WAR DEPARTMENT

BASIC FIELD MANUAL

Volume III
BASIC WEAPONS

PART ONE
RIFLE COMPANY

CHAPTER 1
RIFLE MARKSMANSHIP
U. S. RIFLE, CALIBER .30, M1903

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Prepared under direction of the
Chief of Infantry

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BY ORDER OF THE SECRETARY OF WAR:

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BASIC WEAPONS

PART ONE

RIFLE COMPANY

CHAPTER 1

RIFLE MARKSMANSHIP

U. S. RIFLE, CALIBER .30, M1903

(This chapter supersedes chapter 1, part one, Basic Field Manual, Volume III, March 1, 1932.)

SECTION I

DESCRIPTION OF THE RIFLE

1. General.—The United States rifle, caliber .30, M1903, is a breech-loading magazine rifle of the bolt type.

2. Rates of fire and effective range.—The normal rate for rapid fire is 10 aimed shots per minute. As the effectiveness of rifle fire during combat falls off beyond a range of 600 yards, its use at greater ranges is therefore unusual.

3. Nomenclature.—Names of the parts habitually referred to in drill and target practice are all the knowledge necessary for nomenclature. When time permits, the parts named in figures 1 and 2 should be pointed out and the functions of each explained.

SECTION II

CARE AND CLEANING OF THE RIFLE

4. Importance of proper care.—The rifle is a piece of fine mechanism. It must be kept clean, free from rust, and well lubricated if it is to do good work and remain in serviceable condition. The cleaning and care of the rifle is an important duty to be performed by all soldiers armed with this weapon, and a subject which merits the serious consideration of all officers. Experience has shown that the majority of rifles become unserviceable, not through shooting but through the lack of intelligent and proper care. The use of materials other than those authorized for the specific purposes mentioned is strictly forbidden.

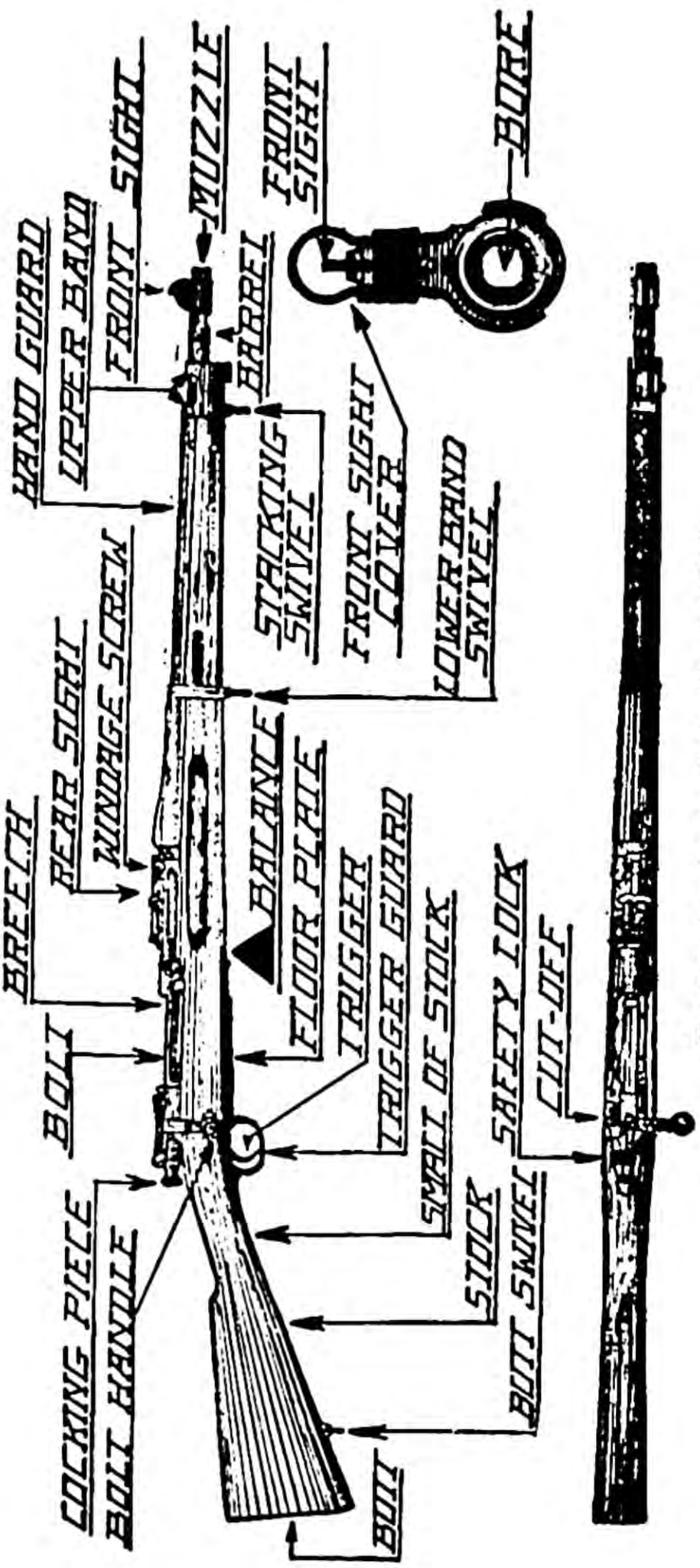


FIGURE 1.—Springfield rifle, M1903.

5. Inspections.—At all inspections, unless otherwise explicitly ordered, the rifles will be clean, the bore of the rifle protected with a thin film of grease (cosmic), the mechanism of the rifle lubricated with thin oil (sperm oil), and the oiler filled with oil. When the inspector wishes to inspect the rifles minutely he may order that all grease and oil be removed from

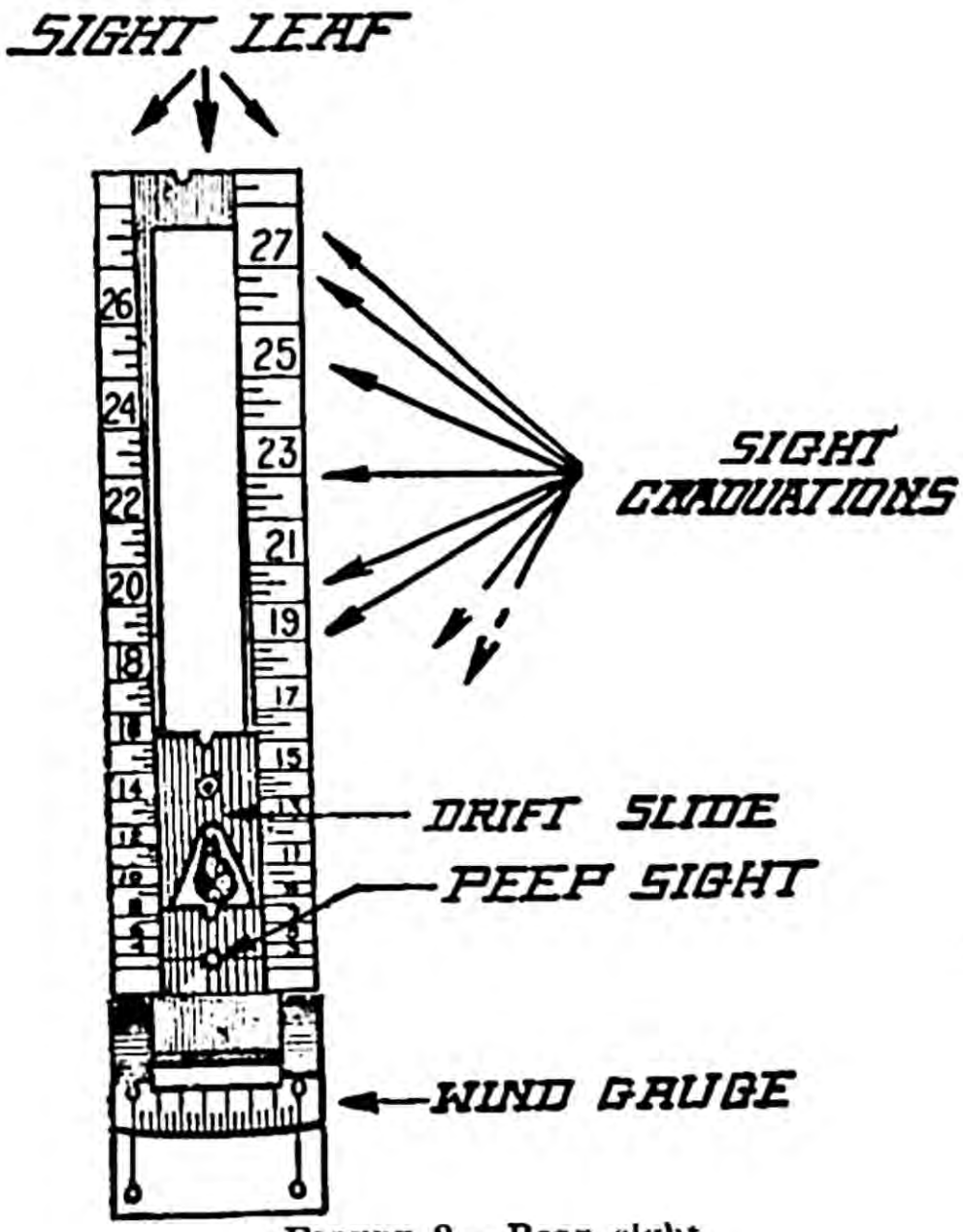


FIGURE 2.—Rear sight.

them; but in such cases the grease and oil will be applied again immediately after the inspection, and the inspector will allot a specific time for so doing.

6. Care and cleaning in garrison.—*a.* Care and cleaning in garrison includes the ordinary care of the rifle to preserve its

condition and appearance in garrisons, posts, and camps during those periods when no firing is done.

b. Damp air and sweaty hands are great promoters of rust. The rifle should be cleaned and protected after every drill. Special precautions are necessary when the rifles have been used on rainy days and after tours of guard duty.

c. The barrack cleaning rod only will be used. The use of the thong and brush will be confined to occasions when the barrack cleaning rod is not available. Rifles will always be cleaned from the breech, the bolt being removed during cleaning for this purpose.

d. The following parts of the rifle may be removed by the soldier for the purpose of cleaning: Front sight cover, floor plate and follower, gun sling, oiler and thong case, and the bolt, which may be taken apart.

e. To clean the rifle, rub it with a rag which has been slightly oiled or greased, and then clean with a perfectly dry rag. Swab the bore with an oily flannel patch and then with a perfectly dry one. Dust out all screw heads and crevices with a small, clean brush. Wipe the stock and sling with an oily rag and then with a perfectly dry one.

f. Immediately after cleaning, to protect the rifle, swab the bore thoroughly with a flannel patch saturated with grease (cosmic), wipe over all metal parts, including the bolt mechanism and magazine, with an oily rag, apply a few drops of light oil (sperm oil) to all cams and working surfaces of the mechanism, place a teaspoonful of linseed oil in the palm of the hand, and polish the stock well.

g. After cleaning and protecting the rifle, place it in the gun rack without any covering whatever. The use of canvas or similar covers for the rifle is prohibited, as they collect moisture and rust the metal parts. When the barracks are being swept, gun racks may be covered with a piece of canvas to protect the rifles from dust.

7. Care and cleaning after firing.—*a.* When a rifle has been fired, the bore must be thoroughly cleaned, not later than the evening of the day on which it is fired. Thereafter it must be

wiped out and regreased each day for the next three succeeding days at least.

b. To clean the bore after firing, insert the muzzle in a vessel containing hot water and issue soap, hot water alone, or cold water; the cleaning rod with a cloth patch assembled is inserted in the breech and moved forward and back for about one minute, pumping the water in and out of the bore. While the bore is wet a brass or bronze wire brush, if available, should be run all the way through the bore, then all the way back three or four times. Water should again be pumped through the bore. Then wipe the cleaning rod dry, remove barrel from water, and, using dry, clean flannel patches, thoroughly swab the bore until it is perfectly dry and clean, being careful to see that the chamber is also dried and cleaned. Hold the breech of the barrel pointed toward the sky and examine the bore carefully for metal fouling.

c. If no metal fouling is present, saturate a clean flannel patch with grease (cosmic) or the oil issued for this purpose by the Ordnance Department and swab the bore and chamber thoroughly with the patch, making certain that the bore and all metal parts of the rifle are covered with a thin coating of grease or oil.

8. Metal fouling.—*a. Description.*—If small smears, flakes, or lumps which look like dull lead are seen on the surface of the bore near the muzzle or for about 6 inches down from the muzzle. they are metal fouling and must be removed.

b. Removal.—(1) Metal fouling will be removed only by an instructor, noncommissioned officer, or mechanic. Selected noncommissioned officers and mechanics will be instructed in the method of removing metal fouling.

(2) Metal fouling should be removed at once, for not only is it detrimental to accuracy, but the bore will rust very quickly on the portions covered by this fouling. To remove metal fouling proceed as follows: The bore should be free from primer and powder fouling and the barrel should be cold. Place a rubber stopper in the chamber so as to seal the bore at that point. Place a 2-inch section of rubber tube over the muzzle so that about an inch of the tube extends above the muzzle. Stand the

rifle, muzzle up, in a rack. Carefully pour the standard metal-fouling solution into the bore from the muzzle until the solution rises in the rubber tube, completely covering the muzzle. If any solution is spilled on the exterior of the barrel, wipe it off at once. The solution should be permitted to remain in the bore from 15 to 20 minutes and never longer than 30 minutes under any circumstances. *The solution should never be used in a hot barrel.* Pour the solution out of the bore, remove the rubber stopper from the chamber and the rubber tube from the muzzle, allow any remaining solution to drain out, and at once pump water through the bore in order to remove all traces of the metal-fouling solution. Finally dry the bore and apply oil or grease as prescribed for regular cleaning. The ammonia solution dissolves the metal fouling. When tracer ammunition has been used it may be necessary to apply the solution three or four times to remove the large amount of metal fouling deposited.

(3) The standard metal-fouling solution is prepared as follows:

Ammonium persulphate: 1 ounce, or 2 heaping tablespoonfuls.

Ammonium carbonate: 200 grains, or 1 heaping tablespoonful.

Ammonia, 28 percent: 6 ounces, or ⅜ pint, or 12 tablespoonfuls.

Water: 4 ounces, or ¼ pint, or 8 tablespoonfuls.

The spoon referred to is the M1910 spoon issued in the mess kit. Powder the persulphate and carbonate together (place them inside a clean cloth and grind with tool handle); dissolve in water and add the ammonia; mix thoroughly until about 90 percent of the powder is dissolved and allow to stand for one hour before using. It should be kept in a strong bottle, tightly rubber corked and in a cool place. In order to preserve the strength of the solution the bottle should be opened only for the time necessary to pour out the amount required. The solution, when mixed, should be used within 30 days. The above amount is sufficient to clean out about six barrels. The solution should

not be used more than twice, and used solution should not be mixed with unused solution, but should be bottled separately. Care should be used in mixing and using this solution to prevent injury to the rifle. If the solution is allowed to evaporate on steel, the latter will rust very quickly. An experienced noncommissioned officer should mix the solution and superintend its use. When new type ammunition containing bullets jacketed with copper (gilding metal) is used, the ammonia swabbing solution (see par. 35*b* (3), TR 320–10) will usually suffice to remove the slight, thin plating of copper on the surface of the bore which sometimes occurs with such ammunition.

9. **Rules for the care of the rifle on the range.**—*a.* Wipe out the bore with a clean cloth patch each time before going to the firing point.

b. Always clean at the end of each day's shooting. A rifle that has been fired should never be left overnight without cleaning.

c. Never fire a rifle with any dust, dirt, mud, or snow in the bore.

d. Never leave a patch, oily rag, cork, or other obstruction in the bore or anything sticking in the muzzle.

e. During range firing a noncommissioned officer will be placed in charge of the cleaning of rifles at the cleaning racks.

SECTION III

FUNCTIONING OF THE RIFLE

10. **Bolt mechanism.**—*a.* To open the bolt, raise the handle until it comes in contact with the left side of the receiver and pull directly to the rear until the bolt stops. To close the bolt, push the handle forward and turn it down as far as possible; the rifle will not fire unless the handle is down. The opening and closing of the bolt should each be done by one continuous motion.

b. The piece may be cocked either by raising the bolt handle until it strikes the left side of the receiver and then immediately turning it down, or by pulling the cocking piece directly to the rear.

c. To remove the bolt, turn the cut-off midway between the "off" and "on" positions and then pull the bolt to the rear. To replace the bolt, the cut-off must be in the same position.

