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No. 1481
G-5

MUSKETRY BULLETINS

American Expeditionary
Forces

1919

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1919

**GENERAL HEADQUARTERS
AMERICAN EXPEDITIONARY FORCES**

FRANCE, May 1, 1919.

The following Musketry Bulletins (previously issued as Bulletins 16-A, 18-A, 19-A, 22-A, 1919, G. H. Q. A. E. F.) are published for the information and guidance of the American Expeditionary Forces.

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NOTE.—Musketry Bulletins Nos. 1, 2, 3 and 4 were published as Bulletins Nos. 16-A, 18-A, 19-A and 22-A, G. H. Q. A. E. F., 1919, respectively.

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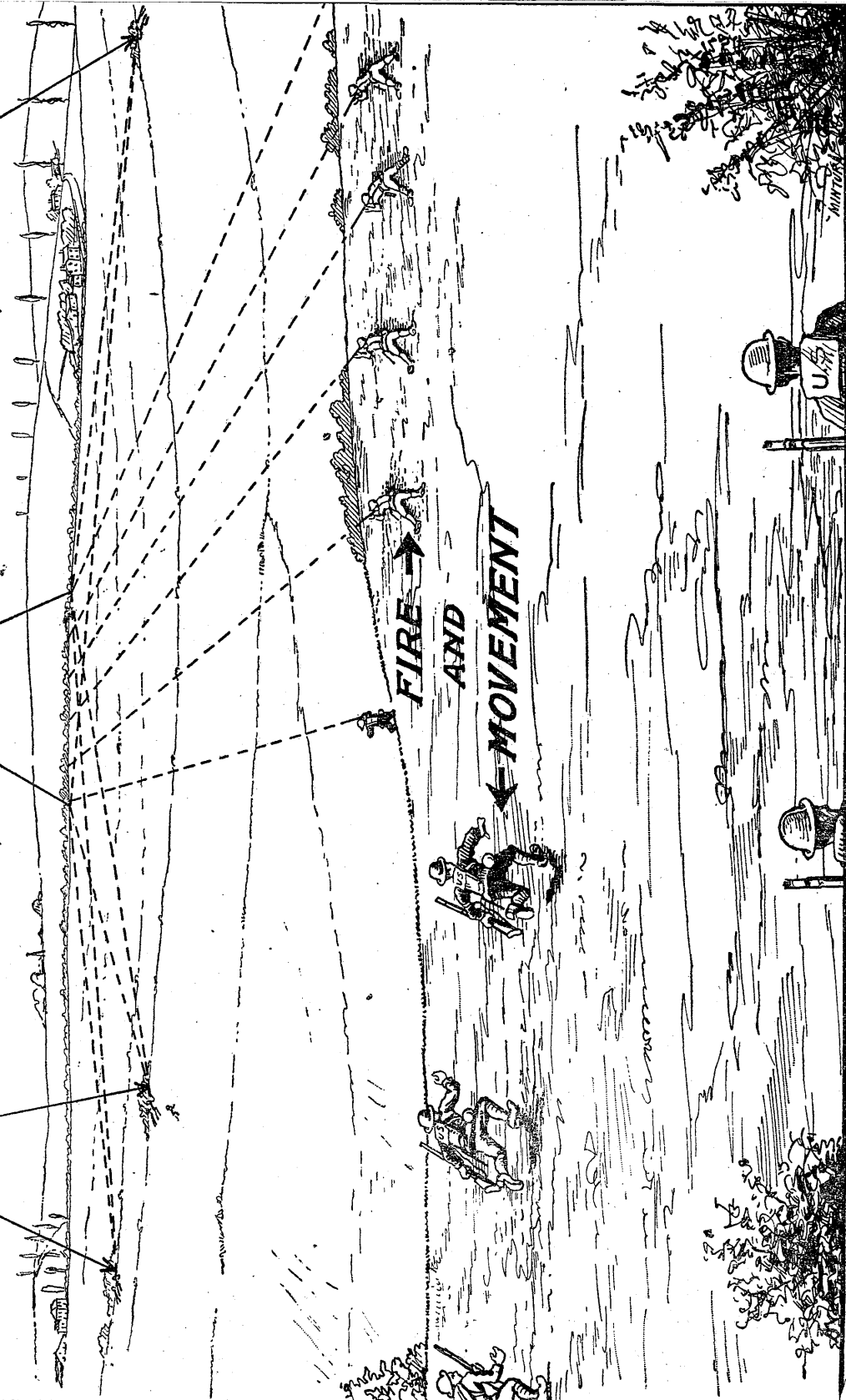
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AUTOMATIC RIFLES.

ENEMY'S POSITION.

AUTOMATIC RIFLES.

FIRE →
AND
← MOVEMENT



MUSKETRY.

(Bulletin No. 16 A, 1919, G. H. Q., A. E. F.)

I. OUTLINE OF COURSE.

1. The object of these bulletins is to present in a simple manner a course embracing the essentials of musketry. In this training, the principle will first be shown by demonstrations, and these will be followed by simple exercises calculated to give a clear view of the basic elements. The demonstrations and exercises will in turn be followed by tests to determine the thoroughness of the preliminary instruction. Musketry training will be concluded by a progressive series of problems and competitions in which all of the principles are applied to situations normally arising in combat and demanding teamwork for their proper execution.

2. *Demonstrations.* In order to show the scope and details of work to be covered in this subject, to stimulate interest, to start men and organizations with a definite object in view, demonstrations will be given:

- (a) With tracer ammunition*,
 - To illustrate the trajectory of a bullet.
 - To illustrate concentrated fire.
 - To illustrate distributed fire.
- (b) With landscape targets,

These targets by presenting a landscape close at hand permit the application of fire to be presented in a simple manner and an accentuation to be made of many of the principles of musketry by squad exercises at a range of 30 yards.

Targets: Continental or Belgian series using three or five panels.

Purpose: (1) To show errors in range estimation.

(2) To show vertical and horizontal shot groups.

(3) To show auxiliary aiming target.

(4) To show vulnerability of targets.

(5) To show fire problems, concentrated fire, distributed fire.

(6) To show fire problems involving target designation.

(7) To impart visual training.

- (c) By a platoon in fire and movement.

A trained platoon will demonstrate an advance upon a position, preferably on the range using ball cartridges or, if the use of service ammunition is not practicable, on the drill ground with simulated fire. Scouts will precede and indicate the target position. The platoon will advance by rushes upon this position, covering every phase of the advance by fire.

Tests and Combat Exercises will be covered by bulletins to be issued at a later date.

3. *Exercises.* Following the demonstrations, an organization begins the general work, in the form of exercises, with some understanding of what the subject consists. All the exercises enumerated herein can be executed within six hours, but to arrange a schedule with a view of simply performing them without a system would hardly be productive of the best results. They should be taken up in sequence but with the necessary *repetition* to fix them in mind.

Many of the exercises have a liberal allowance of time if five minutes are devoted to each. It is seen then how easily, with careful arrangement, all of

NOTE—1,000 rounds caliber .30 tracer ammunition will be issued each regiment for this purpose.

the subjects may be covered in a short time. Their principles should then be driven home by frequent repetition of the exercises on varied ground. Many can be worked out incident to other drills and duty without any special allowance of time.

It is, however, necessary that the company commander make his plans in such manner that a day's work begins with ranges carefully determined, positions selected and exercises prepared in advance so that no lost motion is experienced nor time wasted in waiting or in unnecessary moving from one place to another.

4. Suggested schedule:

March 17-28. Elementary Demonstrations and Exercises:

		Hours
1st week:		
1st day.	Demonstrations, short range, landscape target.	1 hr.
	Demonstrations, range tracer bullet.....	30 min.
	Demonstrations, fire and movement problem..	30 min. 2
2nd day.	Range Estimation.....	30 min.
	Target designation.....	1 hr.
	Fire distribution.....	30 min. 2
	(Landscape target firing for 1st platoon—1 hr.)	
3rd day.	Range Estimation.....	20 min.
	Target designation.....	30 min.
	Fire distribution.....	20 min.
	Communication and signals.....	20 min.
	Use of cover.....	30 min. 2
	(Landscape target firing for 2nd Platoon—1 hr.)	
4th day.	Range Estimation.....	10 min.
	Target designation.....	20 min.
	Fire distribution.....	10 min.
	Communication and signals.....	10 min.
	Use of cover.....	30 min.
	Fire discipline	20 min.
	Application of fire.....	20 min. 2
	(Landscape target firing for 3rd platoon—1 hr.)	
5th day.	Conduct of fire.....	2 10
	(Landscape target firing for 4th platoon—1 hr.)	
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		(Hours)
	(1) Range Estimation.	
	(2) Sight setting.	
	(3) Signals.	
	(4) Designation and Distribution.	
	(5) Use of cover.	
	(6) Auxiliary aiming target.	
	(7) Replacing casualties.	

- (8) Conduct of fire by squad using landscape target.
 (9) Conduct of fire by squad, figure targets.
 (10) Fire orders by platoon commanders.

April 12 - May 2.—Problems.

1st week:

1st day.	Squad Problem.....	2 hrs.	
2nd day.	Squad Problem.....	2 hrs.	
3rd day.	Squad Problem.....	2 hrs.	
4th day.	Section Problem.....	2 hrs.	
5th day.	Section Problem.....	2 hrs.	10

2nd week:

1st day.	Section Problem.....	2 hrs.	
2nd day.	Platoon Problem.....	2 hrs.	
3rd day.	Platoon Problem.....	2 hrs.	
4th day.	Platoon Problem.....	2 hrs.	
5th day.	Company Problem.....	2 hrs.	10

3rd week:

1st day.	Company Problem.....	2 hrs.	
2nd day.	Company Problem.....	2 hrs.	
3rd day.	Battalion Problem.....	2 hrs.	

(including supporting arms.)

Competitions:

For selection of platoon to represent division.....	4 hrs.	10
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II. PRINCIPLES.

5. In spite of the addition of numerous auxiliary weapons to infantry units, the rifle is by far the most formidable weapon of the infantry soldier. Effective rifle fire is essential to "victory" and is the element which most frequently determines the issue of battle. I. D. R. 297.

The instruction of the recruit in the use of the rifle should begin at an early period in his training. It should be impressed on him that the rifle is *his principal weapon* and that the *object of all movement* is to place him at such point that he can make effective use of it. I. D. R. 151.

Infantry has two general methods of action: FIRE AND MOVEMENT.

Fire must be used to cover all movement in the presence of the enemy, not masked by cover, darkness or fog.

Movement has as its object the gaining of such a position relative to the enemy as will permit of the development of a fire superior to that of the enemy, either by virtue of its direction or volume. I. D. R. 321.

6. *Musketry is teamwork in the conduct of fire.* The teamwork necessary to obtain fire superiority contributes largely to the successful action of infantry. Given a superiority of fire, infantry can advance and suffer only such losses as can be borne; without such superiority of fire, the finest troops will be stopped by the ruinous losses they receive.

The effective use of the rifle requires that the men shall individually be good shots; that in action, ranges shall be determined with accuracy; that targets shall be so clearly designated that men recognize them and aim as directed; that their fire is so distributed as to cause all parts of the hostile position to suffer therefrom. In other words, to produce effective results in the aggregate, the fire of good shots must be so directed and controlled by their officers that all will act together as members of a highly trained team in the application of fire against a common enemy.

RANGE ESTIMATION.

7. The necessity for correct range estimation at once becomes apparent when it is remembered that no matter how well rifles are aimed the resulting hits are dependent upon correct sight setting. The teaching of correct range estimation need not be a difficult task nor one consuming much time.

TABLE I.

Illustrating the influence of an incorrect estimate.

RANGE USED	ERROR IN YARDS								
	0	50	100	150	200	250	300	350	400
400....100	96	83	67	49	32	21	12	8	
450....100	95	81	62	43	27	16	9	6	
500....100	93	78	57	36	21	10	6	3	
550....100	92	74	50	30	15	7	4	1	
600....100	91	69	43	23	9	4	2	0	
650....100	90	64	38	18	7	3	0		
700....100	88	59	32	13	5	1	0		
750....100	86	55	27	10	3	0			
800....100	84	50	22	6	1	0			
850....100	82	46	18	5	1	0			
900....100	80	41	13	3	0				
950....100	78	37	11	2	0				
1000....100	75	32	8	1	0				
1050....100	73	30	7	1	0				
1100....100	70	27	5	0					
1150....100	69	24	5	0					
1200....100	67	20	4	0					
1250....100	65	18	3	0					
1300....100	63	15	2	0					
1350....100	59	13	1						
1400....100	55	10	1						
1450....100	54	9	1						

NOTE—The above table is based on the result of experimental firing by a class of riflemen who were regarded as slightly above the average company in individual proficiency, all of them being either expert riflemen or sharpshooters.

If "good marksmen" shooting at yards with sights set correctly make 100 hits by firing a certain number of rounds, then the same men firing at the same target and range and the same number of rounds but with a sight setting yards in error will make hits. To illustrate, "Good" marksmen at 800 yards with a correct sight setting will make 100 hits (the number of rounds necessary to make the 100 hits is immaterial), but if the sights are set at 900 yards, or 100 yards in error, they will make but 41 hits, as will be seen from the table by looking along the "900-yard" line until the 100-yard error column is reached, where the figure 41 will be found.

8. The means for determining ranges are estimation by eye, by observing fire and trial volleys, from other troops, by instruments, from maps, by sound, and measuring distance on the ground.

While estimation by eye will probably be the method most generally used, it must be borne in mind that the average of many estimates by such methods has in the past indicated a resulting error of about 12 1/2 per cent. It has been found, however, that such errors were much reduced by simple exercises as No. 1, below, consuming not more than five minutes daily for several weeks.

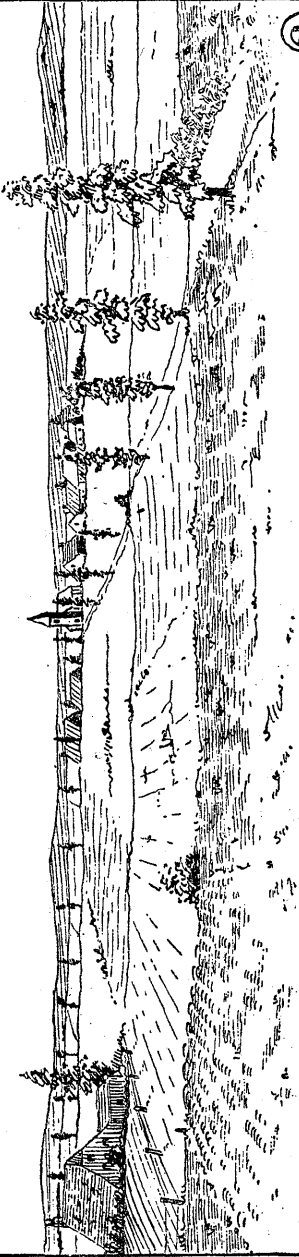
Ways of estimation:

- (1) By making all men familiar with the appearance as to length of a unit of measure which can be compared mentally with the distance to be estimated; such as, 100 yards which is staked off near the billets.
- (2) By selecting a point which is considered the middle of a whole distance, this half distance estimated and then doubled.

Notes: For a unit, the average of a number of estimates will in most cases give the best results.

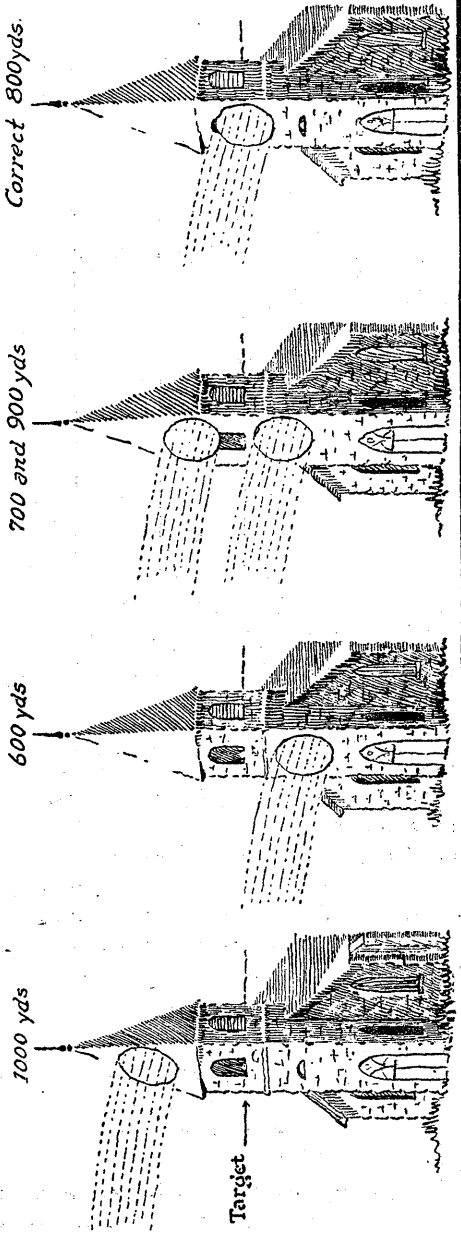
Appearance of objects must be considered under varying degrees of light or background and on different slopes.

A machine gun in window of church - Range 800 yards.



②

Fire directed on the target (lower edge of window) with indicated ranges showing impact of hits.



1000 yds

600 yds

700 and 900 yds

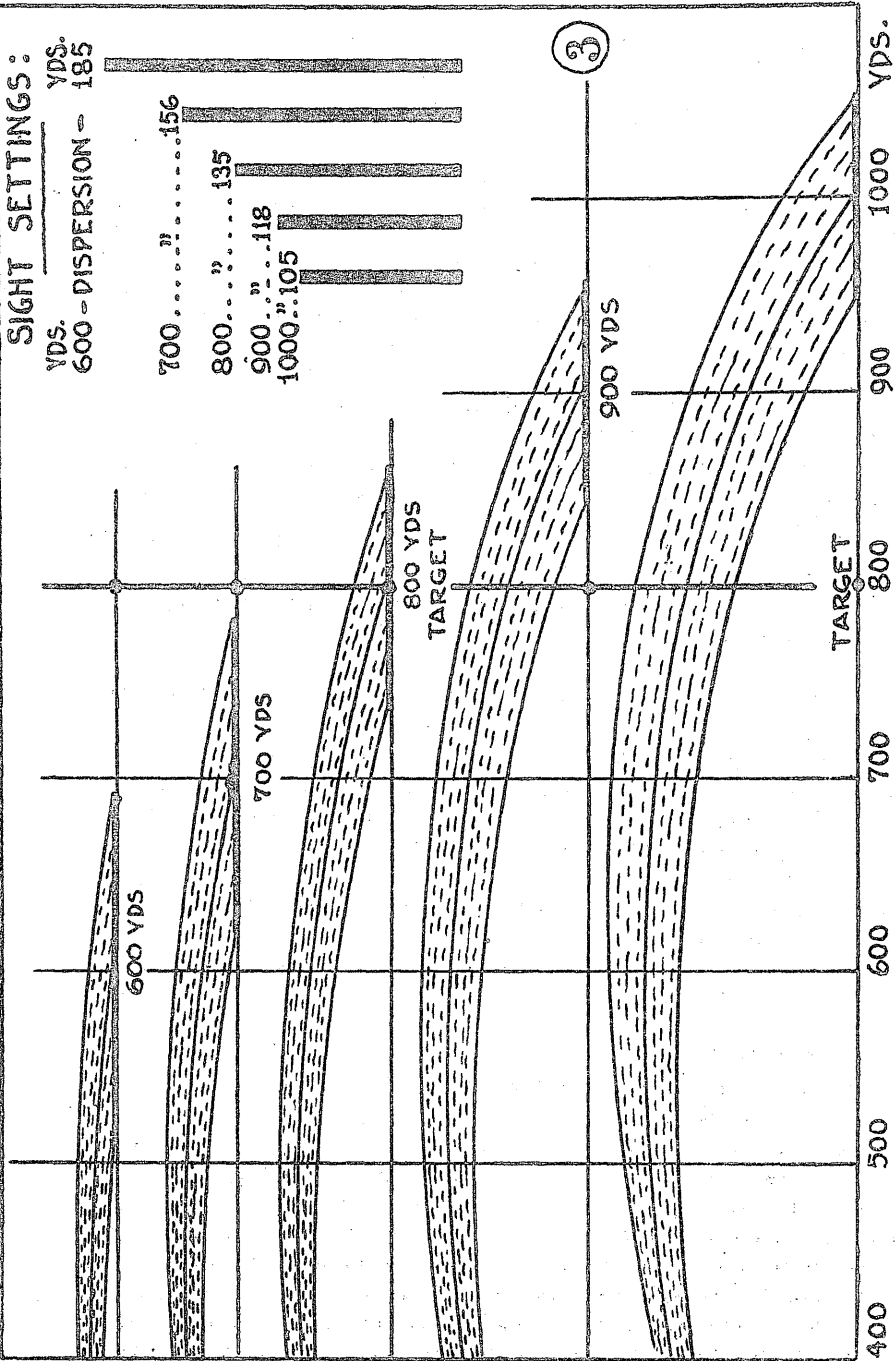
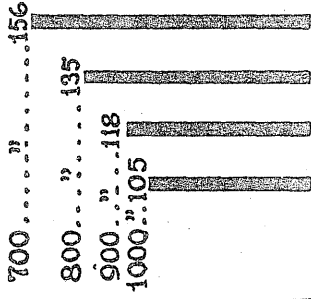
Correct 800yds.

Target

SHOWING EFFECT OF INCORRECT AND CORRECT RANGE ON VERTICAL TARGET.

SIGHT SETTINGS:

YDS. 600 - DISPERSION - 185



SHOWING EFFECT OF INCORRECT AND CORRECT RANGE ON A HORIZONTAL TARGET. ZONE OF DISPERSION (LONGITUDINALLY) SHOWN. TARGET: MACHINE GUN AT 800 YARDS.

First show to a platoon by the following exercise the need for exercises and and effort in order to qualify in range estimation.

9. Exercise No. 1.

Organization: Individuals.

Purpose: To demonstrate errors.

Method: A platoon marching from its billets to drill is halted and attention called to several groups of men at distances, say of 200 to 400 yards (placed a few minutes before, the distances having been previously measured).

Thirty seconds are permitted for the estimation of the range to each group. The men give their estimates to their corporals who record it. Unless practice has been had in range estimation, the errors will clearly demonstrate the need for ranging practice. Correct ranges are then announced, the men allowed to check their errors, and form an estimate of the appearance of individuals at these ranges. Such an exercise should be concluded within five minutes. It is well to *demonstrate* first by errors made in this exercise the need for further instruction. *Competitive* spirit should be engendered and the standing of squads posted on company bulletin boards.

Exercise No. 1 should be repeated and as proficiency is indicated, ranges should gradually be increased to 800 yards for men and 1200 for non-commissioned officers and officers and the time limit lowered to 20 seconds.

10. Exercise No. 2.

Same as the first exercise except that objects, such as brush, tree and points on the ground are used to range on.

The average of a number of estimates will give more nearly correct results than an individual estimate. Advantage of this fact should be taken whenever possible, in the squad, section, platoon or company.

Example: A platoon is under going a range estimation test.

Squad: Each squad leader takes two or three estimates from men he knows to be the best in his squad. For instance, one estimates is 800, one 900 and his own 700. The corporal determines the range to be 800.

Section leader. Receives from his squad leaders 800—850—900. His estimate is 850.

Platoon leader. Receives from his section leaders, 850—800. His estimate is 825 for the platoon.

11. Exercise No. 3.

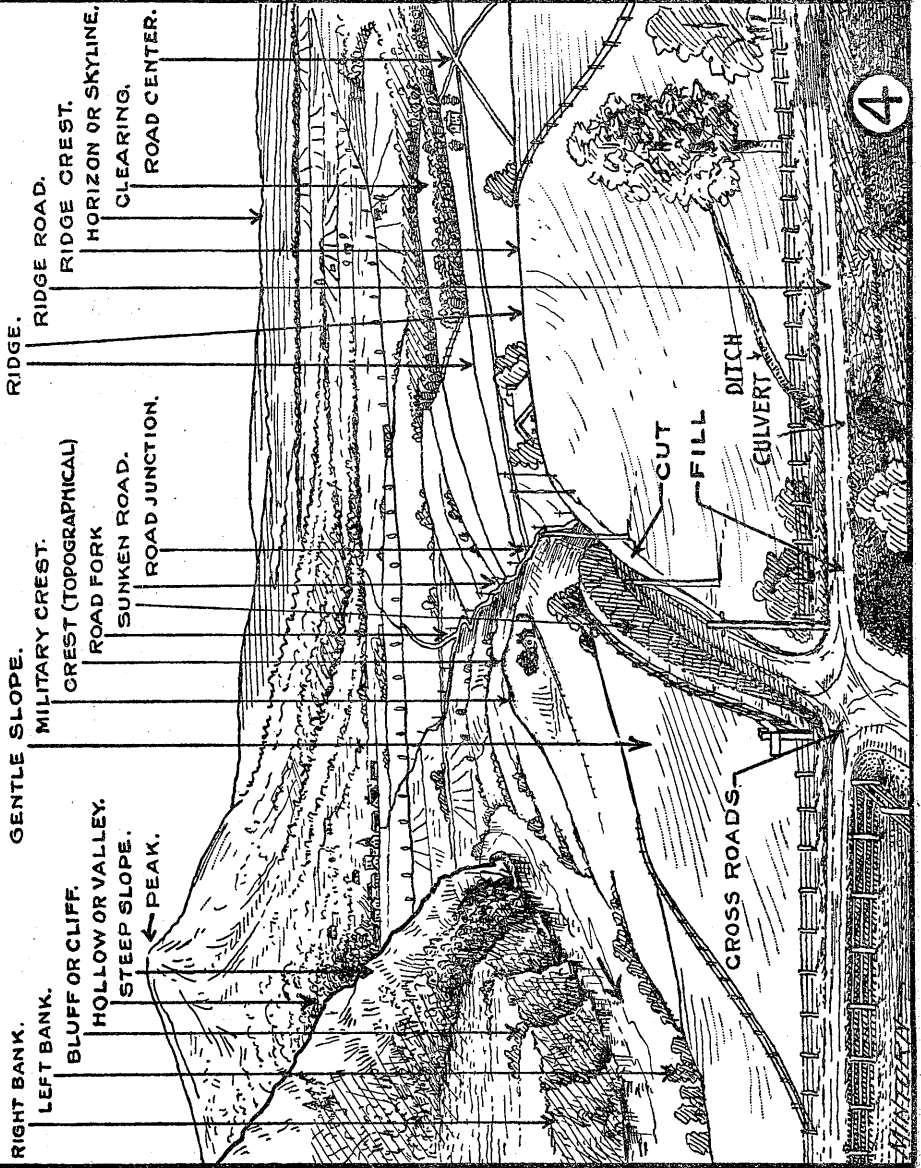
Organization: By squad or if ground permits by platoon.

