Club, Jacksonville, Fla.	2803
7. Hillsboro Rifle Club, Hillsboro, Ohio	2801
8. Milton Rifle Club, Milton, Wis.	2790
9. Commonwealth-Edison Rifle Club, Chicago, Ill.	2781
10. Brooklyn Rifle Club, Brooklyn, N.Y.	2773
11. Ancon Pistol and Rifle Club, Balboa Heights, C. Z.	2770
12. DuPont Rifle Club, Flint, Mich.	2763
13. Western Reserve Rifle Club, Cleveland, Ohio	2726
14. Hopedale Rifle Club, Hopedale, Mass.	2723
15. Chibridge Rifle Club, Greenville, Pa.	2721
16. Remington UMC Rifle and Gun Club, Bridgeport, Conn.	2719
17. Evanston Township High School Rifle Club, Evanston, Ill.	2687
18. Montclair Rifle Club, Montclair, N. J.	2686
19. Janesville Rifle Club, Janesville, Wis.	2678
20. Summit Rifle and Pistol Club, Crescon, Pa.	2653
21. McKean County Rifle Club, Bradford, Pa.	2622
22. Scott Rifle Club, Scott, Ark.	2558

**3rd Match Missing.**

Towanda Rifle Club, Towanda, Pa.	1849
Des Moines, R. & R. Club, Des Moines, Iowa	1835
Beverly Hills Rifle and Revolver Club, Los Angeles, Calif.	1830
Miami Rifle Club, Cincinnati, Ohio	1807
1st Reg. of Infantry, Chicago, Ill.	1734

**No Matches Reported.**

Altoona Rifle Club, E. Altoona, Pa.	
Glastonbury Rifle Club, Glastonbury, Conn.	
Broton Rifle Club, Groton, Mass.	
Mohawk Rifle Club, Mohawk, N. J.	
New Britain Rifle Club, New Britain, Conn.	
Niskayuna Rifle Club, Schenectady, N. Y.	
Reserve Officers Training Corps, Bamberg, S. C.	
Sacramento Rifle & Revolver Club, Sacramento, Calif.	
Civilian Rifle Club of Verona, Verona, N. J.	

SOME interesting "dope" on lubricant comes from H. W. Barr in a letter to Captain Townsend Whelen. Mr. Barr who lives in Reading, Pa., says:

Having read the article in the *Arms and the Man* about greased bullets I thought you might be interested in my own experience. I use about one part Ceresine (wax) to about two parts of a high-grade automobile cylinder oil. To this I add about one quarter of the volume of Achesons Defloculated Graphite. This is heated slightly above the melting point and while stirring with one hand I dip the point of the bullets with the other hand. This preparation if used at this temperature will harden immediately. The Ceresine can be bought of Arthur H. Thomas, Chemical Supplies, Phila. Or if you have a friend who is a chemist he can get you an old Hydrofluoric Acid bottle which is made of this material.

"In the preparation you mention I do not think you use enough graphite. There is no oil or grease made which will withstand the temperatures which you get in a rifle barrel. Therefore you are dependent upon your graphite for lubrication the oil or grease being simply a carrier for it.

"The mixture of your's I think is too hard. I originally used about half the quantity of oil that I am now using and it worked fine all summer. One day in the fall when it had gotten pretty cold I found my shots for some reason were going all over the target. After trying everything I could think of I finally hit upon removing the wax from the bullets and presto everything was all right. Apparently the wax was not completely melting in the barrel, some remaining on the side of the bullet in a solid state thus unbalancing it. For this reason I think it is very important to have the right hardness. Have you noticed the tracer effect you get with these bullets. Is it possible that this grease remaining on these bullets will affect their accuracy?

"I have been using this mixture about three years and have found that it leaves the barrel in a wonderful condition. Last year I had some of my hand-loaded ammunition with this coating tried in the machine rest at Franklin Arsenal and found that it stood up with the National Match Ammunition that they were testing at the time. This shows that it does not affect the accuracy, at least under ideal conditions. I think though that it should be made very much softer for use in the late Fall or Winter.





# Loads And Re-loads

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

I HAVE a Stevens 25-21-86 straight shell rifle, fitted with telescope that I bought 10 years ago for target shooting.

I now wish to get a load suitable for wood chucks, coons, hawks, etc., that will work in this rifle.

The target load was a black powder load filling the shell with powder, holding it in with a card wad, and seating the bullet in the barrel from the breech with a hand bullet-seater. This load was all right in the old days for target shooting but has too low a velocity and poor trajectory for the work I want it for now. Besides I want a load with bullet seated in shell—fixed ammunition—as the other method of loading is not suitable for hunting. The flat pointed bullet is, I think, all right but the factory ammunition with black powder is not powerful enough. What do you suggest?

A. L. A. H., New York City.

Answer: I have had a number of Stevens 25-21 rifles in past years and have done considerable experimenting with them. The rifle is essentially a black powder rifle and we cannot do much in improving it. Jacketed bullets and high pressure powder would soon completely ruin it.

I have always found that with small game good accuracy was absolutely essential and was more important than trajectory. I think you will get the best accuracy from fixed ammunition by using semi-smokeless powder and a lead alloy bullet, say about 1 to 32 lead and tin. The bullet should project from the shell for one or two grooves, making it just possible to seat the cartridge in the barrel by hand and close the action.