11. Magazine mechanism.—*a.* To load the magazine, turn the cut-off up, showing "on"; draw the bolt fully to the rear; insert the cartridges in the magazine from a clip as follows: Place one end of a loaded clip in its seat in the receiver, and, with the fingers of the right hand under the rifle against the floor plate, and the base of the right thumb on the powder space of the top cartridge near the clip, press the cartridges down with the thumb into the magazine until the top cartridge is caught by the right edge of the receiver. If the magazine already contains some cartridges, it can be completely filled by inserting cartridges singly.

b. After loading the magazine, to place a round in the chamber, close the bolt.

c. When the cut-off is turned down the magazine is "off." The bolt cannot be drawn fully back, and its front end, projecting over the rear end of the upper cartridge, holds the latter down in the magazine below the action of the bolt. The magazine mechanism then remains inoperative, and the arm can be used as a single-loader as when the magazine is empty or with the cartridges in the magazine held in reserve.

d. In magazine fire, after the last cartridge has been fired and the bolt drawn fully to the rear, the follower rises and holds the bolt open to show that the magazine is empty.

12. Precautions.—*a.* If it is desired to carry the piece cocked with a cartridge in the chamber, the bolt mechanism should be secured by turning the safety lock to the right. Under no circumstances should the firing pin be let down by hand on a cartridge in the chamber.

b. If a misfire occurs, it is unsafe to draw back the bolt immediately as it may be a hangfire. In such cases the piece should be again cocked by drawing back the cocking piece and refired.

SECTION IV

GENERAL PROVISIONS GOVERNING PREPARATORY EXERCISES

13. Methods of procedure.—*a. Object.*—The object of this chapter is to provide a thorough and uniform system of conducting rifle training throughout the military service.

b. Regular practice season.—(1) Under ordinary conditions the regular practice season for the Regular Army will cover a period of not more than 3 weeks for each organization. A period of not more than 1 week is devoted to preparatory exercises and 2 weeks to range practice. When unforeseen circumstances are such as to cause a delay during the period of instruction the time may be extended by the post commander.

(2) Whenever possible during record practice such officers as may be required for duty in the pit will be detailed from troops not firing.

(3) The regular practice season for units of the National Guard and the Organized Reserves will be of such duration and ordered at such times as may be best suited for effective training.

(4) So that officers and enlisted men of the Regular Army, National Guard, and Organized Reserves may be familiar with their exact duties of marksmanship training during mobilization, organizations should not exceed the number of hours set forth in model schedules (par. 115). Under no conditions will any man be given range practice until he has had a thorough course in the preparatory exercises.

c. Supplementary practice season.—Supplementary practice is not necessary when the regular practice season has been efficiently conducted, except in cases where a large number of unqualified men join the organization after the regular practice season. The supplementary practice season is usually placed as late in the fall as is consistent with efficient instruction. However, this practice may be held at any time when circumstances make it advisable.

d. Continuous practice.—Rifle practice is not limited to a particular season. Subject to ammunition allowances, commanding officers will adopt such measures as may be necessary to

maintain a high state of excellence in rifle firing throughout the year. The particular measures adopted will depend upon the facilities near the post or station. The measures taken may provide for competitions between individuals or organizations or the encouragement of small-bore rifle teams.

e. Recruit instruction.—As part of their recruit training, all recruits armed with the rifle will be thoroughly instructed in the following fundamental elements of rifle marksmanship: Nomenclature, safety precautions, care of the rifle, sighting and aiming, positions, trigger squeeze, and rapid fire. They will be given a final examination and will fire the small-bore qualification course as prescribed in paragraph 52. Instruction in rifle marksmanship will commence with the initial instruction of the recruit and will continue throughout the period of recruit training.

f. Apparatus.—The use during instruction practice of complicated apparatus which cannot be readily improvised from materials at hand is prohibited. The simple apparatus described in paragraph 14*b* is ample for all purposes.

14. Duties of leaders and commanders; equipment for each squad.—*a. Duties of leaders and commanders.*—(1) *Squad leader.*—(*a*) Organizes the work in his squad so that each man is occupied during the preparatory period in the prescribed form of training for target practice.

(*b*) Examines each man in his squad at the end of the training on each preparatory step and assigns him a mark in the proper place on the blank form.

(*c*) Sees that each man takes proper care of his rifle and that he cleans it at the end of each day's firing.

(*d*) Enforces correct aiming, position, and trigger squeeze when fire is simulated in drills and maneuvers.

(2) *Sergeant.*—Assists the squad leaders and performs any other duties assigned him by the platoon and company commanders.

(3) *Platoon leader.*—Supervises and directs the squad leader in training his squad; personally checks each man in his platoon on the points enumerated in the blank form; and examines each man along the lines outlined in paragraph 48.

(4) *Company commander.*—Requires the prescribed methods of instruction and coaching to be carried out carefully and in detail; supervises and directs the squad and platoon leaders; in companies of less than 60 men, performs the duties prescribed in (3) above for platoon leaders.

(5) *Battalion commander.*—Requires the officers and noncommissioned officers to be familiar with and understand the prescribed methods of instruction and coaching; supervises the instruction within his battalion and requires the companies to follow out the preparatory exercises and methods of coaching carefully and in detail.

(6) *Officer in charge of rifle instruction.*—Appointed by the post or regimental commander to supervise the preparatory work and range practice in the post or regiment when, in the opinion of the post or regimental commander, such action is advisable. Should an officer in charge of instruction be appointed, he will be selected for his ability as a rifle instructor, and should be an officer who has been through a course of instruction under the methods prescribed herein. His duties are as follows: To inspect the equipment for preparatory training two or three days in advance of the time such training is to begin; to see that it is properly made, and is serviceable and neat in appearance; to act as chief instructor for the organizations under his supervision; to assist the organization commanders in applying the proper methods; to correct errors and mistaken ideas on interpretations of the text; and to keep the regimental or post commander informed as to the progress being made during the preparatory period and range practice.

b. Equipment for each squad.—(1) *List.*

(*a*) Two sighting bars complete.

(*b*) Two rifle rests.

(*c*) Two small sighting disks.

(*d*) Four small aiming targets.

(*e*) One 10-inch sighting disk.

(*f*) Two small boxes.

(*g*) One frame covered with blank paper for long-range triangles.

(*h*) Two sandbags.

(*i*) One aiming device.

(*j*) Fifteen rounds practice dummy ammunition for each man.

(*k*) One score book for each man.

(*l*) Two blank examination forms for each squad.

(*m*) One rapid-fire target with curtain for each three squads.

(*n*) Eight feet of twine for tying triggers to trigger guard.

(*o*) One each A, B, and D targets on frames for score-book exercises.

(*p*) Material for blackening sights.

(2) *Preparation of equipment.*—(*a*) *Sighting bar.*

1. Provide a bar of wood about 1 by 2 inches and 4½ feet long. Cut two thin slots 1 inch deep across the edge. Place one slot 5½ inches from the end and the other 26 inches from the same end of the bar (fig. 3 ②).

2. Make a front sight of thin metal ½ by 3 inches bent in the shape of an L and tack it to the edge of the bar between the two slots and ½ inch from the slot nearest the end (fig. 3 ④ (*d*) and (*g*)). Have the leg of the L project above the bar ½ to ¾ of an inch (fig. 3 ③).

3. Make an eyepiece from a piece of tin or zinc 3 by 7 inches (fig. 3 ④ (*c*), (*f*), and (*h*)). Cut along the dotted lines to form a shape shown in figure. Tack this eyepiece to the end of the bar farthest from the slots so that the top of the eyepiece extends 1 inch above the top of the bar (fig. 3 ③). Make a round hole 0.03 inch in diameter in the middle of the eyepiece ½ inch above the bar.

4. Make a peep rear sight of thin metal or cardboard 3 by 3 inches and cut a round hole ¾ inch in diameter in its center (fig. 3 ④ (*b*)).

5. Cut an open rear sight of thin metal or cardboard 1½ by 3 inches with a semicircular notch ¾ inch wide in the middle of one of the long edges (fig. 3 ④ (*e*)).

6. Cut a piece of thin metal or cardboard 3 by 3 inches, painted white, and have a black bull's-eye ½ inch in diameter painted or pasted on the center (fig. 3 ④ (*a*)).

7. Place two pieces of tin 1 inch wide and 3 inches long in each slot. Fold the loose ends away from each other and tack them to the sides of the bar (fig. 3 ③).
8. Blacken the eyepiece, the front sight, the rear sights, and the top of the bar.

(*b*) *Rifle rest.*—An empty ammunition box or any other well-made box of suitable size, with notches cut in the ends to fit the rifle closely, makes a good rifle rest. The rifle is placed in these notches with the trigger guard close to and outside of one end. The sling is loosened and pulled to one side. The box is half filled with earth or sand to make it more stationary.

(*c*) *Sighting disks.*—Sighting disks are of three sizes. The disk to be used at a distance of 50 feet is about 3 inches in diameter. The disk is made of tin or cardboard and mounted on a handle, as shown in figure 4. The bull's-eye will be mounted on a background of clean white paper. The disks to be used at 200 and 500 yards are, respectively, 10 and 20 inches in diameter. These disks are painted black and mounted on white handles which are 4 or 5 feet long. All bull's-eyes will be black and circular and will have a hole in the center large enough to admit the point of a pencil.

(3) *Range equipment, etc.*—The range will be provided with benches, cleaning racks, and scorers' tables.

SECTION V

TRAINING SEQUENCE

15. Instruction.—*a. Object.*—(1) Military rifle training is divided into two parts: *Rifle marksmanship* (known-distance firing) in which the men are taught individually to be good shots; and *musketry* in which they learn to act as a team under the leadership of the squad, section, and platoon leaders to obtain the maximum fire effect on an enemy.

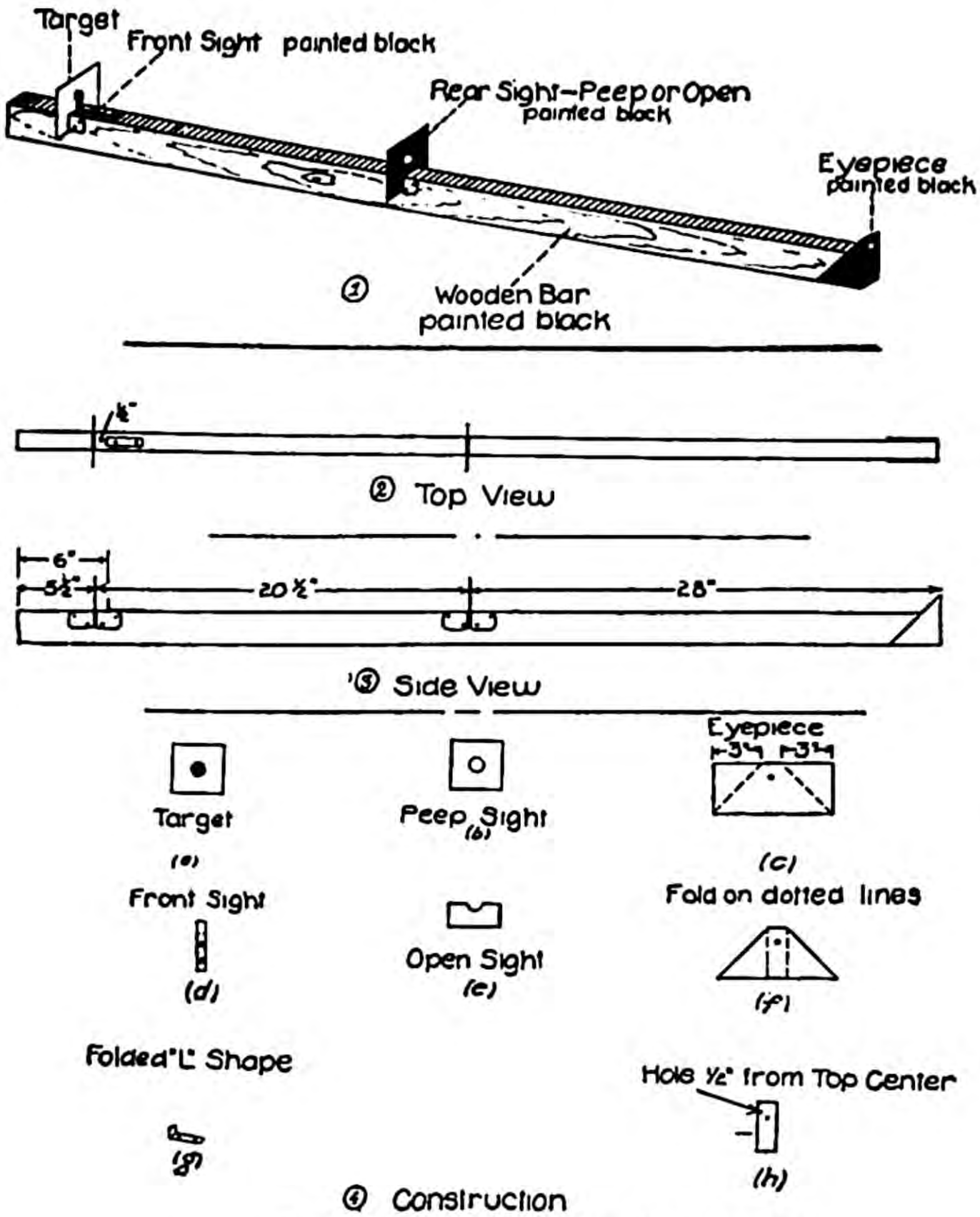


FIGURE 3.—Construction of sighting bar.

Wooden bar—1 by 2 inches by 4 feet 6 inches (approximate).
Eyepiece—Thin metal, 3 by 7 inches; hole, 0.03-inch diameter.
Rear sight—Thin metal or cardboard, 3 by 3 inches; hole in center, ¾-inch diameter.
Front sight—Thin metal, ½ by 3 inches, bent L shape.
Target—Thin meal, or cardboard, 3 by 3 inches, painted white—Black bull's-eye, ¾-inch diameter in center.
Slits—1 inch deep, may be lined with thin metal strips.

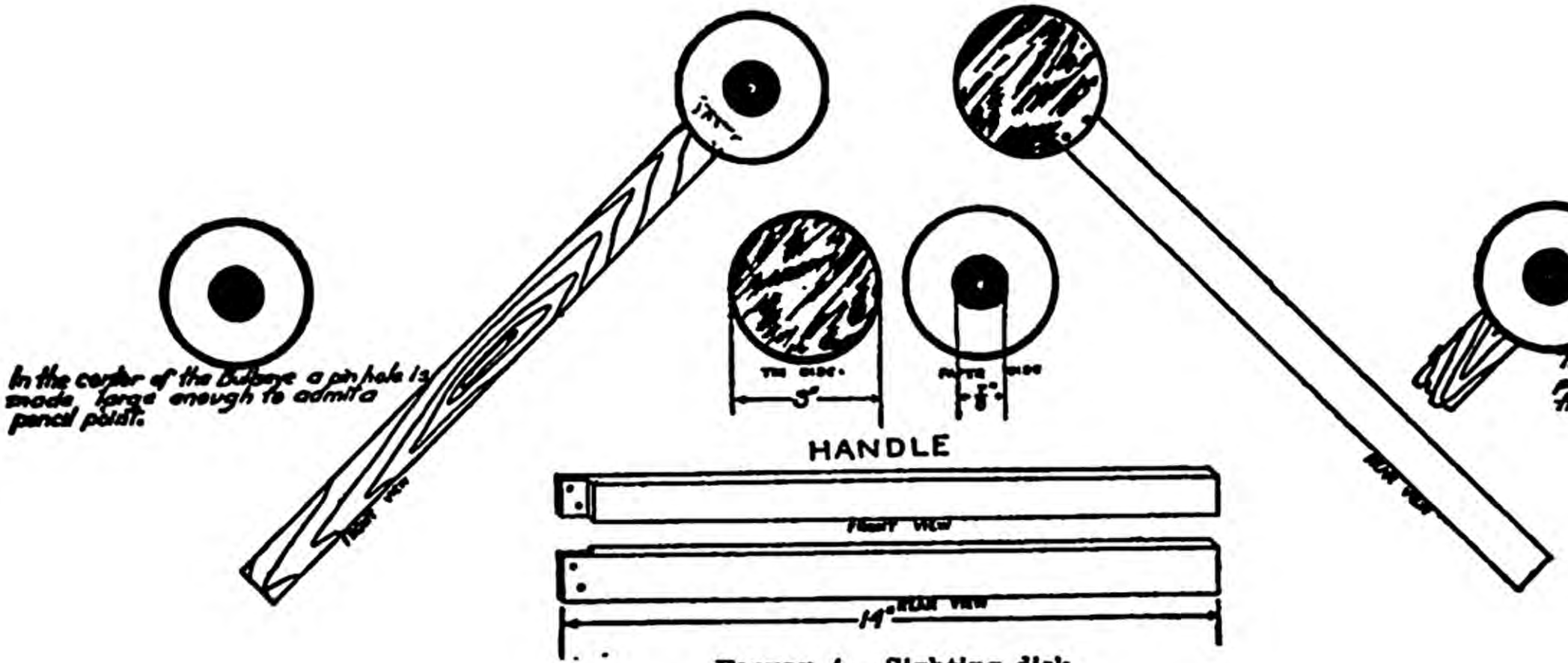


FIGURE 4.—Sighting disk.