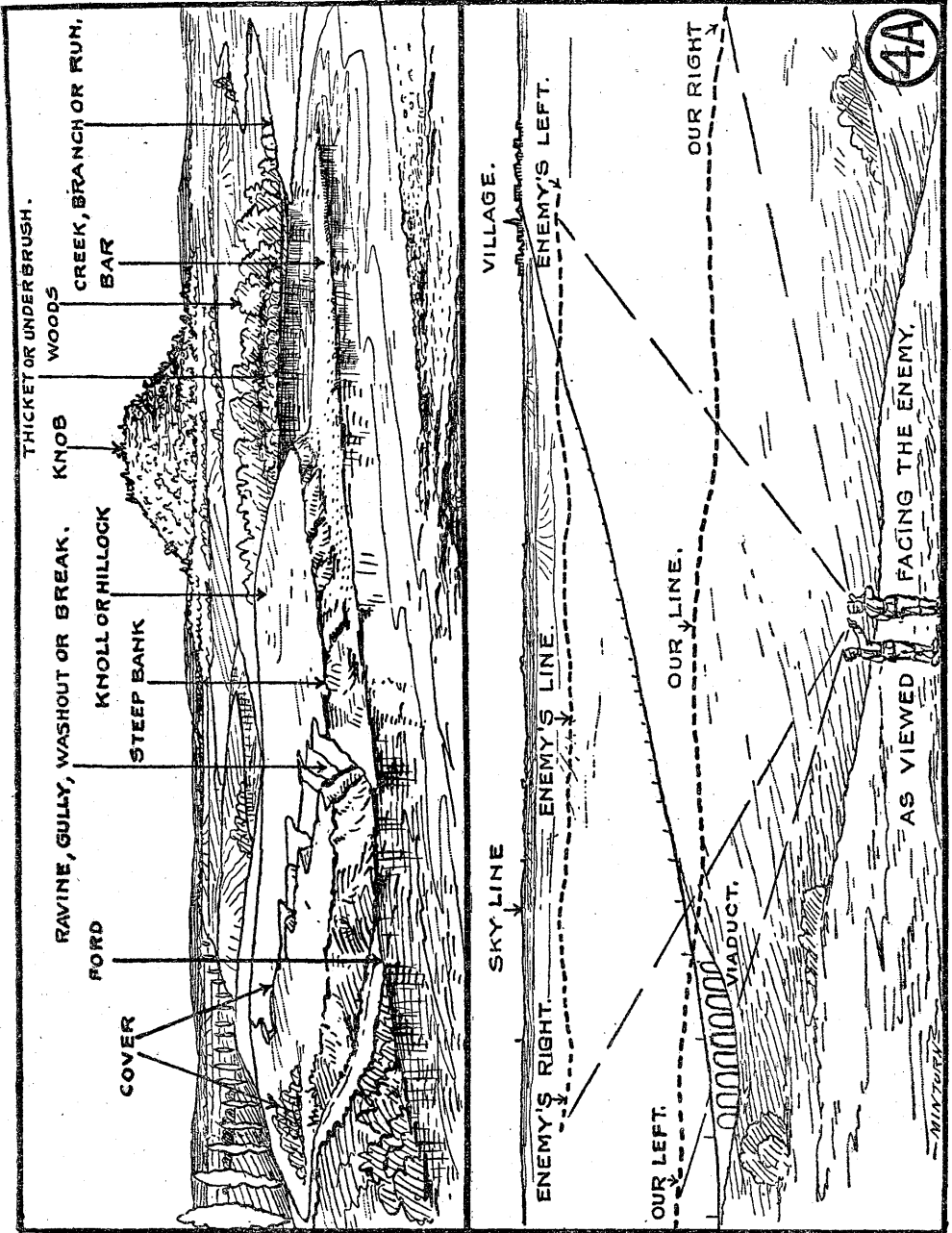
Formation: As skirmishers.

Method: The line advances upon an indicated position from a distance of about 1000 yards. Five or more halts are made, and at each halt, the range estimated by the men is given to the corporal, who in turn reports the average estimates to his section leader. The above exercise requires only that the officer responsible, prior to the exercise, carefully measures the distances.

The essence of such a system of range estimation exercises, as Nos. 1 and 2, is that little time is required for their execution, that no definite period of time need be allotted for such work, that the exercises can be continued daily and that numerous opportunities incidental to other duty are afforded for such practice.

MILITARY AND TOPOGRAPHICAL TERMS.





TARGET DESIGNATION.

12. Exercise No. 4.

Purpose: To demonstrate errors.

Situation: A company or platoon facing suitable terrain.

Method: The commander has previously sent out to some suitable point a man is provided with a flag or with a rifle having a white handkerchief tied to it, to indicate a position.

A number of men (about eight), are faced to the rear. The flag is signalled to appear by the platoon leader who announces, "From that position, indicated by the flag, a heavy fire is being directed upon us."

The flag is signalled down.

The men faced to the rear are faced to the front.

An officer or N. C. O. who was facing the front and saw the indicated position is called upon to give the necessary orders to direct effective fire upon it. Upon completion of his orders, those who were faced to the rear during the display of the flag and whose knowledge of the target is dependent entirely upon the description given, are called upon in turn for their understanding of the target location.

The value of this exercise lies in demonstrating the difficulty of transmitting the position of an exactly located target and the necessity for instruction and system in target designation. The position selected should be such that its location is not without some element of difficulty.

13. An analysis of the elements of target designation indicates the necessity for the following training:

- (a) Familiarity with terrain.
- (b) Familiarity with military and topographical terms.
- (c) Visual training.
- (d) Method in target designation.

14. (a) For officers and N. C. O.'s. To develop the necessary familiarity with terrain, it must be subjected to analysis and visualized. In panoramic or landscape sketching, terrain analysis teaches the important elements upon which location and description of targets depend. It is valuable instruction and should be practiced if opportunity offers.

15. (b) Familiarity with military and topographical terms. It not infrequently happens that upon test men fail to grasp the meaning of terms such as crest of hill, military crest, skyline, horizon, ridge, peak, gentle slope, steep slope, hollow or valley, spur, saddle, clearing, fold in the ground, cover, culvert, cut, embankment, parapet, sunken road, cross roads, road fork, or road junction, the right and left bank of a stream, etc. These terms and similar ones are frequently used in target designation.

The "right of the enemy's line" or "the enemy's right" mean *his own right* or as we face him *to our left*.

Our "right" means *our own right* as viewed, facing the enemy.

16. Exercise No. 5.

Organization: Platoon or company.

Time devoted, about four minutes.

Situation: During a halt at some suitable position, men will be called upon and required to point out as many of the features mentioned as the terrain presents. Such exercises should be repeated until all men are familiar with the terms.

17. (c) Visual training. One of the essentials in teaching designation and recognition of service targets is the cultivation of the soldier's vision. He must be taught what to look for, how to look for it, and to retain impressions.

18. Exercise No. 6.

Situation; A platoon in line facing suitable terrain.

Time, from 2 to 5 minutes.

Method: The front rank is faced about and questioned somewhat as follows: "How many houses (animals, troops, etc.), did you see before facing to the rear?"

Usually when this exercise is given without preparation, the amazing errors resulting and the comments of those who still face the front more than add the necessary spur to stimulate keen observation on the part of the organization.

Upon return to billets following some exercise and just prior to dismissal, the following questions are asked of different men:

How many bridges did we cross this morning?

How many automobiles passed us on our return march?

Was the second car closed or open?

How many windows on the ground floor of regimental headquarters?
How many to the right of the door? etc.

As such exercises are repeated, it will be noted how rapidly the men progress and how quickly their ability will be developed to retain impressions of locations, size, etc. Such exercises take but a few minutes and can be worked in almost anywhere in the training schedule. After some ability to observe and retain impressions is developed, the following is given:

19. Exercise No. 7.

Situation: Platoon in line, facing suitable terrain.

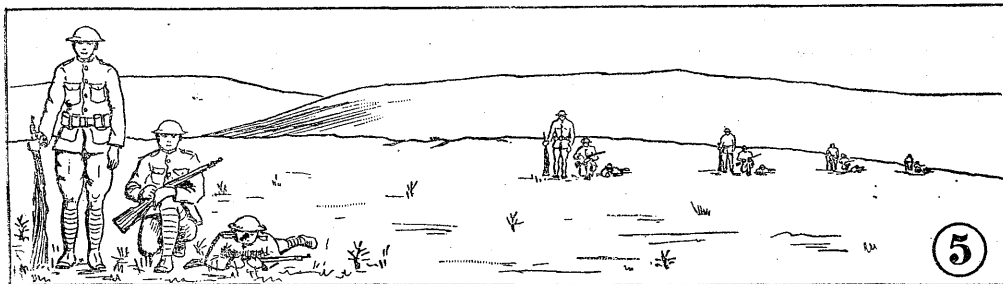
Time: Five minutes.

Method: Corporal (or any indicated man.) Describe quickly where you would expect the enemy's patrols to advance and why? What concealment is afforded for individual men, squads or larger bodies of the enemy? Corrections and comments follow the efforts of the men questioned.

20. Exercise No. 8.

Purpose: To illustrate the effect of distance on objects, to teach visibility of targets against similar and contrasting backgrounds.

Method: Company in line facing groups of three men each, one standing, one kneeling, one prone at 100, 200, 300, 400, 500, 600 and 700 yards.



The attention of all men is called to their appearance; the front stud of the rifle can be used to good advantage in determining the relative heights of men at the various ranges and in the three positions. The instructor should comment upon and discuss:

- (a) Influence of light, shade, background, etc.
- (b) Comparison of the degree of visibility of each group, faces, etc.

Men of the company should be called upon to state their impressions regarding the appearance of the groups, etc. Devote a few minutes to discussions.

21. Targets in the field will be:

- (1) Visible throughout entire extent,
- (2) Partly visible, or
- (3) No part visible and location necessarily indefinite.

For the first class simple fire orders, as "Fire at will," may be sufficient. For the second and particularly the third class, some practice must be had to convey properly an understanding.

22. Methods of designating a target:

- (a) Mechanical means.
- (b) Transmission of information by pointing a rifle. Plate 6.
- (c) Simple description. Plate 7, 8.
- (d) Clock-face systems. Plate 9, 10, 11.

Different methods are applicable to different situations. After an advance begins, when the scouts are separated by some distance from their organization, a quick method of designation is by tracer bullets; or if the scout is able to return, he transmits the information by the second method, i. e., pointing a rifle with or without the bayonet rest.

At the initial stage of an action, when the use of the tracer bullets might not be desirable, then methods "c" and "d", i. e., simple description or use of the clock face will be of value.

(a) The simplicity of *mechanical means*, such as the use of a tracer bullet*, makes it unnecessary to illustrate by more than a demonstration. With favorable light, a tracer bullet fired on a target will convey quickly an understanding of its location to men in the firing line. But care must be taken in the use of the tracer bullets to avoid disclosing the position of the platoon be-

NOTE—Experiments are being conducted with the tracer bullet having in view a lengthening of its range, increasing its illuminative and indicative powers.

fore it is ready to commence firing. Scouts should use this method as should also platoon leaders when definite information regarding the target is gained.

(b) By pointing a rifle.

23. Exercise No. 9.

Situation: During the initial stages of an engagement and sometimes later in the action.

Method: The platoon leader aims a rifle on the target by means of bayonet rest.

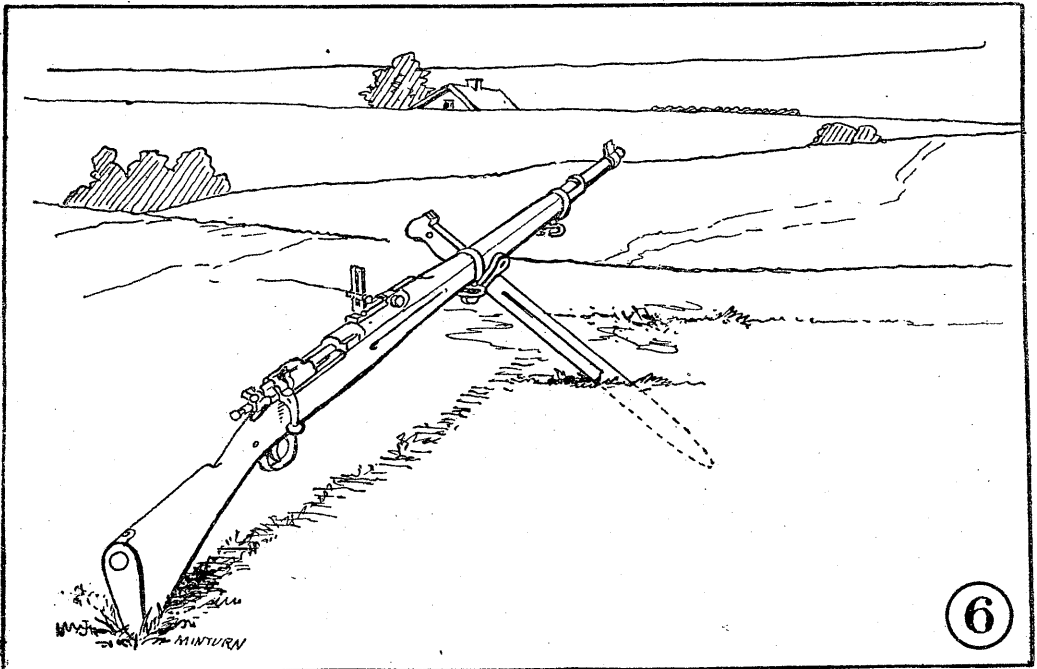


Plate 6. The section leaders are assembled and in turn look through the sights and note the location of the target. To designate a line two rifles are used. They transmit the information in similar manner to their corporals who aim two rifles in each squad for the men to look through.

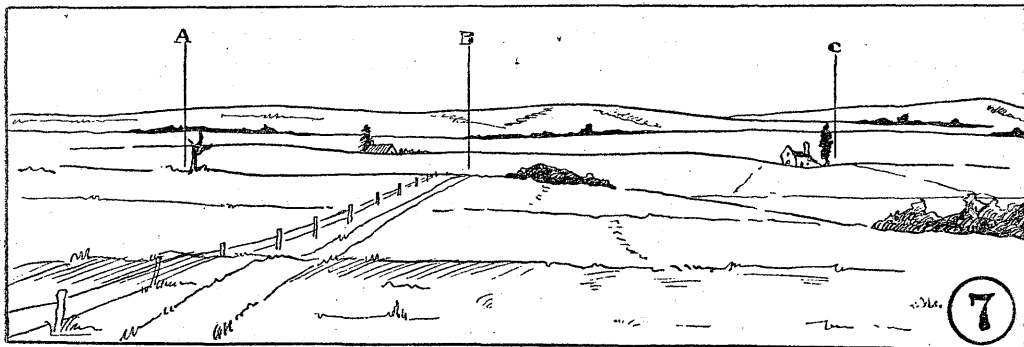
A scout who obtains information of the enemy's location, if able to return, transmits this information by pointing a rifle with or without a bayonet rest.

24. Simple description. Plate 7. If time and opportunity offer. By use of finger widths. Plate 8.

Such description is the method used ordinarily in pointing out some place on the landscape. If a house or other feature is sufficiently prominent to attract attention, a target to the right or left can be located by means of a unit of measure.

25. Units of Measure: 50 mils=1 finger measurement=1 sight leaf.

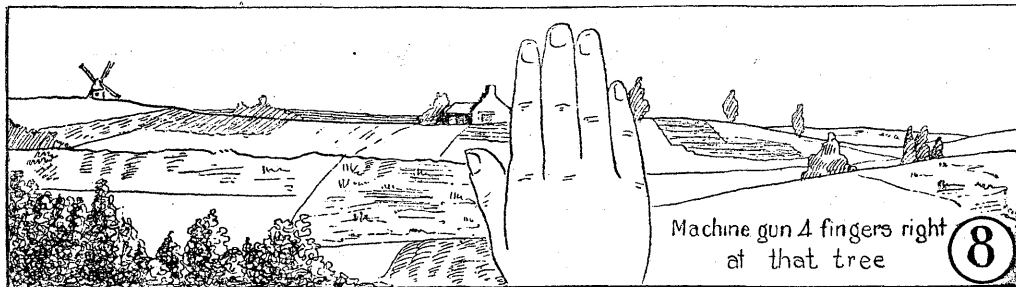
Finger widths differ in individuals hence the distance from the eye to the finger must be ascertained in each case. This distance can be marked on the



- A.**
 1. RANGE
 2. BASE OF DEAD TREE
 3. ANNOUNCE TARGET

- B**
 1. RANGE
 2. END OF ROAD
 3. ANNOUNCE TARGET

- C**
 1. RANGE (HOUSE)
 2. TREE AT DAMAGED
 3. ANNOUNCE TARGET



Measuring with finger.

Reference point right edge of house.

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gun stock so that when aiming an intercept is necessary, the hand with fingers held upright can be placed on the mark and a fairly accurate measurement obtained in terms of "sights" or fingers.

Similarly if the sight leaf is used, the position of the eye can be noted on the stock of the gun.

By using the mil measurement as a basis, the finger and sight leaf are quickly co-ordinated. As 50 mils cover 50 yards at 1000 or 1/20 of the range, then 50 mils will cover 1 foot at 20 feet distance. Standing 20 feet from a wall or object on which vertical lines one foot apart are marked and the fingers held so as to cover this measurement, the distance of the hand from the eye is determined. The use of the sight leaf is determined in similar manner.

26. Exercise No. 10.

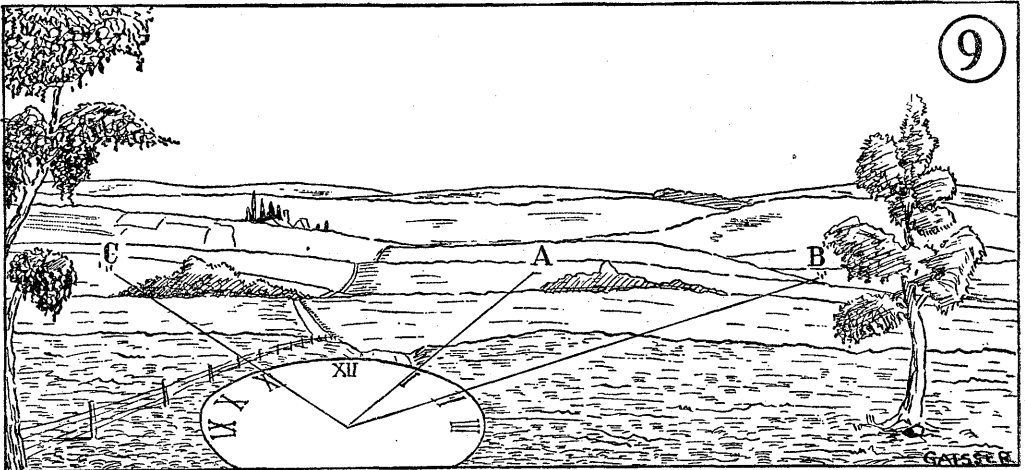
Purpose: To accustom men to take measurements properly from a reference point.

Method: Men step to the testing point, 20 feet from an object having vertical lines one foot apart indicated thereon, and determine the proper distance to hold the hand or sight leaf from the eye. They are then drilled in measuring one, two or any number (including halves) of fingers right or left from a reference point.

This exercise may be adapted to the terrain in the following manner:

Select any prominent object on or near the horizon. Call the men to the testing point one at a time and require each individual to apply his sight any number of times of the right or left of the selected object and describe accurately the point upon which the last intercept falls. Or, select two prominent objects and require each man to state the number of sight widths between them.

27. (d) Horizontal Clock Face System. Plate 9. Used when targets are visible and at initial stage of fire action.



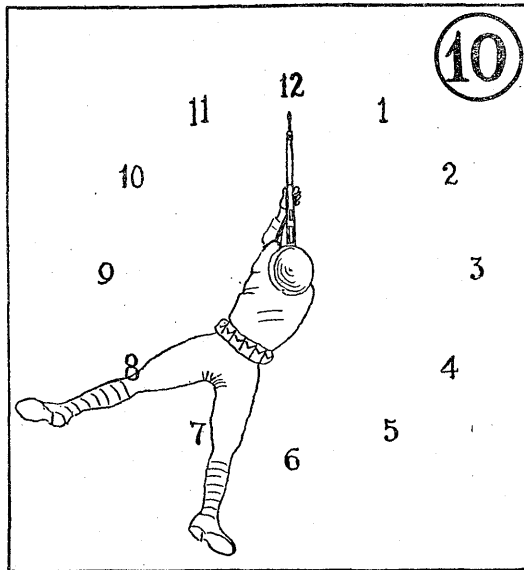
System	Example A.	Example B-C.
(1) Announce Range	(1) Range, 700	(1) Range 800-600
(2) Announce direction	(2) At 1 o'clock	(2) At 2 o'clock-11 o'clock
(3) Announce objective	(3) Machine Guns	(3) A Hostile Patrol Hostile Patrol

This system possesses value only when *designating a visible target*. On account of the usual error made in angular estimation, a target or object should stand alone with no other similar object within about 15 degrees to its right or left.

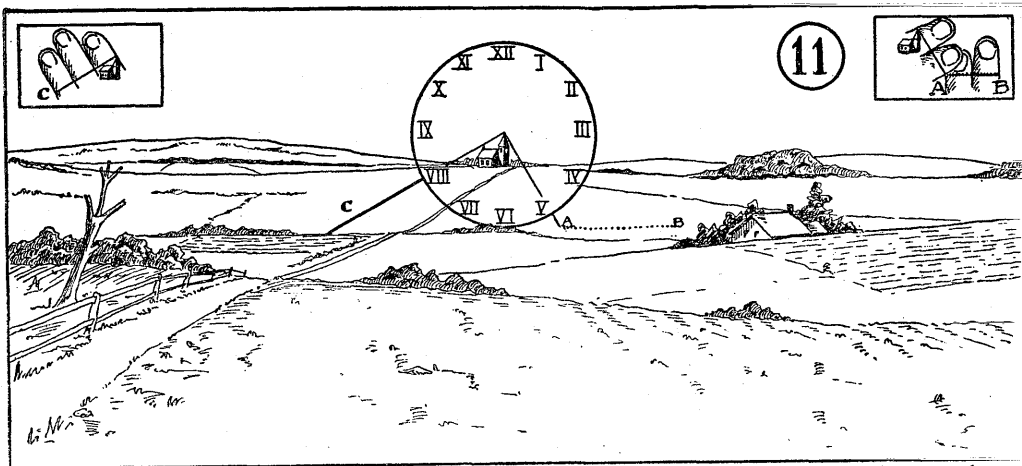
The announcement of the range as the first element of a fire order permits of sight setting and then the commencement of fire without taking the eyes from the target.

- (1) Fix sights at 700 (or 800-600) yards.
- (2) All look along the line pointing towards 1 (or 2-11) o'clock of a horizontal clock (center at the firing point and 12 o'clock mark on a line perpendicular to the front of the firing line) and find the objective.

The observer occupies the *center of the clock*. Plate 10.



28. Vertical Clock Face System (with Uit of Measure) Plate 11.



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Example C.

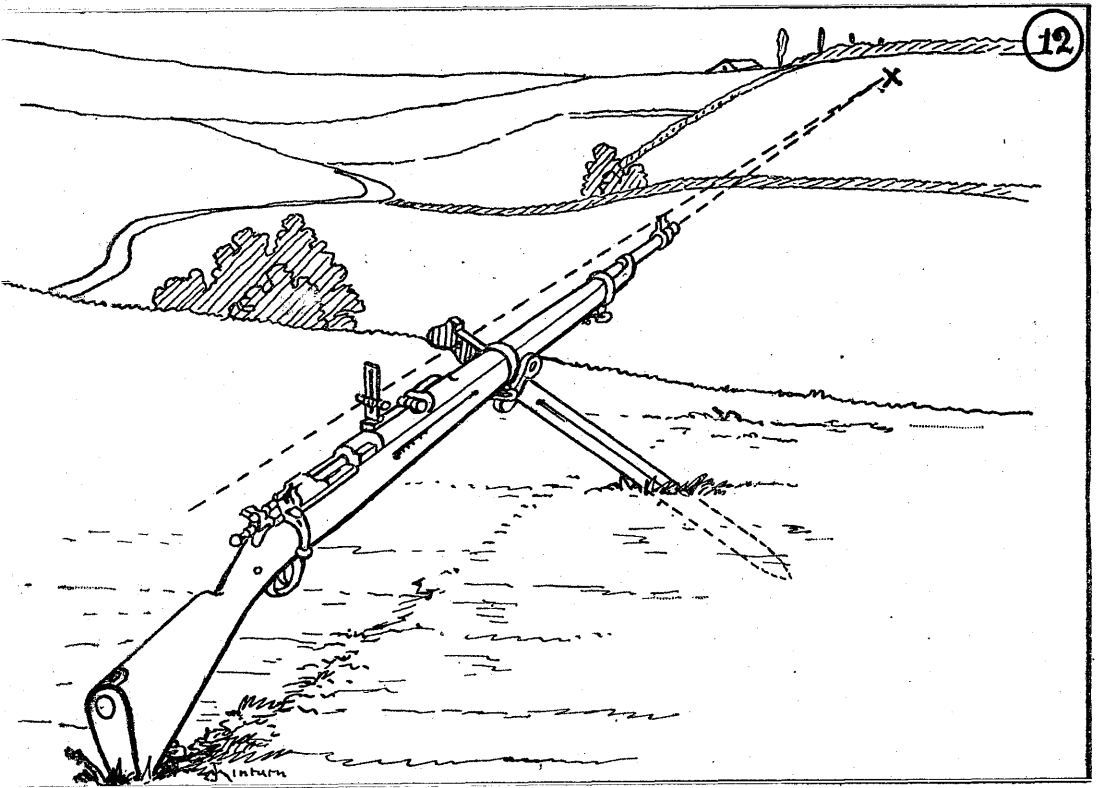
Example A-B.

- (1) Announce range.
- (2) Announce reference point.
- (3) Announce angular distance and direction from reference point.
- (4) Announce objective.

- (1) Range 700.
- (2) Church Steeple.
- (3) 8 o'clock, 3 sights or fingers.
- (4) Machine gun.

- (1) Range 800
- (2) (Same)
- (3) 5 o'clock, 2 sights
- (4) Skirmish line, 2 sights.