If the above load does not give you sufficient velocity, then you might try DuPont No. 80 powder. With this you will need a smokeless primer and a bullet tempered about 1 to 16 which should be full grooved diameter. I would start with about 8 grs. weight of this powder and increase the load gradually, stopping just short of the point where the rear end of the shell seems to expand. With No. 80 powder excess pressure expands the face of the shell.

Of course you will keep track of accuracy as you experiment with this load and decide upon the best combination of velocity and accuracy. I think that 8 grs. of this powder will give you a little more velocity than the regular black powder load.

NOTING your reply to the inquiry of "F. W. N.," Chicago, Ill., in issue of *Arms and the Man* of May 15th, I see that others are requesting information for re-equipping the Savage N.R.A. as to sights; and there is one question I would like to ask.

What can be done as to changing this rifle's front sight from the present military type to an aperture that will work with the rear sight that comes with it. Is it practicable to attempt to change this rifle's front sight from the military or post type to an aperture with a hood similar to what is used in gallery work

without also mounting a new rear sight of a different type than as factory equipped?

L. E. B., Jacksonville, Fla.

Answer: The front sight on this rifle is attached to the barrel by the regular old fashioned slot, which could be driven out and a Globe sight put in its place, but in order to work with the regular rear sight which is issued on the rifle, I think you will have to have a mechanic fit a base on your Globe sight so as to raise the front sight about .2 of an inch to bring it to the correct height for use with the rear sight. The Winchester Company is still supplying satisfactory Globe sights with interchangeable discs.

WHAT remodeling is necessary to change the model 1917 rifle into a sporting rifle?

E. W. S., Warren, Ohio.

Answer: The rifle just as it stands is a very good sporting rifle. It has a sight on the rear which is practically the same as the Lyman receiver sight, although the adjustment and elevation are not as close and there is no adjustment for windage. I think more hunters would prefer to cut off the two guards which protect the rear sight and substitute a bead front sight for the ordinary military one. This could be done by anyone with a hacksaw.

The Model 1917 Rifle was made with wartime tolerances—much larger than the peacetime Springfield rifle. Some of them shoot excellently; others not quite as well as the Springfield. These rifles are equipped with 26-inch barrels and average about 60 feet more velocity than the Springfield rifle. Were the barrel cut with the same tolerances as the Springfield so as to have a groove diameter of .308, the rifle should be a little bit more accurate than the Springfield because the barrel is heavier and better proportioned.

As it is, it is not possible to beat the Springfield.

I AM anxious to get a good repeating .22 calibre L. R. arm, with sights suitable for game or target. Is it feasible to have a .22 barrel made by Neidner Pope or Peterson to fit a Remington pump action, and fix it up with a man-size stock and Lyman rear sight? Would such changes throw the arm out of proportion?

F. N. W., Chicago, Ill.

Answer: I see no reason why you could not have a heavier .22 calibre barrel fitted to the Remington pump action .22 calibre rifle and make it into a much more efficient weapon. I think the Remington action will really appear much better with a larger barrel and a man-size stock.

Neidner will not be prepared to do this work for eight or nine months yet, as he is about to set up a new shop in Milwaukee, where he will have every facility for boring and rifling fine barrels. I think that Peterson of Denver is your only hope at the present time.

WHAT amount of powder and kind would be best to use in 25-35 cal. Win., Model '94 to be used with the 25-20 cal. metal cased 86-grain bullet to produce the greatest velocity possible with safety and accuracy? And what tools should I buy to load them?

Could I use the 32-20 Winchester metal cased bullet in my Government .06 shells to get equal or greater velocity with accuracy than the .05 with 150-grain service bullet? Do you think the 32-20 bullet with service powder charge would make a good hunting load? What tools would I need for this load?

Is the .45 Government Model Colt Auto as good a side arm as any for hunting?

A. H. S., Youngstown, Ohio.

Answer: I would advise that you use about 26 grains of DuPont No. 16 powder in your 25-35 Winchester, Model 1894, with the 86-grain 25-20 cal. metal case bullet. This will give you about as high velocity with accuracy and safe pressure. The Bond Machine Co.,