(2) Rifle marksmanship and musketry are inseparably related. Neither one alone will win battles without undue losses. In all training on the rifle range it must be borne in mind that the ultimate object is to qualify for a team whose accurate fire can be controlled, directed, and distributed in battle by a leader.

b. Basis.—(1) Rifle firing is a mechanical operation which anyone who is physically and mentally fit to be a soldier can learn to do well if properly instructed. The methods of instruction are the same as those used in teaching any mechanical operation. The soldier is taught the various steps in their proper order. He is carefully watched and is corrected whenever he starts to make a mistake.

(2) Men instinctively do the wrong thing in firing the rifle. They give the trigger a sudden pressure which causes flinching. Consequently men cannot be taught to shoot by placing them alone on the firing line with ammunition to expend and targets at which to shoot in front of them. The idea that mere practice will ultimately make them perfect is wrong. Such procedure merely fixes the instinctively bad habits in the average man and makes it extremely difficult for anyone to teach him to shoot, even with the proper methods. If he has, however, been thoroughly instructed and drilled in the mechanism of correct shooting, and is then carefully and properly coached when he begins firing, the correct shooting habits rapidly become fixed and replace the instinctively incorrect habits that he would have developed if left alone.

(3) It is much easier to make an excellent shot out of a man who has never fired a rifle than it is to correct the errors of a man who has done a good deal of shooting under improper supervision.

(4) For duties of leaders and commanders in connection with the organization and supervision of the preparatory exercises see paragraph 14.

c. Methods.—(1) (*a*) The preparatory exercises have a twofold purpose; to teach the man the correct way to do each of the essentials, and to drill him in the correct method of doing these essentials until they become fixed habits. The prepara-

tory exercises constitute five distinct steps, as follows, and should be given in a concentrated period of time:

1. Sighting and aiming exercises.
2. Position exercises.
3. Trigger-squeeze exercises.
4. Rapid-fire exercises.
5. Examination of men before starting range practice.

(*b*) In addition, the following subjects will be taken up during the preparatory period: Nomenclature, care of the rifle, effect of wind, use of score book, and sight changing. These items do not pertain particularly to any one step, but will be taken up before the examination. As a rule the time spent indoors during inclement weather can be utilized in the study of these subjects.

(*c*) Each of the first four steps given in (*a*) above starts with a lecture by the instructor to the assembled command. This talk includes a demonstration by a squad which the instructor puts through the exercises that are to constitute the day's work. He shows exactly how to do the exercises that are to be taken up and explains why they are done and their application to rifle shooting. He shows how the corporal organizes the work in the squad so that no men are idle and how they coach each other when they are not under instruction by an officer or noncommissioned officer.

(*d*) These talks and demonstrations are an essential part of the training. If properly given they awaken the interest and enthusiasm of the whole command for the work and give an exact knowledge of how each step is to be carried on; something that men cannot get from reading a description, no matter how accurate and detailed that description may be.

(*e*) The instructor who gives these talks and demonstrations may be the platoon leader of his platoon, the company commander of his company, or the battalion commander of his battalion; or he may be an especially qualified officer who has been detailed as officer in charge of rifle instruction. The instructors who apply the demonstrated exercises to the men of the command are the officers and noncommissioned officers of the units undergoing instruction.

(*f*) The number of men who can be taught to shoot at one time by a good instructor is limited only to those who can hear his voice and see the demonstration. Regiments of over 3,000 officers and men who were totally ignorant of shooting matters have been put through preliminary work and range practice under one instructor with excellent results. As only one step is taken up at a time, and as each step begins with a lecture and a demonstration showing exactly what to do, the officers and noncommissioned officers, although not previously instructed, can carry on the work under the supervision of the instructor. It is best, of course, to have the officers and noncommissioned officers instructed in advance, but such a course is not essential where armies are being hastily organized and time is not available.

(*g*) The instruction must be thorough and it must be individual. Each man must understand every point and be able to explain each one in his own words. Each man must be brought to as high a state of proficiency on all of the enumerated points as the time allowed for preparatory work will permit. The company commander will carefully supervise the work. He will pick out men at random through the different platoons from time to time and put them through a test to see if the instruction is thorough and is progressing satisfactorily.

(*h*) The blank form shown in (3) below must be kept by each squad leader and by each platoon leader independently of the squad leader. This blank form shows at a glance just how much each man knows about each point.

(*i*) The importance of exactness should be impressed on the men at all times. For example, men in adjusting the sights in the sighting drills or shot group exercises are apt to say, "That is about right." There is no such thing as a sight that is about right; it is absolutely right or it is all wrong. Exactness in every detail is hard to get, but it must be attained.

(*j*) Interest and enthusiasm must be sustained and everything possible should be done to stimulate them. If the exercises are gone through in a manner approximately correct and as a routine piece of work, the results will be very disappoint-

ing. As soon as these exercises deteriorate into a perfunctory performance of physical exercise they do more harm than good.

(*k*) Careful attention will be paid to the essential points as shown in the form of questions and answers under the heading "Examination" (par. 48). This will be consulted by the instructor during each step of the preparatory work. Each man will be put through a thorough test along the line indicated in these questions and answers before he is allowed to fire.

(*l*) The most important point of all is the trigger squeeze, and every effort should be made at the very beginning of range practice to correct trigger-squeeze errors. The best method of correcting flinching, which is always the visible sign of trigger-squeeze error, is for the coach to press the trigger while the man under instruction holds and aims the rifle.

(*m*) Whenever a man is in a firing position, whether it be at preparatory exercises, at gallery practice, or on the range, a coach will be placed beside him to watch him and point out his errors. The coach will watch the man himself. If a coach watches the target, he is of no assistance to the man firing.

(*n*) Every man who is to fire on the range will be put through the entire preparatory course. No distinction will be made between recruits and men who have had range practice, no matter what their previous qualification has been. Some part of the preparatory instruction may have escaped them in previous years; it is certain that some of it has been forgotten, and in any case it will be helpful to go over it again and refresh the mind on the subject.

(*o*) When necessary and when time permits, all of the noncommissioned officers of the company should be put through a course of instruction and required to pass a rigid test before the period of preparatory training for the company begins.

(*p*) Range practice is taken up immediately after completion of the preparatory exercises.

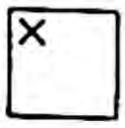
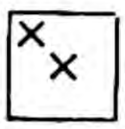
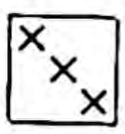
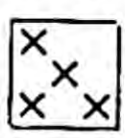
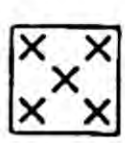
(2) Instruction is carried on throughout the entire period of training by the *coach-and-pupil method.* Under this method the men undergoing instruction are grouped in pairs and take turns in watching and coaching each other. The man undergoing instruction is called the pupil. The man giving instruc-

tion is called the coach. When the men of a pair change places the pupil becomes the coach and the coach becomes the pupil. The squad leaders and commanders of higher units are the instructors. The instructors supervise and prompt the men who are acting as coaches.

(3) *Form showing state of instruction.*

Name	Care and cleaning of the rifle	Sighting bar	Sighting and aiming with rifle	Shot group exercises	Blackening sights	Use of gun sling	Taking up the slack	Holding the breath	Positions	Assuming positions rapidly	Trigger squeeze	Calling the shot	Bolt operation	Rapid fire	Sight changes	Effect of light and wind	Use of score book	Ability to coach	Final examination	Gallery practice	Pads

METHOD OF MARKING

Fair:  Good:  Very good:  Excellent:  Excellent and has instructional ability: 

SECTION VI

FIRST STEP; SIGHTING AND AIMING

16. First sighting and aiming exercise (fig. 5).—*a.* The instructor or squad leader shows a sighting bar to his group or squad and points out the front and rear sights, the eyepiece, and the removable target. He explains the use of the sighting bar as follows:

(1) The front and rear sights on the sighting bar represent enlarged rifle sights.

(2) The sighting bar is used in the first sighting exercise because with it small errors can be easily seen and explained to the pupil.

(3) The eyepiece requires the pupil to place his eye in such position that he sees the sights in exactly the same alinement as seen by the coach.

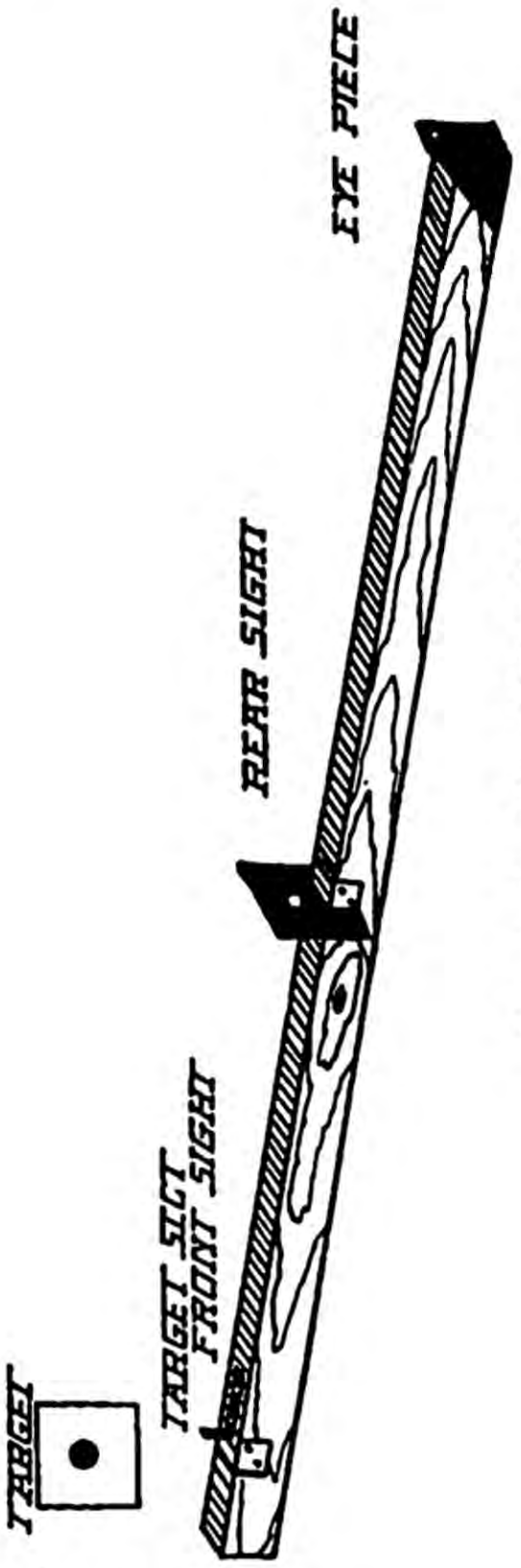


FIGURE 5.—The sighting bar.

(4) There is no eyepiece on the rifle, but the pupil learns by use of the sighting bar how to aline the sights properly when using the rifle.

(5) The removable target attached to the end of the sighting bar is a simple method of readily alining the sights on a bull's-eye.

b. The instructor explains the open and the peep sight to the assembled group, showing each man the illustrations of a correct sight alinement (fig. 6 ①, ②, ④, and ⑤).

c. The instructor, first with the peep sight and then with the open sight, adjusts the sights of the sighting bar, with target removed, to illustrate a correct alinement of the sights. He has each man of the assembled group look through the eyepiece at each of the sight adjustments.

d. The instructor adjusts the sights of the sighting bar with various small errors in sight alinement and has each man of the assembled group endeavor to detect the error.

e. The instructor describes a correct aim, showing the illustration to each man. He explains that the top of the front sight is seen through the middle of the circle and just touches the bottom of the bull's-eye, so that all of the bull's-eye can be clearly seen (fig. 6 ③ and ⑥).

f. The instructor explains that the eye should be focused on the bull's-eye in aiming, and he assures himself, by questioning the pupils, that each man understands what is meant by focusing the eye on the bull's-eye.

g. The instructor adjusts the sights of the sighting bar and the removable target so as to illustrate a correct aim and has each man of the group look through the eyepiece to observe this correct aim.

h. The instructor adjusts the sights and the removable target of the sighting bar so as to illustrate various small errors and has each man in the group attempt to detect the error.

i. The exercise described above having been completed by the squad leader or other instructor, the men are placed in pairs and repeat the exercise by the coach-and-pupil method.

j. As soon as a pupil is considered proficient in the first sighting and aiming exercise, he is put through the second and third sighting and aiming exercises by the instructor. Such pupils are then placed in pairs to instruct each other in these two exercises by the coach-and-pupil method.

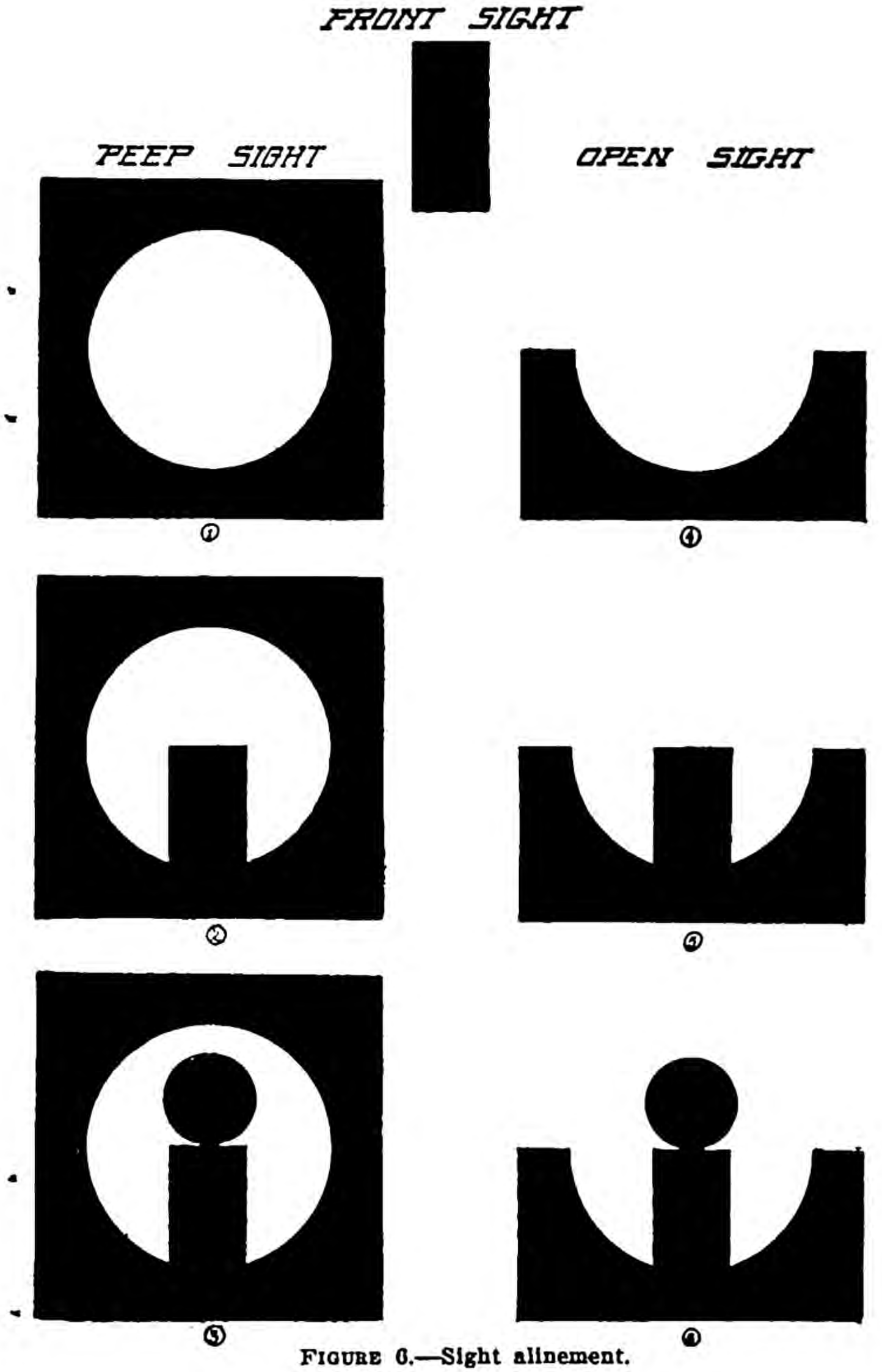


FIGURE 6.—Sight alinement.