29. Auxiliary Aiming Target. The underlying the use of auxiliary aiming targets is shown during demonstrations on the landscape target. Auxiliary aiming targets are used when the enemy's line or machine guns are placed so as to be very indistinct and difficult to indicate to a line of men. This might occur when the enemy is located in cultivated ground, a wheat field, well concealed in grass, or when light fails and makes the target difficult to see but the location is known to the commander through his scouts, observers or from personal observation. Under such conditions, some object as a road, skyline, hedge, etc., above or below the target can be taken as an auxiliary aiming point, by the use of which, with properly adjusted sights, shots will be applied to the desired target.

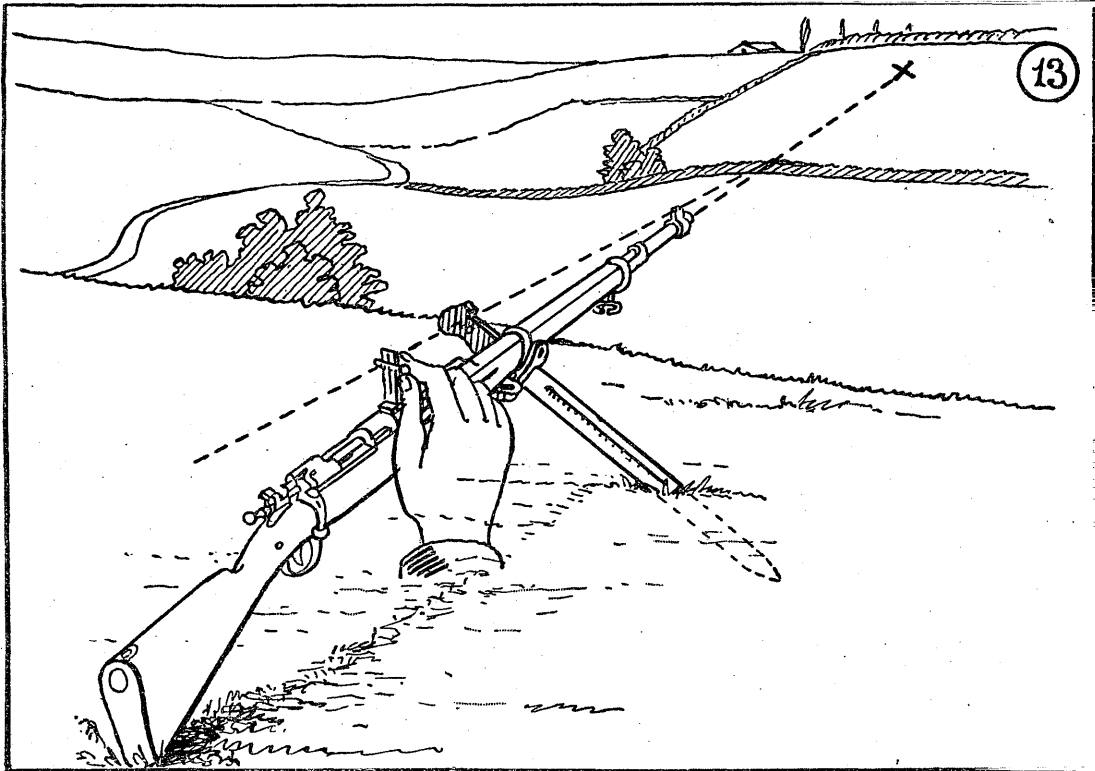


Method: (Plate 12.) A rifle is placed on the bayonet rest and aimed at the target with the correct range.

(Plate 13.) Without changing the position of the rifle, move the rear sight until the aim is directed on the selected auxiliary aiming point (in this case the hedge.)

Although aiming at the selected auxiliary aiming point, with a sight setting different from the actual range, the bullets will still hit the enemy if the rifle has not been moved.

Consequently, all rifles, fired with this last sight setting and aimed at the auxiliary aiming point, will also strike the enemy's position.



30. The following exercises are for training in target designation and range finding. As will be seen, they are also adapted to training in distribution.

31. Exercise No. 11.

Purpose: To train officers and non-commissioned officers in range, estimation, concise, accurate and clear description of targets, and to train men to interpret such descriptions quickly and correctly.

Situation: The squad, section or platoon is deployed facing to the rear. The corporal is at the firing point, where rests have been provided for seven rifles or the bayonet rest is used.

Method: At a signal from the instructor, the target is outlined by the display of a flag at each flank. When the corporal states he understands the position of the target, the flags are withdrawn. The squad is then brought to the firing point, placed in prone position, and each man required to estimate the range, set his sight, and to sight his rifle on the target as he understands it from the description of the corporal. The corporal's errors may be checked from the actual terrain. Those of the men are pointed out by requiring each man to rise and leave his rifle, properly pointed, on the rest provided.

In this exercise, the time allowed the corporal to locate his target should be reduced as proficiency is acquired. The time allowed the man should also be reduced as instruction progresses. The time required to balance the rifle

accurately on a bayonet rest will be about 25 seconds. The exercise is suitable for larger units than the squad. The width of the target and the distance thereto should vary with the size of the unit undergoing instruction.

32. Exercise No. 12.

Organization: Squad, section, platoon.

Purpose: To train officers and non-commissioned officers as in Exercise No. 11 and to train the individual soldier to locate a target solely from a description thereof.

Situation: The men are so placed that they cannot see the target. For individuals, the target should be a rock, a bush, or some other suitable feature of the landscape; for a unit, a line whose flanks, in the earlier stages of instruction, are clearly defined.

Method: The instructor indicates the target to the commander, who, having described it to his men, causes the unit to move until able to see the target. The men are then required to locate it, estimate the range, set sights, and place the rifles on the rests, properly directed.

After some instruction with plainly discernable targets, more indistinct ones should be selected.

33. Exercise No. 13.

Similar to Exercise No. 11, except that in giving the designation the corporal points a rifle. (Plate 12.)

Each man should then locate the target by looking through the sights of the rifle.

34. Exercise No. 14.

On the range or at some suitable point, a target should be indicated by scouts firing upon it with tracer bullets. The scouts should be placed from 200 to 300 yards in front of and to one flank of the platoon. The men are then required to indicate their understanding of the target by use of rifle rests or by firing.

35. Exercise No. 15.

Plate: Target range.

Purpose: To illustrate method and use of auxiliary aiming point.

Organization: Squad (if range is large enough, a section or platoon.)

Method: A target is placed visible to all men. They are required to select some aiming point, other than the target, and determine the sight setting for that aiming point. The target is then replaced by a similar one washed over by muddy water or by other means blended with the background so as not to be visible.

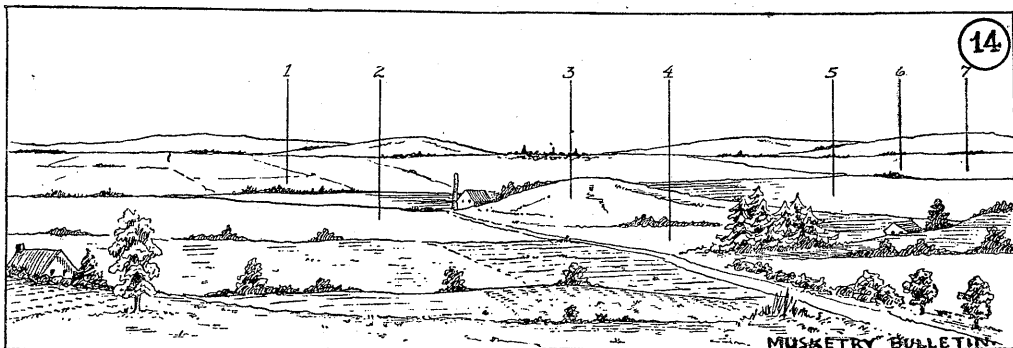
The squad fires 5 shots per man, aiming at the auxiliary point, and the hits on the target are recorded and indicated.

36. Exercise No. 16.

Purpose: To teach location of machine guns by sound of firing.

Method: A machine gun is concealed and placed so as to fire, into a pit, in the direction of an advancing line of skirmishers. The line halts, and each man is called upon for his estimate of the M. G. position.

Without practice it will be found to be difficult, if not impossible; but with practice improvement will be noted. Turning the head so as to present an ear in the general direction of the sound will assist the observer.



37. Use of landscape targets. (Plate 14.)

Exercise No. 17.

Situation 1: A platoon facing the target (or the problem may be applied to actual terrain.)

Method: A non-commissioned officer is called aside and told to give "firing data" to cover a position at 1, 2, 3, 4, or 5, or any other assumed position.

He gives the necessary commands, and different members of the class are called upon, in turn, to indicate their understanding of the location of the target by pointing it out on the picture. If rifle rests are available, the exercise may include the aiming of rifles on the position indicated. Rifles are checked to determine understanding. If the exercise is held out of doors, the bayonet rest can be used in aiming the rifle.

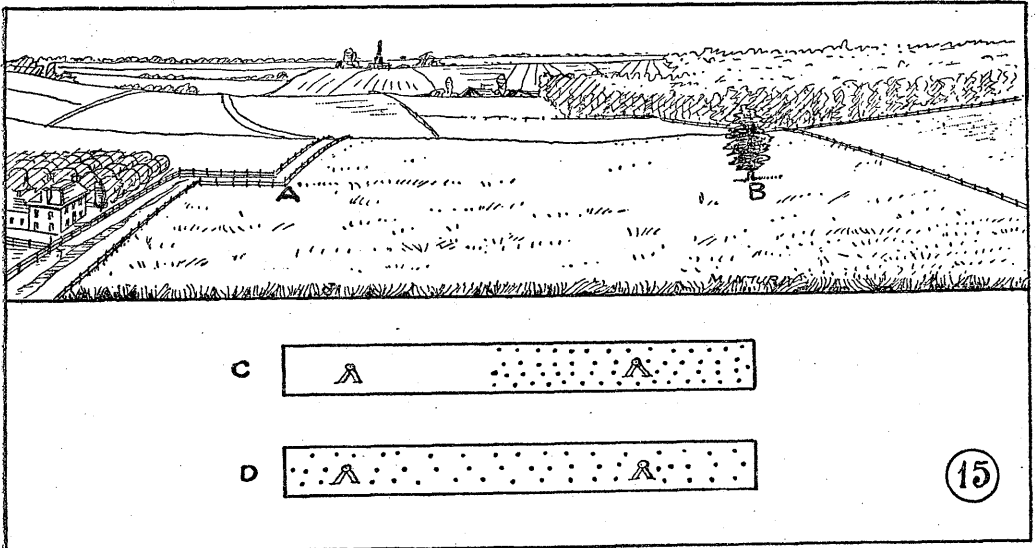
(2) A position of some extent is indicated such as 6—7, and after the usual designation, platoon leaders are called upon to indicate their objectives by aiming rifles placed in rests.

FIRE DISTRIBUTION.

33. To gain and hold fire superiority, it is necessary that fire be distributed over the whole target.

"When practicable, the captain distributes the objective among his platoon at the initial firing position. Otherwise, each platoon leader takes as his target that part of the company objective which corresponds to his position in the company." I. D. R. 230.

The principles governing proper distribution can be shown on the landscape target (2nd Bulletin).



A platoon advancing over terrain like that in Plate 15, has for a target the portion of the wheat field indicated between "A and B", in which are located machine guns. A *poorly* distributed fire, as indicated in "C", permits one machine gun to deliver undisturbed fire upon the attacking platoon. A *properly* distributed fire, as shown in "D", will do much towards attaining the fire superiority necessary for an advance.

Fire may be distributed either in width or in depth; in depth when it is desired to lengthen the beaten zone; in width for the purpose of keeping all parts of the enemy's position under such an effective fire that no part can fire undisturbed.

Distribution is individual and collective. The individual fires at that part of the target corresponding to his position in the platoon, section or squad. The combined result of the fire of the section or platoon is a line of shot groups so distributed that all parts of the target are kept under fire.

Another element in fire distribution is the manner in which targets are assigned to units. How will a section so distribute its fire as to cause *the entire target* to suffer therefrom and at the same time permit of the employment of one or more of the squads for another threatening target or permit a part of the section to advance under covering fire?

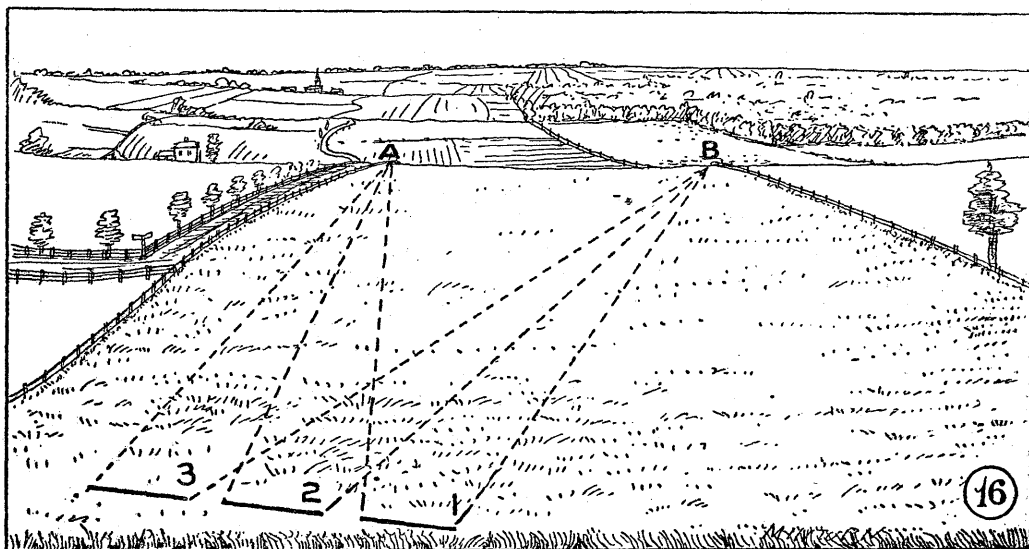


Plate 16 shows an assignment of the squads of a section to the target A-B in which each squad covers the entire target. With such distribution, if squad No. 1 makes a rush forward, the target is still covered by squads 2-3.

A platoon with both sections in line may divide the target by assigning each half to a section.

The rifle is primarily the infantry weapon for frontal fire and for use against *distributed targets*.

The automatic rifle is capable of a large volume of *concentrated* fire. The greatest value is therefore attained from its fire when delivered in a flanking direction.

39. Exercise No. 16-A.

A fire distribution problem, by a squad on the landscape target.

Method: A line will be described as extending between two selected points. Fire will be directed by individuals with a view to covering the target thoroughly. The recording sheet should have drawn on it, in faint lines, the extent of each man's sector. An examination of the recording sheet will show whether or not the distribution has been good. Further details of this problem will be given in the second musketry bulletin.

40. Exercise No. 17-A.

Purpose: To teach distribution.

Organization: A section or platoon.

Method: A target is indicated to a section or platoon leader by the display of flags, which are removed as soon as he understands the location and extent of line. The section, which has been faced to the rear, is now moved to the front, halted, the target described, and all men required to place their rifles on the bayonet rest. One minute after the firing data is given, the men are caused to rise, and the rifles are inspected for sight setting and distribution.

41. Exercise No. 18.

Purpose: To instruct in making rushes and in target distribution.

Method: A squad or section is given a target and advanced by rushes against it. After the line has gained some 150 yards, all men are required to place rifles on the bayonet rest for inspection and checking the distribution as indicated in Exercise No. 17 A.

**COMMUNICATION, SIGNALS, AND TRANSMISSION OF
FIRING DATA.**

42. Signals: I. D. R. 31 to 35.

Whistle signal: I. D. R. 42, 205.

Arm signals: I. D. R. 43.

"The voice is frequently inadequate for giving commands during fire and must be replaced by signals of such character that proper fire control is assured." I. D. R. 223.

"In the training of men in the mechanism of the firing, they should be practiced in repeating to one another target and aiming point designations and in quickly locating and pointing out a designated target." I. D. R. 158.

In extended order, during real or simulated firing, squad leaders, and if necessary men, transmit orders by word of mouth along the skirmish line, always *stating the source of the order.*

43. Exercise No. 19.

Purpose: To acquaint men with the use of signals. Plate 17.

Situation: A platoon in line at rest or when a few minutes are otherwise available.

Method: The platoon, section, or squad leaders give a signal and call on a man for the interpretation of it. The entire list of signals can be given and interpretations made within two minutes.

Example 1. The platoon leader signals. Range 700, as skirmishers, cease firing, etc.:

"Jones, what did that signal mean?" or "Smith, step to the front and give the proper signal for the command,"

Such exercises should be given first by the squad leaders. A failure by a man, in front of his platoon, to give a signal properly after reasonable instruction, is not likely to be repeated, for squad and platoon pride will take a hand to correct the deficiency.

44. Exercise No. 20.

Purpose: To accustom men to transmit and receive firing data.

Situation: A section or platoon facing a section of terrain affording targets suitable for designation, or a squad facing a landscape target.

Method: Give a certain elevation, apportionment of target, rate of fire, or other data. Make a change of elevation, target, etc., known to one or more men and require transmission to the remainder.

Example 1. A unit having been given an aiming point on which, with a certain range, they are simulating fire. Reinforcements are sent forward and deployed in the intervals on the line. The original line is withdrawn after thirty seconds. The men who joined as reinforcements are inspected as to the sight setting and target designation.



FORWARD, ETC.



QUICK TIME



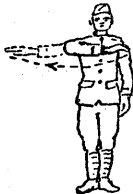
HALT.



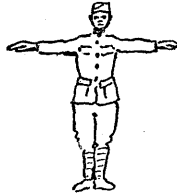
LIE DOWN.



DOUBLE TIME.



CHANGE DIRECTION.



AS SKIRMISHERS.



CEASE FIRING.



AS SKIRMISHERS-RIGHT.



ASSEMBLE.



RANGE.



NEW TARGET.



READY.



COMMENCE FIRING.



FIX BAYONET.



SUSPEND FIRING.



SECTION.



SQUAD.

Example 2. A unit, in position, has received and put into effect certain firing data. A change of same is given the flank man requiring transmission along the entire front. After a minute, in case of a squad, verify the result. Question the last man receiving the change regarding the source of the order.

Verification is facilitated if the men withdraw leaving their rifles on the bayonets or other rests for examination.

45. Runners, buglers and others should be exercised in the proper transmissions of verbal orders and messages.

Exercise No. 21.

Purpose: To emphasize the need for careful transmission of orders or information.

Method: A platoon in line. Five or more men, buglers, runners, or others are posted in front of the platoon, in a semi-circular formation with intervals of about 75 yards and numbered. The first man No. 1 of the chain of men is posted near the platoon leader.

An order, message or other instruction is given so that the platoon and only the No. 1 man of the chain, hear it. He runs to No. 2 and delivers the message. No. 2 to No. 3 and in similar manner the message is delivered to No. 5, who reports to the platoon leader and delivers the message loudly enough for the platoon to hear. Unless the transmission was well accomplished a distorted message is delivered which will convey the desired lesson without need for comment.

USE OF COVER.

46. The great importance of properly training men to take advantage of natural cover must be recognized. Battles are fought and won by pushing man power, assisted by the covering fire of the rifle, automatic rifle, machine gun, and accompanying weapons, towards the enemy; finally closing with him and destroying or capturing him or forcing his retreat.

The instruction of the skirmisher in the use of cover is continued in the combat exercises of the platoon, but he must then be taught that the proper advance of the platoon, and the effectiveness of its fire are of greater importance than the question of cover for individuals. (I. D. R. 156.)

47. Exercise No. 22.

Organization: Platoon.

Purpose: To train in taking cover.

Method: At a suitable place on the terrain, the platoon, except a designated squad, is halted and faced to the rear. The designated squad is double-timed to the front about 400 yards and at a whistle signal is halted, faced towards the platoon, and cover as skirmishers is taken.

The platoon is faced in the direction of the squad, and members of it are called upon to locate the squad or any portion of it. If cover is well selected, some or all of the men will not be visible.

At a second whistle signal, the members of the squad crawl forward a short distance. Emphasize the fact that a man lying still even without cover, is much more difficult to see than a man moving.

At the third whistle, have one or two men sit up; at the fourth whistle have two men stand. Call attention to the contrast.

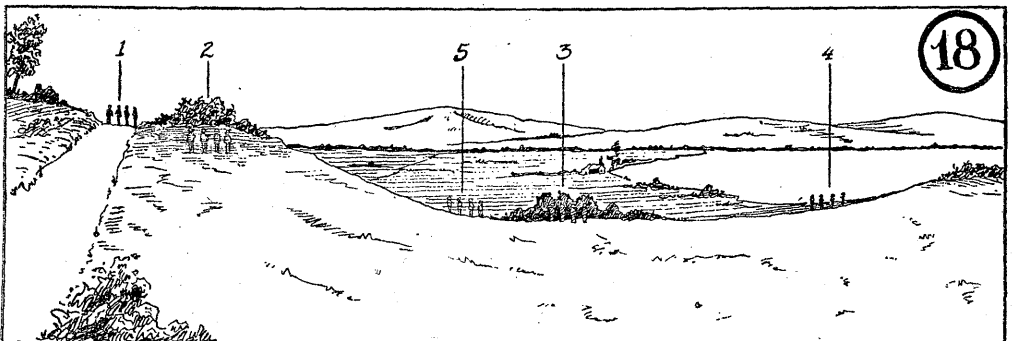
Cause them all to take the prone position and at a whistle signal have one man run forward about 25 yards. Point out the difficulty of hitting a running man. Repeat with several men running. Require men to aim.

48. Exercise No. 23.

Organization: Platoon.

Method: Platoon behind a slight rise. On the opposite side, a squad crawls to the crest, makes a reconnaissance and crawls back.

Men unnecessarily exposing themselves, appearance of men on the skyline and effect of background are discussed.



Effect of background, color, and skyline on a group of men. Plate 18.

- (1) Group of men on the skyline.
- (2-5) Group of men, nearer to observer, having dark background.
- (3) Group of men scarcely visible by reason of dark background.
- (4) Group of men partially visible by reason of background.

49. Exercise No. 24.

Organization: Platoon.

Purpose: To cause men to look for and discuss cover.

Method: A platoon halts in line facing suitable terrain. One man is called forward and told, "The enemy is there (pointing.) He can see you standing but not in a prone position. Take cover and whenever I blow my whistle, move towards him and always seek cover." *Emphasize the need of locating cover before starting forward.* Allow the members of the platoon to criticize. See if another squad has a man who can do better.

To observe the use of cover in firing, call forward a man and have him simulate fire upon an asumed enemy. Does the man conceal himself; does he use all cover, as trees, ditches, gulleys, etc.?

As the platoon is formed at the billets, a man is called out and told, "Show us how you would use that house (window, door, etc.) as cover and fire on the enemy advancing up the street." Ask the platoon for any criticisms. See if another squad can do better. Plate 19.

50. Exercise No. 25.

Organization: Platoon.

Situation: Sections facing each other at about 300 yards.

Purpose: To show how a line of faces appears to an aviator.

Method: One section cover their faces with their caps and at a signal all remove them. Emphasize that when hostile aviators are flying over, if a number of faces are turned up an organization, which otherwise might have escaped detection, is located.

51. Exercise No. 26.

Teach men to crawl with elbows down, body flat to the ground, lying on left side, pushing themselves forward with their right legs, rifle grasped in the right hand. For short distances teach the method of crawling, shown in Plate 19. The face is turned, the arms are pushed forward, the weight of the body placed on the hands and legs and pulled forward by the arms assisted by the feet.

Teach men to drop quickly when running forward, and be ready to fire, without throwing up a leg or elbow. Plate 20.

Teach men to rise without first pushing up the elbows or other parts of the body.

52. Exercise No. 27.

Purpose: To teach men to drop to a prone position quickly and begin firing, using the sling.

Method: Practice the successive motions shown in Plate 20.