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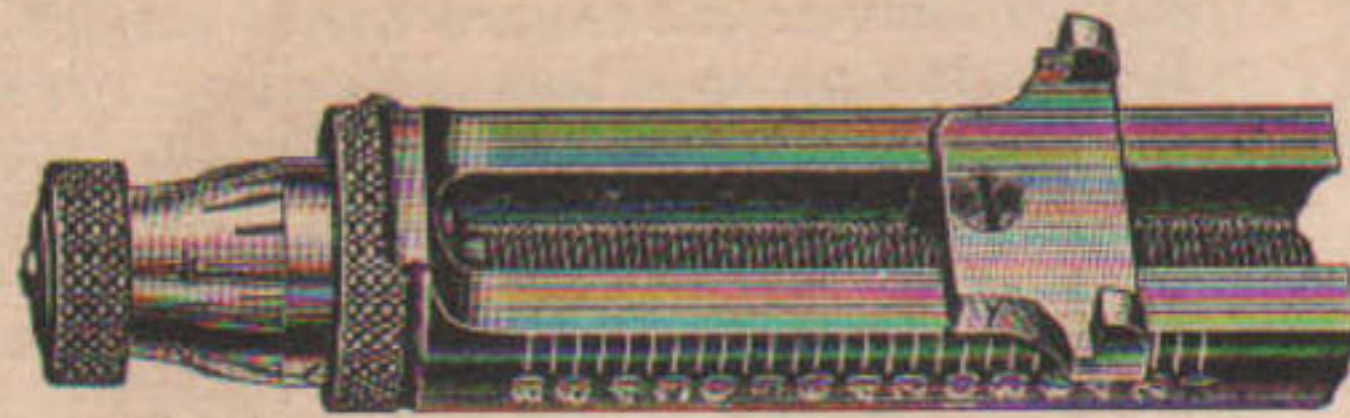
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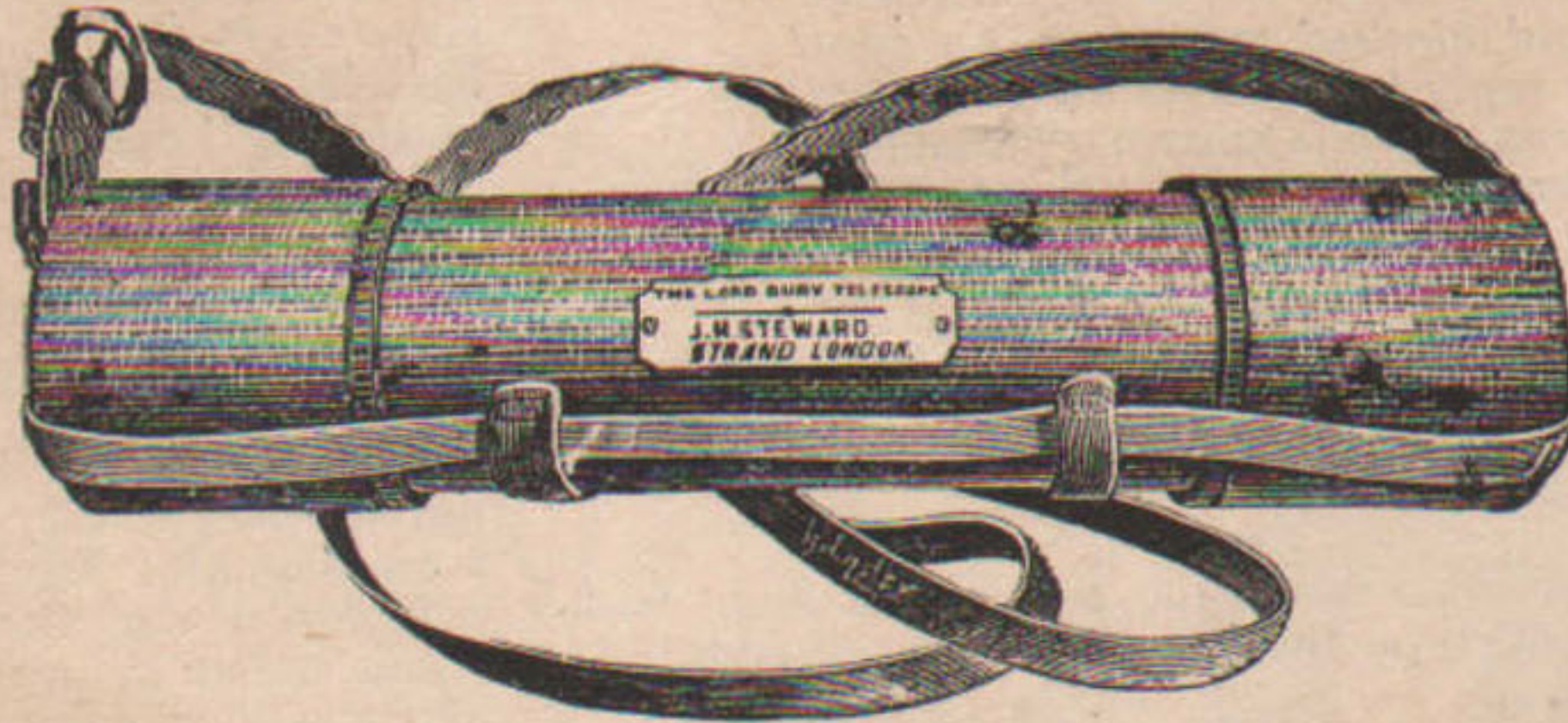




### The O'Hare Micrometer

Made for the Springfield Rifle, Model 1903. This micrometer has all others beaten a dozen ways; first—*it's made in America.*

I am pleased to make the announcement I am handling the most Famous Lord Bury Telescope. During the war, I was unable to secure them. There are one hundred articles that the American Rifleman requires on the rifle range that I handle at very reasonable prices.



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Thoroughly cleans without injuring finest rifle—removes all lead, rust, powder residue. Softest brass gauze washers on steel wire—may be attached to any standard rod. 55c. State caliber wanted. If your dealer can't supply you, order by mail. **Marble Arms & Mfg. Co., 502 Delta Av. Gladstone, Mich.**

### WANTS AND FOR SALE

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

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

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

FOR SALE—35 Cal. Auto. Loading Remington Rifle with case. Gun crank condition. First Post Office or Money Order for \$45.00 takes it. J. N. McBurney, 3810 Botanical ave., St. Louis, Mo.