17. Second sighting and aiming exercise.—*a.* A rifle with sights blackened is placed in a rifle rest and pointed at a blank sheet of paper mounted on a box (fig. 7). Without touching rifle or rifle rest, the coach takes the position illustrated and looks through the sights. The coach directs the marker by command or improvised signal to move the small disk until the bottom of the bull's-eye is in correct alinement with the sights (fig. 6 ③, ⑥) and then commands: ***HOLD,*** to the marker. The coach moves away from the rifle and directs the pupil to look through the sights in order to observe the correct aim.



FIGURE 7.—Position for second sighting and aiming exercise.

b. The marker moves the disk out of alinement. The pupil takes position and directs the marker to move the disk until the bottom of the bull's-eye is in correct alinement with the sights. The coach then looks through the sights to see if the alinement is correct.

c. The coach alines the sights on the bull's-eye with various slight errors to determine whether or not the pupil can detect them.

18. Third sighting and aiming exercise.—*a.* The object of this exercise is to show the importance of uniform and correct aiming, and to instill into the mind a sense of exactness. At 50 feet and with a small bull's-eye a man should be able to place all

three marks so that they could be covered by the unsharpened end of a lead pencil (fig. 7).

b. This exercise is conducted as follows: The rifle with the sights blackened is placed in a rifle rest and pointed at a blank sheet of paper mounted on a box. The pupil takes the position illustrated and looks through the sights without touching the rifle or rifle rest. The pupil directs the marker, by command or improvised signal, to move the disk until the bottom of the bull's-eye is in correct alinement with the sights, and then commands: ***HOLD,*** to the marker. The coach then looks through



FIGURE 8.—Position for third sighting and aiming exercise on long ranges.

the sights to see if the alinement is correct. Then without saying anything to the pupil, he commands: ***MARK,*** to the marker. The marker, without moving the disk, makes a dot on the paper with a sharp-pointed pencil inserted through the hole in the center of the bull's-eye. The marker than moves the disk to change the alinement. The pupil and coach, without touching the rifle or rifle rest, repeat this operation until three dots, numbered 1, 2, 3, respectively, have been made. These dots then outline the shot group and the pupil's name is written under it. The size and shape of the shot group will be discussed and the errors pointed out. This exercise will be repeated until proficiency is attained.

c. This exercise should also be held, during the period of the preparatory training, at 200 yards on a 10-inch movable bull's-eye (fig. 8), and, if time permits, at 500 yards on a 20-inch movable bull's-eye. These long-range shot group exercises teach the men to aim accurately at a distant bull's-eye, the outlines of which are indistinct. If the exercise is properly handled, it helps greatly to sustain interest in the work. At 200 yards a man should be able to make a shot group that can be covered with a silver dollar, and at 500 yards a shot group which is not over 2 inches in diameter.

d. Tissue paper will be used to copy off each pupil's shot group at long range. The name of the pupil will be written on the tissue paper under the shot group he made. These tracings are sent back to the firing line so that the pupil can see what he has done. The squad leader will turn over all shot groups to the platoon leader for his inspection.

e. The sighting and aiming exercises, especially the 200-yard shot group work, will be carried on during the time devoted to the second and third steps. The purpose of continuing these exercises is to bring backward men up to the proper state of proficiency and to assist in keeping the men interested.

f. Competition between the individuals of a squad to see which can make the smallest shot group is of value in creating interest in this exercise.

SECTION VII

SECOND STEP; POSITIONS

19. Instruction in position.—Correct position is of great importance in teaching men to shoot. Instruction in position involves blackening the sights, use of the gun sling, taking up the slack, the correct manner of holding the breath, aiming, and the use of the aiming device.

a. Blackening the sights.—In all preparatory exercises involving aiming, and in all range firing, both sights of the rifle will be blackened. The blackening is done by holding each sight for a few seconds in the point of a small flame which is of such a

nature that a smooth uniform coating of lampblack will be deposited on the metal. There are a number of materials which give a flame of the right nature for this purpose. Among the most commonly used are a candle, a piece of camphor, a wax match, a piece of pine wood full of pitch, a small piece of shoe paste, a rag saturated with any kind of oil. Some device must be provided to protect the flame from the wind.

b. Gun sling.—(1) The gun sling is of great assistance in shooting. It helps to steady the rifle, presses the butt of the rifle against the shoulder with the same amount of force for each shot, and reduces the effect of the recoil.

(2) Each man will be assisted by the instructor in adjusting his sling, which will be habitually carried with this adjustment. The gun sling will be tightened by means of the lower loop for drill or parade purposes without changing the adjustment of the upper loop. In a firing position the sling should be as tight as it can be made and still allow the man to get into it readily. A properly adjusted sling will feel uncomfortable until the muscles of the arm become accustomed to the pressure.

(3) There are two authorized methods of adjusting the sling; the *loop* adjustment and the *hasty sling* adjustment. The hasty sling is more rapidly adjusted than the loop sling, but it gives less support in positions other than the standing position. Instruction will be given in both sling adjustments.

(*a*) *Loop adjustment* (fig. 9).

1. Loosen lower loop.

2. Put left arm through upper loop from right to left, so that the upper loop is near the shoulder and well above the biceps muscle.

3. Pull leather keeper down so that it will hold the upper loop in place.

4. Move the left hand over the top of the gun sling and grasp the rifle near the lower band swivel so as to cause the sling to lie smoothly along the hand and wrist. Lower loop, not used in this adjustment, will be so loose as to prevent any pull upon it.

(*b*) *Hasty sling adjustment* (fig. 10).

1. Loosen lower loop.

2. Grasp the rifle just in rear of the lower band swivel with the left hand and grasp the small of the stock with the right hand.

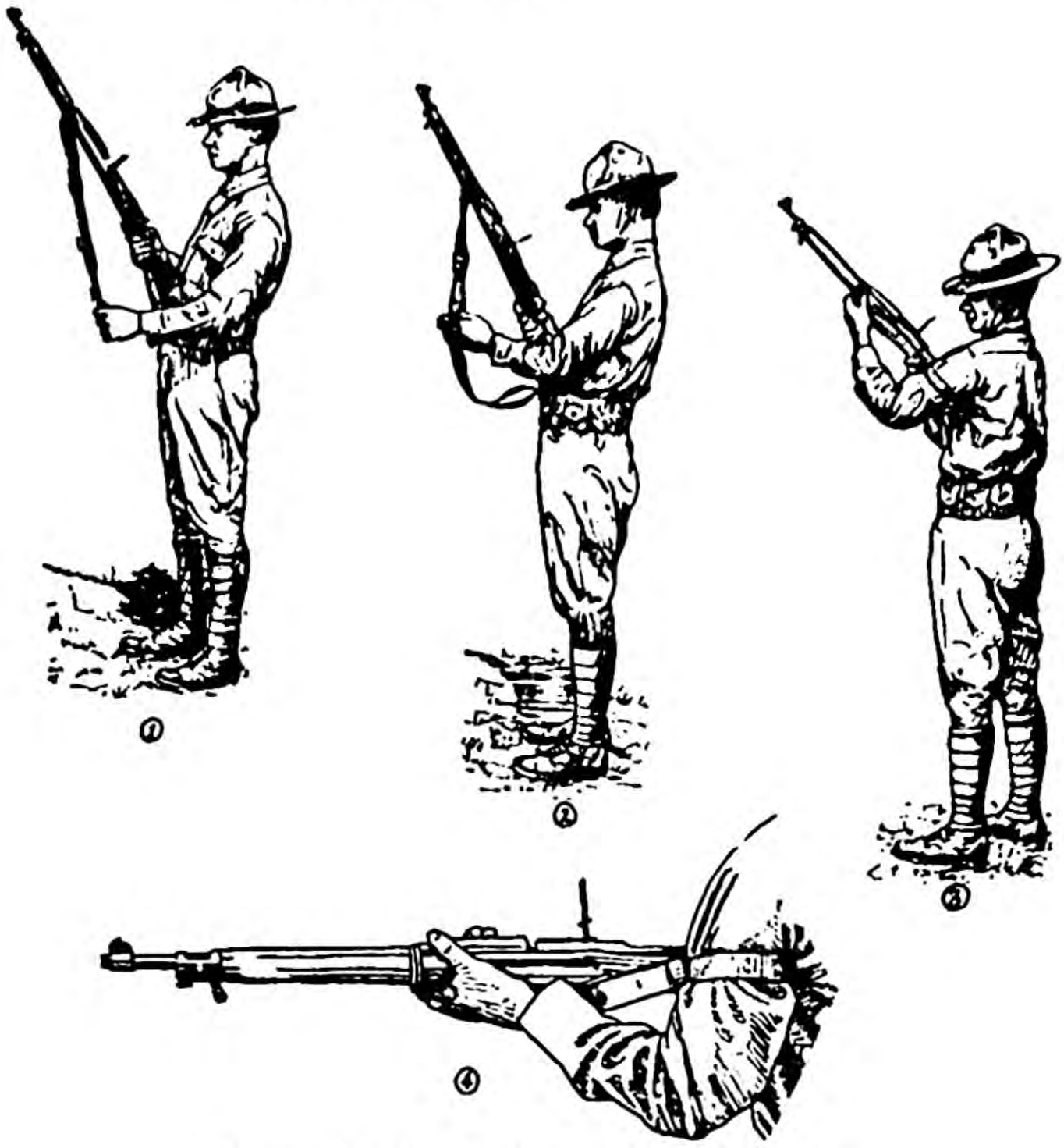


FIGURE 9.—Loop adjustment of the sling.

3. Throw the sling to the left and catch it above the elbow and high on the arm.

4. Remove the left hand from the rifle, pass the left hand under the sling, then over the sling and regrasp the

rifle with the left hand so as to cause the sling to lie along the hand and wrist. The sling may be given one-half turn to the left and then adjusted. This twisting causes the sling to lie smoothly along the hand and wrist.

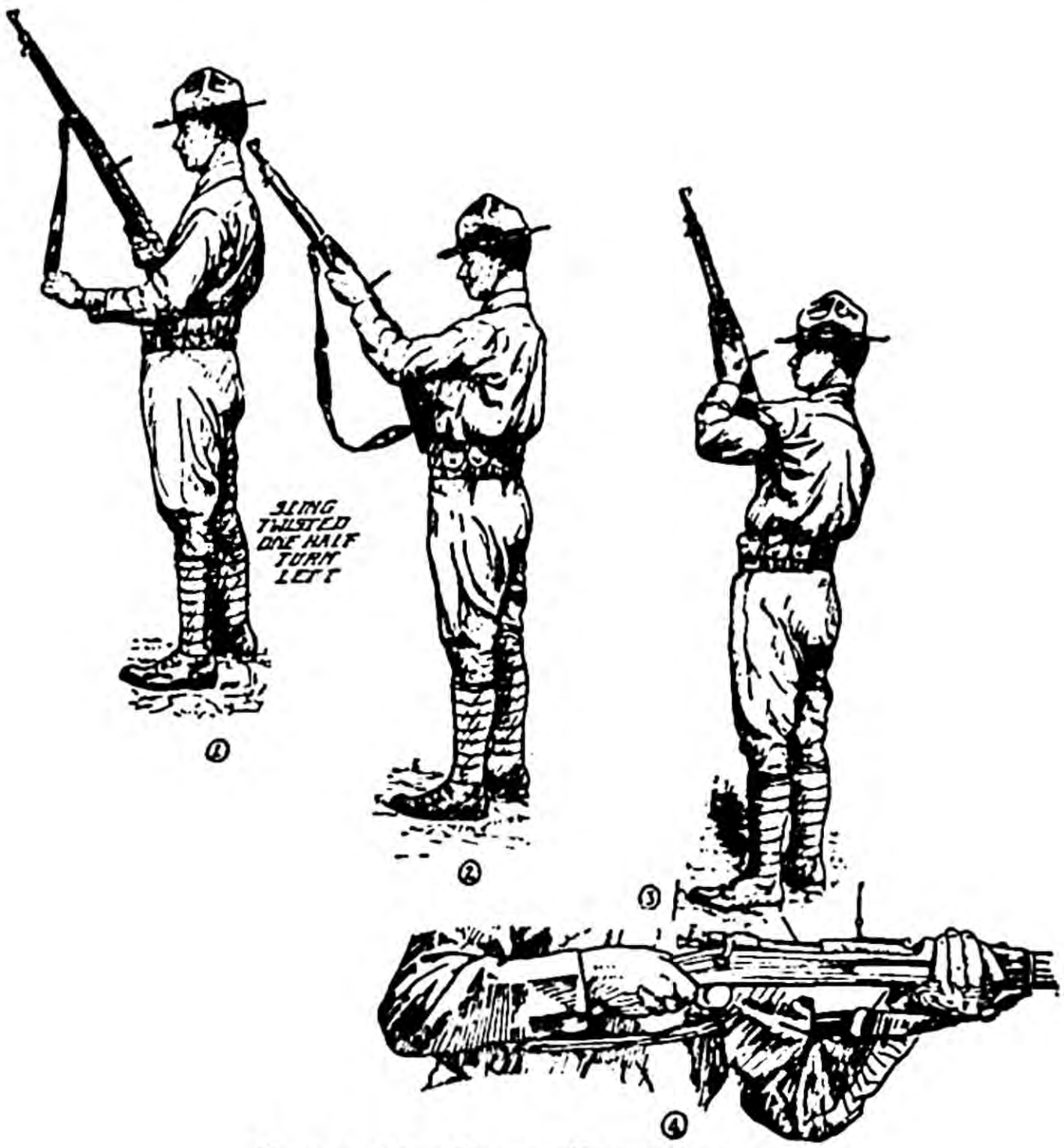


FIGURE 10.—Hasty sling adjustment.

c. Taking up the slack.—The slack is the first movement of the trigger which takes place when light pressure is applied. Taking up the slack is part of the position exercise because this play must be taken up by the finger as soon as the correct

position is assumed and before careful aiming is commenced. The entire amount of slack in the trigger is taken up by one firm pressure of the finger; if it is taken up by a slow gradual pressure the pupil cannot know when the entire amount has been taken up.

d. Holding the breath.—(1) Holding the breath in the proper manner while aiming is very important. It will be found that a large portion of men in any group undergoing instruction in rifle practice do not know how to hold the breath in the proper manner. Each man must be carefully instructed and tested on this point. The correct manner of holding the breath must be practiced at all times during position and trigger-squeeze exercises and whenever firing or simulating fire.

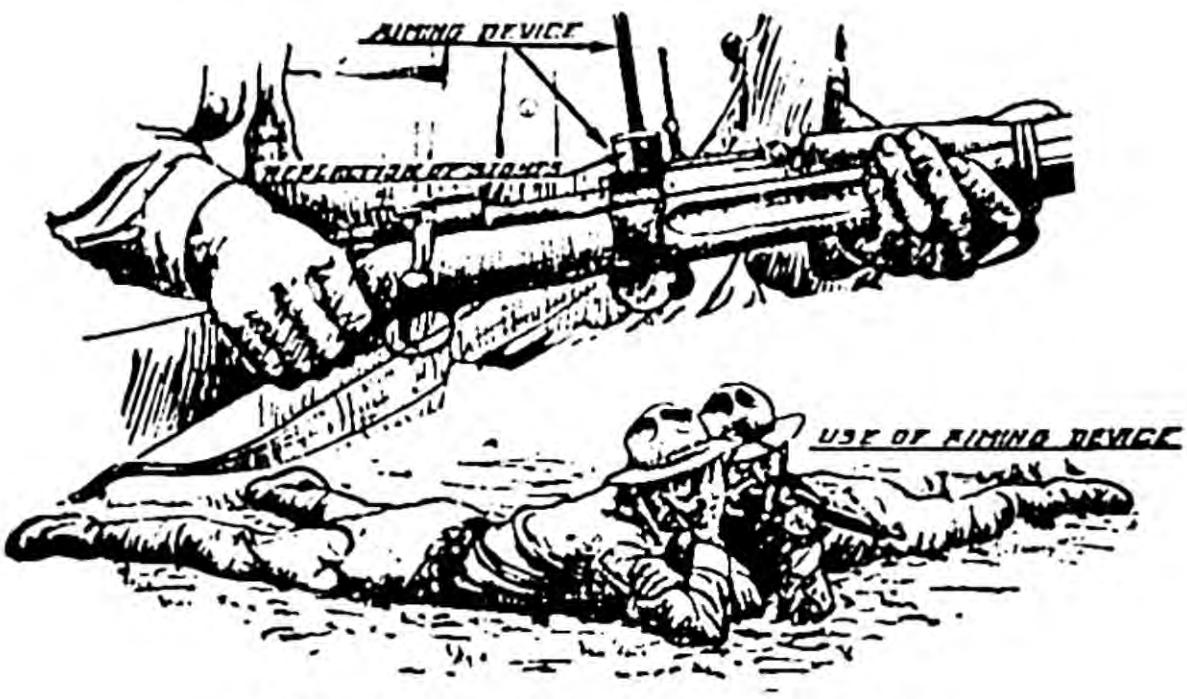


FIGURE 11.—Use of aiming device.