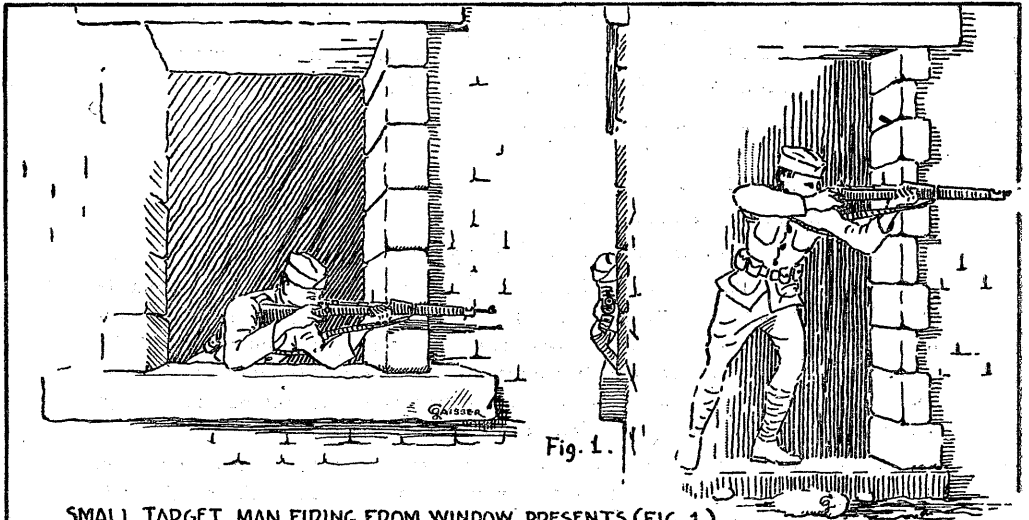
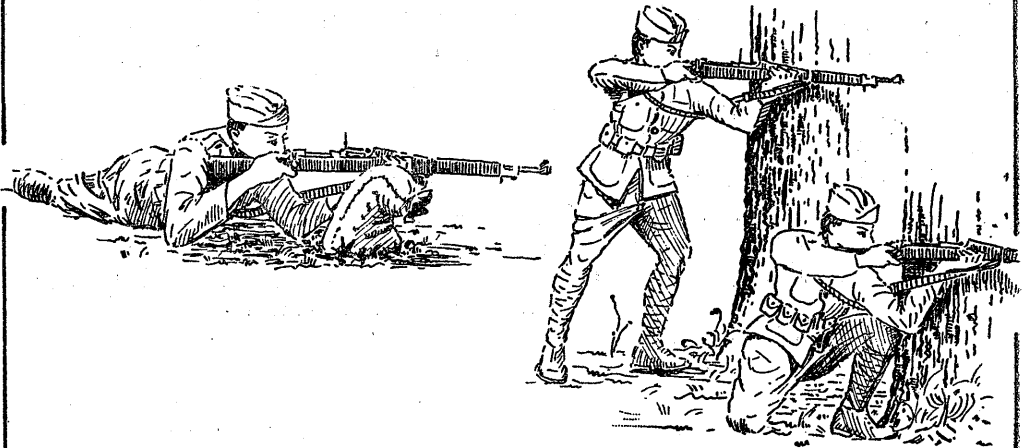
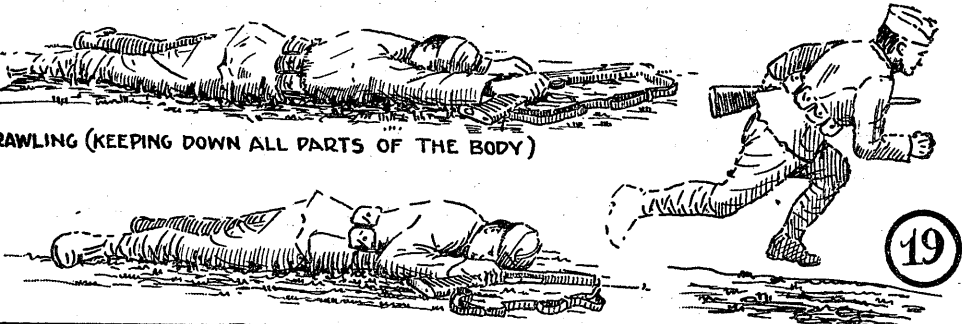


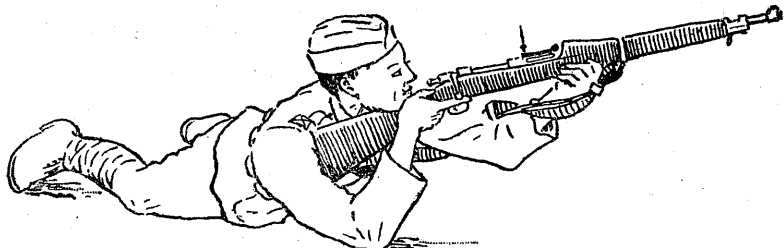
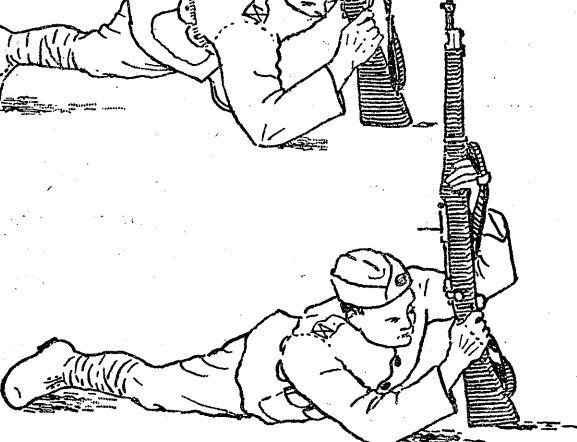
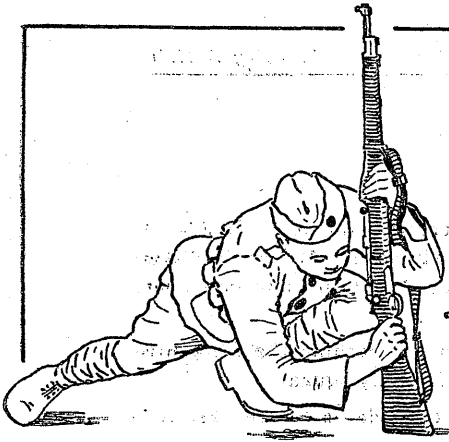
Fig. 1.

SMALL TARGET MAN FIRING FROM WINDOW PRESENTS (FIG. 1.)



CRAWLING (KEEPING DOWN ALL PARTS OF THE BODY)





53. Exercise No. 28.

Organization: Platoon.

Purpose: To teach infiltration.

Method: One section on suitable terrain observes the other section of the platoon. The second section, starting at a point about 600 yards distant, is deployed as skirmishers. The leader then directs, "On (such line, crest, road, etc.) reform."

Each squad leader decides on the best method of reaching the designated line and causes his men to go forward individually or by squad.

The men of the section observing the advance decide as to the best conducted squad.

The exercise the following day is varied so as to change positions of sections.

Example 1.

Purpose: To teach men to cross shelled areas (as cross roads, prominent points, etc.)

Method: The squad or section is halted, well extended, under cover. By running, one or two men at a time cross the area. The unit is again formed, if possible, under cover. Comment on routes and cover taken by individuals.

Example 2.

Purpose: To teach men to cross ridge and crest lines.

Method: First show why a ridge or crest line brings into definite outline anyone moving over it. Plate 18. Face the section or platoon towards a crest and have a squad advance to the crest line and halt. Point out the targets they constitute for any kind of fire.

Cause another squad to advance across the ridge, as in example 1 by running, and call for comments from the section or platoon.

Example 3.

Purpose: To point out method of utilizing cover in an advance.

Method: The organization is halted facing suitable terrain. A N. C. O. is called upon to indicate how he would lead his unit from one indicated point to another.

FIRE DISCIPLINE.

54. Fire discipline implies the exact execution of orders and instructions relative to the use of the rifle and to conduct in action, embracing:

- (1) Constant attention to and execution of orders.
Care as to position and extent of target.
Sight setting and accurate delivery of fire.
- (2) Economy of ammunition. Rate of fire.
- (3) Observation of the enemy.
- (4) Ability to act on own initiative.
- (5) Thorough knowledge of the capabilities of the rifle and grenades.

55. Care in sight setting. Attention to orders.

Exercises under *communications* will be an aid in instilling the habit of attention.

Exercise No. 29.

Purpose: To train men to set sights quickly and accurately.

Situation: The platoon is formed in single rank, at the ready, with the rear sight set at zero.

How executed: The range is announced by command of signal; sights are set, and each man comes to port arms or steps four paces to the front upon completion.

Squad competition should enter into this exercise. A platoon should set all sights correctly within ten seconds.

Example:

- (1) By command, Range 500, sight setting verified.
- (2) By signal, Range 600, sight setting verified.
- (3) By signal of platoon leader to section leader, to squad leaders and thence to men.

56. Economy of ammunition and rate of fire.

Effective rifle fire in battle is gauged by the number of men disabled in the unit of time. The rate of fire is dependent on the training of the individual. It must not be so great as to preclude *accurate aim or proper trigger squeeze*.

<i>Rate of fire</i>	<i>Range</i>	<i>Per Minute.</i>
Rifle	0— 600 yds.	5 to 6 shots. 10 to 15 shots in emergency.
	600—1200 yds.	about 3 shots.
Browning Automatic Rifle	0— 600 yds.	10 to 60 (semi-automatic fire. i. e., single aimed shots; 100 to 250 or more in emergency at very close range.
	600—1200 yds.	about 3 shots (dependent on target.)

The Browning Automatic, with semi-automatic fire, overheats at about 900 rounds, dependent on the intervals between shots. With automatic fire (effective 100 to 250 per minute), it overheats at about 400 successive shots. The maximum rate of fire is 500 shots per minute.

57. Exercise No. 30.

Purpose: To accustom men to proper rate of aimed fire.

Situation: A platoon in prone position, at "Ready."

How executed: By command, the objective and number of shots to be simulated are given. When each man completes the designated number he indicates the fact by holding the rifle upright, butt resting on the ground.

Time is kept.

Example: Range 800. Indicate a fairly indistinct target. Fire 10 rounds.

If the rate of fire is correct, the time for execution should be about two minutes. Impress on the men that aimed fire is necessary.

58. Exercise No. 31.

Purpose: Same as exercise No. 30.

Situation: Same as exercise No. 30.

How executed: "The target is a line of the enemy, at that point there (about 200 yards distant.) He is making a counter charge on our position here. Each man will simulate fire at my command. "Fire at will." Keep a count of the rounds simulated in firing. This situation requires as fast a rate of fire as is consistent with good aiming.

At and under this distance, men should be able to deliver at least 10 shots per minute with the rifle.

The automatic rifle can deliver from 60 aimed shots at this range to 150 or 250 as the enemy closes on the position. The firing by strings is, however, reserved to ranges under 100 yards.

59. Observation of the enemy.

Exercises Nos. 6 and 7 will be an aid in teaching observation. In addition a soldier must know how to search a given area for signs of the enemy.

Exercise No. 32.

Purpose: To teach the soldier the importance of system in searching areas.

Method: A man's sight must not be permitted to wander aimlessly, but must be directed in such manner that every portion of the given area is subject to rigid scrutiny. To facilitate a systematic search the terrain should be subdivided into rectangular areas small enough to confine the eye and so facilitate minute examination of every feature.

Two systems are used. Both subdivide the area by imaginary lines, in one case at right angles to the line of sight and in the other parallel to it.

The importance of using a system is explained to the soldier and the two methods above are described. The instructor then indicates certain boundaries in which various objectives, of a military nature, have been placed beforehand and directs the men to search this area and describe what they are able to locate.

60. Initiative.

Presenting concrete situations to men for them to discuss will help to develop initiative. Questions are given to the entire platoon, and one man at a time is called upon to give his solution.

Exercise No. 33.

"Jones. The enemy is over there (pointing.) You arrived here with your squad in an attack. Just now your corporal was badly wounded. No other non-commissioned officer is near.

What will you do?

What range will you use?

What is your target?

You see the enemy attempting to work his way around this position by infiltration. What will you do?

Can you hit individuals at that place (indicating) there? How far is it?"
etc.

61. Intimate knowledge of weapons.

Exercise No. 34.

Purpose: To test knowledge of capabilities of arms.

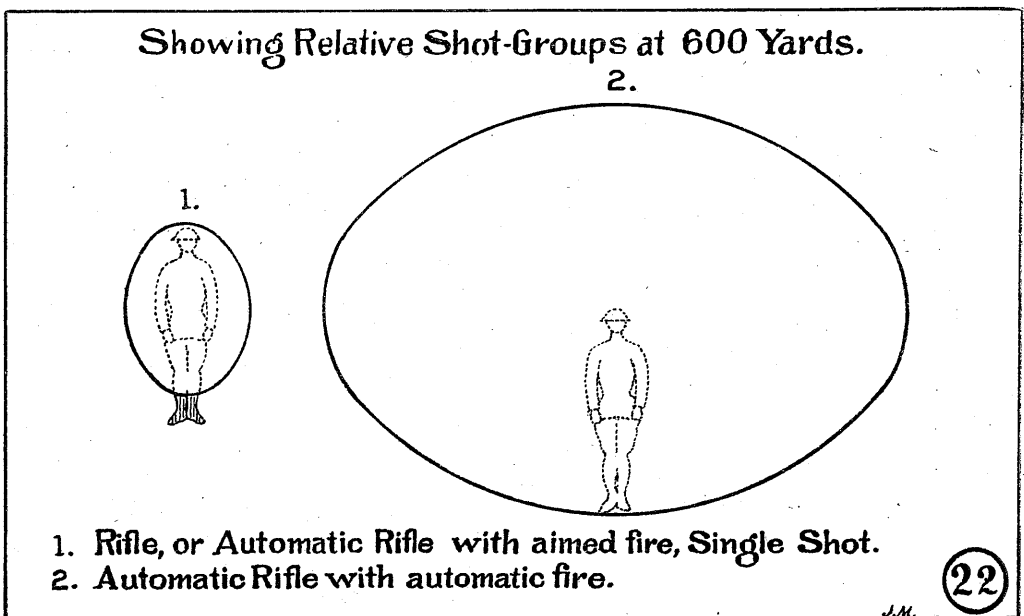
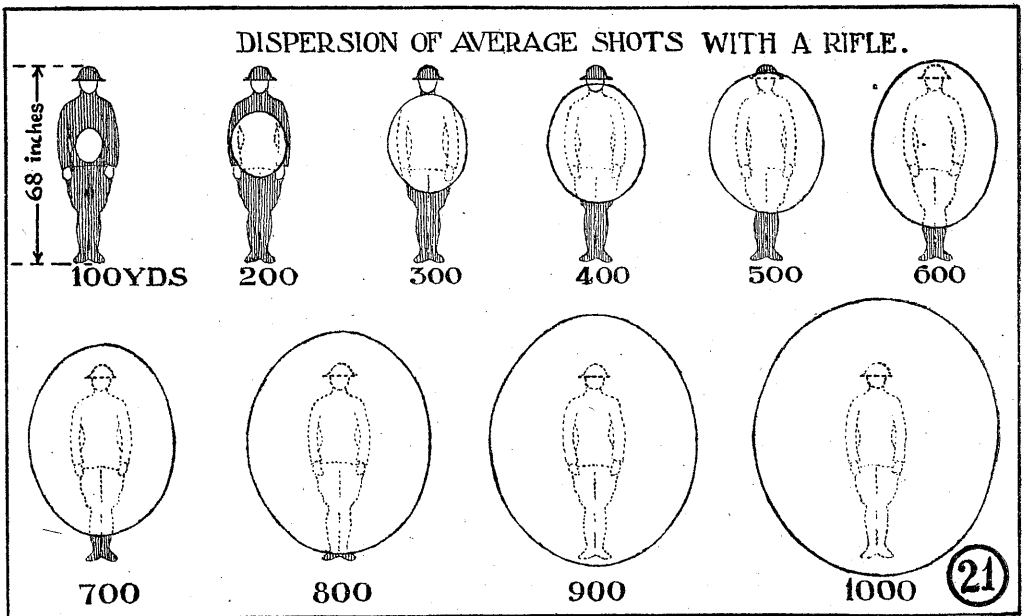
Method: Instructor standing in front of his platoon with rifle or automatic rifle in his hands. Questions are asked individuals as follows:

- (1) What is its range?
- (2) At what range can I apply effective fire with it, assuming my target is an individual? A squad? A platoon?
- (3) What rate of fire is possible? What rate of fire is proper?
- (4) "Jones of the 4th squad, step out here and dismount this automatic rifle." When he has concluded, have Smith of the 2nd squad do the same with the same rifle.

At the conclusion, the platoon should criticize and announce the most satisfactory demonstration. Handbook of Browning Automatic Rifle should be used for reference.

APPLICATION OF FIRE.

62. Men must not only be taught to fire individually and organizations collectively, but officers must know how to secure the application of fire to the desired target under varying conditions of service in order to obtain the necessary fire superiority. This need extends to the supporting arms.



63. Dispersion. The dispersion of average shots with the rifle is indicated in Plate 21. The dispersion of the Browning Automatic Rifle varies as follows when fired automatically (strings of shots): vertically 6 to 8 mils, horizontally 8 to 10 mils. These figures are naturally dependent on the firer, the length of strings of shots fired and the holding. Place 22 shows a comparison of shot groups; No. 1 indicating the group resulting from average shots with the rifle or with the Browning Automatic Rifle fired semi-automatically (single shots); No. 2 shows the group resulting from automatic fire.

The dispersion of the Browning Automatic Rifle fired semi-automatically (single shots) is about the same as the rifle; fired automatically (in strings of shots) varies vertically from two to four times that of the rifle; varies horizontally from four to five times that of the rifle.

64. Exercise No. 35.

Purpose: To show comparative shot groups to a platoon or company.

Method: Two riflemen and three automatic riflemen take positions at the 300 yard firing point, each provided with 20 rounds of ammunition. At a given signal, all commence firing; the riflemen on one target; one automatic rifleman fires on a second target using semi-automatic action, i. e., single aimed shots; one automatic rifleman fires on a third target using string of shots; and one automatic rifleman fires on the fourth target, using automatic action by clip. Upon completion of the firing, all targets are compared and shown to the platoon. This exercise will show that the best use of the Browning is by *semi-automatic fire* (single shots.)

Move down to 50 yards and repeat the exercise. Explain that at close range and in emergency the Browning is fired automatically in strings of shots.

65. Characteristics of weapons.

Automatic rifle:

- (2) Rapid production of a large volume of concentration fire. The greatest results are therefore obtained when its fire is delivered from a flanking position.
- (3) Narrow front and shallow depth from which a large volume of fire can be delivered by a few men, enabling it to meet an attack from any direction with little or no movement or exposure.
- (4) Invulnerability. It offers a small target.
- (5) Mobility. The same as a rifleman.
- (6) Unsuitability for indirect or overhead fire.

In the offensive, automatic rifles should be used by covering detachments in the combats necessary to develop the enemy's position in the earlier stages of the fight and by the assaulting units to gain fire superiority in the later stages.

Machine guns:

The machine gun possesses all the characteristics of an automatic rifle except mobility, and in addition having a fixed mount and capacity for sustained fire for long and continued periods, it is especially adapted to overhead and long range fire.

Grenades:

The grenade is a weapon used by the infantry soldier as a supplement to his primary weapon, the rifle and bayonet.

- (1) Curved trajectory. This quality indicates its principal function as a weapon for destroying the enemy sheltered behind cover and under ground or to force him into the open where he will become a target for the rifle and machine gun.
- (2) Rate, about 10 grenades a minute.
- (3) Radius of action, varying from 20 to 100 yards.
- (4) Weight, about 1 1-4 pounds.
- (5) Range, 30 to 40 yards.
- (6) Capability of special types for use in creating a smoke screen.
- (7) Use as a vehicle for lachrimatory or irritating gases.
- (8) Incendiary effect (special types.)

The powers and limitations of the rifle grenade are the same as those of the hand grenade except as follows:

- (1) Range, 30 to 200 yards.
- (2) Can be fired from a fixed rest.

One-pounder gun:

- (1) Mobility.
- (2) Ease with which it can be hidden.
- (3) Ability to deliver indirect fire.
- (4) Ease of adjustment.
- (5) Accuracy. Useful range up to 1,500 yards.
- (6) Rapidity of fire, 20 shots or more per minute.
- (7) Disadvantage is flash of discharge.

Light mortar:

- (1) Limiting range of 100 to 1,800 yards.
- (2) Use against targets such as concealed guns which cannot be definitely located.
- (3) Dispersion less than a field gun.
- (4) Curved trajectory. Use against targets on reverse slope or under cover.
- (5) Rapidity of fire.
- (6) Considerable weight of ammunition restricts its activity.

A rifle, automatic rifle, machine gun and one-pounder gun have flat trajectories (the machine gun by reason of its stable mount can take advantage of increased angle of fall at long ranges to search reverse slopes). They are obviously weapons for dealing with the enemy above ground and within reasonable range.

The grenades by reason of their curved trajectory can care for targets below ground and force the enemy into the open where he becomes a target for the rifle.

The light mortar by reason of its curved trajectory, can search reverse slopes or targets under cover and by reason of its radius of action is adapted to fire against targets *not definitely located*.

Shot groups of rifle (average shots). Plate 3.

100 yds. mean longitudinal 308 yds.

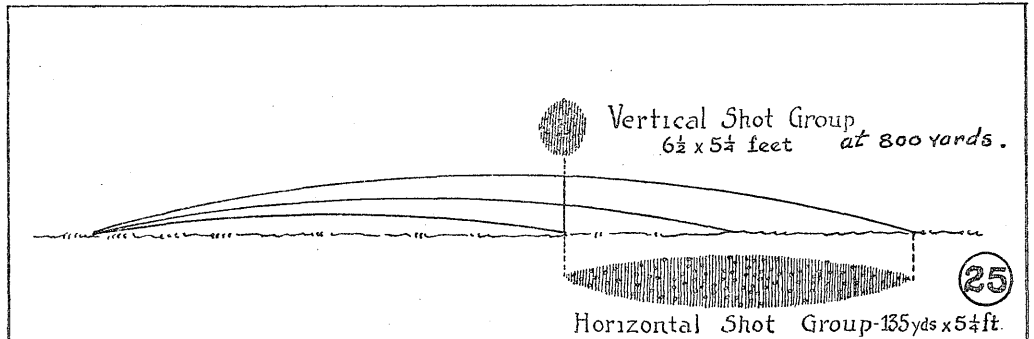
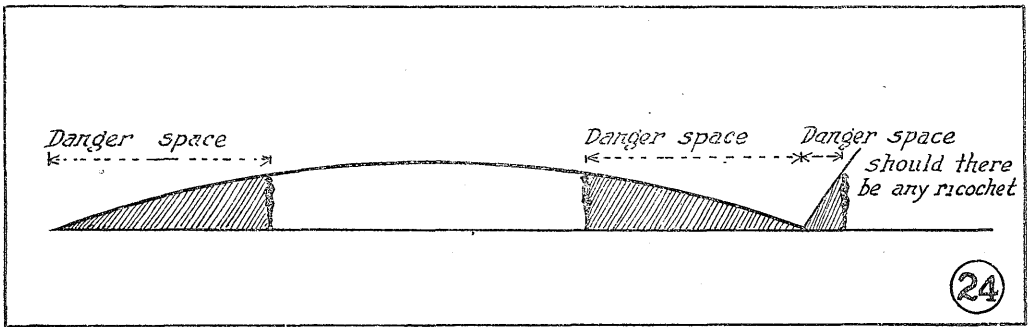
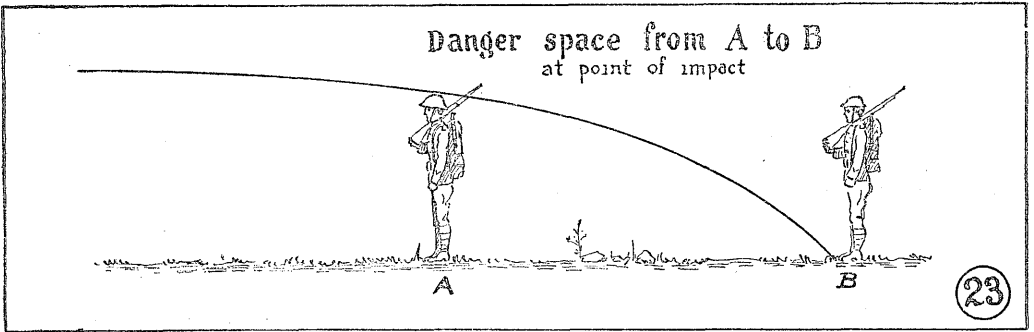
600 yds. mean longitudinal 185 yds.

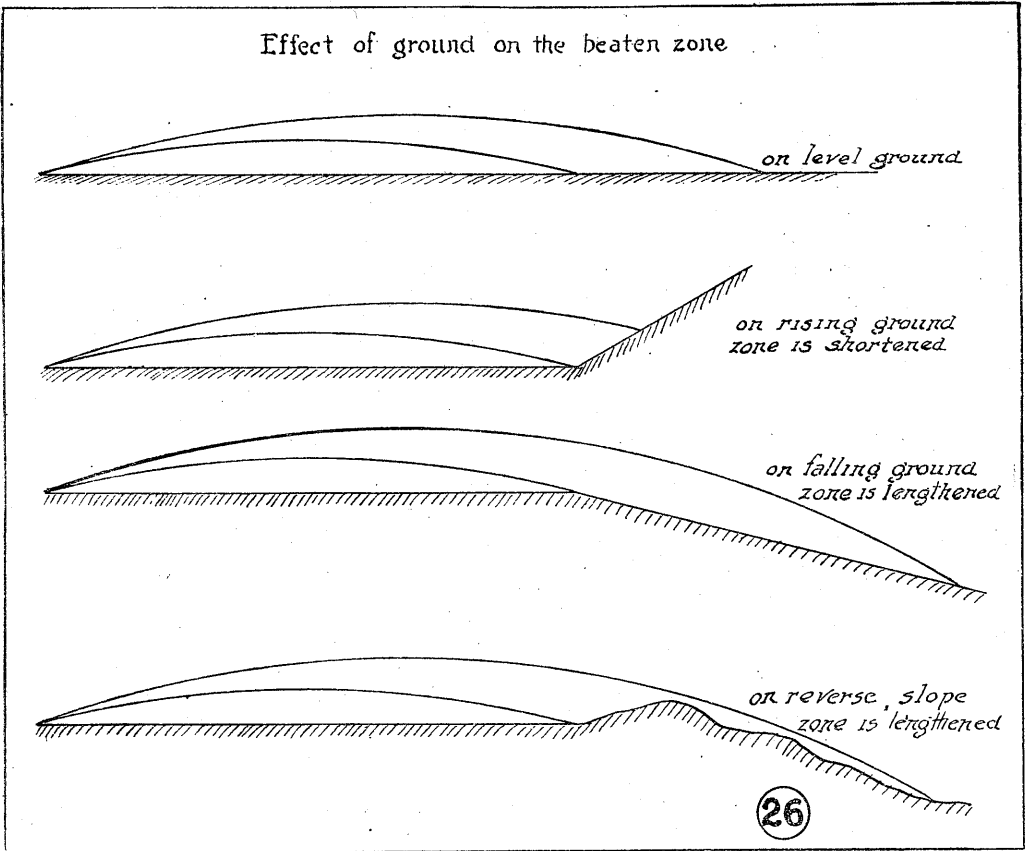
800 yds. mean longitudinal 135 yds.

1000 yds. mean longitudinal 105 yds.

1200 yds. mean longitudinal 89 yds.

1500 yds. mean longitudinal 76 yds.





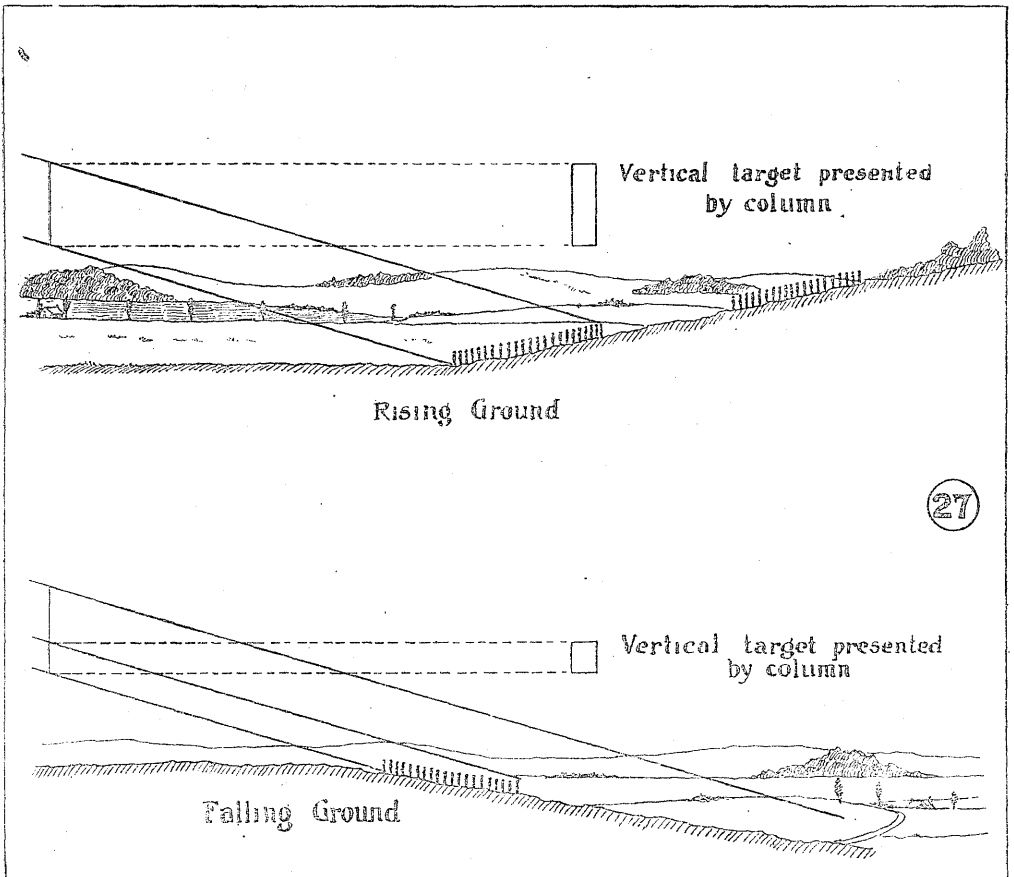
66. Adjustment of fire. Plates 1, 2, 3, 23, 24, 25, 26 and 27.