FOR SALE—Stevens 414, chambered for .22 Short; sights "azissued"; barrel looks bad inside but is accurate; \$10; worth that for fittings alone. H. D. Grosse, Hillsdale Road, R.F.D. No. 5, Joliet, Illinois.

WANTED—Reloading Tools for the 30-06, pair powder scales—accurate. New cocking piece for Springfield Model 1903 with or without Lyman No. 103 peep sight. Philip B. Sharpe, 117 Winter st., Portland, Maine.

WANTED—Springfield Empties in perfect condition; also 150 and 180-grain Remington umbrella point bullets for 30-06. Harold Beach, Poolville, New York.

FOR SALE—Savage 250 calibre Lyman No. 29½ Rear, Kings No. 7 Leaf, Kings No. 25E front sights, 16 Savage S. P. Cartridges, 75-25 Stevens Shot for Aux. Chamber, 1 Aux. Chamber, 1 broken shell extractor, 1 Mills Woven Belt. Rifle brand new. Cost \$75.00. Will sell for \$50.00. Theodore E. Warnke, Post Office Clerk, Boise, Idaho.

FOR SALE—.280 Ross, 22" barrel, gun crank condition inside and out, Silvers recoil pad, Ross peep sight, new heavy leather and canvas case, jointed cleaning rod, 9 copper tube, 20 steel jacketed hollow point, 60 jacketed solid point cartridges. Price \$140. John M. Liptak, 753 Fifth ave., New York City.

WILL TRADE—Colt Automatic .45 Calibre, Latest Government Model—brand new—never fired—extra magazine—new sole leather holster. Cost \$48.50, for brand new pre-war 1903 Star gauged Springfield as issued. D. J. O'Hara, 7057 Chaucer st., Pittsburg, Pa.

FOR SALE—Bardou Rifle Range Telescope 33X with carrying case and strap and tripod. OK order. \$30.00 by Express, C.O.D. E. J. Hibbard, 418 2nd ave. East, Duluth, Minn.

WANTED—Ideal bullet molds Nos. 319273 and 319289. Send sample bullet and state price. Will pay well for good molds. S. C. Smith, 310 N. Plum st., Springfield, Ohio.

FOR SALE—Krag .30 Carbine. A-1 condition. Or will trade. Want Springfield .30. Condition of barrel unimportant. Savage .22 N.R.A. bolt action \$25. Perfect condition. H. C. Schaible, 703 N. Main st., Princeton, Ind.

TO TRADE—.25 Colt Automatic A-1 condition for .22 Colt Automatic. Geo. B. Lauback, 625 Barry ave., Chicago, Ill.

Wilmington, Delaware, can furnish you tools to load this cartridge with. Just tell them what shell and bullet you are going to use.

I do not think you can get good results with the 32-20 Winchester metal case bullet in the 30 cal., Model 1906, cartridge. These very short bullets are very inaccurate if they are speeded up to high velocity. The bullet is about 3-1000 of an inch too large for the normal 30 calibre bore. Unless your rifle is bored extremely large, you would hardly get good results with the 32-20 bullet even with reduced loads.

The .45 calibre Colt Automatic pistol is practically worthless for hunting. I can conceive of no kind of hunting that a pistol or revolver would be of any use for, except for small game shooting as an auxiliary to the big rifle. In this latter case a .22 cal. single shot pistol or target revolver would be very satisfactory.

As a usual thing the sportsman who takes a large calibre revolver or automatic pistol into the woods for game shooting at once marks himself as a tenderfoot.

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

#### LIFE MEMBERS

A. F. Mantey, Box 452, Aly, Nevada.  
N. W. Hausman, 336 Fulton street, Jamaica, N. Y.  
George R. Newcomer, 801-2 Citizens Bldg., Cleveland, Ohio.  
Capt. Albert Black, Albion, Indiana.  
Frederick N. Webster, 929 Rookery Bldg., Chicago, Ill.  
Russell Mott, 29 S. La Salle st., Chicago, Ill.  
C. S. Landis, care of Hercules Powder Co., Wilmington, Del.

#### JUNIOR MEMBERS

Albert C. Sercomb, 832 Phillips st., S. Haven, Mich., 12 years.  
John F. Miles, Mamaroneck, N. Y., 16 years.  
Charles W. Hughes, 123 Grant avenue, Scranton Pa., 16 years.  
James J. Dowd, 2541 Valentine ave., New York City, 13 years.  
Eugene F. Zimmerman, 6537 Etzel ave., University City, Mo., 16 years.  
Kirkwood H. Savage, Harrison ave., Mamaroneck, N. Y., 16 years.  
Robert A. Parker, Pittstown, N. J., 15 years.  
Alan C. Eckert, 68 Stuart ave., Mamaroneck, N. Y., 16 years.  
Arthur R. Stanley, Jr., 128 Beach ave., Mamaroneck, N. Y., 14 years.  
W. P. Klapp, Jr., Box 34, Villa Nova, Pa., 15 years.  
Stephen Dick, 396 N. Grove st., E. Orange, N. J., 11 years.

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Harry Compton, 821 East 23rd st., Paterson, N. J.

Christopher Hartley, Jr., 235 Godwin st., Paterson, N. J.