(2) To hold the breath properly draw into the lungs a little more air than is used in an ordinary breath. Let out a little of this air and stop the rest by closing the throat so that the rest of the air in the lungs will press against the closed throat. Do not hold the breath with the throat open or by the muscular action of the diaphragm as if attempting to draw in more air. The important point is to be comfortable and steady while aiming and squeezing the trigger.

c. Use of the aiming device (fig. 11).—This device will be used freely in the preparatory position, the trigger-squeeze exercises,

and gallery practice, so as to instruct the men in aiming and to correct errors. The device is a great help to the instructor in teaching men to shoot, both in preparatory work and in range practice. It is principally used in the position and trigger-squeeze exercises in the preparatory period. It cannot be used to advantage on the range when there is a poor light on the target. It can always be used to good advantage in the preparatory exercises because the small aiming bull's-eye is so close that outlines are distinct and the target can always be so placed as to be clearly seen.

20. **General rules for positions.**—The following general rules are common to the prone, sitting, kneeling, and standing positions. They will be considered a part of each paragraph on positions and will be referred to when studying those paragraphs.

a. To assume any position, first half face to the right and then assume the position.

b. Upon assuming any position there is some point to which the rifle points naturally and without effort. If this point is not the center of the target, the whole body must be shifted so as to bring the target into proper alinement. Otherwise, the firer will be firing under a strain because he will be pulling the rifle on the target by muscular effort for each shot.

c. The right hand grasps the small of the stock. The right thumb may be either around the small of the stock or along the right side of the stock. The position of the thumb will be such as to prevent injury to the face in firing. Most riflemen place the thumb along the right side of the stock.

d. The left hand is against or near the lower band swivel, the rifle resting in the palm of the left hand.

e. The left elbow will be as nearly under the rifle as it can be placed without appreciable effort.

f. The trigger should ordinarily be squeezed with the second joint of the index finger. The first joint may be used by men the length of whose arm or the size of whose hand is such as to make it difficult to reach the trigger with the second joint, or to whom the first joint of the finger seems more natural and comfortable.

g. The cheek is always pressed firmly against the stock and placed as far forward as possible without straining. It is desirable to have the eye as near as possible to the rear sight.

h. Left-handed men should be trained to shoot in the right-hand position. If this change is found to produce poor results in the case of any man, he will be allowed to shoot in the left-hand position. But he must be given additional preparatory rapid-fire practice to attain rapidity in working the bolt.

i. Men who cannot close the left eye may shoot in the left-hand position, but in practically all cases of this kind the man

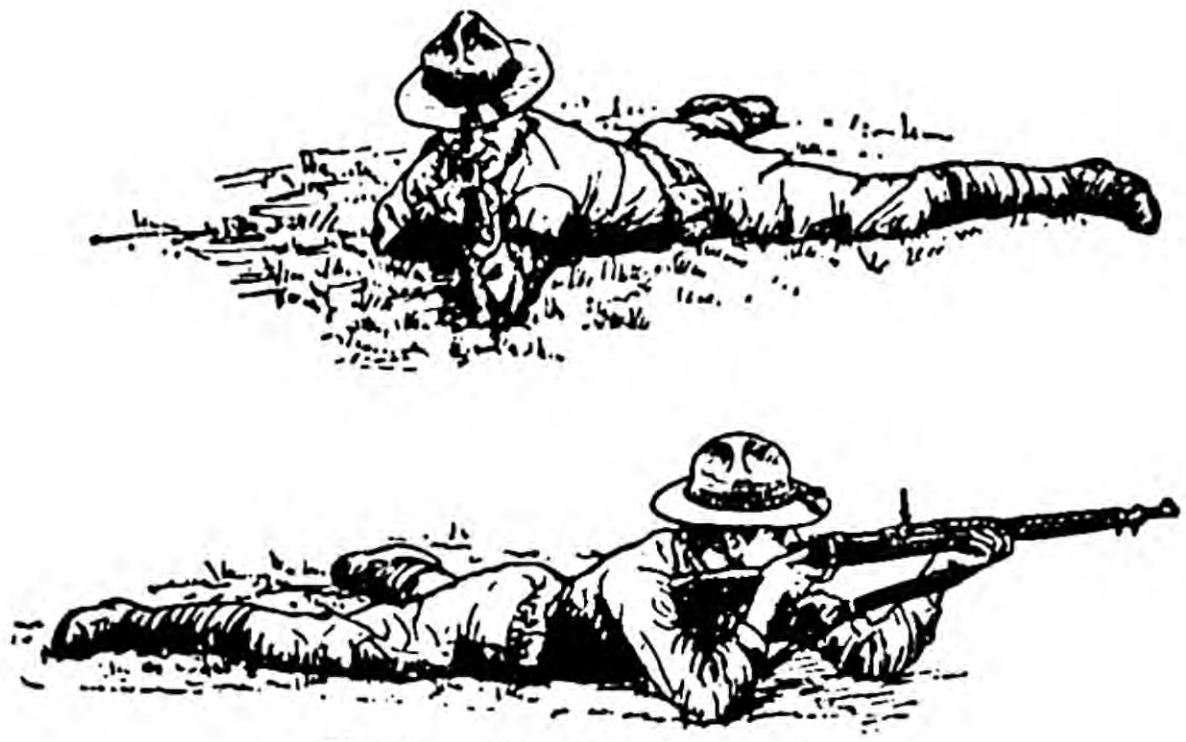


FIGURE 12.—Prone position.

can, by practice, acquire the ability to close the left eye or to shoot with both eyes open.

21. Prone position (fig. 12).—*a.* Body lying at an angle of 45° to the line of aim with the spine straight; legs well apart; inside of the feet flat on the ground, or as nearly so as is possible without strain; elbows well under the body so as to raise the chest off the ground; right hand grasping the small of the stock; left hand near the lower band swivel, the rifle resting on the palm of the hand; cheek pressed firmly against the stock with the eye as near the cocking piece as it can be placed without straining; gun sling properly adjusted and tight enough to give firm support.

b. The elbows should not be unduly spread apart because such separation results in an unsteady position and brings the chest so near the ground that the neck has to be strained backward in order to see through the sights. This strained position of the neck interferes with good vision and tends to make the firer unsteady. The exact angle of the arms to the ground will depend somewhat upon the conformation of the man. The right elbow should be so placed that the right upper arm will not form an angle of less than 45° with the ground.

c. The exact position of the left hand will depend on the length of arm and width of chest of the individual. It should be as near the lower band swivel as the conformation of the man will permit. The left hand will never be placed against, or near, the trigger guard.

d. A tight gun sling will feel uncomfortable until the muscles of the arm have become accustomed to the pressure. When the gun sling is properly adjusted it is necessary to raise the right elbow from the ground in order readily to place the butt of the rifle against the shoulder.

22. Sandbag rest position (fig. 13).—*a.* The sandbag rest position conforms in every detail to the normal prone position described in paragraph 21, with the addition of a sandbag which supports the left forearm, wrist, and hand.

b. The bag is a little more than half full and tied near the top, so as to leave considerable free space above the sand.

c. It is important that the sandbag be high enough to permit the taking of the normal prone position. The natural tendency is to have a low rest and to be very flat on the ground with the elbows spread apart. This is a faulty position which causes lower scores than if no rest at all were used. The sandbag when properly adjusted is a great help. When it is not properly adjusted it is a handicap.

d. The sandbag rest position is used in the first stages of a pupil's training, not to teach steadiness of holding but to teach the correct trigger squeeze. By using the sandbag the slight unsteadiness of the hold is avoided and the temptation to try to snap in the shot at the instant the sights touch the bull's-eye, an action which causes all poor shooting, is eliminated.







FIGURE 13.—Prone position with sandbag rest.

c. The coach will adjust the sandbag as follows:

(1) Have the pupil assume the prone position and aim at the target.

(2) Set the sandbag on its bottom and arrange the sand so that it is slightly higher than the back of the pupil's left hand.

(3) Facing the pupil, straddle the rifle barrel, and slide the sandbag against the pupil's left forearm, so that the narrow side of the bag supports his forearm and wrist and the back of his hand rests on top.

(4) Lower the sandbag to the proper height by pounding it with the hand.

23. Sitting position (fig. 14).—*a.* The firer sits half-faced to the right; feet well apart and well braced on the heels, which are dug slightly into the ground; body leaning well forward; both arms resting inside the legs and well braced; cheek pressed firmly against the stock and placed as far forward as possible without straining; left hand near the lower band swivel, the rifle resting on the palm of the hand.

b. The sitting position is used in the field when firing from ground that slopes downward to the front. In practicing this position the feet may be slightly lower than the ground upon which the pupil sits. Sitting on a low sandbag is authorized.

c. In the event the conformation of a man is such that he cannot assume the prescribed normal position, such changes as may be necessary to secure a steady comfortable position are authorized.

24. Kneeling position (fig. 15).—The firer kneels half-faced to the right on the right knee, sitting on the right heel; the left knee bent so that the left lower leg is vertical; left arm well under the rifle and resting on the left knee with the point of the elbow beyond the kneecap; right elbow approximately at the height of the shoulder; cheek pressed firmly against the stock and placed as far forward as possible without strain. Sitting on the side of the foot instead of the heel is authorized.

25. Standing position (fig. 16).—The firer stands half-faced to the right; feet from 1 foot to 2 feet apart; body erect and well balanced; left elbow well under the rifle; rifle resting on the palm of the left hand which grasps the piece in front of

the balance; butt of the piece high up on the shoulder and firmly held; right elbow approximately at the height of the shoulder; cheek pressed against the stock and placed as far



FIGURE 14.—Sitting position.

forward as possible without strain. A position with the left hand against or under the trigger guard and with the left upper arm supported against the body is not a practical field position and is prohibited.

26. **Positions in standing trench.**—These positions will vary according to the style of trench and build of the man. In general, it is a good plan to have as many points of support for the body and arms as possible. In a trench that has no berm for the left elbow, the position is the normal standing position.

The left hand is placed against the top of the parapet, and the rifle, just beyond the hand, rests on the parapet. With the berm the position is about the same, except that the left elbow



FIGURE 15.—Kneeling position.

rests on the berm. When the berm is wide enough, as it often is, both elbows can be rested on it, in which case the position of the upper part of the body is about the same as in the prone

position with the sandbag rest. In all positions in a trench the soldier should lean well against the butt of the rifle to insure firmness and steadiness.

27. **Position exercises.**—*a. General.*—Instruction in positions is the second step in the preparatory training and is conducted as follows:



FIGURE 16.—Standing position.

(1) The instructor assembles his squad or group, shows them the proper method of blackening the front and rear sights of the rifle, and has each pupil blacken his sights.

(2) The instructor explains and demonstrates the hasty sling adjustment and assists each pupil to adjust his sling. He explains the loop sling adjustment and assists each pupil to adjust his sling.

(3) The instructor explains and demonstrates the proper manner of taking up the slack and has each pupil practice it.

(4) The instructor explains and demonstrates the proper manner of holding the breath and has each pupil practice it.

(5) The instructor explains and demonstrates the use of the aiming device.

(6) The instructor explains the general rules which apply to to all positions.

(7) The instructor explains and demonstrates the prone position, prone position with sandbag rest, sitting, kneeling, and standing positions. He has each pupil assume each of these positions and corrects any errors that exist.

(8) The above points having been shown to the assembled group, the instruction becomes individual by the coach-and-pupil method supervised by the instructor. Small aiming bull's-eyes are used for this instruction. These bull's-eyes must be placed at different heights so that in aiming from the various positions the rifle will be horizontal.

b. Duties of the coach.—In the position exercises the coach sees that—

(1) The sights are blackened.

(2) The gun sling is properly adjusted, is tight enough to give support, and is high up on the arm.

(3) The proper position is taken.

(4) The slack is taken up promptly.

(5) The aim is correct.

(6) The breath is held while aiming. As soon as the aim becomes unsteady the exercises cease and after a short rest are repeated. The coach checks the pupil's aim occasionally by means of the aiming device, and the pupil's manner of holding his breath by watching his back. The trigger is not squeezed in the position exercises.

28. Assuming prone position rapidly.—*a. Skirmishers' method* (fig. 17).—(1) The movement is described by the numbers for the purpose of instruction in the sequence of movement. After this sequence is learned the position will be taken as one motion. With practice men can take the prone position and be aiming at the target in 3 seconds.

(*a*) Being at the ***Ready,*** sling adjusted, points selected at which right and left elbows are to rest when in the prone posi-

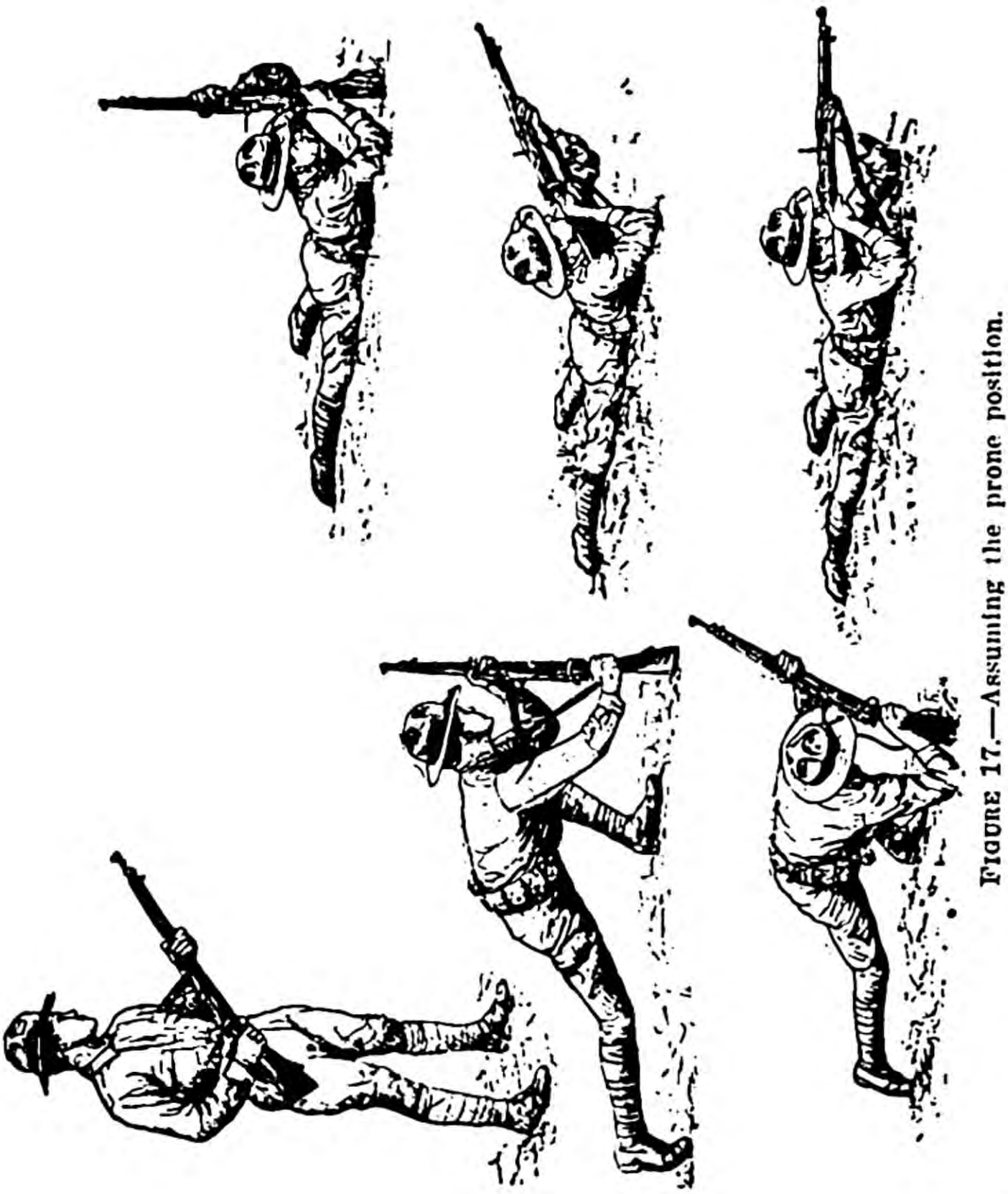


FIGURE 17.—Assuming the prone position.

tion, throw the right foot well back and bend left knee as low as possible, placing the butt of the rifle on the ground 4 or 5 inches to the left, and slightly in front of the spot where the right elbow is to rest. The grip on the rifle is retained with both hands.

(*b*) Place the right elbow on the ground.

(*c*) Place the left leg back near the right one, feet apart, and slide well back while lying on the belly.

(*d*) Take the butt of the rifle off the ground and place it against the right shoulder.

(*e*) Lower the left elbow to the ground.

(2) These movements will bring the firer into his normal position with the rifle pointing at the target. Care should be taken to place the butt of the rifle on the ground without jar and to place the elbows on the ground in the same manner. With practice this position can be assumed very rapidly and without shock.