The ever present problem in practice and in service firing is to place the center of impact of the group on the center of the target, thus insuring the greatest possible number of hits. Two chief elements enter into this problem, the troops and the commander. Assuming that the latter has chosen the proper target and given proper distribution, he must bring the shot group upon the center of the target. This is a question primarily of range. It must be borne in mind that a small error in range will frequently cause total misses where with a correct range a high percentage of hits would have resulted.

67. Effect of ground. Plates 26-27.

When ground slopes upward to the rear from a firing line, the supports may be placed closer without increasing danger from fire aimed at the firing line.

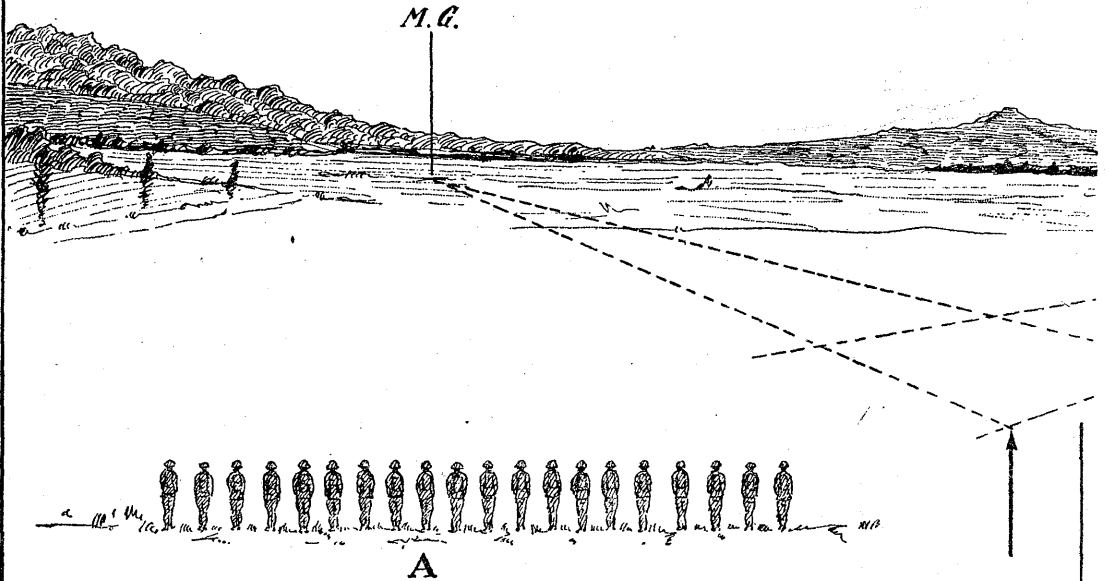
When the ground slopes down and to the rear from the firing line, the supports must be posted at a greater distance in rear, unless the slope affords a dead space. Making the allowable assumption that the fire is equally distributed along the crest, the column target behind the crest and invisible from the firing point will receive hits only in proportion to its width.



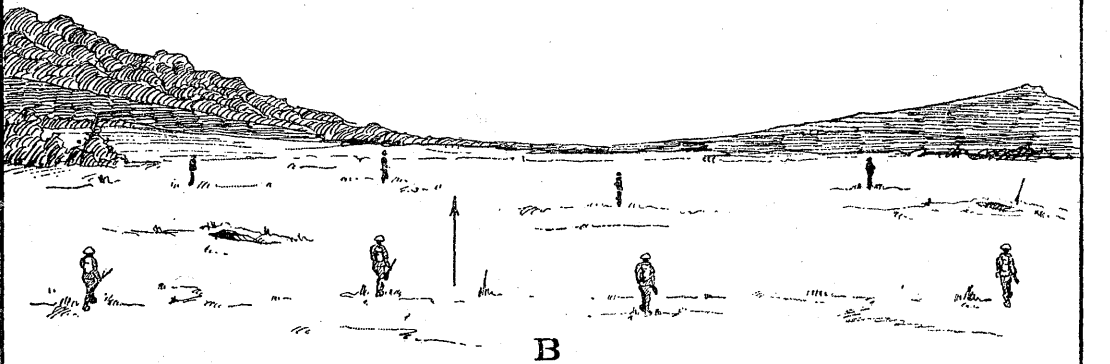
The question of kinds of fire, combined sights, vulnerability of formations and occupation of ground should be given some thought. Plate 28. It must be remembered that gentle slopes have little effect on the vulnerability of formations. It is only when the slopes become steep that it need be considered.

68. Marching fire. In certain very restricted cases, fire can be delivered while advancing. Marching fire is, however, advisable only against a clearly defined line at ranges less than 200 yards. Such targets may be obtained in position warfare, but the use of marching fire in open operations will be unusual. Marching fire may sometimes be employed to advantage to cover a methodical advance through dense woods. I. D. R. 299.

Showing Vulnerability of



A



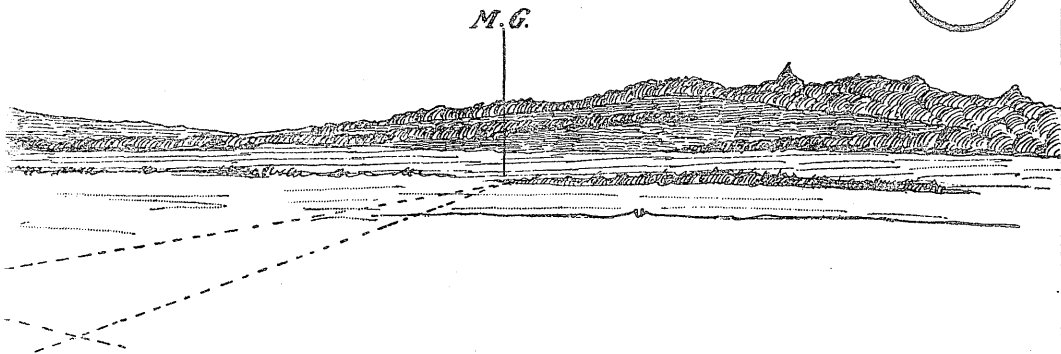
B

Formations Viewed from Rear:

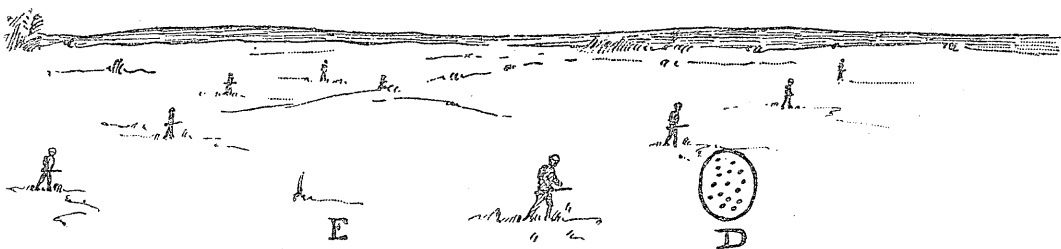
A-Line with Half-pace Intervals.

B-Line with Large Intervals and Deployed in Depth.

Formations Against M.G. fire.



Target "C" as it appears to M.G.'s by formation "A" marching in direction indicated. Against this target M.G.'s can apply a shot group "D" and with scarcely no traversing cause all to be casualties.



Target "E" as it appears to M.G.'s by formation "B" marching in direction indicated. Compare vulnerability of formations.

Same Line Viewed from M.G. positions.

Army Infantry Specialists School.

CONDUCT OF FIRE.

69. The conduct of fire embraces the duties of commanders in maintaining control of fire and fire discipline. They comprise not only those which arise in connection with the actual fire fight, but many which are necessary prior thereto in order to insure a systematic and orderly entrance into battle with the greatest possible chance of success.

It is evident that the dividing line between fire tactics and maneuver tactics is often so indistinct that the two subjects appear to merge one into the other. For this reason, a knowledge of fire tactics must include an understanding of its relation to maneuver tactics.

The duties, in brief, of the individuals are enumerated below:

70. The Major.

- (1) Conducts personal reconnaissance.
- (2) Regulates advance of his battalion by the assignment of successive direction points or compass bearings to his base company.
- (3) Aims to direct approach march to the most advanced position before issuing attack order.
- (4) Engages his units by verbal orders to commanders, assembling them for that purpose when practicable; gives information obtained by reconnaissance of the enemy, adjacent units, own artillery, and assigns each unit a combat mission; prescribes the formation and gives the location of the combat train, the battalion aid station and his own combat post.
- (5) Employs accompanying weapons and machine guns in support of of the advance of assaulting companies.
- (6) Manuevers reserve companies so as to envelope hostile resistance or cover gaps.
- (7) Reinforces assaulting companies when they become depleted in strength.
- (8) Forwards ammunition to the company supports by carrying parties or with reinforcements.
- (9) Guards against counter-attacks and protects flanks.
- (10) Prevents reserve companies from merging themselves into the first line, during progression selects successive positions for the reserve prior to departure from preceding positions.
- (11) Selects successive positions for battalion ammunition point and issues orders for the movement of the combat train to the point selected.
- (12) Selects position to observe progress of assaulting companies and controls the action of reserve companies and accompanying weapons.

71. The Captain.

- (1) Upon receiving his orders for combat, the captain of an assaulting company engages his company by verbal orders to his platoon leaders. He gives them the information obtained by reconnaissance concerning the enemy and all available information regarding adjacent units and our own artillery.

- (2) Assigns each platoon a combat mission.
- (3) Prescribes the formation.
- (4) Designates a base platoon and when practicable, a distant direction point and compass bearing.
- (5) States the location of the combat train, the battalion aid station and his own combat post.
- (6) Conducts his company according to the mission assigned him, when practicable distributes objectives among platoons.
- (7) Reinforces assaulting platoons whenever they become depleted.
- (8) Forwards ammunition and reinforcements.
- (9) Maneuvers support platoons so as to outflank or envelope any resistance.
- (10) Protects flanks of assaulting platoons against counter-attack.
- (11) Prevents support platoons from merging themselves into the assault echelon.
- (12) Insures mutual support of his platoons and lends support to the adjacent companies.

72. Platoon Leader.

Primary duties:

- (1) Maintains direction towards objective.
- (2) Sends out scouts and precedes his platoon in order to make reconnaissance of objective prior to opening fire and engages his leading section against his objective.
- (3) Maneuvers second wave in support of leading section so as to envelope or encircle resistance or to reinforce the leading wave.

Secondary duties:

- (4) Selects target.
- (5) Announces sight setting.
- (6) Gives commands for opening fire as long as this is possible in combat.
- (7) Controls fire and movement of the entire platoon when both sections are in line.
- (8) Leads a rush when leading wave comprises more than one section and the platoon rushes as a unit.
- (9) Reforms platoon after infiltration.
- (10) Maintains communication with captain.
- (11) Keeps in touch with platoons on either flank and is on the lookout to assist them.
- (12) Prevents exhaustion of ammunition supply.
- (13) Designates new squad leaders when necessary.

73. Platoon Sergeant.

- (1) Replaces the platoon leader when the latter becomes a casualty.
- (2) Maintains connection between platoon leader and his second wave.
- (3) Prevents second wave from becoming prematurely merged into the leading wave.
- (4) Directs the engagement of the second wave when so instructed by the platoon leader or when the situation requires it.

74. Section Leader.

- (1) Combines fire and movement.
- (2) Observes target and fire effect.
- (3) Regulates rate of fire.
- (4) Checks every breach of discipline.
- (5) Delivers covering fire.
- (6) Sets an example to his men by bearing, pace; shows aggressiveness.
- (7) Leads section in a rush of the whole.
- (8) Supports adjacent sections by flanking fire.

75. Section Guide.

- (1) Maintains the fire discipline of the section and keeps on the alert for the signals and commands of the platoon leader, in order to permit the section leader to devote his attention to the enemy and observe the effect of the fire of his section. The primary duties of the section leader during fire relate to the enemy; those of the section guide to the conduct of the section.
- (2) Replaces section leader when the latter becomes a casualty.
- (3) When the section leader leads a rush the section guide follows the section, insures that all men join in the rush, and prevents straggling.

76. Squad Leader.

- (1) Enforces the orders of the section and platoon leaders and maintains the discipline of his squad.
- (2) When movement of infiltration is ordered, selects location of new position and points it out to the squad; either leads his squad as a whole along covered route to new position or sends men forward successively by individual rushes; recovers control of squad on new position.
- (3) Controls fire and movement.
- (4) Transmits commands and signals.
- (5) Observes conduct of men.
- (6) Participates in firing when control of squad does not prevent.
- (7) Leads squad in a rush.

77. Scouts. (One or two from each squad as the situation requires.)

- (1) Move out in front of their sections and cover advance when so directed by the platoon leader.
- (2) Of the leading section move forward 150 yards (or a specially designated distance or to a specially designated line) in front of their sections when directed by the platoon leader, "Scouts out."
- (3) Deploy as pairs at wide and irregular intervals of 30 to 50 yards to present a poor target to hostile infantry and machine guns.
- (4) Take advantage of cover, provided their advance is not thereby unduly delayed, and cross exposed ground at a run.
- (5) Precede their platoon by a distance which follows no set rule, but constantly varies with the ground and the position of the enemy. One moment they may be 500 yards ahead of their platoons, a few minutes later they may be absorbed therein.

- (6) Operate as a patrol deployed at wide intervals under a designated leader when sent out at a considerable distance (300-500 yards) in front of the platoon.
- (7) Open fire at once when the hostile machine guns or strong points have been located (tracer bullets when situation warrants).
- (8) When in pairs, one scout covers the advance of the other with his rifle.
- (9) Constitute the advance elements of a filtration into a gap discovered in a hostile front.
- (10) Scout leader. Watches for signals from platoon leader. When direction of advance of platoon changes, assembles scouts if practicable and rejoins platoon.

78. Privates.

Duties of the privates are covered generally under Fire Discipline and Use of Cover. The private soldier must be prepared to replace his corporal when the latter becomes a casualty.

79. Exercise No. 36.

Purpose: To accustom men to step in and fill places of leaders killed or wounded in action.

Situation: Platoon in skirmish line facing a position to be attacked. The leader places the command under a junior and constitutes himself an umpire. The junior gives orders for initiating the attack and proceeds with the conduct of the action. At suitable times, the umpire indicates to a squad leader, section or platoon commander that the indicated commander is wounded or unable to continue with the exercise. The next in command of the unit notes the casualty, takes command and pushes on the advance. It is apparent that this exercise can be carried out as an incident of any combat exercise.

Leaders are instructed that having the crowns of their hats touched by a messenger of the umpire indicates immediate incapacitation and they should at once fall prone and make no further movement (other means of indicating casualties of course may be devised).

A leader may be directed to drop out after covering so many yards of the next rush, etc. This exercise should be made to include all leaders down to the corporal.

80. Fire and Movement. Before taking up any phase of fire tactics the simple basic principle of *Fire* and *Movement* must be learned and practiced until all organizations are proficient. It can not be too often repeated that:

Fire must be used to cover all movements in the presence of the enemy, when not masked by cover, darkness or fog.

Movement has as its object the gaining of such a position relative to the enemy as will permit of the development of a fire superior to that of the enemy either by virtue of its direction or volume.

Exercises in the conduct of fire will begin with the squad and progress through the section, platoon and company. The squad will be trained to

work as a team, providing reconnaissance by its scouts, sustained fire power by its rifles and the automatic using single shots, and emergency fire by the automatic supported by rapid fire of the rifles.

A squad consists of: 1 corporal, 6 riflemen, 1 auto rifleman.

One rifleman is equipped with a grenade discharger. One carries extra ammunition for the automatic rifle and serves as its replacement. All riflemen carry a certain supply of extra ammunition for the automatic rifle and, when necessary, rifle and hand grenades. All will be trained in the use of the rifle, automatic rifle and grenades.

Two selected men in each squad are trained as scouts. One or both of them will be used as the needs of the particular situation render expedient.

In Plate 1 is shown a part of an assaulting line. On each flank is a squad covering the enemy's position by the fire of its automatic rifle. The assaulting line is delivering frontal fire. Under the fire cover so afforded, parts of the line move on the enemy—a combination of *FIRE* and *MOVEMENT*.

81. Exercise No. 37.

Purpose: to teach a squad *fire and movement*.

Place: The Drill ground.

Method: A squad is deployed as skirmishers at about 600 yards from the target to which it is assigned. It opens simulated fire. Under cover of this fire, an advance proceeds by rushes of 25 to 50 yards by from two to four men at a time. Insist that rushes shall be covered by accelerated fire. Accustom the men to teamwork in combining rushes with fire.

82. Exercise No. 38.

Place: On the range, if available, and after the mechanism of fire and movement has been thoroughly learned by practice of the previous exercise. All indications of ranges should be removed.

Method: The squad begins an advance towards a line of targets at about 800 yards. It opens fire with service ammunition when a klaxon or bugle in the pit indicates that the enemy's fire has commenced. The squad can then advance by rushes of two or more men only when fire superiority has been gained, and rushes can continue only so long as this superiority is maintained. Fire superiority will be assumed following each minute in which 20 hits are registered on the targets.

Targets: Target "B", page 185, S. A. F. M., corrected to March 15, 1918. Targets are in pairs on a sliding or revolving frame. At the end of each minute the exposed one is brought down for scoring and the other run up. If practicable, there should be 8 pairs of targets, but the exercise is still profitable if only one pair exists. As the squad gains skill 20 hits per minute may be found to make the advance too easy. The requirement for fire superiority should then be raised. A flag will be displayed at the pit to indicate the side having fire superiority. When the flag is up, the enemy has the superiority; when down, the squad has the superiority and may advance.

Ammunition: Each rifle 40 rounds, automatic rifle 120 rounds.

Time: 10 minutes.

Record: To enable a comparison of the proficiency of different squads a figure of merit will be obtained as follows: Multiply one-tenth the distance gained in yards by one-tenth the total hits and one-tenth the unused cartridges; divide by the number of minutes used. For example: A squad which in the time allowed advances 500 yards, has a total score of 250 hits, has 100 unused cartridges, takes the full time of 10 minutes. Its score is:

$$\frac{50 \times 25 \times 10}{10 \text{ minutes}} = 1250.$$

83. Exercise No. 39.

Place: On the range if available.

Organization: A platoon.

Method: Similar to that of the previous exercise, except that a flank movement will be made by pushing forward squads on one or both flanks. If the range axis of fire does not permit these flanking groups to use service ammunition, fire should be simulated and the movement carried out.

Targets: 1 (or if the range permits, a groups of targets) for each squad firing, concealed, camouflaged or placed behind brush, hedges, etc., as the enemy would take station under service conditions. Limitations of ranges make it necessary that judgment be exercised in the arrangement of targets and use of these exercises in order to obtain their full instructional value.

Exercise No. 39 is intended to accustom men to fire at positions as nearly as possible like those they will find in action, where they can expect to locate no distinct or definite target. They must be taught that painstaking use of the methods of musketry will reduce the enemy's fire and result in the establishment of fire superiority, and that covered by superior fire they can then advance with comparatively small losses. This problem requires the employment of all parts of the platoon, including the section in support for envelopment of the enemy's flanks.

It must be remembered that the ability of the platoon leader is displayed by prompt reconnaissance of the ground, by a rapid estimate of what it offers toward facilitating the advance of his men, and by immediate decision upon a simple plan for the use of his combined weapons and of ground to enable him to close with the enemy. His plan should habitually include *pinning the enemy to the ground by frontal and flanking fire*, under cover of which some portions of the platoon, usually those sent against the hostile flanks, can close by *short rushes* with the enemy. The training and discipline of the platoon are shown by the skill with which the men carry out the plan of the leader. I. D. R. 404.

LANDSCAPE TARGETS.

(Bulletin No. 18-A, 1919, G. H. Q., A. E. F.)

1. The landscape target consists of a series of views in color mounted on panels and set in frames as shown in Plates 29-30. In Plate 29 the landscape target proper is shown on the lower panels. On them are superimposed blank targets E. In rear of the target E is placed a recording sheet containing in faint outline a replica of the target immediately below. Using service or caliber 22 ammunition at short range, a rifle aimed at the target proper with suitable sight correction registers the hit on the recording sheet. In this way the lower target remains untouched.

These targets, by presenting a landscape close at hand, permit the application of fire to be shown in a simple manner. A position on the landscape is assigned as a target and fire opened. The recording sheet shows the hits and indicates at once to the observer the character and effect of the fire. The soldier in this manner is made acquainted with the effect of errors in ranging, the use of auxiliary aiming targets, vulnerability of targets, target designation and many of the other fundamentals of musketry. A target, said to consist of several riflemen or machine guns, is fired at and the shot group fails to come near them. The lesson of improper target designation or poor holding is brought home at once. Another target, said to consist of a line of men, is fired at and the shot groups do not cover the whole line. The necessity for proper distribution is at once apparent. Training the eye, practice in the use of military terms, in observation of terrain and in use of covered routes of approach are also afforded by the landscape targets. The nearness of the target facilitates examination of results and explanation of errors and expedites all instruction. Equipped with the information thus gained, the soldier begins his work on the range and in the field with an understanding of the subject and with a definite object in view.

2. Method of use.

Panels: Any number of panels can be employed for fire problems or indoor work. Five, however, present a varied and extended target and give greater variety of terrain for fire problems.

3. Fire problems.

Example: Before firing, sights must be so adjusted that each shot group will appear on the part of the recording sheet corresponding to the point of aim on the target proper.

Range: 25 to 30 yards.

Procedure: Plate 29, 2nd panel from the right. One man adjusts sights with elevation of 1200-1300 yards, aims and fires at one of the bulls eyes along the upper side of the target proper (as example, point of aim F). The shot should record directly above the bulls eye aimed at, on or near the "harmonizing line" near the top of the recording target E. The shot may strike, for example, at G. The sight setting is corrected until a shot is placed at H on the harmonizing line.

Each member of the squad, starting with the sight setting obtained by the first man, fires at his proper bulls eye and corrects the elevation, if necessary, until the hits record in a similar manner on the harmonizing line directly above the point aimed at. When all rifles register on this line they are said to be "harmonized" and the squad is ready for a fire problem. Harmonizing sights is necessary in order that shots from all rifles will strike at the same height above the point of aim. The position of the recording sheet is governed by the height of the harmonizing line above the bulls eyes. For example, the doorway D¹ on the recording target (Plate 29) is the same height above the doorway D as the harmonizing line is above the bulls eyes.

Example: Problem D (right panel). Plate 29.

Refer only to the top shot group.

Fire orders:

Range (—————)
 Doorway of house
 Machine gun
 Fire at will.

The squad fires at the target D, the shots recording on panel E at D¹. To illustrate the use of the recording sheet, this sketch shows the covering sheet cut away, exposing the recording sheet behind to view. To enable comparison of the squads—grouping with standard shot groups, a small wire frame is applied as shown in A, Plate 30, and in D²-D⁴, Plate 29. This frame is 2½" x 2" and 5" x 4" to represent the 50% and 75% vertical shot groups to be expected from average shots firing in field exercises at a target at a distance of 700 yards. For this size frame, it is assumed that the landscape target range is between 25 and 30 yards in length. A further use of the frame is seen in problems B and C, Plate 29.

4. Exercise No. 1.

Purpose: Fire problem to show effect of errors in range estimation, Problem A, Plate 29.

Method: A squad fires with three sight settings, for example, 150 yards short, 150 yards over and with the harmonized sight setting, aiming at the left pier of the bridge. The results of the firing are shown, as indicated by the recording sheet, Plate 29, Problem A, to the class. The necessity for correct range estimation will be apparent. Emphasize the usual results, otherwise, in complete misses by good shots.

5. Exercise No. 2.

Purpose: To show vertical and horizontal shot groups.

Method: In rear of the recording sheet, where the shot group will register, is placed a stiff piece of cardboard with the top inclined to the rear, forming an angle with the ground of about 30°. The cardboard must be of such length that when in position it will receive the high and low shots. The resulting shot group is compared with the vertical shot group on the recording target. The elongation of the shot group as the target approaches the horizontal assists the instructor in explaining the difference in the beaten zones on vertical and horizontal targets (Refer to Plates 2 and 3, Bulletin 16-A, c. s., these Headquarters).

6. Exercise No. 3.

Purpose: To show the use of the auxiliary aiming point (D, Plate 29).

Method: The instructor indicates to the corporal a target as at D, Plate 29. The corporal causes the squad to open fire. During the firing a machine gun is indicated closer to him in a field affording no clear or definite aiming point (D^o). The corporal should determine and order the necessary change in sight setting to bring the fire onto the new target without changing the point of aim. The recording sheet for this problem is shown with the covering paper cut away. D² and D⁴ show the resulting shot groups and the wire frame applied for comparison of the shot groups obtained with the standard.

7. Exercise No. 4.

Purpose: To show relative vulnerability of targets (Plate 30, B and C).

Method: A machine gun fires at targets B and C. One formation has wide intervals and the men are in two waves; the other consists of one line at half pace intervals. A comparison of hits will leave no doubt that the first formation is the less vulnerable. If targets B and C are not available, small silhouette figures are pinned to the landscape target and recording sheets with formations as in B and C, Plate 30. Vulnerability of other formations may be illustrated by similar exercises using direct or flanking fire.

8. Exercise No. 5.

Purpose: To show the effects of concentrated fire and to teach target designation.

Method: (Fire Problem B, Plate 29). The target is made known only to the corporal, who describes it to his squad. The squad fires and the resulting shot group is shown on the recording sheet. Little comment is required to emphasize the need of proper target designation on the part of the squad leader and ability on the part of the men to recognize the target. Attention is called to the effect of concentrated fire, and its value against a small target like a machine gun.

9. Exercise No. 6.

Purpose: To teach fire distribution and target designation.