Donald William Dunmire, P. O. Box 581, South Fork, Penna.

Harold Totman, Main street, Cadott, Wis.  
Walter Seidel, 916 Old Lancaster rd., Bryn Mawr, Pa.

William N. Hunter, Glenburn, N. D.

William Lee, 32 Mott st., New York City.

Albert Murray, 1123 N. Commerce st., Stockton, Calif.

Westchester County Rifle, Revolver and Pistol Club of Mount Vernon. Sec'y., Charles F. Johnston, 211 3rd ave., Pelham, N. Y.; Pres. Joseph L. Higgins; Vice-Pres., Thomas Wright, Jr.; Treas., David P. Brown; Exec. Officer, Joseph Palme. 11 members.

#### Ohio:

Marshall Rifle Club. Sec'y, A. W. Sellers, Marshall, Ohio.; Pres., R. J. Garen; Vice-Pres., Starley Bumgardner; Treas., Ray Main; Exec. Officer, Ray Loman. 10 members.

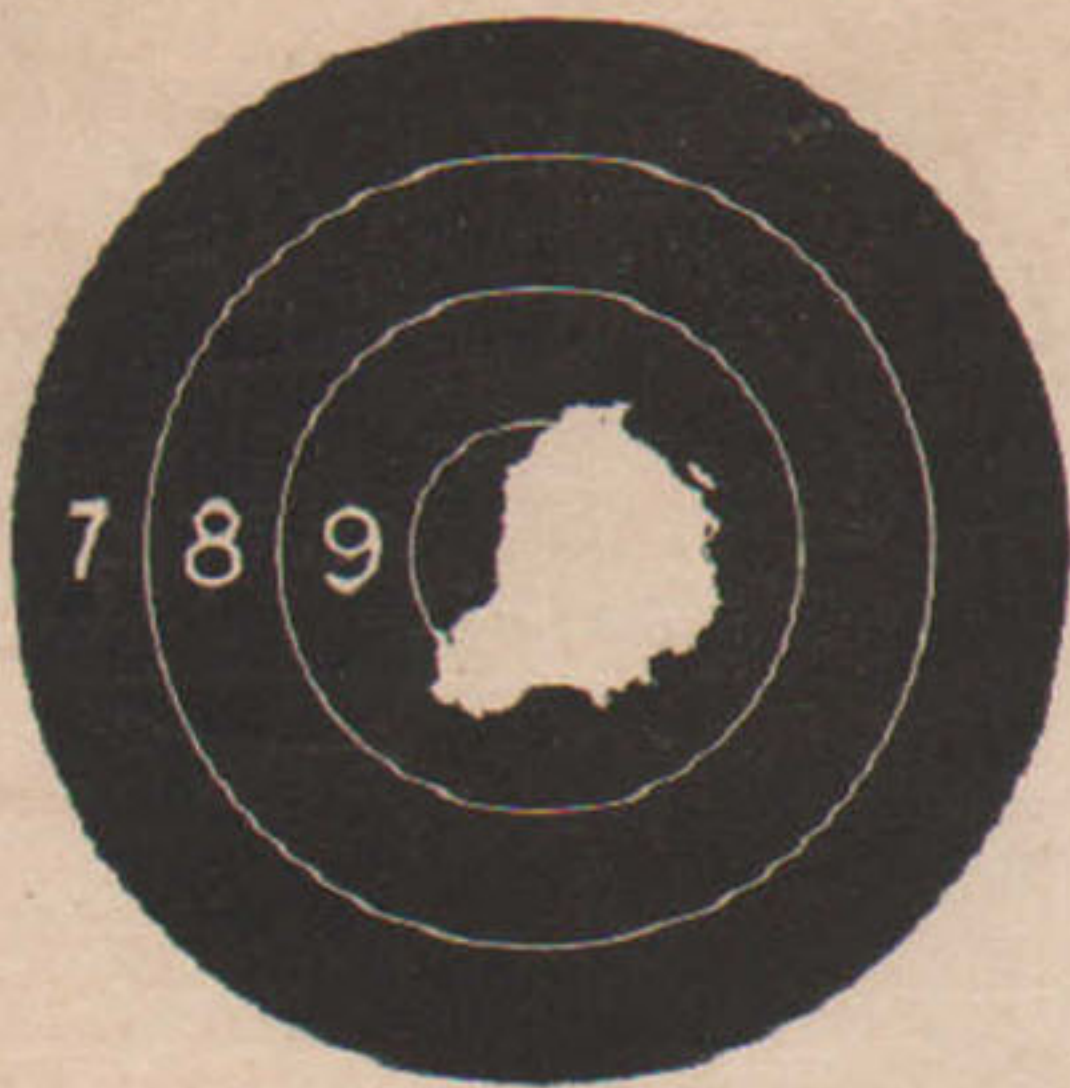
#### Oregon:

Meacham Rifle Club. Sec'y, Burdett Ross, Meacham, Oregon; Pres., J. M. Casey; Vice-Pres., C. E. Welch; Treas., Dale Denson; Exec. Officer, Guy Shepherd. 11 members.

#### RHODE ISLAND.

Brown University Rifle Club, Providence, R. I. Sec'y., S. A. McClellan, 321 Maxcy Hall, Providence, R. I.; Pres., Harold G. Hood; Vice-Pres., Earl R. Stephens; Treas., Jas. Q. Dealey, Jr.; Exec. Officer, Chas. W. Brown. 76 members.