(3) When the details of this movement have been learned it should be practiced as one movement. When properly done the feet will still be sliding into position when the rifle is being placed on the shoulder, and the left elbow will come to the ground at almost the same time that the backward movement of the body is completed.

b. Alternate method (fig. 18).—The movement is described by the numbers for the purpose of instruction in the sequence of the movement. After this sequence is learned the position will be taken as one motion.

(1) Being at the ***Ready,*** sling adjusted, points selected at which right and left elbows are to rest when in the prone position, and the point on the ground just below the butt of the rifle when in the firing position marked, the rifle grasped with the left hand just below the lower band and the right hand at the heel of the stock, bend both knees to the ground.

(2) Place the butt of the rifle on the ground at the point marked.

(3) Place the left elbow on the ground.

(4) Place the butt of the rifle against the right shoulder with the right hand, at the same time spreading the feet apart.

(5) Grasp the small of the stock with the right hand and place the right elbow on the ground.

c. After a run from a prone position.—(1) Being in the prone position as shown in plate 3, TR 420–85, with the rifle loaded and locked and with sight leaf laid down.

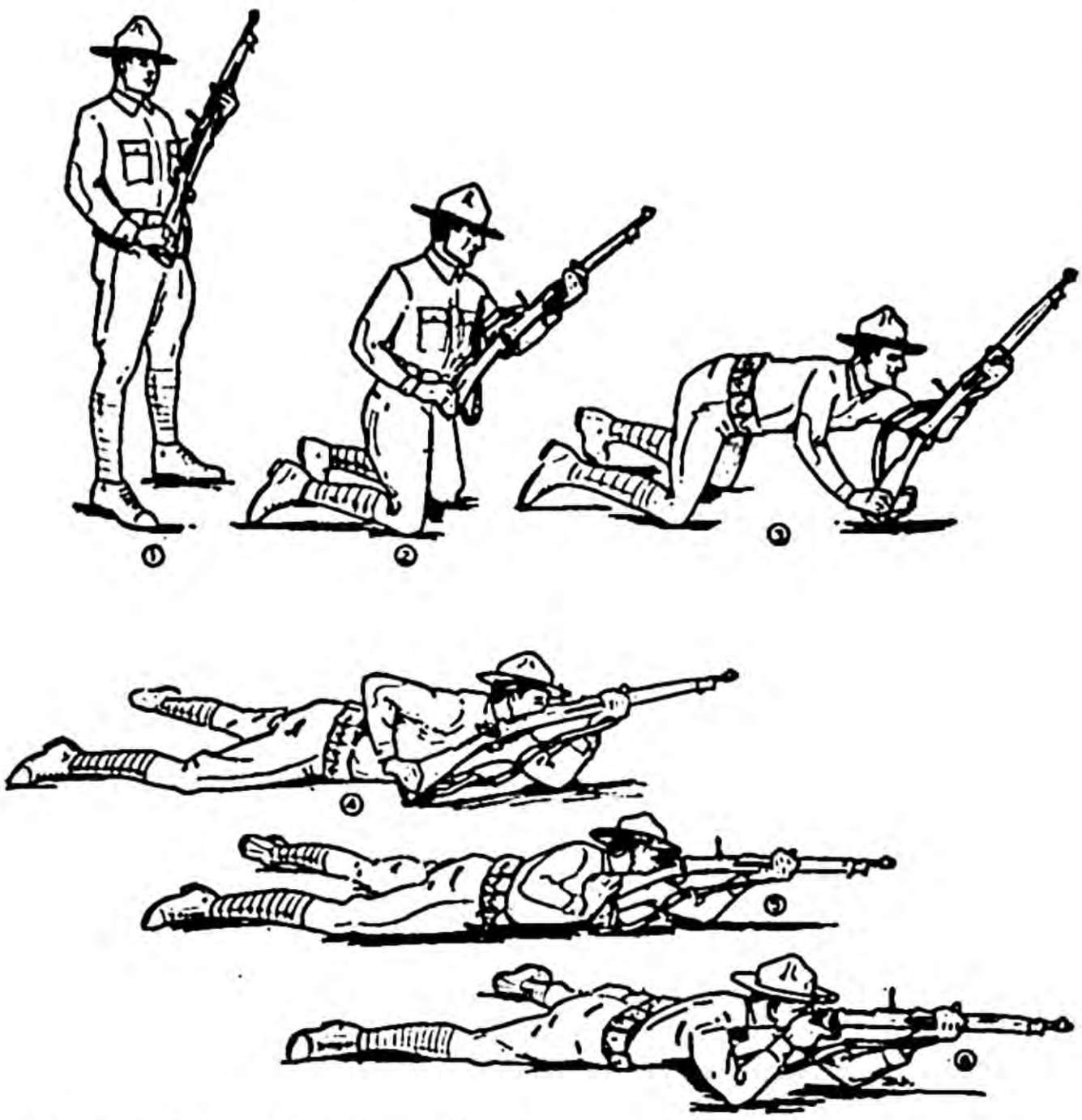


FIGURE 18.—Alternate method of assuming the prone position.

(2) Rise and move forward at a run as described in paragraph 12*e*, TR 420–85, at the command: 1. ***Prepare to rush,*** 2. ***UP.***

(3) *Upon arrival at the firing point* (fig. 19).—(*a*) Advance the left foot, turning it across the front of the body.

(*b*) Drop forward on the outside of the left knee and at the same time extend the rifle, grasped in both hands and held vertically, so that the butt strikes the ground at full arm's length directly in front of the left knee.

(*c*) Pivoting on the left knee and the butt of the rifle, roll forward on the right elbow and right side.

(*d*) Throw the sling to the left and catch it above the elbow and high on the arm. Remove the left hand from the rifle, pass the left hand under the sling and then over the sling, and regrasp the rifle just below the lower band with the left hand. Place the left elbow on the ground.

(*e*) With the right hand, raise the sight leaf, unlock the piece, and place the butt of the rifle against the right shoulder.

(*f*) Grasp the small of the stock with the right hand and place the right elbow on the ground.

d. The ability to assume this position rapidly is a distinct advantage in war because a man can thus fire an aimed shot more quickly than if he remained standing. The position also reduces the enemy's target from a standing to a prone figure. Instruction in taking positions rapidly will be given during the period of preparatory training.

e. Other methods of assuming the prone position from standing and from a run may be used.

29. Assuming sitting position rapidly.—*a.* To assume the sitting position rapidly, break the fall by placing the right hand on the ground slightly to the right rear of the spot on which to sit.

b. In practicing for range firing, first sit down and aim at the target in the normal sitting position. Then mark the position of the heels and the spot on which to sit. Then at the command, ***Ready on the firing line,*** stand with the heels in the places made for them. As the target appears, sit down on the spot marked, breaking the fall with the right hand, regrasp the small of the stock with the right hand, and assume the aiming position.

c. Other methods of assuming the sitting position may be used.

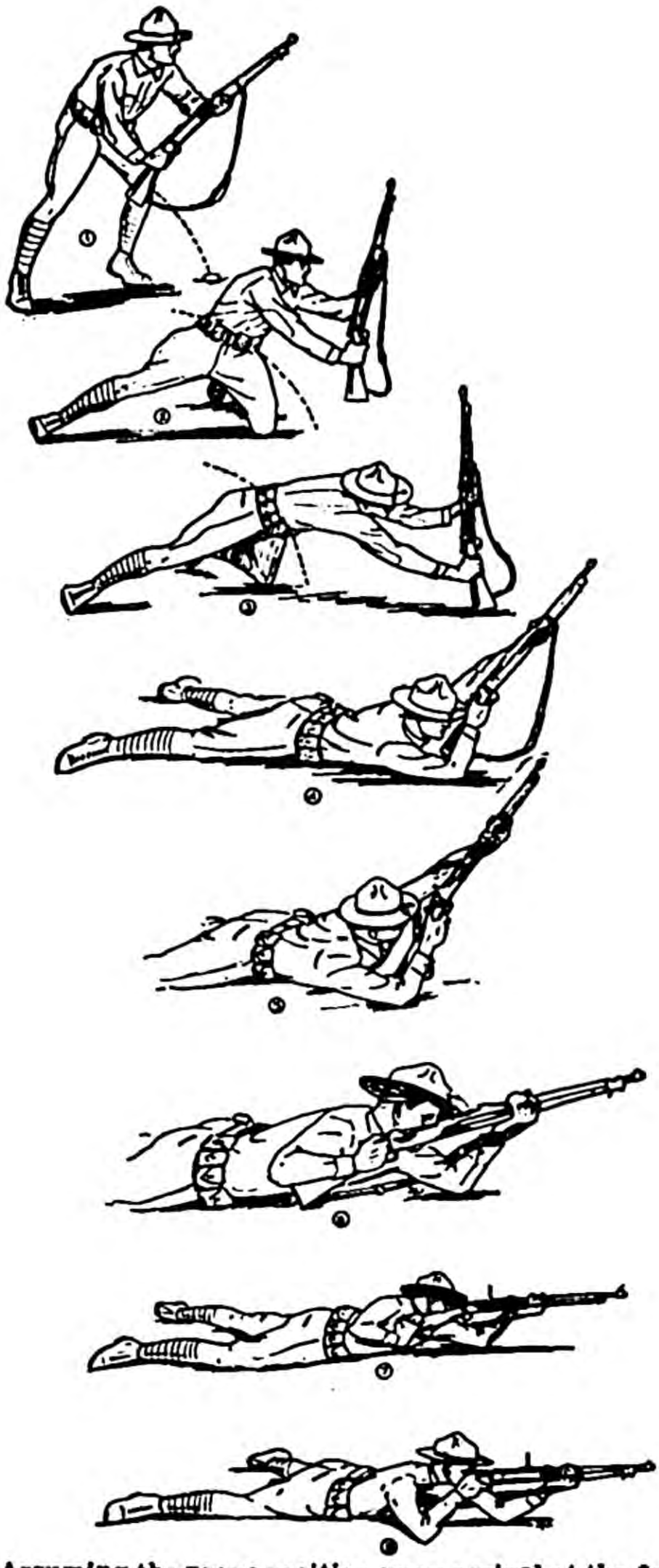


FIGURE 19.—Assuming the prone position upon arrival at the firing point.

SECTION VIII

THIRD STEP; TRIGGER SQUEEZE

30. Importance of trigger squeeze.—*a.* The most important item in rifle shooting is to squeeze the trigger in such a way as to fire the rifle without affecting the aim. The trigger must be squeezed so steadily that the firer cannot know the instant the piece will be fired. Any man can hold the rifle steady enough to fire a good shot, and he can so hold it for a comparatively long time. Misses and poor shots are due to spoiling the aim just before the discharge takes place. This is done by jerking the trigger and flinching. If a man squeezes the trigger so steadily that he cannot know when the discharge will take place, he does not spoil his aim and he will not flinch, because he does not know when to flinch.

b. No good shot attempts to set the rifle off at any instant at which his sights are alined on the mark. He holds his aim as accurately alined on the mark as possible and maintains a steady pressure upon the trigger until the piece is fired. This method of squeezing the trigger must be carried out in all preparatory practice or the whole value of the practice is lost.

c. There is only one correct method of squeezing the trigger; a steady increase of pressure so that the firer does not know when the discharge will take place.

d. Excellent shots are men who through training have learned to increase the pressure only when the sights are in absolute alinement with the bull's-eye. When the sights get slightly out of alinement, they hold what they have with the finger and only go on with the increase of pressure when the sights again become properly alined.

e. The difference between poor shots and good shots, good shots and very good shots, and very good shots and excellent shots is only the difference in their ability to squeeze the trigger properly. The heart and soul, the beginning and end of good shooting, is the trigger squeeze. Any man with fair eyesight and strength enough to be on duty can aline the sights on the target and hold them there for an appreciable length of

time. When he has acquired sufficient will power and self-control to forget that there is to be an explosion and a shock, and squeezes the trigger with a steady increase of pressure until the rifle is fired, he has become a good shot, and not until then. This squeeze of the trigger applies to rapid fire as well as slow fire. The increase of pressure is faster in rapid fire, but the process is the same.

31. **Calling the shot.**—The pupil must always notice where the sights are pointed at the instant the rifle is fired, and call out at once where he thinks the bullet will hit. Shots are called even when only simulating fire at a mark, so as to acquire the habit and to develop a closer hold. No man can become a good shot until he is able to call his shot before it is marked. Inability to call a shot indicates the firer did not know where the sights were pointing at the time the rifle was fired; in other words, he shut his eyes first and fired afterward.

32. **Trigger-squeeze exercise.**—*a. General.*—(1) The instructor explains to the assembled squad or group the importance of correct trigger squeeze (par. 30). He assures himself by questions that each pupil understands what is meant by a "steady increase of pressure"; that is, that the increase is only applied when the aim is correct and then by a steady increase and not by a sudden pressure. The instructor explains the necessity for calling the shot (par. 31). The above points having been explained the instruction becomes individual by the coach-and-pupil method supervised by the instructor.

(2) The pupil is first taught the trigger squeeze in the prone position with the sandbag rest. In this position he can hold steadily and has not the temptation to "snap" the shot the instant the front sight touches the bull's-eye, as he has in a less steady position. After he has learned the principles of correct trigger squeeze with the sandbag rest, he is instructed in the other positions, but for the first half day at least he is not allowed to squeeze the trigger except in the prone position, first with, and then without, the sandbag rest.

(3) A great deal of trigger-squeeze exercise is necessary, but it must be carefully watched and coached. Trigger-squeeze exercise that is not along the right lines is worse than none.

(4) Soldiers will not be allowed to simulate fire until they have been thoroughly instructed in trigger squeeze, and then in all drills and field exercises where fire is simulated they will be cautioned to aim at definite objects and to carry out the correct principles of aiming, squeezing the trigger, and calling the shot. Careless trigger squeezing in field exercises may injure a soldier's chance of becoming a good shot.

b. Duties of the coach.—In the trigger-squeeze exercises the coach sees that—

(1) The sights are blackened.

(2) The gun sling is properly adjusted, is tight enough to give support, and is high up on the arm.

(3) The proper position is taken.

(4) The slack is taken up promptly.

(5) The aim is correct. He occasionally checks the aim by means of the aiming device.

(6) The breath is held while aiming. He checks the breathing by watching the back of the pupil under instruction.

(7) The trigger is squeezed properly (only when the aim is correct and then only by a steady pressure).

(8) The pupil calls the shot.

SECTION IX

FOURTH STEP; RAPID FIRE

33. General principles.—*a.* All the points learned in slow fire are carried out in rapid fire. It is especially important that the men understand that the trigger squeeze is the same as in slow fire. Time is gained by reloading the magazine quickly and without fumbling, by working the bolt rapidly, and by keeping the eye on the target while working the bolt.

b. The importance of correct rapid-fire training cannot be too strongly emphasized. This is a phase of instruction that is often neglected. Rapid fire does not mean that accuracy is sacrificed for rapidity. Through training, accurate fire becomes more and more rapid until the ability to fire from 10 to 15 accurate shots per minute is acquired, but no man will be permitted to attempt

to fire more than 10 shots per minute until he has had long training on the rifle range and has become a seasoned shot. Recruits having target practice for the first time will not be admonished for failing to fire the prescribed number of rounds in the stated time limit. It is advisable to extend the time 10 or 15 seconds for recruits when they first begin rapid-fire practice on the range.

c. Careful coaching is essential to prevent acquiring the habit of looking into the chamber while working the bolt. The man who looks into the chamber works the bolt slowly, so as to see the cartridge run in. He loses time in finding his own target again. He often fires on the wrong target. The application in war is apparent; a soldier who takes his eye off an indistinct target to look into the chamber while working the bolt may not be able to find his target again.

d. Training for rapid fire extends throughout the year. This training is accomplished by requiring all simulation of fire during problems and maneuvers to be carried out along the proper lines.

e. Rapid-fire exercises are given under conditions conforming as nearly as possible to those of actual range practice. Full-sized targets are placed at 200 and 300 yards from the men under instruction, with some simple arrangement permitting the target to be exposed to view for the prescribed period of time.

f. A curtain of target cloth or other material may be arranged on each target frame in such a way that it can be dropped to expose the face of the target and pulled up again to conceal it. A cord which runs over the top of the target frame may be used for this purpose.

g. When lack of time, material, or space makes it absolutely necessary, the rapid-fire exercises may be held at shorter ranges and on targets proportionately reduced in size. This practice as well as all other preparatory exercises can be held indoors when weather conditions make it necessary.

34. Bolt-operation exercise.—*a. General.*—(1) This exercise is held for the purpose of acquiring a smooth and rapid bolt operation. The trigger is not pressed, but is tied back to the trigger guard in order to cause the bolt action to be the same as

it is when the trigger has been pressed. If the trigger is not thus tied, the piece will remain cocked when the bolt is shoved home, and the amount of force necessary to raise the bolt again will be less than when actually firing or simulating fire.