Method: (Fire Problem C, Plate 29). The corporal is shown a target extending between two selected points. He gives the necessary orders and the squad opens fire. In this problem each man will be taught to fire individually at that part of the target corresponding to his position in the squad. The recording sheet should have each man's sector in faint outline and in horizontal lines the 50% and 75 % shot groups. An examination of the sheet after firing will show whether each man had properly selected his own aiming point as well as the accuracy of his shooting.

10. Exercise No. 7.

Similar to the preceding except the target is given only to the corporal. He joins his squad, gives the necessary fire orders and opens fire. In this case the understanding of his men, as to the target, is dependent entirely upon his description. The resulting shot groups will show his ability to designate a target, the training of the squad in locating targets by description, and fire distribution.

11. Exercise No. 8.

A squad having opened fire as in the preceding exercise, a threatening target is pointed out to the corporal on an adjacent panel. The situation should be so given as to require him to cover the new target as well as the one on which he is already firing. The mobility and volume of concentrated fire of the automatic renders it usually the logical weapon for engaging the new target.

12. Exercise No. 9.

A squad is formed as a patrol at a distance of several hundred yards from and marched to the target. When the "point" reaches the short range he is told that fire is being delivered upon him from a certain position on one of the panels. The point should signal the enemy, the patrol assemble, the information be transmitted, and the corporal give the necessary fire orders.

13. A problem can usually be framed to include infiltration to a position, concluding with the delivery of fire upon the target. The variety of such problems is dependent entirely upon the ingenuity of the platoon or company commander.

14. While such exercises limit the actual firing to one or two squads, much benefit will be derived by the remainder of one or two platoons acting as observers, hearing the conditions of the problem given, seeing it executed, examining the results of firing as shown by the recording sheets, and listening to comments and explanations.

Competition between squads and platoons should be developed in all these exercises.

15. Exercise No. 10.

Purpose: Visual training.

Method: A landscape target is placed about 25 yards from the class undergoing instruction. Small silhouette figures, cut from cardboard, are pinned to the target. Men are called upon to locate them, describe their positions, and the effect of color and background. Such exercises can be made competitive by allowing squads a limited time in which to locate the figures. The winning squad is the one which finds the most figures in a given time. Exercises can include a test in describing military or topographical terms.

16. Exercise No. 11.

Purpose: To train in observation.

Situation: A squad facing a landscape target.

Method: Each man and is called upon to describe exactly what he sees, looking especially for details of value from a military standpoint, such as whether the ground appears hilly or flat, if any cover is available, what good positions are available, etc.

Example: Two points on the landscape are pointed out as limiting a line to be travelled by a scout. A man is faced about and describes from memory the ground and the various objects along the course.

17. Exercise No. 12.

Purpose: To teach the use of cover.

Method: Squad facing the target. The instructor states "You have reached this point (indicating I, 2nd panel from the right. Plate 29) on patrol with instructions to reconnoiter that village directly in front. Corporal Jones, give your dispositions at this point, indicate how you will conduct your patrol from here, the route to be covered, how you will approach the village and the orders you will give."

18. Exercise No. 13.

Purpose: To promote prompt decision.

Method: Squad facing the target. The instructor states "You are in command of the advance party of an advance guard and have reached here (indicating J, 2nd panel from the left. Plate 29). You see a group of the enemy's scouts to your right in the wheat field moving into the bushes. (K). Corporal —, what will you do?"

19. For description and specifications of landscape targets see Plate 31.

DETAILS AND ASSEMBLY.

20. The landscape target has six upright posts firmly implanted in the ground 60" apart between centers; five lower frames upon which are placed the target proper; and five upper frames in rear of which are placed the recording sheets, each of which carries a black outline of the target immediately below. If no recording sheets are available a sketch of the portion of the landscape to be fired at can be roughly outlined and pinned in position. While aiming at the landscape, by the proper elevation of sights, the recording sheet will receive all the shot marks, while the lower targets or landscape targets proper will remain untouched. For example, if a target is placed at 1000" distance and the sights are adjusted at an elevation of 1350 yards, the service bullet will strike 23" above the point aimed at.

21. Extreme caution should be exercised in placing the upright posts to see that the upper surface of all the lower spaced blocks are on a horizontal line. It is also essential that the exact distance, to wit: 60" between centers, should be observed in the spacing of the posts, to prevent the target frames from slipping. The frame should be adequately braced from the rear.

22. The upright posts should be made of substantial lumber 4" x 4" square, 8' 9" long. All measurements of the posts are made from the top downwards, and should the posts come longer than the specified length, they should be sunk deeper into the ground, care being taken that the lower spacer blocks are made level as above specified. On the top of each post there is a 2" x 4" x 4" spacer and a 1" x 4" x 5 3/4" check block, which are fastened flush with the top of the post, the check block being placed upon the spacer to form a fastener for the upper target frame. At a distance of 54 3/4" from the top of the post two 5/8" holes are bored from front to rear, each hole centering 7/8" from its side of the post. Lower spacer and check blocks similar to the upper spacer and check blocks are fastened to the post at a distance of 25 3/4" downward from the center of the holes to the upper surface of the lower spacer block, the lower check block being placed upon the spacer block to form a fastener for the lower target frame. The spacer and check blocks should be fastened to the post by means of screws, if it is possible to obtain them, otherwise nails may be used. Short screws may be used conveniently, if the spacer is put on before the check block. If 4" x 4" timbers cannot be obtained, then the required size may be made by securely nailing two by two by fours together. If these are not available, then other posts of a suitable size may be used.

23. The lower frame is made of lumber consisting of two horizontal 1" x 2" x 60", two verticals 1" x 2" x 25", and four braces 1" x 2" x 15 1/2". The joints of the horizontals and verticals should be made by cutting out half the thickness of each member so as to make the surface flush, and securely fastening them with screws, if obtainable; otherwise nails may be used. Each corner should be securely strengthened by a diagonal brace screwed or nailed in place on the rear of the frame.

24. The upper frame consists of two horizontal 1" x 2" x 60", two vertical 1" x 2" x 50", and four braces 1" x 2" x 15 1/2". This frame is otherwise in all respects similar to the lower frame. Each frame is then covered with cotton sheeting or similar material. The lower frames are placed so as to rest upon the lower spacer blocks, and are held in place by the lower check blocks and clamping blocks. The upper frames are supported by two 5/8" x 9" bolts which are placed through the holes bored as before mentioned, and held in place by clamping blocks and upper check blocks. If possible, bolts with hexagonal heads should be procured. Counterbores, slightly smaller than the distance across the corners of the bolt head, are to be made in the posts into which the head is sunk to prevent the bolt from turning. The clamping blocks are made of 1" x 1 3/4" x 4" lumber.

25. As in the case of the posts, if the lumber specified is not obtainable, substitution of suitable material may be made providing the exact dimensions here given are not materially varied. For example, the upper and lower frames may be made of wider material, but they must not vary in outside rectangular dimensions.

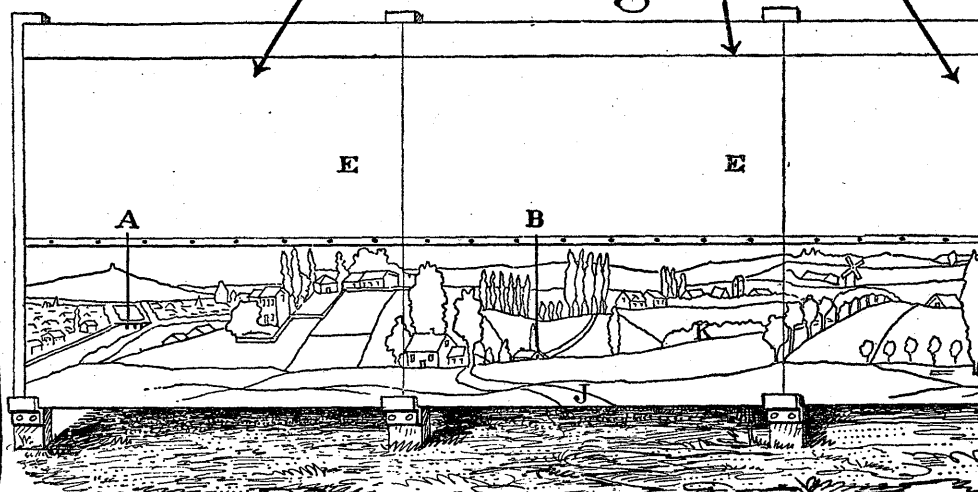
26. To avoid wastage in ordering material for these target frames, care should be exercised to specify the minimum length of the various pieces as shown on the drawing, as, for example, 4" x 4" posts 6' long would be of no value whatever.

27. The targets and recording sheets should be pasted upon the sheeting which covers the lower and upper frames, respectively. To mount the targets to frames without wrinkling, the following method should be used: Dampen the target cloth with a thin coating of flour paste and let se for about an hour. Cover the back of the target, in a similar manner, with paste and apply a second coating in about half an hour. Plice the frame on some surface so as to prevent sagging of the cloth and apply the target with a wet brush or sponge, rubbing from the center towards the corners, raising it occasionally if wrinkles appear. Care should be exercised that the targets thus fastened to the frames are not left in the weather. In all cases, the frames should be removed to shelter when not in use. Wherever possible the entire frame should be given two coats of olive drab paint.

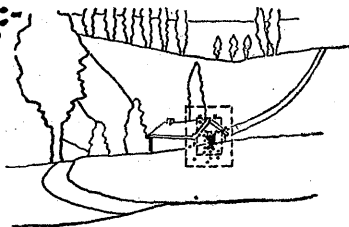
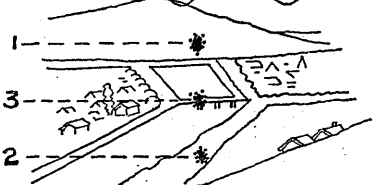
Showing Double Pane

Single Panel for Recording.

Harmonizing Line.



Recording Targets Showing:-



Ranging Problem A.

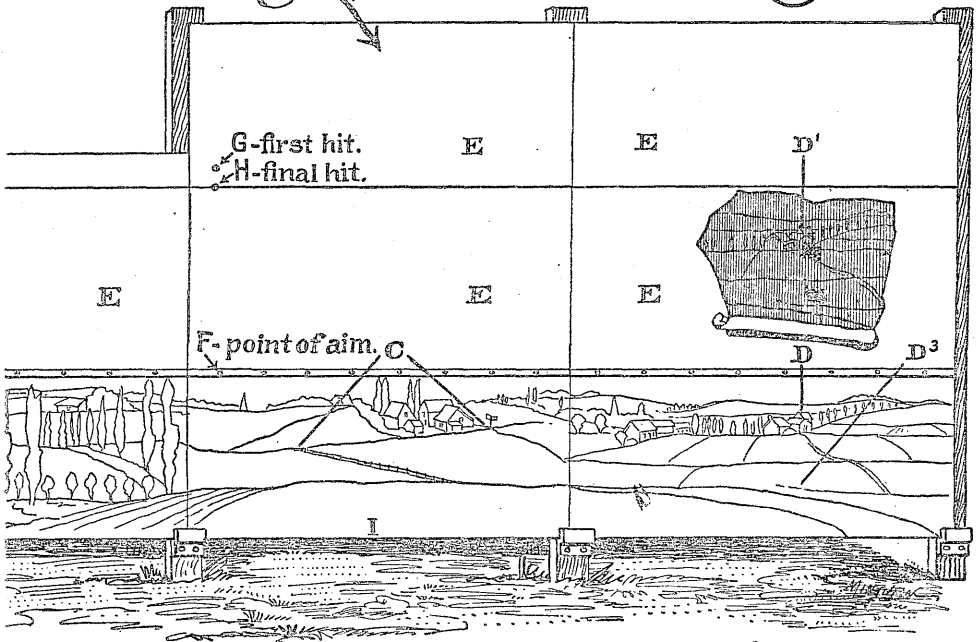
1. Shot-group showing too great a Range.
2. Shot-group showing too short a Range.
3. Shot-group showing Correct Range.
Target: Pier of Bridge.

Fire Problem B.

Target: a Machine-gun in the Window of House; the Recording Sheet shows result of Fire.

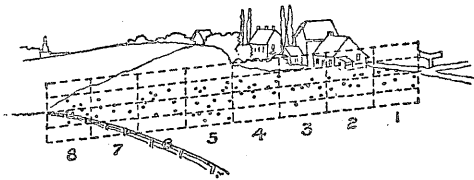
for Recording.

(29)



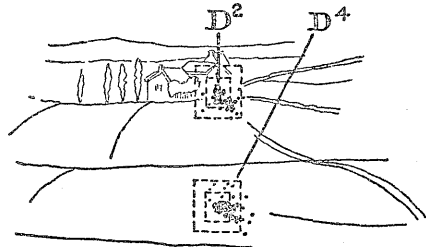
G-first hit.
H-final hit.

F-point of aim. C



Fire Distribution Problem C.

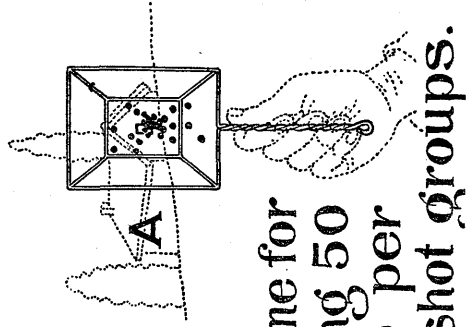
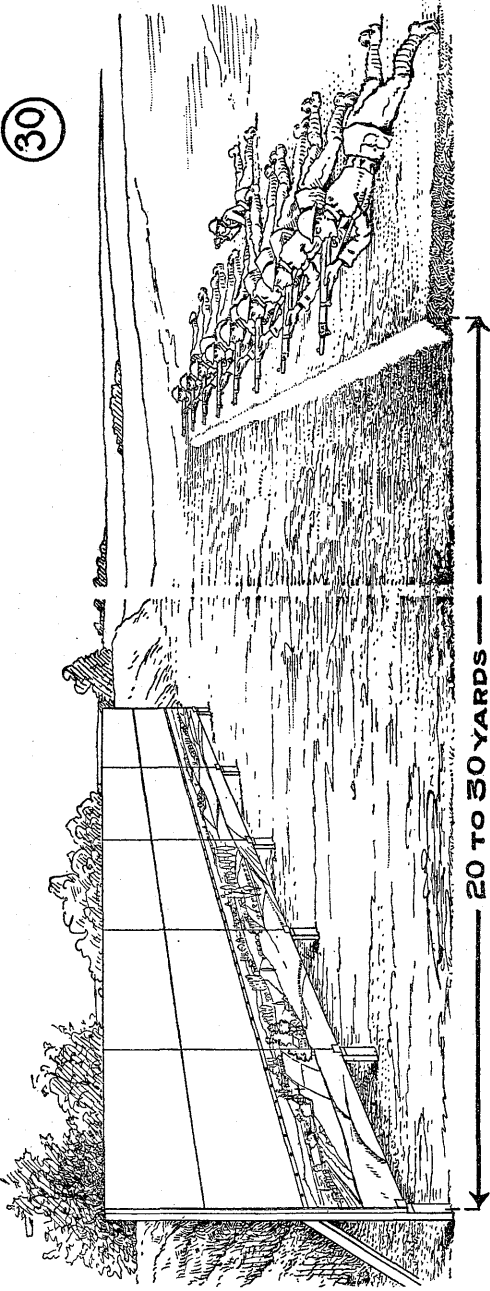
A Target was described as "extending along Ridge from Sign-Post to where Fence disappears"; Distribution and fire-effect shown.



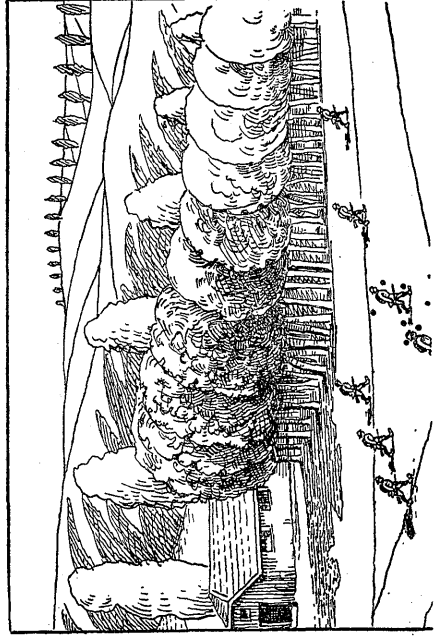
Auxiliary Aiming Point Problem D.

Fire was directed at the house (see top shot-group). It was found another Machine-Gun was operating in the fields and by a sight correction still using the door as an aiming-point the lower shot-group was placed on the target.

30



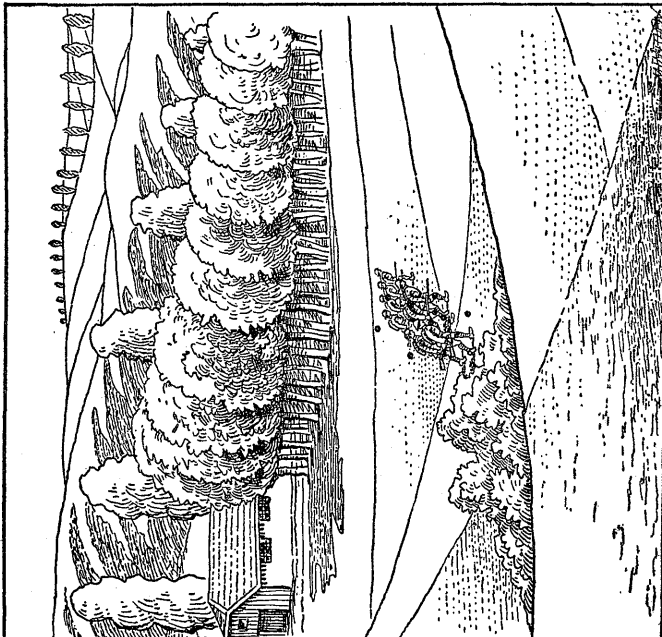
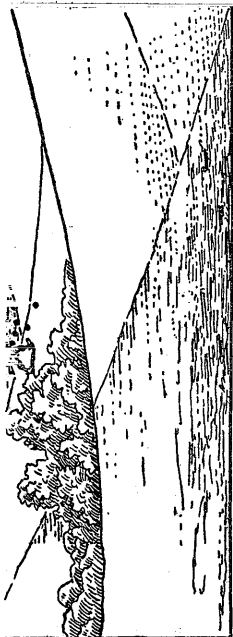
-B

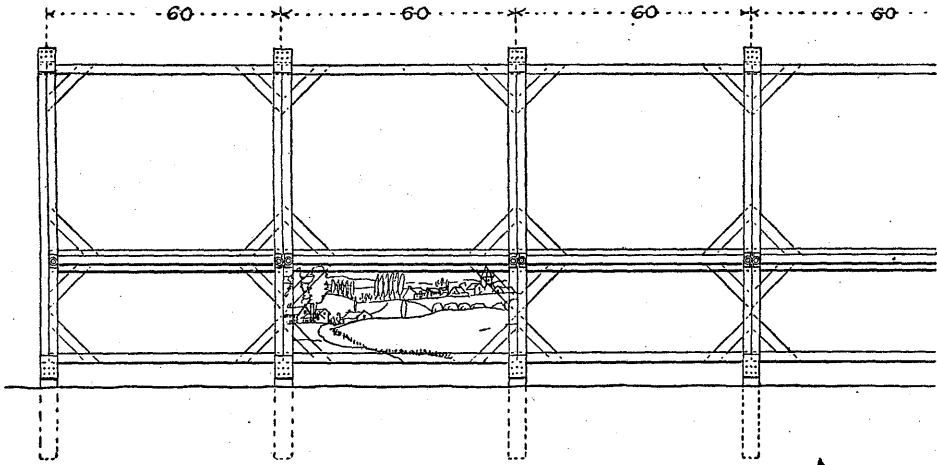


A. Frame for showing 50 & 75 per cent. shot groups.

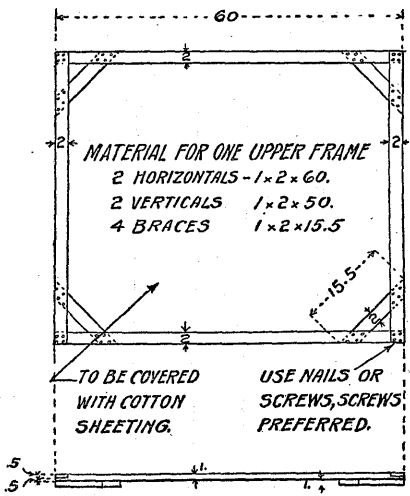
Band C. These Tar-
gets are used for
Demonstrations. If
similar ones are not
available, small fig-
ures can be pinned
to the Landscape Tar-
get and Recording
sheets. They show
the application of
fire by a Machine-
gun, the situation be-
ing outlined in
Plate 28.

-C-

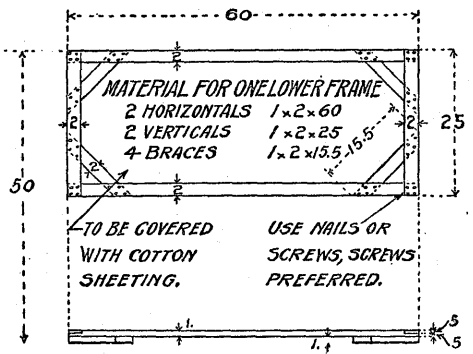




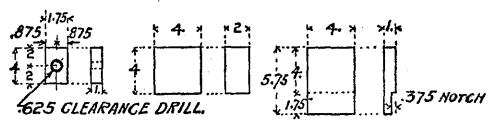
LANDSCAPE-TARGET FRAME ASSEMBLY AND L



UPPER FRAME.
5-WOOD.

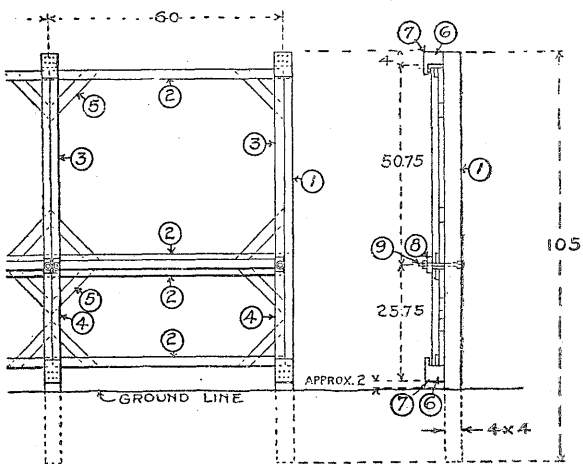


LOWER FRAME
5-WOOD.

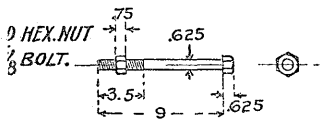


CLAMPING BLOCK. 10-WOOD.
SPACER BLOCK. 12-WOOD.
CHECK BLOCK 12-WOOD

STN FOR CO



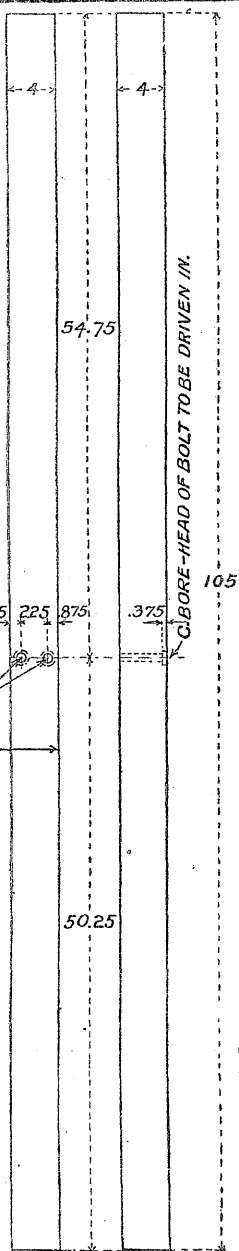
DETAILS



COMMERCIAL BOLTS AND NUTS.
10-WANTED.

625 CLEARANCE DRILL

UPRIGHTS
6-WOOD.



LIST OF MATERIAL FOR ONE COMPLETE TARGET.

- 6 UPRIGHTS..... 4 x 4 x 105... MARKED ①
- 20 HORIZONTALS..... 1 x 2 x 60 " ②
- 10 UPPER VERTICALS..... 1 x 2 x 50 " ③
- 10 LOWER VERTICALS..... 1 x 2 x 25 " ④
- 40 BRACES..... 1 x 2 x 15.5 " ⑤
- 12 SPACER BLOCKS.... 2 x 4 x 4. " ⑥
- 12 CHECK BLOCKS..... 1 x 4 x 5.75 " ⑦
- 10 CLAMPING BLOCKS... 1 x 4 x 1.75 " ⑧
- 10 - 9/8 x 9 ST'ND. HEX. BOLTS WITH NUTS " ⑨

31

COMBAT PRACTICE.

(Bulletin No. 19-A, 1919, G. H. Q., A. E. F.)

1. No system of musketry training is complete without combat practice, for in such practice will be found the ultimate test of fire efficiency of a unit with only the factor of battle omitted.

2. Combat practice is the last phase of musketry training. It consists of fire problems for the squad and higher units on the ground using ball or blank ammunition or simulated fire. Individuals learn thereby to co-operate and leaders, to co-ordinate the skill and efforts of all members of their units so as to obtain the maximum efficiency of fire. Leaders are taught fire direction and control, and fire discipline is instilled in the men to a degree which cannot otherwise be fully attained. By combat practice all are trained to adhere to previously mastered principles of conduct of fire under the nearest practicable approach to battle conditions.

3. Preliminary training for combat practice is as important as preliminary training for individual practice. In order that a command may approach combat practice equipped to derive the greatest benefit from it, commanders of all grades should, in addition to the system of training prescribed in preceding bulletins, be practiced in the preparation and solution of firing exercises on the map and on the ground in tactical rides and walks. Only then are they ready for combat practice with troops, at first without ammunition but finally, as skill is gained in exercises, with service ammunition. In the preparation of all such exercises, the following requirements should be observed:

A definite lesson in fire tactics is included.

A mission can readily be determined from the situation.

If practicable, a tactical principle is embodied, the violation of which would prevent the accomplishment of the mission.

Simplicity in the framing of the situation; where it is desired to embody several lessons in the consideration of the same situation, the exercise should be divided into distinct phases.

The following factors must be considered in arriving at a conclusion and in making a decision:

(1) What is the mission?

A mission is a task assigned in orders, or the task deduced from the knowledge of the situation for the accomplishment of a certain object.

(2) The enemy.

Relative numerical strength, location, activity, and efficiency of troops on both sides.

(3) Terrain.

Is the ground favorable for an advance? Does it permit of flanking movements; which flank affords the best opportunity? What cover is provided? What is the range?