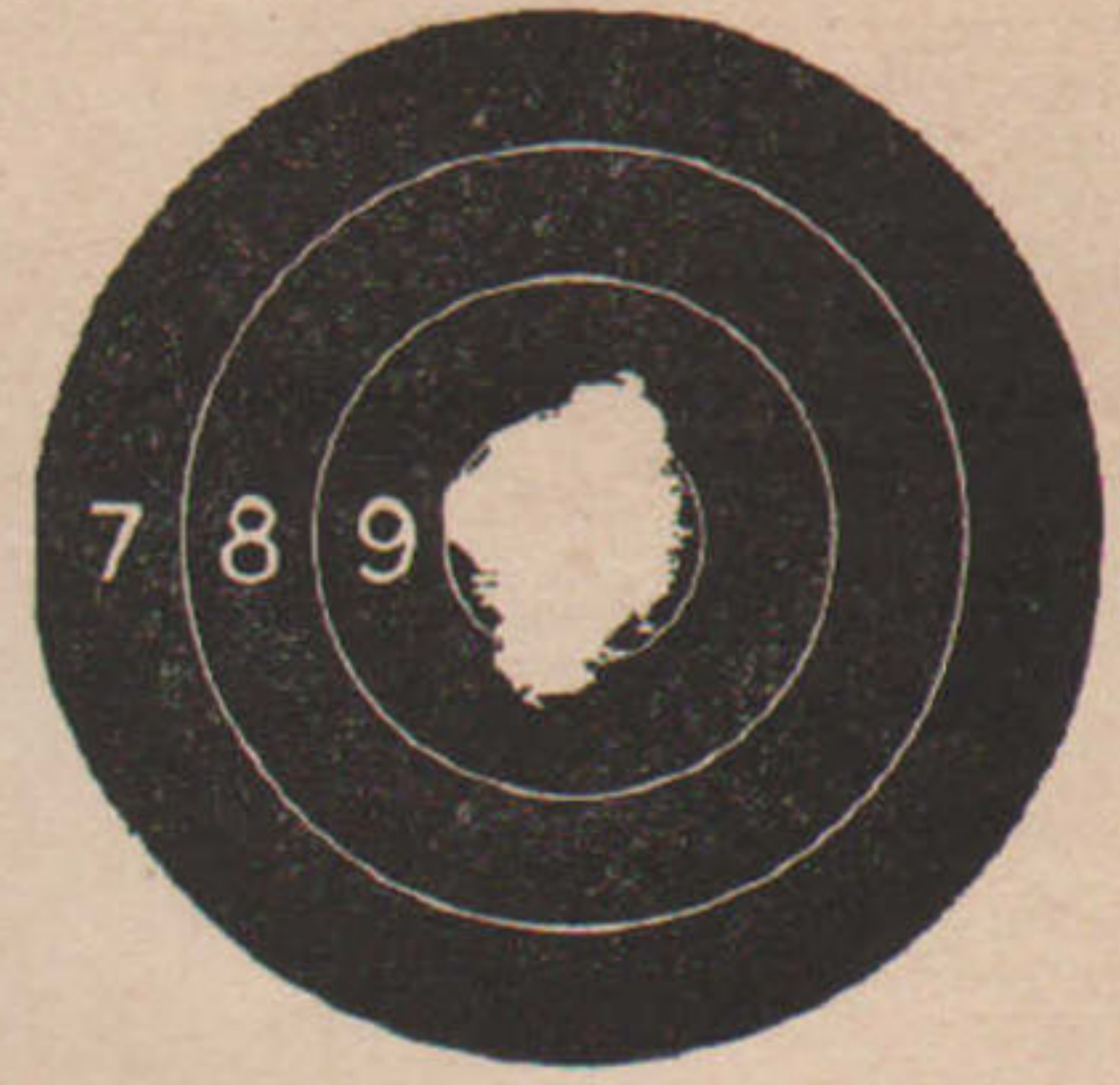




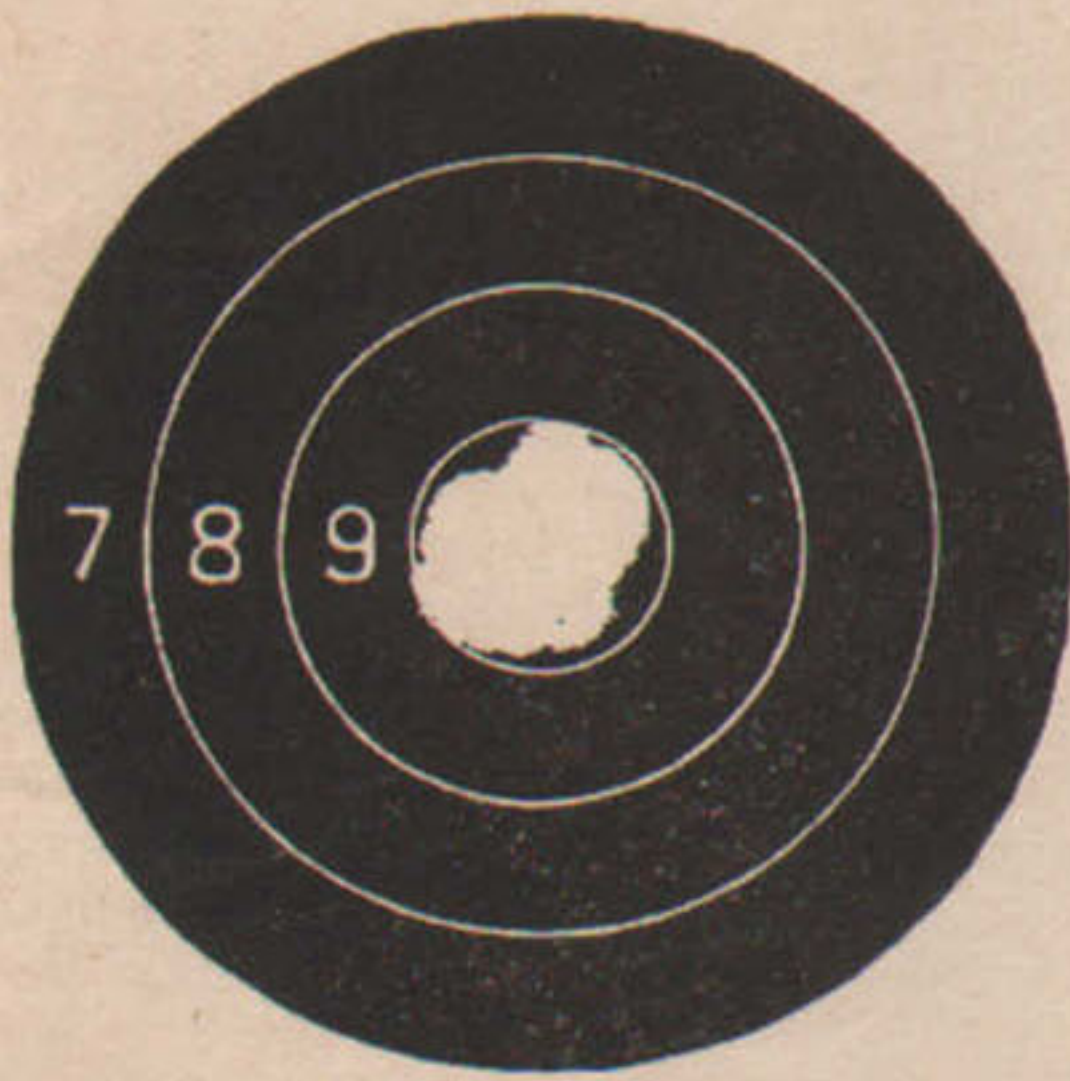
Match No. 1



Match No. 2



Match No. 3