(2) Practice in bolt-operation exercise will be held in all positions and no pupil will be considered proficient until he can operate the bolt at least 20 times in 20 seconds while in the prone position. The first hour of rapid-fire training will be devoted to bolt-operation exercises. Thereafter each pupil will be given additional practice from time to time until he is considered proficient.

(3) The bolt-operation exercise is conducted as follows:

(*a*) The instructor places his squad or group in line, has each man tie the trigger to the back of the trigger guard, and explains why this is done.

(*b*) The instructor explains and demonstrates that the bolt is jerked fully back and slammed home with practically one motion, instead of by four distinct motions as men are inclined to do at first.

(*c*) The instructor demonstrates the bolt-operation exercise, emphasizing the duties of the coach as outlined in *b* below.

(*d*) The above points having been explained, the instructor places his squad or group in line, arranged in pairs to act as coach and pupil, requires the pupils to assume a firing position, and personally gives the commands for starting and stopping the exercise. Frequent changes of coach and pupil are necessary to prevent undue fatigue.

b. Duties of the coach.—In the bolt-operation exercise the coach sees that—

(1) The bolt is operated properly and rapidly.

(2) The eye is kept on the target.

(3) The right hand is brought to the small of the stock, the rifle to a horizontal position, and the cheek placed against the stock each time the bolt is closed.

(4) The butt of the rifle is kept against the shoulder.

(5) The elbows are kept on the ground if in the prone position, or between the legs if in the sitting position.

(6) No attempt is made to aim or press the trigger.

35. Rapid-fire exercise.—*a. General.*—(1) The instructor assembles his squad or group and explains and demonstrates—

(*a*) The correct method of loading a clip of ammunition into the magazine, using dummy cartridges for the demonstration. He explains that the ball of the right thumb is placed on the powder space of the upper cartridge very close to the clip, with the fingers under the rifle against the floor plate, the cartridges being shoved into the magazine with a firm steady push. The empty clip is removed with the right hand.

(*b*) The working of the bolt while in the prone position, keeping both elbows on the ground and allowing the muzzle to drop down and to the right. The working of the bolt in the sitting position, keeping both elbows between the legs and allowing the muzzle to drop down and to the right.

(*c*) The disadvantage of looking into the chamber while working the bolt and of looking into the magazine to see if there are any more cartridges left.

(*d*) That the follower holds the bolt back when the magazine is empty and that the eye is never taken from the target until the follower holds the bolt except when a man has counted the shots fired and knows that his magazine is empty.

(*e*) That the butt of the rifle is never taken from the shoulder when working the bolt.

(*f*) That a quiet, confident movement of the hand in taking the clip from the belt and placing it in the clip slot is really more rapid than a hurried movement, and avoids the chance of fumbling which usually accompanies hurried movements.

(2) The above points having been explained and demonstrated, the instructor places his squad or group in line and arranges them in pairs so that they may act as coach and pupil. The commands and procedure are exactly the same as in actual rapid fire on the rifle range except that practice dummy ammunition is used. Rapid-fire targets set at 200 and 300 yards from the line of pupils are exposed to view for the proper interval of time upon signals from the instructor in charge of the line. Sights are set at the actual range being used (par. 33 *e*).

(3) Practice dummy ammunition only will be used in this exercise. The use of range dummy ammunition except on the firing line is prohibited.

b. Duties of the coach.—In a rapid-fire exercise the coach sees that—

(1) The sights are blackened.
(2) The gun sling is properly adjusted.
(3) The correct position is taken.
(4) The slack is taken up promptly.
(5) The breath is held while aiming.
(6) The trigger is squeezed properly.
(7) The bolt is worked rapidly.
(8) The eye is kept on the target, the elbows kept in place, and the butt of the rifle kept to the shoulder while working the bolt.
(9) The magazine is reloaded quickly and without fumbling.

SECTION X

EFFECT OF WIND; SIGHT CHANGES; USE OF SCORE BOOK

36. Wind.—*a.* With the exception of wind, weather conditions have practically no effect on the bullet up to 600 yards. Beyond 600 yards the effect is slight, but it is well for the expert shot to understand the influences of the different atmospheric conditions and the corrections to be applied. In firing at 600 yards or under, the effect of the weather conditions (except that of the wind) on the bullet can be disregarded. The influence of wind must be carefully studied.

b. The horizontal clock system is used in describing the direction of the wind. The firing point is considered the center of the clock and the target is at 12 o'clock. A 3 o'clock wind comes directly from the right. A 6 o'clock wind comes straight from the rear. A 9 o'clock wind comes directly from the left. A wind that is constantly changing its direction back and forth is called a *fishtail wind.*

c. The force of the wind is described in miles per hour. The force of the wind is estimated by throwing up light, dry grass,

dust, or light paper and watching how fast it travels, by observing the danger flags, and by the mirage. In general, a light breeze is a 5 to 8 mile wind; a fairly strong breeze is a 10 to 12 mile wind. Wind blowing 20 miles an hour is very strong.

d. Wind from either side blows the bullet out of its path. This must be allowed for by moving the rear sight toward the wind by means of the wind gage. The worst kind of a wind in which to shoot is a fishtail wind at 12 or 6 o'clock. The amount the bullet will be blown from its path depends on the force and direction of the wind and on the distance to the target.

c. The amount of windage to allow for the first shot is shown in the wind-gage diagram in the score book. It can be found approximately by applying the wind rule.

f. After the first shot is marked the correction necessary in windage is found by referring to the ruled targets in the score book showing the windage correction for each range. Windage corrections can also be estimated by applying the wind-gage rule given in paragraph 38.

37. Wind rule.—*a.* The range (expressed in hundreds of yards) multiplied by the velocity of the wind and divided by 10 equals the number of quarter points to allow for a 3 o'clock or 9 o'clock wind. (M1906 ammunition.)

Example: At 500 yards the wind is blowing 8 miles per hour at 3 o'clock, $\frac{5\times8}{10}$ equals 4 quarter points or 1 point of windage. The sight should have 1 point of right windage for the first shot.

b. As the direction of the wind gets nearer and nearer to 12 or 6 o'clock the amount of windage necessary becomes less and less. Winds 1 hour away from 3 and 9 o'clock require only slightly less windage. Winds 1 hour away from 12 and 6 o'clock require almost half as much windage as 3 or 9 o'clock winds.

c. Winds that are at 12 o'clock require no windage, but it is a very rare thing to have a steady wind from either 12 or 6 o'clock. Strong winds from 12 o'clock tend to retard the bullet a little, and from 6 o'clock tend to accelerate the bullet, but the amount is so slight that a correction in elevation is very seldom necessary. At the most this allowance is very small.

38. Wind-gage rule.—*a.* One point of windage moves the point of impact of the bullet 4 inches for each 100 yards of range. Thus 1 point of windage will move the hits 8 inches at 200 yards, 12 inches at 300 yards, and 20 inches at 500 yards. This rule is not exact, but near enough for all practical purposes.

b. The point of impact of the bullet will move in the same direction as the rear sight is moved. For example, if it is desired to move the hits to the left, the rear sight must be moved to the left; if it is desired to make the hits strike lower and to the right, the rear sight must be moved down and to the right.

39. Mirage.—*a.* Heat waves that can be seen near the ground are called *mirage.* The direction in which these waves are blowing and their speed are watched by good riflemen in judging the direction and velocity of the wind. The mirage is of assistance in judging the wind principally on bright days when there is a light, variable breeze.

b. In a moderate wind the waves seem to race across the range and to lie close to the ground. In a light wind the waves do not lie so close to the ground and appear to move more slowly. In strong winds the mirage cannot be seen.

c. When there is no wind or when the wind is at 12 or 6 o'clock the mirage seems to boil. The "boiling" of the mirage signifies that the wind is changing direction. The firer should wait until the mirage begins a steady flow from one side or the other before firing.

d. Mirage can be seen much better with a field glass or telescope than with the eye alone.

40. Elevation rule.—*a.* Changing the elevation 100 yards at any range (M1906 ammunition) will give a change on the target, in inches, equal to the square of the range (expressed in hundreds of yards).

Example: At 200 yards, changing the elevation 100 yards makes 4 inches change on the target; at 300 yards, 9 inches; at 500 yards, 25 inches; at 600 yards, 36 inches. This rule is not exact, but near enough for all practical purposes.

b. The horizontal lines in the model targets in the score book also show how much change to make in the elevation at each range. When a change in elevation is necessary it is best to

consult the model target in the score book before deciding how much of a change to make.

41. Light.—*a.* Light has no effect on the bullet but does affect the aim. The effect of changes of light is very slight with most riflemen. The correction for variations in light does not exceed 25 yards in elevation at any range. The effect of changes of light is not uniform in its effect upon the aim of all riflemen.

b. As a general rule men unconsciously aim a little lower in a poor light than in good light, and consequently need more elevation when the light is poor. This lowering of the aim is due to the fact that the outline of the bull's-eye is not distinct in a poor light; therefore men cannot hold as close to the bull's-eye and still be sure of their aim. As a rule poor lights exist on dark days when there is a haze in the air; on very bright, warm days, when there is a decided mirage; and when the sun is back of the target. The best light for shooting is when the sky is uniformly overcast and there is sufficient light to see the target clearly.

c. Sunlight from one side has the same effect with most men as wind from that side. This is because the side of the front sight toward the sun is more clearly defined and unconsciously held under the center of the bull's-eye. Such holding places the bullet on the opposite side of the bull's-eye from the sun. The allowance of windage for sunlight varies from zero to almost one-half a point. In making this allowance the sight is moved toward the sun.

42. Zero of a rifle.—*a.* The zero of a rifle for each range is the point at which the rear sight must be placed for both elevation and windage, in order to hit the center of the bull's-eye on a normal day when there is no wind. This zero may not conform to the marks on the sight leaf and the wind gage. The zero of any one rifle may differ with different men, owing to the difference in their way of holding the rifle or of aiming.

b. Each man must determine the zero of his own rifle for each range. He does this by studying the data which he has written in his score book concerning sight settings, sight changes, light, and the direction and velocity of the wind. The

zero of a rifle is best ascertained on a day with an overcast sky when there is no wind. Having learned the zero of his rifle the rifleman computes all his windage and elevation allowances for the first shot from this zero and not from the zero marked on the rifle sight, unless the two correspond.

43. **Canting the rifle.**—If the rifle is canted, the bullet will not hit exactly where the rifle is aimed. Even unskilled shots, however, cant the rifle but very slightly, and the effect on the strike of the bullet is correspondingly slight. The mistake of ascribing a wide 4 or a 3 to a slight cant of the rifle should not be made.

44. **Shooting up or down hill.**—In shooting either up or down hill, less elevation is needed than when shooting on the level. The steeper the hill the less elevation is needed, so that when firing vertically up or down no elevation at all is needed, no matter how distant the target. Slight slopes that may be found on target ranges have no appreciable effect upon the elemodel target.

45. **Sight-setting and sight-changing exercises.**—In these exercises the instructor uses the full-sized A, B, and D targets, with spotters to indicate the position of the hits.

a. The instructor assembles his squad or group, each pupil having his rifle, score book, and pencil and conducts the exercise as follows:

(1) Points out the wind gage and explains that each line or division represents one point of windage.

(2) Points out the graduations on the sight leaf and explains that the line directly under the number represents the range.

(3) Explains the effect of wind and cautions the class to disregard all atmospheric influences except wind.

(4) Explains the wind-gage diagram in the score book.

(5) Reads over and explains the wind rule, wind-gage rule, and the elevation rule. By asking questions he assures himself that these rules are understood.

(6) Explains the horizontal and vertical lines on the model targets in the score book and assures himself that each man understands the use of this diagram.

(7) Shows the pupils how to draw the elevation and windage lines for each range on the blank targets of the score book upon which they are to plot their shots during range firing.

(8) The above points having been explained to the assembled group, the pupils are placed in pairs. The instructor tests the ability of the members of the class to set the sights for the first shot by use of the wind rule or the wind-gage diagram. Every time the sights are set each pupil examines the sight of the pupil paired with him and tells the instructor, when called upon, the sight setting used.

(9) Instructor tests ability to change sights intelligently after first shot by referring to the horizontal and vertical lines on the model target.

b. Examples of sight-setting exercises:

(1) "You are at 500 yards and estimate the wind to be 10 miles at 3 o'clock; set your sights for the first shot. Jones, what does Smith's sight read? Robinson, what should the sight read? Each man whose teammate did not set his sight at 1¼ points right windage, hold up his hand." The instructor, by questions and explanations, assists the men who have made mistakes.

(2) "You are at 600 yards and estimate the wind to be 10 miles at 9 o'clock; set your sights for the first shot. Suppose you fired and the spotter marked the hit here (placing a spotter in the 4 space near the bull's-eye, at 3 o'clock) and you were sure your hold and trigger squeeze were good; change your sights to bring the next shot into the center of the bull's-eye. Johnson, what does William's sight read? Snider, what should the sight read? Each man whose teammate did not have his sight set at 2 points left windage, hold up his hand."

c. The instructor assists those men who have made decided errors. Differences of less than one-fourth point are matters of opinion in applying the rules and are unimportant.

d. The instructor gives a number of examples with the wind at different angles and velocities and at the various ranges until the class thoroughly understands the use of the wind gage.

e. Following the instruction in the use of the wind gage, the instructor puts the class through similar exercises which require changes in elevation.

f. The instructor gives a number of examples which require changes in both windage and elevation until the principles of sight changing are well understood by the class.

g. Assume the zero of the rifles to be away from the normal both as to windage and elevation and repeat the exercises.

h. Examples of other sight-setting exercises:

(1) "Set your sight at 625 yards with 1½ points of left windage. Suppose you fire four shots hitting here (place four spotters in the bull's-eye), and your fifth shot goes here (place spotter on 3 space at 11 o'clock). Jones, what are you going to do now? Jenkins, what are you going to do? You should not do anything to the sight. It is practically certain that you squeezed the trigger improperly and flinched. Not even a very sudden and violent change in the weather or light could cause nearly that much of a difference. Don't try to correct your own faults by changing the sights around."

(2) "For your first score in rapid fire at 200 yards you have set your sight at the same elevation and windage that you used in slow fire. Suppose this to be 200 yards elevation and zero windage and your group goes here (putting 10 spotters low and to the left). Set your sight to bring the next score into the figure. Miller, what does Wright's sight read?"

i. A group in rapid fire should strike the same place as in slow fire. Rapid-fire groups that vary in position from slow-fire groups are due to imperfect trigger squeeze in rapid fire, and consequently these groups are more scattered. Men should endeavor to so squeeze the trigger that the rapid-fire sight settings will be the same. But if there is a constant variation in the two sight settings, each man should note it in his score book and set his sight in rapid fire so as to make the groups count as much as possible. Groups that are scattered all over the target cannot be corrected by changing the sight.

46. Use of the score book.—*a.* Each man must keep a score book in which he records not only the value of the hits but the location of each hit, the sight setting and sight changes, the

force and direction of the wind, the kind of light, the hour, the date, and such other data as may be of use in the future. Spaces for these notes are provided on the score sheets of the score book.

b. The use of the score book on the range is important for the following reasons:

(1) The plotting of the shots shows the firer the location of his group.

(2) The wind-gage diagram indicates the windage to take for the first shot. The model target shows by means of vertical and horizontal lines the change in elevation and windage necessary to place the group in the center of the target.

(3) Plotting the shots and recording the data as to light and wind help the soldier to learn the zero of his rifle.

(4) The data written down as to sight settings and weather conditions while firing at any range are of great assistance in setting the sight correctly when again firing at that range. Where a number of scores have been fired and recorded, the firer should get his sight settings from previous scores fired on days that were similar as to light and wind.

c. The score book will be kept personally by the man firing. The coach assists him when necessary to decide what to write down, but the coach will neither plot the shots nor enter any data.

47. Score-book exercises.—The squad or larger group is assembled in front of a full-sized B target, each man with score book, pencil, and rifle. The class is divided into pairs. Each man acts as coach for the other man of his pair.

a. The instructor states the light and weather conditions and the range. He then indicates 10 successive shots on the target by means of a spotter and requires each man to plot each shot as it is indicated, write down the data given from time to time, and make the actual sight settings and corrections on his rifle. Weather and light conditions assumed by the instructor and changes announced during the exercise should be such as are likely to occur on the rifle range.

b. The pupils are told by the instructor to open their score books at the first blank page and plot the shots and write in the

data as given to them. They are further instructed to write lightly so that erasures may be made allowing the same page to be reused. The example as given will be substantially as follows:

(1) "You are at 000 yards on the rifle range. You are getting ready to fire a slow-fire score. There is bright sunlight. The wind varies from 8 to 12 miles an hour in velocity and from 1 to 3 o'clock in direction. When you are in position ready to fire the first shot, the wind seems steady at 3 o'clock and blowing about 8 miles an hour. Write in your data and set your sights. Jones, where has Robinson set his sight? Williams, where has Smith set his sight? You should have a scant 1¼ points of right windage.