Decision: The commander compares the various plans of action open to him and decides upon the one which will best enable him to accomplish his mission. Clear and decisive orders are the logical result of definite and sure decisions and are the means of transforming the decision into action.

Fire order:

Announcement of range.

Designation of target.

Directions for opening fire.

There will be few occasions in which all the factors enumerated above will have to be considered in the estimate. In fact, the simplicity of most problems will make it unnecessary usually to give consideration to many of them. On some occasions, the order itself will be no more than "Fire at will." It might appear at first sight that considerable time is taken in the process or method of estimating a situation, arriving at a decision, and giving the necessary orders. It may be a slow process at first, but with practice along the proper lines facility and speed in reaching a correct decision are acquired. An accountant who guesses at the sum of a column of figures instead of adding them correctly would not be likely to make more errors than would a commander who acted without first making a logical estimate of the situation.

4. The following exercises are offered as a guide for constructing problems. Some can be carried out by having the unit take position on the range and fire upon targets arranged and placed in position to illustrate the object of the exercise. Others may begin at some distance from the range towards which the conduct of the problem leads the troops, ending with firing. Because of limited range facilities, many must be carried out on drill and maneuver grounds.

5. Every terrain exercise should conclude with a discussion of principles involved, given on the ground. The discussion should deal with the conduct of the exercises and, if the problem is with ball ammunition, with results obtained in accuracy, distribution and time.

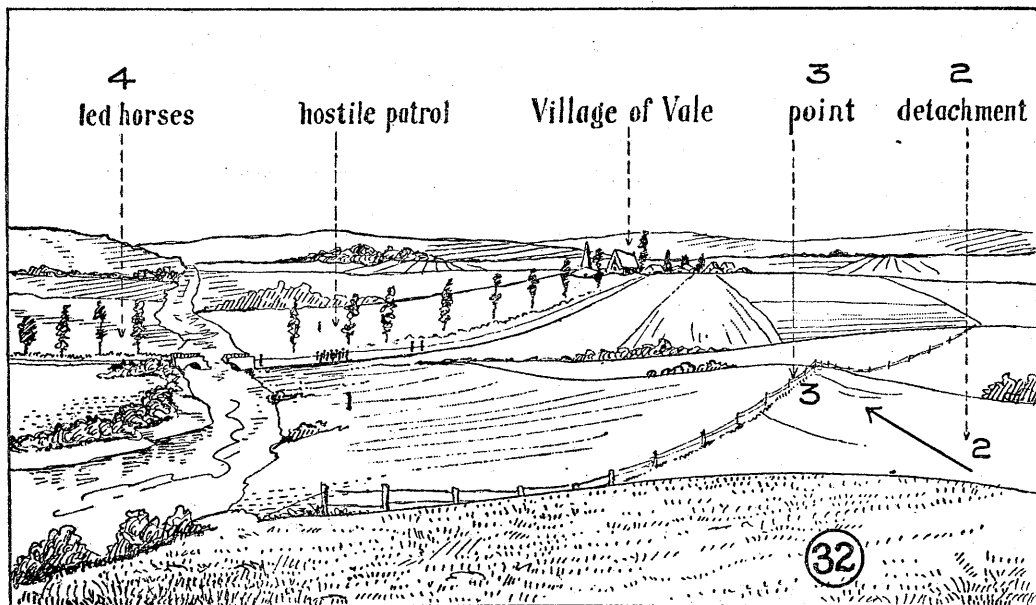
6. Exercise No. 1.

Purpose: To teach officers and non-commissioned officers to make a prompt estimate of the situation.

Place and Time: Almost any terrain is suitable for illustrating the essential features of this exercise, and any time when a few minutes are available.

Method: A regimental, battalion, company or platoon commander, without warning of any kind, states to his assembled officers: "Assume you are individually in command of a platoon, or company, advancing upon that objective (pointing.) You have reached here and from there (pointing) machine gun fire opens upon you *at this moment*, WHAT WILL YOU DO?" calling on some officer for an answer.

No other factor enters so decisively into combat exercises as does the ability to estimate quickly a situation and apply a proper solution. Probably no other factor requires as much training. The exercises suggested above emphasize the fact that daily practice can be given in making hasty estimates, followed by a few minutes critique and discussion, without appreciable interference with other duty. Paragraphs 337 to 342, 393 to 395, I. D. R., should be carefully studied and their principles applied to solutions.



7. Exercise No. 2.

Object: To reach quick estimate of a situation, decision, and fire orders.

Situation: (Plate 32.) A squad has been sent on a special mission, "to reconnoiter to the village of VALE, protect supplies stored there and drive off all hostile patrols."

One Solution: The squad has reached 2, Plate 32, when the "point" signals "Halt, enemy in sight." Corporal "A" signals "assemble, lie down," and joins the "point" who is in a prone position at "3." He sees a detachment of the enemy, consisting of eight men, moving in patrol formation towards VALE, their led horses at "4" held by two men. He signals his squad to crawl forward to the fence and asks two of his best range estimators for the range to the patrol and led horses. The corporal, in the meantime, is deciding upon his course of action and the relative importance of the targets. His mission included the "driving off of all hostile patrols." By doing this, he accomplishes his mission for if the enemy reaches the village he will, no doubt, destroy the supplies stored there. The targets presented are the patrol and group of led horses. The patrol is the same size as his own force, but his location and the element of surprise give him a decided advantage. The patrol will be disorganized by a sudden burst of fire and will instantly seek cover, so a fast rate must be employed. Fire directed on the led horses will, no doubt, cause them to stampede, and add to the disorganization of the patrol. The corporal decides to fire on both targets, the squad and the led horses, at the same time. He receives the following estimates of range: to the patrol, 450-500; to the led horses, 500-550. He decides the range to the patrol to be 475, to the led horses 525, and gives the following orders:

"Three men on my right and the automatic rifleman:

Range 475.

Hostile patrol.

Men on my left:

Range 525.

Group of horses.

"Do you all see the targets; are you ready?"

He waits a moment, looks at his men, and receiving no answer commands, "Fire at will."

Time for the execution of this exercise from the signal by the "point" to the command commence firing should not exceed 1 1/2 minutes. NOTE: The targets are so unmistakably clear and distinct that no method of designation is necessary.

This exercise should be modified to meet the conditions of the terrain. The hostile force may be represented by men or by flags.

8. Combat exercises with or without ball cartridges for corporals.

Troops: A squad.

Situations similar to those below adjusted to the particular piece of ground.

(a) A small party of hostile infantry is observed near ———. Your patrol is sent to drive them away.

(b) A point encounters a hostile force advancing against it.

(c) An outguard observes a hostile partol advancing against it.

(d) A combat patrol, on the flank of a firing line, observes a hostile patrol approaching.

(e) Three wagons guarded by a squad are fired on by a hostile force of about the same size.

(f) A working party, guarded by a squad, is fired on by a small hostile force.

Object of these simple situations is: To teach locations of targets, estimation of range, sight setting, target designation, employmen of weapons, distribution of fire, rate of fire, fire orders, observation of fire, fire control.

Procedure: In each case, the corporal should dispose his squad and open an effective fire on the hostile force as soon as possible.

Time: Time in all is an important element, it should therefore be taken as follows: Time of preparation from the moment the target is discovered by any member of the squad, or the squad is notified that it is under fire, until the first shot is fired. Time of firing, from the command or signal for commencing firing until the last shot.

Target: A group of eight targets should be placed where the enemy would naturally be found. Range should not exceed 600 yards.

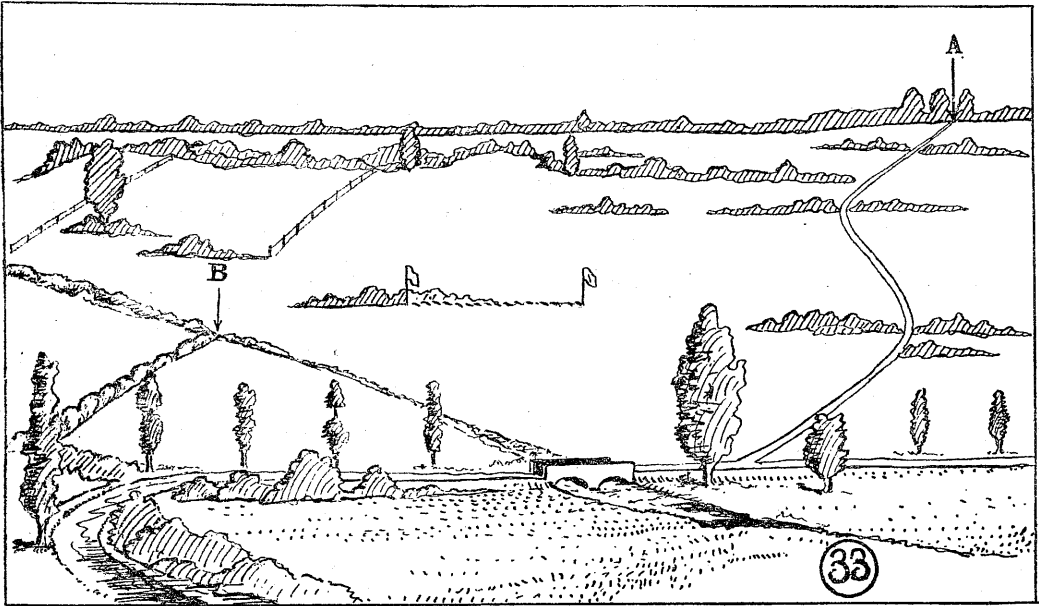
Ammunition: 5 or 10 pounds per man.

9. Exercise No. 3.

Object: To teach estimate of a situation, determination of range, employment of different weapons, and fire orders.

Troops: A section.

Situation: A section has been detached from its company with orders "to push on rapidly to "A" (Plate 33), prepare a defensive position, hold till the



arrival of its company and drive off all hostile patrols." Its point has arrived on a road off the sketch below the figure (33.)

Procedure: The platoon leader acts as umpire and conducts the problem. The umpire, standing back of a line of hedge affording cover from the enemy's view, calls forward the section leader and informs him, "A hostile patrol, estimated at about eight riflemen, occupied a ditch just a few minutes ago. Their position will be indicated by flags." The umpire, by a pre-arranged signal, causes flags to appear which remain visible for 20 seconds. The section leader is called upon after a minute for his solution.

Solution by section leader may be somewhat as follows: The flags have dropped from view, but the section leader fixed the position of the hostile line with reference to well defined marks on the landscape. He calls for a corporal and one range estimator from each squad, points out the enemy's position and asks for range. He may take their rifles and use the bayonet rest in so doing.

Time is an important element. The section is to move on about a mile further, establish a defensive position and drive off all hostile patrols. The hostile patrol occupies a ditch which can be subjected to enfilade fire from "B" by sending forward a squad, under cover of the hedge and covering fire of the two remaining squads. The employment of rifle grenades in addition to rifle and automatic rifle fire from "B" will be very effective. A detour could be made to "A," but then the mission would not be carried out, i. e., "To drive off all hostile patrols;" besides the terrain is particularly favorable for attack. The section guide reports range 550, having received from the estimators, let us say, the following estimate, 500-550-600.

The section leader then gives the following orders: "The enemy, about eight men, occupy that position. Did all of you locate it with the aimed rifles?" No questions being asked, he continues, "We will attack. Range 550 yards. Corporal _____ (3rd squad), move your squad under cover of the hedge to that point (indicating B) and in addition to your rifles, use

rifle grenades to cover our advance. Corporals ——— and ——— (1st and 2nd squads), move your squads into position here along the hedge and be ready to open fire at my signal. Do you all understand?" Waiting a moment and receiving no questions, he commands, "Posts."

The sketch for this exercise is of a actual piece of ground. A dense hedge below (33) covers the initial position and permits the preliminary arrangements.

Time: 2 1/2 minutes from the time the leader was presented with the situation.

10. Exercise No. 4. For sergeants in command of sections.

Situations similar to the following:

(a) A section acting as the advance party of an advance guard encounters a hostile force.

(b) A section is posted as a picket of an outpost and is threatened by a hostile force.

(c) A section acting as a flank guard for a larger force encounters hostile resistance.

(d) A section has been detailed to occupy and hold a designated position, until the arrival of supporting troops.

(e) A section, acting as an escort for a machine gun company attempting to gain a flanking position encounters a hostile force about a section strong.

(f) A section has been detailed to prevent the enemy from crossing a bridge, which is about 600 yards to the front. Information has been received that the enemy may be expected to appear within five minutes. The bridge is situated on ground that is favorable for determining the distance by ranging fire.

Procedure: In each case the section commander should dispose of his force so as to open an effective fire on the enemy as soon as possible.

Time of preparation from the time the target is discovered by any member of the section or the section is notified that it is under fire, until the first shot is simulated or fired. Time of firing from the command or signal or commence firing until the last shot.

Target: A group of men or figures to represent the enemy. Range not to exceed 600 yards.

Ammunition: If used, 10 rounds per man.

Plates 34 and 35 show, in plan, a platoon deployed moving forward, and a platoon in firing position. Plate 36 sketches a platoon deployed moving forward.

11. Exercise No. 5.

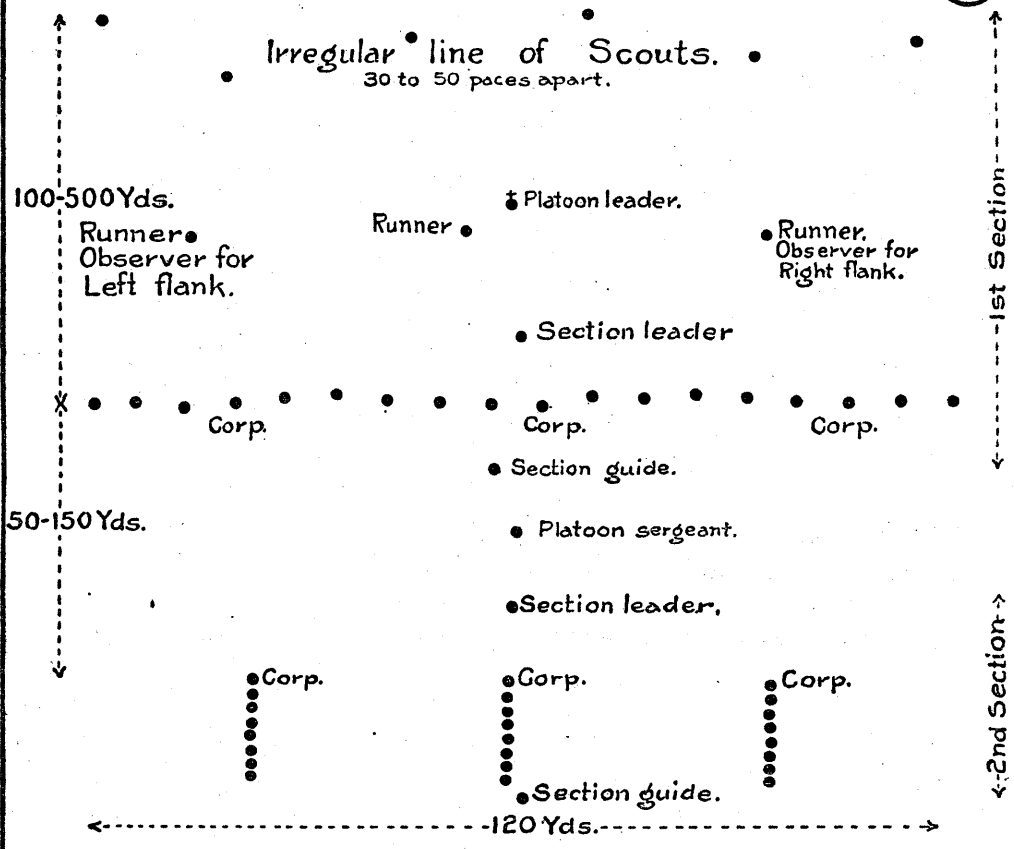
Object: Platoon problem illustrating fire combined with movement.

Situation: A platoon, having been assigned an objective in a general advance, has met with machine gun fire believed to be three guns.

Solution: The scouts, who have preceded the platoon by about 500 paces, indicate the hostile position by the firing of tracer bullets. One scout, who is able to return to the platoon leader, indicates the position by aiming rifle and adding such verbal description as is necessary. Patches of intervening underbrush perhaps prevent the scout from using the bayonet rest.

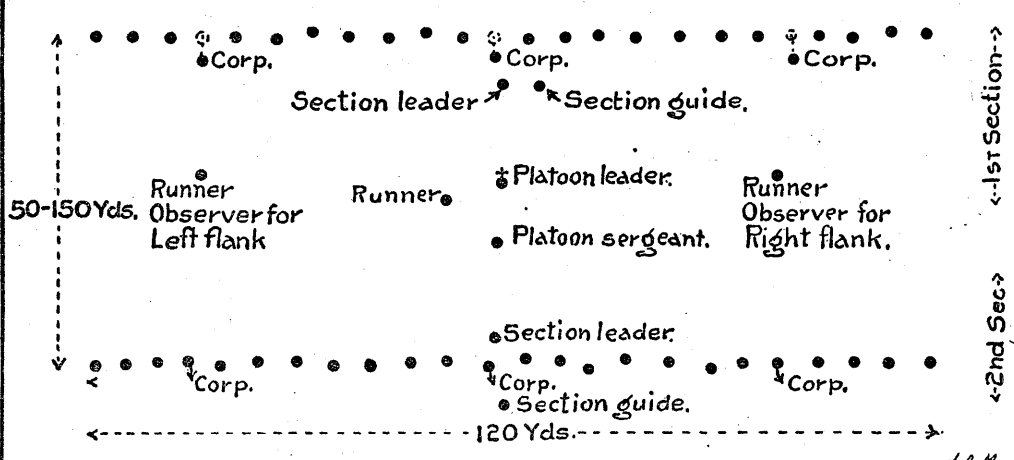
A PLATOON, DEPLOYED, MOVING FORWARD.

34



A PLATOON IN FIRING POSITION.

35



The position of the machine guns being located with considerable accuracy, the platoon leader decides to attack at once, to deliver a heavy covering fire with his first section and work forward a squad, from his second section, to each flank. Plate 37 shows, on the right, a scout and automatic rifle in position, on the left, two scouts and an automatic rifle in position and several riflemen working forward. Under the covering fire of these flanking groups and a portion of the first section, rushes by squads are made on the position, a combination of *Fire* and *Movement*.

Example 1. Plate 38.

Situation somewhat similar to the foregoing. Covering fire is being delivered by the first section. Under cover of this fire, the second section has worked forward part of its 1st squad on the right, consisting of two scouts and an automatic rifle. On the left, the 2nd squad is filtering forward, the 3rd squad is moving to a position for the use of rifle grenades with a scout and automatic rifle further to the left. Upon the establishment of these flanking groups in position enabling them to deliver effective fire upon the enemy, the first section will advance by rushes as shown in Plate 37.

12. Exercise No. 6.

Situation: A platoon, assigned as the base platoon of a company, in attack.

Object: As part of this problem, instruction may be given in some or all of the following: maintenance of direction towards objective; the use of scouts; combat patrols; reconnaissance by platoon leader; the use of the second wave to encircle resistance; fire and movement; target designation; distribution of fire; estimation of range; fire control; fire discipline; observation of fire; communication; fire orders; supply of ammunition, and replacing of casualties.

Procedure: The platoon is taken to a position about 1500 yards from the target. The objective is pointed out to the leader and he is directed to attack. For this problem, terrain should sometimes be selected which will permit the direction of march to pass through woods assumed to be occupied by small forces of the enemy who must be driven off before the platoon is able to clear the woods and occupy its main firing position. This firing position should be about 600 yards from the target and so situated that it is possible with proper use of cover to advance and occupy it after debouching from the woods. The second section should work to the flanks and open fire. The first section then advances by a combination of *Fire* and *Movement*.

Time should be taken as follows: Time of preparation from the receipt of the order until fire is opened or simulated. Time for the establishment of fire positions on flanks following the order by the platoon leader. Time for obtaining fire superiority and advancing upon the target.

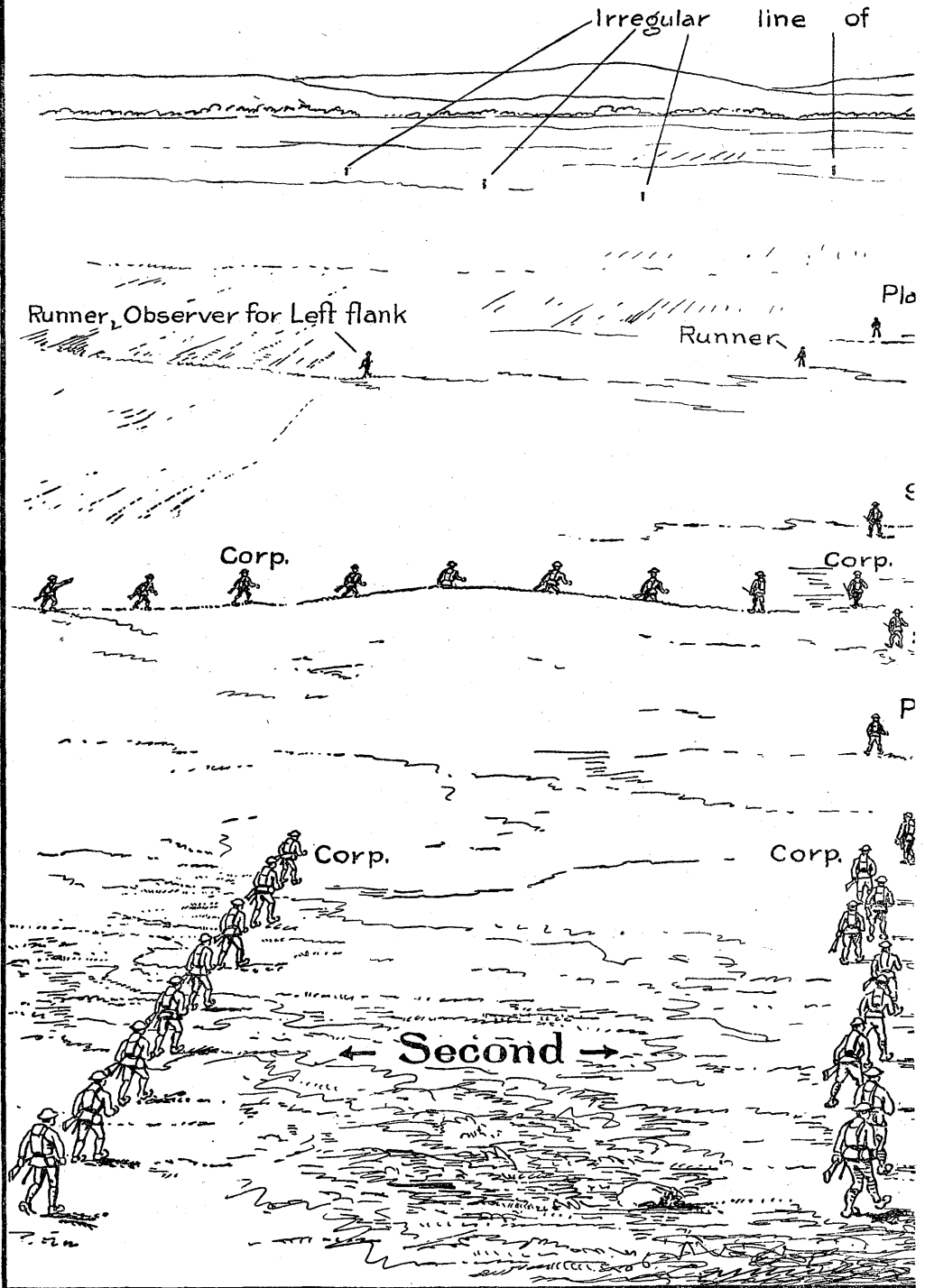
Targets: A line of silhouettes or represented machine guns.

13. Exercise No. 7.

Troops: A company as an assaulting unit in the attack.

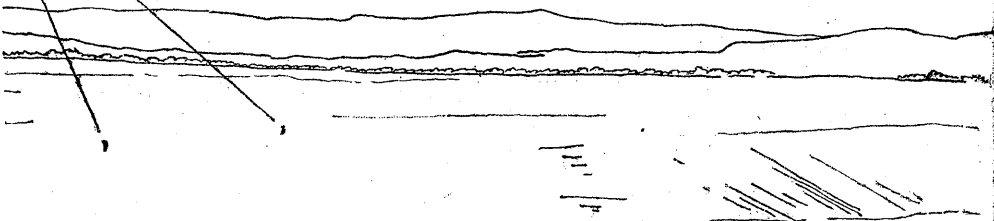
Object: To train in issuing orders, maintenance of direction by compass bearing; forwarding ammunition and reinforcements, enveloping or encircling resistance, flank protection, communication and connection, and provisions against counter-attack.

A PLATOON, DEPLOYED, I



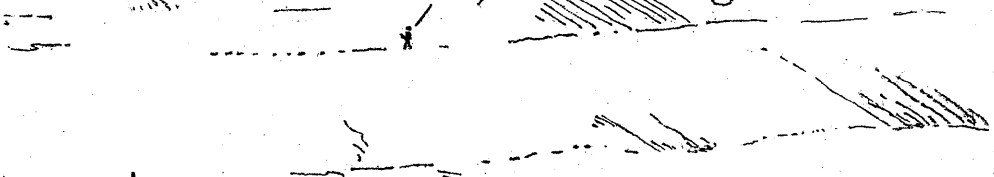
MOVING FORWARD.

Scouts.



atoon leader.

Runner, Observer for Right flank.



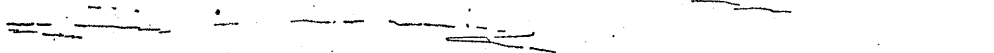
Section leader.



Section guide.

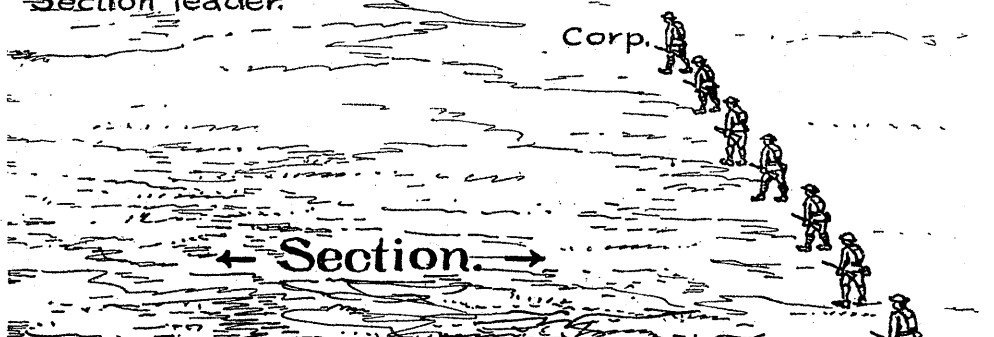
First Section.

atoon sergeant.