Match No. 4

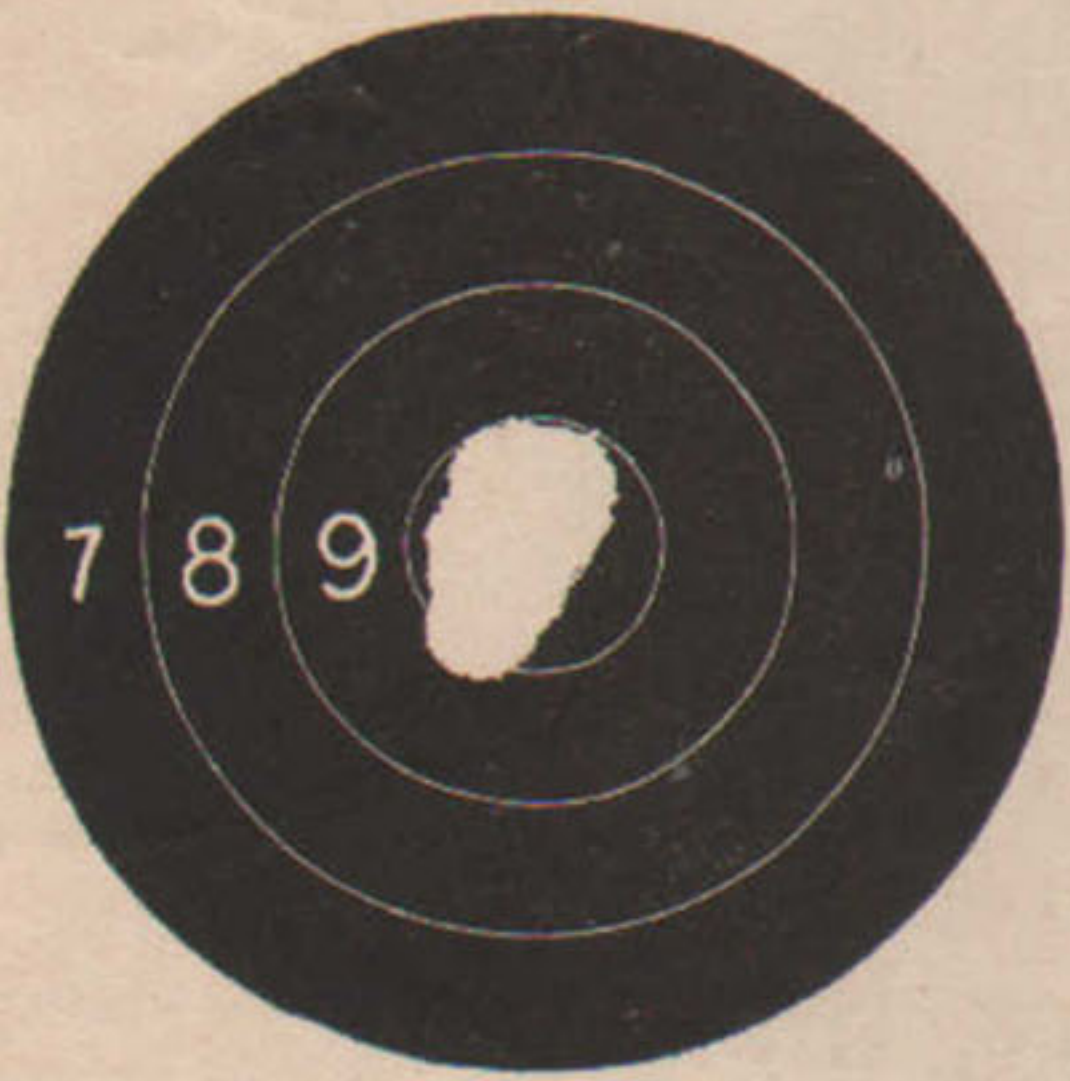
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Match No. 5



Match No. 6

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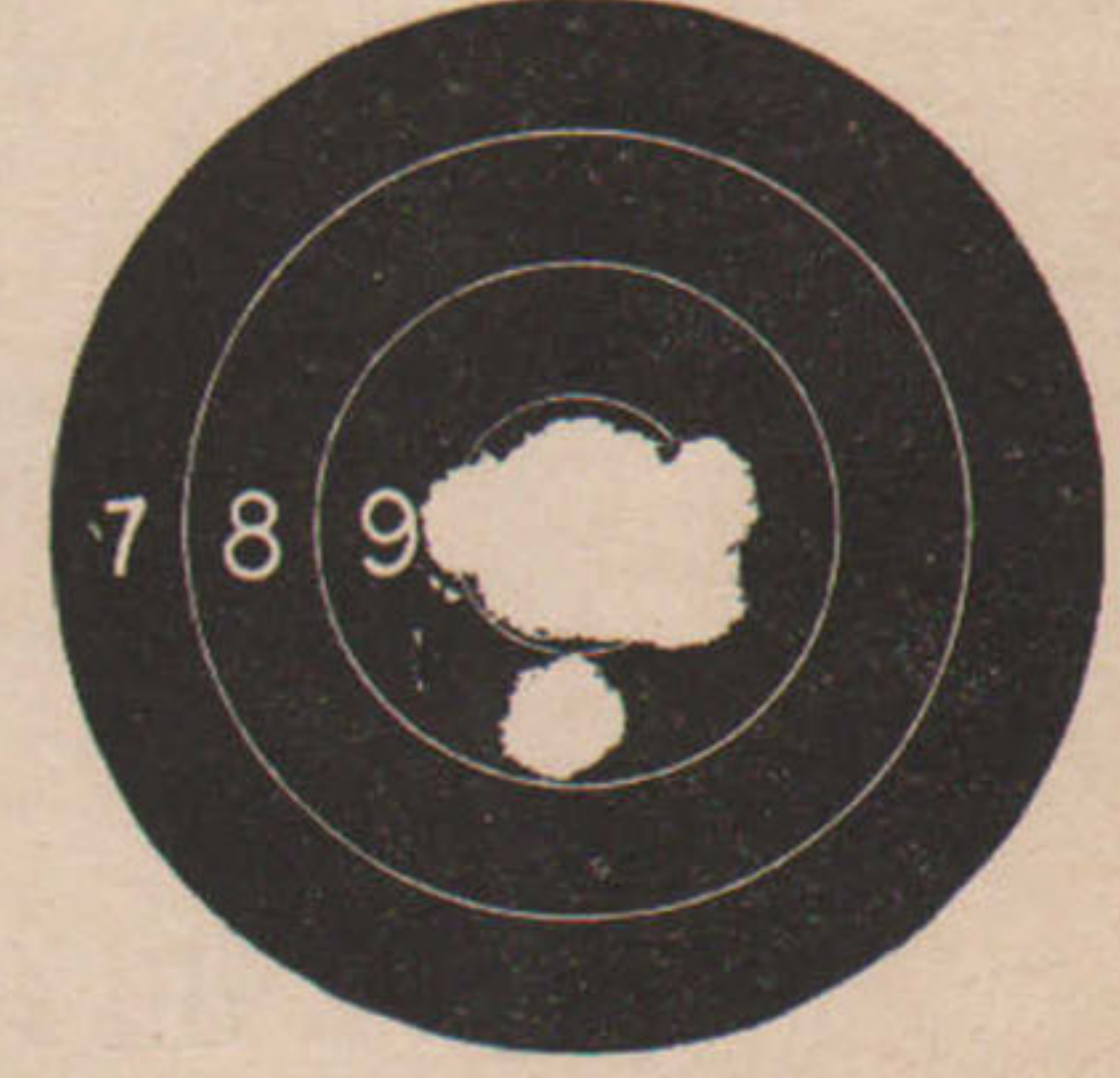
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Match No. 8



Match No. 9



Match No. 10





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