Section leader.

Corp.



← Section. →

Section guide.



14. Exercise No. 8.

Situation: A battalion in attack.

Object: To illustrate necessity for personal reconnaissance by battalion commander, attack orders, employment of accompanying weapons, maneuvering reserve companies, communication and connection, supply of ammunition, and flank protection.

Plate 39 sketches four phases of the attack:

1st Phase: The top sketch illustrates the use of small columns in passing shelled areas.

2nd Phase: Scouts develop and report machine gun fire from the woods on the left, later at a point to the right of the woods. These positions clearly illustrate the character of the supporting weapons to be employed against them. The woods offer no definite location of the machine guns; light mortars with their high angle fire and the wide destructive effect of their shells should there be used. On the other hand, the position marked (one-pound target) is definitely located and the extremely accurate one-pounder gun should here be used. Squads envelope both flanks of the positions, and under their covering fire, units begin to work forward. A squad filtering forward is shown on the left.

3rd Phase: Fire is opened on the positions by light mortars and one-pounder guns. Under this fire, together with the covering fire of rifles and automatic rifles, the assaulting echelon moves forward by rushes and closes on the positions.

4th Phase: Having reduced these points of resistance, the battalion moves on towards its objective. Plates 40-41 sketch a platoon in a general advance.

TESTS.

(Bulletin No. 22-A, 1919, G. H. Q. A. E. F.)

1. The following tests will be held, under the supervision of battalion commanders, to determine the proficiency of individuals in the elementary principles of musketry. If facilities are available for conducting these tests under uniform conditions, the results should be published in battalion, regimental and division orders, showing the relative standing of companies.

2. Test No. 1. Range estimation (Individual).

Organization: Platoon.

Method: The platoon is marched to a suitable testing point. There the general direction in which are located objects, the range to which is to be estimated, is indicated to the men. At a signal from the officer conducting the test, a group of men previously placed appear and remain visible for ten seconds. Members of the platoon individually estimate the range to the group. Their estimates must be made and recorded within 30 seconds of the time the group first appears. Immediately at the end of the 30 seconds another group of men appear at a different range. Ranges to five groups are thus made.

Record: Each non-commissioned officer and soldier will have paper and pencil. He will record his estimates of ranges in the order in which made, and upon the completion of the five estimates will sign and turn in the record to the officer conducting the test.

Test: Range estimation (by a platoon).

Method: Similar to Exercise No. 3, Par. 11, Page 13, Bulletin No. 1. Each squad is represented by two men and the corporal. The remaining privates of the platoon should be present as observers. The skeleton platoon so constituted advances upon an indicated position from a distance of about a thousand yards. Five halts will be made. At each halt, the corporal reports the average of his estimate and those of his two men to the section leader. The section leader reports the average estimate of his squads to the platoon leader. The platoon leader reports the average of his two sections to the officer conducting the test. Section and platoon commanders may consider their own estimates and those of their guides and *are permitted* to modify the ranges reported to them.

Marking for Both Tests: Table No. 1, Page 9, Bulletin No. 1, will be used to determine a figure of merit for the platoon. Thirty seconds will be assumed as the time necessary for an estimate. If five estimates requires 2 1/2 minutes the score will stand unaltered. For every minute over or under 2 1/2 minutes the record will be modified as follows:

For every minutes over, a reduction of 1/10.

For every minute under, an addition of 1/10.

Proportional reduction or addition will be made for fractional parts of minutes.

Example:

<i>Estimated Range</i>	<i>Correct Range</i>	<i>Score</i>
950	900	78
900	850	80
850	800	82
700	700	100
600	500	69
		409

In applying the table, do not interpolate for estimates other than the even fifty or one hundred yards, but take the hits corresponding to the nearest tabulated range.

Time: 3 minutes:

Result: A reduction of $1/2 \times 1/10 \times 409 = 20.5$

Figure of merit $409 - 20.5 = 388.5$

3. Test No. 2. (Sight Setting.)

Method: This test is similar to Exercise No. 29, Par. 55, Page 37, Bulletin No. 1. A platoon is marched to the testing point and three squads selected by the officer conducting the test. Sights are set for five ranges by signal and five by command. Time limit of eight seconds for each setting. Only those men finishing within this limit will be considered in the platoon's figure of merit. For each estimate, the total number of men who have correctly set their sights within the time limit is divided by 24 and the quotient multiplied by 10. The platoon figure of merit is obtained by the addition of the results of the ten estimates.

4. Test No. 3. (Signals.)

Method: Similar to Exercise No. 19, Par. 43, Page 29, Bulletin No. 1. The officer conducting the test hands the platoon leader a slip of paper on which are noted ten signals and commands. As the platoon leader gives the signal or command, the officer conducting the test selects at random a man to explain the signal or to give the signal for the command. Ten men are tested. Proper answer by each man counts ten. The platoon is rated on the basis of 100.

5. Test No. 4. (Designation and distribution.)

Method: A platoon, on suitable terrain, is deployed facing to the rear in one line with intervals of about two yards. The platoon leader is facing to the front at the firing point. At a signal from the officer conducting the test the target is outlined by the display of a flag at each flank. When the platoon leader states he understands the position of the target, the flags are withdrawn. The platoon is faced to the front. Its leader uses any method of target designation except by tracer bullets. The platoon is placed in prone position at the firing point and each man places his rifle on the bayonet rest, sets his sights and aims his rifle at the target.

Time: Three minutes from the time the platoon leader indicates his understanding of the target. At the end of three minutes, the officer conducting the test will cause all men to rise and move to the rear, leaving their

rifles on the bayonet rests for inspection. The platoon figure of merit is determined, on a basis of 100, as follows:

Target designation.....50

Determined by the number of rifles aimed at the target. For example a platoon of forty men has 30 rifles aimed properly, the result is $30 \times 50 = 37.50$

Distribution50

The target may be divided into five sectors and each assigned a value of 10. If a platoon of forty men is being tested, eight or more rifles aimed at a sector will give it a value of 10.

Example:

0 rifles aimed at 1st Sector= 0
 5 rifles aimed at 2nd Sector= 6¼
 15 rifles aimed at 3rd Sector=10
 15 rifles aimed at 4th Sector=10
 5 rifles aimed at 5th Sector= 6¼

32.50

Figure of merit is $32.50 + 37.50$ 70

6. Test No. 5. (Use of cover.)

Tests will be made as follows:

(a) Time in adjusting sling and dropping to a prone position by method of Plate 20, Bulletin No. 1. The officer conducting will select two men at random to represent the platoon being tested.

(b) An advance, using cover, from one point to another over a distance of 200 yards. Assumed to be under fire. Ground should be selected which will present a number of natural features and afford, within limits, a choice of more than one route. Two men as in (a).

(c) Infiltration by squad from one position to another. Officer conducting the test selects one squad from each platoon.

Rating of platoons based upon a maximum for:

a	25
b	25
c	50
<hr style="width: 10%; margin-left: auto; margin-right: 0;"/>	
Total	100

7. Test No. 6. (Auxiliary Aiming Target.)

Method: As in exercise No. 15, Par. 35, Page 24, Bulletin No. 1, for two squads selected by the officer conducting the test from each platoon.

Ammunition: 5 rounds per rifle.
 15 rounds per automatic.

Target: Target "B", each hit on the bulls eye counting 1.

Possible score—100.

8. Test No. 7. (Replacing casualties among leaders.)

Method: A platoon will be assigned an objective upon which to advance. Fire will be simulated. At various times in the advance, the officer conducting the test will eliminate at least the platoon leader, one section leader and three squad leaders.

The officer conducting the test will grade the platoon upon a maximum of 100 in accordance with the smoothness with which the platoon continues to function.

9. Test No. 8. (Landscape target.)

Organization: A squad selected, by the officer conducting the test, from the platoon.

Method: A situation is given to the squad somewhat as follows: "A machine gun has been located, during an advance, by a scout and an automatic rifleman." A scout and the automatic rifleman take position at the firing point. The location of a hostile machine gun is described to them. The remainder of the squad is about one hundred yards in rear and can advance to the firing position only under the covering fire of the scout and automatic rifleman. Upon the arrival of other members of the squad at the firing line, the target location must be obtained and fire opened.

Ammunition: 100 rounds: Total seven riflemen—35 rounds.
Automatic rifleman—65 rounds.

Score: As shown by recording sheet; each hit within limits of 50% standard group counting one.

Possible score—100.

10. Test No. 9. (Conduct of fire by a squad, figure targets.) Plate 45.

Squad leader is given a situation somewhat as follows: "A small party of hostile infantry was observed near ——. Your squad has arrived at this point under orders to drive them away."

Method: The leader is directed to form his squad as he would to meet the assumed situation. At a signal from the officer conducting the test a target, consisting of eight prone silhouette figures, appears for thirty seconds. The corporal causes fire to be opened. The advance is resumed as soon as the targets disappear and at a signal from the umpire a similar target appears for thirty seconds in another position which is in accord with the assumed situation.

Ammunition: Each rifleman, 10 rounds; automatic rifleman, 40 rounds. Possible score, 100; each hit counting 1.

11. Test No. 10. (Fire orders by platoon and section leaders.)

Method: Similar to Exercise No. 1, Par. 6, Page 69, Bulletin 3. Platoon and section leaders are assembled at the testing point and situations similar to the following are given them:

(a) Your platoon is part of a general advance moving in that direction (pointing) and has reached here. Hostile machine guns open on you from positions there (from the positions indicated flags appear by pre-arranged signal).

Required (To be written and submitted within ten minutes):

Your decision.

Your fire orders.

Example of a possible solution:

Decision: To attack, enveloping the right flank.

Plan: To open heavy fire with the first section and envelope the right flank with two squads of the second section. As soon as rifle grenades are fired by the flanking squads to advance the first section by squad rushes, a combination of fire (rifles, automatics and grenades) and movement.

Fire orders:

1st Section.

"Range"

(Position indicated by tracer bullet.)

"Machine Guns."

"Fire at will."

2nd Section. "Sergeant (Commander 2nd Section)."

"Move the 1st and 2nd squads by the left flank and cover our advance with heavy fire. Your opening of rifle grenade fire will be a signal for the advance of the 1st Section by rushes."

(b) A platoon to your left arrived there (pointing) and is held up by machine gun fire there (position indicated by flags).

Required: Your decision.

Your fire orders.

(c) Your platoon has succeeded in taking this position. Word has just been received that a force of the enemy is collecting in that ravine (or clump of trees (pointing)).

Required: Your decision.

Your fire orders.

This example may be carried further by representing with groups of men the advancing enemy making a counter-attack.

Required: Your fire orders.

12. Platoon competitions.

The exercises on pages 56, 57 and 58, Bulletin No. 2, indicate methods for arranging platoon competitions. The tests of the preceding paragraphs will also be found helpful in arranging platoons in the order of merit. Company commanders should determine the best platoon in their organizations. The four best platoons of the battalion should be tested and the best one selected by the battalion commander. In similar manner the best platoon in the regiment and the one to represent the division in the musketry competition will be determined.

13. The simple fire exercise described below will furnish an interesting competition between half squads or squads.

Purpose: Ranging and fire distribution.

Method: (Plate A, 41.) The firing line represents two opposing teams. The men are numbered the same as the targets they face. The targets of each team are the targets having the numbers of the opposing team. The teams move towards the butts and at a signal from the umpire the targets appear.

The teams drop to a prone position and the men individually determine the range and fire. When a figure is hit it is removed and the man with the same number drops out as a casualty. After an exposure of one minute, the targets drop from view and the line advances at a quick or double time and reopens fire when the targets again appear. The problem continues until one team or the other has shot down all the opposing team's targets.

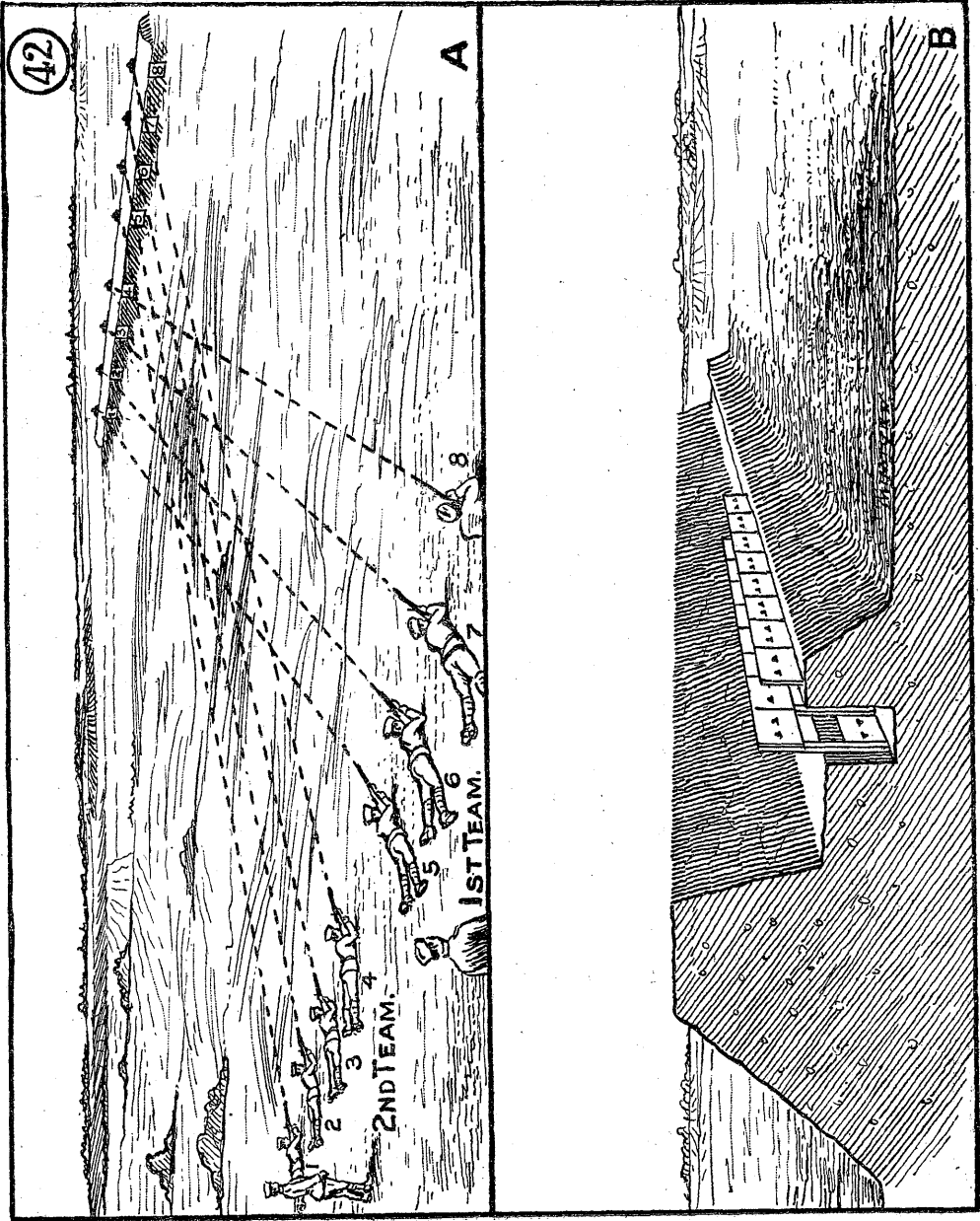
14. Improvised arrangements for checking rate, accuracy and distribution of fire are described below (See par. 82, Exercise 38, Page 53, Bulletin 1). An arrangement of targets like that in Plate 42-B may be used if the equipment includes the sliding targets. In this illustration is shown a front row of targets presented to the firing line. A similar row of targets is placed immediately in rear to record bullets that have passed through the front targets. At the end of each minute the exposed rear targets are pulled down, the lower targets moving into place above, and the hits and distribution are taken from the down targets.

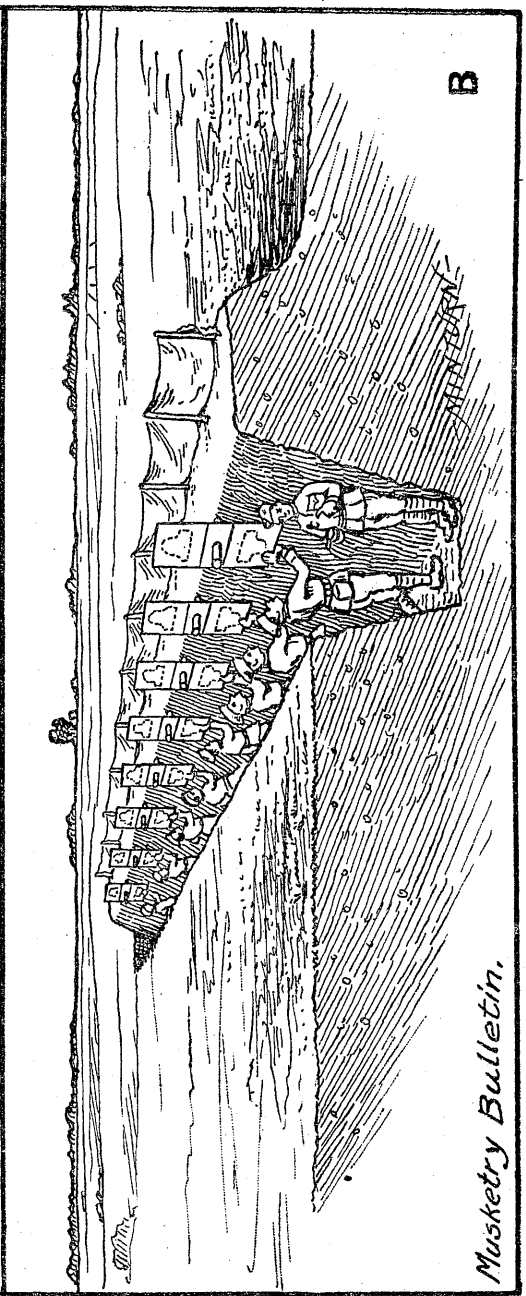
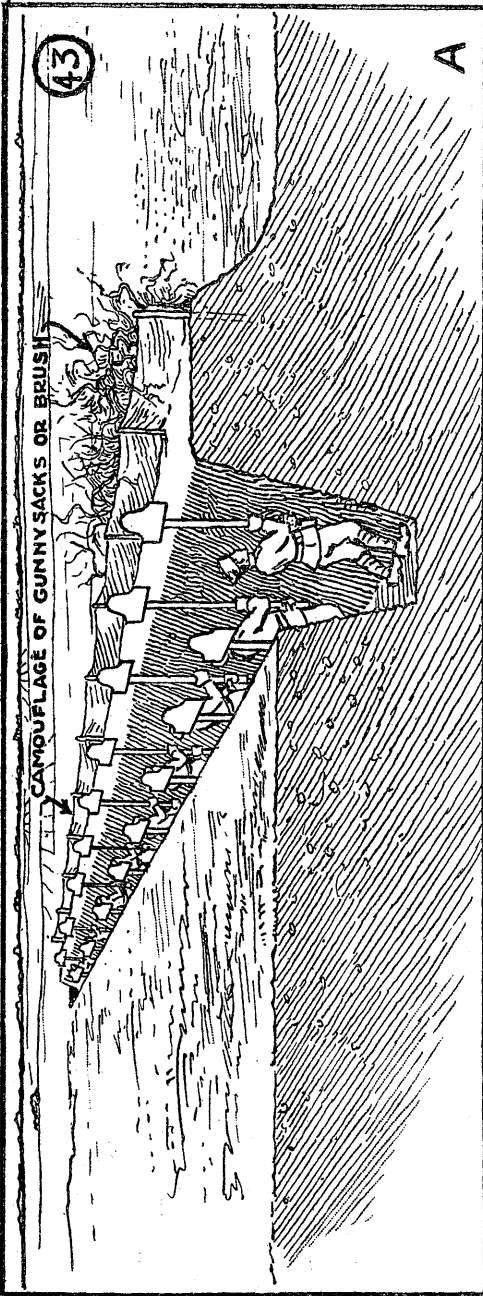
The same results may be obtained with limited equipment as shown in Plate 43-A. Here is shown a line of prone silhouette figures, on poles, held in position by men. At the end of each minute men replace one target by another. The targets for replacing the ones hit are shown in the plate behind each man.

In Plate 43-B are shown improvised revolving targets used in the same manner.

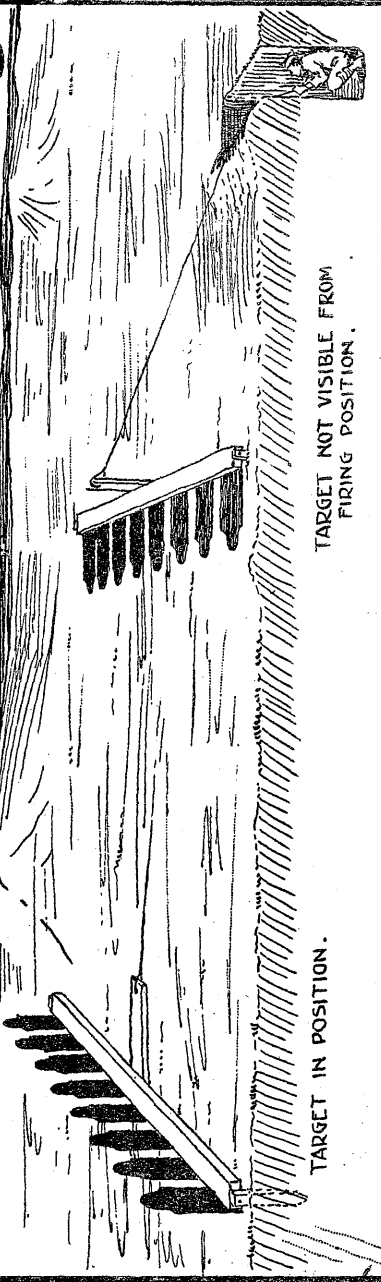
To add a touch of service conditions, the targets should be screened by stretching a line of camouflaged gunny sacks (or brush) as shown in Plates 43-A and 43-B.

Plate 44 shows a means of providing a target to appear for a desired time and then drop from view. This target is simply constructed and is operated by a man in a pit. Such targets are of value for many squad, section and platoon fire problems.



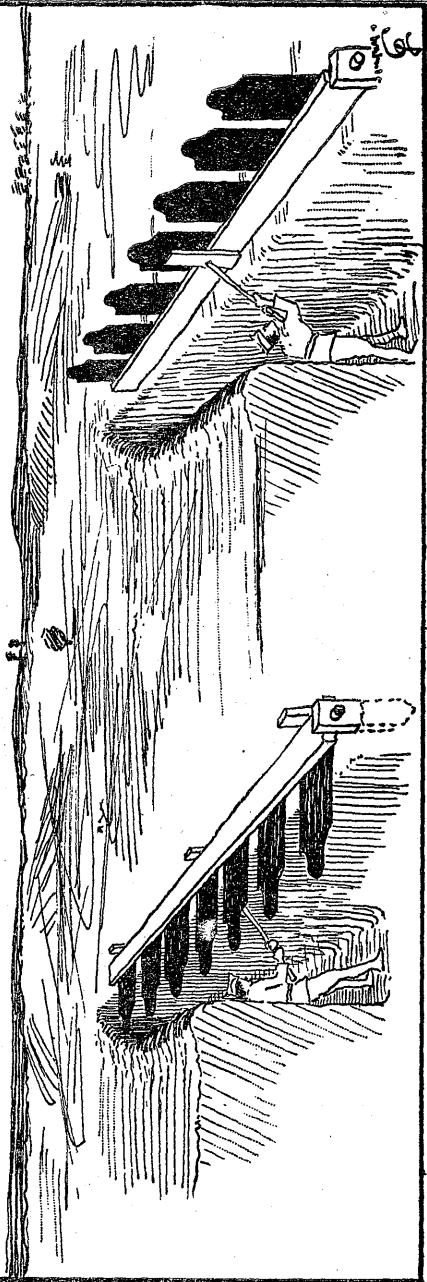


44



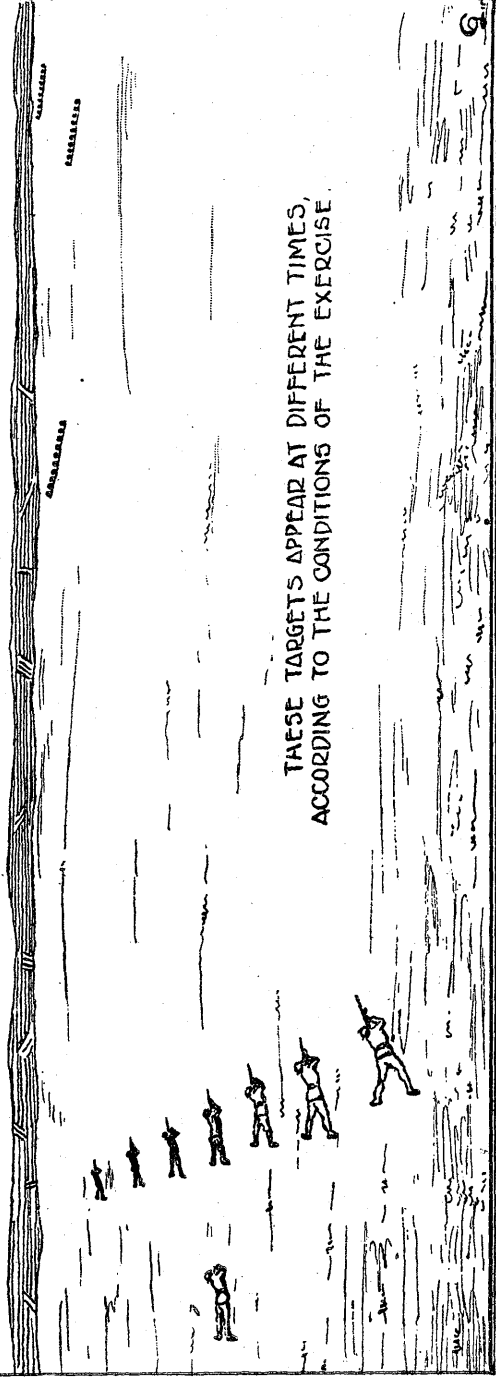
TARGET IN POSITION.

TARGET NOT VISIBLE FROM FIRING POSITION.



IMPROVED TARGETS FOR COMBAT EXERCISES

45



THESE TARGETS APPEAR AT DIFFERENT TIMES,
ACCORDING TO THE CONDITIONS OF THE EXERCISE.

13 Jan 2011

Property of US Army

11-076