(2) "You fire your first shot and the spotter marks it here (put spotter a close 4 at 7 o'clock). Decide what you are going to do and set your sights. Dodd, what does McLean's sight read? You should have moved your sight about one-fourth a point to the right and raised it 25 yards so that your sight should read 025 yards and a scant 1½ or a strong 1¼ of right windage.

(3) "Your second shot goes here (spotter near center of bull's-eye); your third shot goes here (spotter in bull's-eye near the top); your fourth shot goes here (spotter in bull's-eye near the bottom); your fifth shot goes here (close 4 at 9 o'clock). The wind seems to be a little stronger, but you are not sure. Your hold was all right. Johnson, what are you going to do?" "I would take half the correction called for by the model target." "Set your sight accordingly. You should have about 1¾ points of right windage now. Your sixth shot goes here (a bull's-eye near the edge at 3 o'clock). Malone, what are you going to do? The four on the fifth shot must have been due to an error in aim or trigger squeeze, so put your sight back to where it was before (1½ points).

(4) "Before you fire your seventh shot you notice that the wind has shifted to about 1 o'clock but still blowing the same rate. Wilson, where has Simpson set his sight now? Billings, what does the book say about a 1 o'clock wind? You need almost half as much windage as for a 3 o'clock wind. You

should now have almost ¾ point of right windage. Set your sight there.

(5) "Your next shot goes here (a wide 4 at 6 o'clock). Collins, what correction has Brown made for his eighth shot? You should have made no change in your sight. Your windage is apparently correct and there has been no change in the conditions. Your low shot was due to a poor aim or a poor trigger squeeze. Do not try to correct your personal errors by moving your sight around. Your eighth shot goes here (bull's-eye); your ninth shot here (bull's-eye); your tenth shot goes here (bull's-eye). Write in your notes and exchange books with your teammate. Smith, has Williams plotted all the shots correctly? Read the notes he has written in his book."

c. The instructor corrects errors and mistaken ideas and makes a note of the pupils needing additional instruction.

SECTION XI

FIFTH STEP; EXAMINATION OF MEN BEFORE STARTING RANGE PRACTICE

48. Examination.

NOTE.—The answers given herein are merely examples. Men should be required to explain them in their own words.

Q. What is this (drawing a circle on the ground or on paper)? **A.** A circle.

Q. Where is the center of it? **A.** Here (pointing to the center).

Q. Suppose that circle represents a peep sight through which you are looking and that you are told to bring the top of the front sight to the center of it; where would the top of the front sight be? **A.** Here (pointing to the center of the circle).

Q. Make a mark in the circle to represent the front sight. Make a small circle to represent the bull's-eye. Is the bull's-eye in the center of the peep sight? **A.** No; the bottom edge of it is in the center.

Q. Why? **A.** Because the top of the front sight is in the center and just touches the bottom edge of the bull's-eye.

Q. Should the front sight be held up into the bottom of the bull's-eye? A. No; it just touches the bottom edge of the bull's-eye, so that all of the bull's-eye can still be clearly seen.

Q. What is this (indicating sighting bar)? A. Sighting bar.

Q. What is it for? A. To teach me how to aim.

Q. Why is it better than a rifle for this purpose? A. Because the sights on it are much larger and slight errors can be more easily seen and pointed out.

Q. What does this represent? A. The front sight.

Q. And this? A. The rear sight.

Q. What is this? A. The eyepiece.

Q. What is the eyepiece for? A. To cause me to place my eye in such a position as to see the sights in the same alinement as that set by the coach.

Q. Is there an eyepiece on the rifle? A. No; I learn by the sighting bar how the sights look when properly alined, and I must hold my head so as to see the sights the same way when aiming a rifle.

Q. How do you hold your head steadily in this position when aiming a rifle? A. By pressing my cheek firmly against the side of the stock.

Q. Where do you focus your eye when aiming a rifle? A. On the bull's-eye.

Q. Tell me what is wrong with these sights. (The instructor now adjusts the sights of the bar, making various slight errors; first, to show the correct and incorrect adjustments of the sights, and then, with the sights properly adjusted, he sights on the small bull's-eye to demonstrate correct and incorrect adjustments, requiring the man to point out any errors.)

Q. What is the difference between the way you aim with peep sight and the way you aim with an open sight? A. There is no difference. In both the top of the front sight is brought to the center of the circle. With the open sight the top half of the circle is omitted, making it look as if the top half of the circle had been cut off and removed.

Q. Now, take this sighting bar and adjust the sights properly. (Verified by the instructor.)

Q. Now that the sights are properly adjusted, have the small bull's-eye moved until the sights are properly aimed at it.

Q. How do you breathe while aiming? A. After I get my sights lined up on the bull's-eye, I draw in a little more than an ordinary breath and let out a little, and hold the remainder while aiming and squeezing the trigger.

Q. Take the prone position and aim and snap at that mark. (The instructor must assure himself that the man knows how to hold his breath properly while aiming. Many men have great difficulty in learning to do this correctly.)

Q. What is this, A. An aiming device.

Q. What is it used for? A. To show the instructor how a man is aiming.

Q. Now, I will take this rifle, and with the aid of the sandbag rest to hold the rifle steady, I will aim at the bull's-eye, and you will watch the sights through the aiming device and tell me when my aim is right and when it is wrong, and what the error is when wrong. (The instructor now aims so as to illustrate the common faults and the man must observe and call attention to them.)

Q. I will now snap at a bull's-eye a few times and you will watch through the sighting device and call where the shots would have hit.

Q. Now, take this rifle and, using the sandbag rest, aim at the bull's-eye, and I will watch you through the aiming device. (The instructor satisfies himself that the man understands sighting and aiming, and requires him to snap a few times and to call his shots.)

Q. I will take the rifle and assume the kneeling, sitting, and prone positions, and position with sandbag rest, and you will tell me whether the position is correct or incorrect in each case. (The gun sling is adjusted in all these tests.)

Q. Take this rifle and show me your kneeling, sitting, and prone positions, and position with sandbag rest.

Q. Now show me how you take the sitting and prone positions rapidly from a standing position.

Q. How do you squeeze the trigger? A. I squeeze the trigger with such a steady increase of pressure that I do not know just when the rifle will go off.

Q. What do you know while you are squeezing the trigger? A. I know that the sights are lined upon the bull's-eye.

Q. If the sights are slightly out of alinement, what do you do? A. I hold the pressure I have on the trigger and only resume the increase of pressure when the sights become lined upon the bull's-eye again.

Q. If you do this, can your shot be a bad one? A. No.

Q. Why? A. Because I cannot flinch, for I do not know when to flinch, and the sights will always be lined up with the bull's-eye, when the rifle goes off, because I never increase the pressure on the trigger, except when they are properly lined up.

Q. Is it necessary to take a long time to press the trigger in this way? A. No. The method of squeezing the trigger is slow at first but rapidity is developed by practice.

Q. How do you squeeze the trigger in rapid fire? A. I squeeze it the same way as in slow fire, with such a steady increase of pressure as not to know when the rifle will fire.

Q. In rapid fire how do you gain time so as not to be compelled to hurry in aiming and squeezing the trigger? A. I gain time by taking the position rapidly, working the bolt rapidly, and by keeping my eye on the target while working the bolt.

Q. How does keeping your eye on the target help you to gain time? A. A man who looks into the chamber while working the bolt always works it slowly so as to see the cartridges enter the barrel and he loses time in finding his own target again.

Q. What other fault, in rapid fire, comes from looking into the chamber while working the bolt? A. Firing on the wrong target.

Q. Show me how you work the bolt in rapid fire, prone, sitting, and kneeling.

Q. Now show me how you load a clip of service ammunition into the magazine.

Q. Is it important to get into the correct position before beginning to shoot in rapid fire? A. Yes; even though it takes more time, I should always get into the correct position before beginning to shoot.

Q. What is meant by "calling the shot"? A. To say where you think the bullet hit as soon as you shoot and before the shot is marked.

Q. How can you do this? A. By noticing exactly where the sights point, when the rifle goes off.

Q. If a man cannot call his shot properly, what does it usually indicate? A. That he did not squeeze the trigger properly and did not know where the sights pointed, at the time the rifle went off.

Q. What is this? A.. A score book.

Q. What are these lines for (indicating the horizontal lines in the model target)? A. To show the amount of elevation necessary to bring the shot to the middle line.

Q. What are these lines for (indicating the vertical lines on the model target)? A. To show the amount of change in windage necessary to bring the shot to the middle line.

Q. If a shot hits here (indicating), what change in your sight would you make to bring the next shot to the center of the bull's-eye?

Q. What effect does moving your rear sight have on the shot? A. It moves it in the same direction as the rear sight moves.

Q. If you want to make a shot hit higher, what do you do? A. I raise my rear sight.

Q. If you want to make your shots hit more to the right, what do you do? A. I move my rear sight to the right.

Q. If you move your rear sight one point of windage, how much will it move the point struck by the bullet? A. Four inches for each 100 yards of range.

Q. Explain what you mean by that.

Q. I will place this spotter on this target (full size 500-yard target) to represent a shot properly fired by you at 500 yards with zero windage and sight set at 500 yards. Take your rifle and move your sight to bring the next shot to the center of the bull's-eye. (Instructor now tests in various ways the man's ability to make proper sight corrections.)

Q. What are the three principal uses of the score book? A. To show me where my shot group is located, to indicate how

much change in the sight is necessary, to move a shot or group of shots to the center of the target, and to make a record of the sight settings of my rifle for the different ranges under various weather conditions so that I will know where to set my sight when starting to shoot at each range under different weather conditions.

Q. Tell me what effect different light and weather conditions have on a man's shooting.

Q. In firing at ranges up to and including 600 yards, what is the only weather condition for which you make sight corrections? A. Wind.

Q. What three things do you do in cleaning a rifle after it has been fired? A. I first remove the powder fouling from the bore. I then dry the bore thoroughly of the liquid used in removing the fouling. After this is done I grease the bore to protect it from rust.

Q. How do you remove the powder fouling from the bore? A. By swabbing it thoroughly two or more times with cleaning patches saturated with water.

Q. How do you dry the bore? A. By running clean patches through the bore until it is thoroughly dry.

Q. How do you protect the bore from rust? A. By swabbing it thoroughly with a cleaning patch saturated with grease.

SECTION XII

SMALL-BORE PRACTICE

49. Object.—The object of small-bore practice is to provide a form of marksmanship training with the caliber .22 rifle and ammunition which represents the application of the principles taught in the preparatory exercises. Small-bore practice provides an excellent means of improving the shooting of organizations and sustaining interest in marksmanship throughout the year. Every effort should be made by all organizations to fire the small-bore course previous to the regular marksmanship season. The firing of this course enables the company com-

mander to visualize the state of training of his command and to concentrate his efforts on the training of those who are most deficient.

50. Value.—The chief value of small-bore practice lies in the fact that it is convenient, interest sustaining, and economical. It does not have the full value of caliber .30 practice because of the absence of recoil, but, on account of its convenience and saving in the cost of ammunition, organization commanders will find that small-bore practice is a valuable step in marksmanship training.

51. Continuous small-bore practice.—Small-bore practice should be carried on throughout the year, subject to such limitations as may be imposed by the allowance of ammunition. All persons who have never been properly instructed in shooting methods prescribed herein will be given a thorough course of preparatory instruction before being permitted to fire on the small-bore range. All small-bore practice will be properly organized and supervised in accordance with the methods of instruction as prescribed in this manual.

52. Courses to be fired.—*a*. One of the following courses should be fired. The course to be fired may be designated by higher authority or it may be selected because of training time, ammunition allowances, and availability of ranges.

COURSE E

SHORT RANGE PRACTICE

INSTRUCTION PRACTICE

TABLE I.—*Slow fire* (to zero rifle)

Range (feet)	Time	Shots	Targets	Position	Remarks
50	No limit...	5	SB-A-2.....	Prone or prone with sandbag.	Loop sling.
50	.....do.....	5	SB-A-2.....	Sitting.....	Do.
50	.....do.....	5	SB-A-2.....	Kneeling.....	Do.
50	.....do.....	5	SB-A-2.....	Standing.....	Hasty sling.

TABLE II.—*Slow fire*

Range (feet)	Time	Shots	Targets	Position	Remarks
50	No limit...	10	SB-A-2.....	Standing.....	Hasty sling.
50	.....do.....	10	SB-A-3.....	5 kneeling.....	Loop sling.
				5 sitting.....	
50	.....do.....	10	SB-B-5.....	Prone.....	Do.

TABLE III.—*Rapid fire*

Range (feet)	Time (seconds)	Shots	Targets	Position	Remarks
50	60.....	10	SB-D-2.....	Standing to kneeling....	Loop sling.
50	75.....	10	SB-D-3.....	Standing to prone.....	Do.

NOTE.—When desired, tables I, II, and III may be fired at 1,000 inches by substituting "target A, 1,000-inch" for targets SB-A-2 and A-3; and "target B, 1,000-inch" for target SB-B-5; and "target D, 1,000-inch," for targets SB-D-2 and D-3.

INTERMEDIATE RANGE PRACTICE

INSTRUCTION PRACTICE

TABLE IV.—*Slow fire*

Range (yards)	Time	Shots	Targets	Position	Remarks
50	No limit...	10	SB–50 yards, A target.	Prone.....	Loop sling.
50	...do.....	10	.....do.....	5 kneeling.....	Do.
				5 sitting.....	
50	...do.....	10	SB–50 yards, D target.	Prone to kneeling, rush 25 yards.	Do.

TABLE V.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Targets	Position	Remarks
50	75.....	10	SB–50 yards, D target.	Standing to prone.....	Loop sling.
50	75.....	10	.....do.....	Prone to prone, rush 25 yards.	Do.
50	75.....	10	.....do.....	Prone to kneeling, rush 25 yards.	Do.

NOTES.—The firing included in tables IV and V is optional. If no 50-yard range is available, tables IV and V will be fired at 100 yards on the SB–100 yards D target. This note applies only to the E course.

When 25 yards is not available, a shorter distance may be used, reducing the time 2 seconds for each 5 yards.

LONG RANGE PRACTICE

INSTRUCTION PRACTICE

TABLE VI.—*Slow fire*

Range (yards)	Time	Shots	Targets	Position	Remarks
100	No limit	10	SB-100 yards, A target.	Prone	Loop sling.
100	do	10	do	5 kneeling 5 sitting	Do.
100	do	10	SB-100 yards, D target.	Prone	Do.
200	do	10	SB-200 yards, A target.	do	Do.

TABLE VII.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Targets	Position	Remarks
100	80	10	SB-100 yards, D target.	Standing to prone	Loop sling.
100	100	10	do	Prone to prone, rush 25 yards.	Do.

RECORD PRACTICE

TABLE VIII.—*Slow fire*

Range (yards)	Time	Shots	Targets	Position	Remarks
100	No limit	10	SB-100 yards, A target.	Kneeling	Loop sling.
200	do	10	SB-200 yards, A target.	Prone	Do.

TABLE IX.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Targets	Position	Remarks
100	80	10	SB-100 yards, D target.	Standing to prone	Loop sling.
100	100	10	do	Prone to prone, rush 25 yards.	Do.

NOTE.—When 25 yards is not available, a shorter distance may be used, reducing the time 2 seconds for each 5 yards.

COURSE F

SHORT RANGE PRACTICE

INSTRUCTION PRACTICE

Fire tables I, II, III, IV, and V of course E

LONG RANGE PRACTICE

INSTRUCTION PRACTICE

TABLE X.—*Slow fire*

Range (yards)	Time	Shots	Targets	Position	Remarks
100	No limit	10	SB–100 yards, A target.	Prone	Loop sling.
100	do	10	SB–100 yards, D target.	do	Do.

TABLE XI.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Targets	Position	Remarks
100	80	10	SB–100 yards, D target.	Standing to prone	Loop sling.
100	100	10	do	Prone to prone, rush 25 yards.	Do.

RECORD PRACTICE

TABLE XII.—*Slow fire*

Range (yards)	Time	Shots	Targets	Position	Remarks
50	No limit	10	SB–50 yards, A target.	Kneeling	Loop sling.
100	do	10	SB–100 yards, A target.	Prone	Do.

TABLE XIII.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Targets	Position	Remarks
50	75	10	SB–50 yards, D target.	Prone to kneeling, rush 25 yards.	Loop sling.
100	100	10	SB–100 yards, D target.	Prone to prone, rush 25 yards.	Do.

NOTE.—When 25 yards is not available, a shorter distance may be used, reducing the time 2 seconds for each 5 yards.

COURSE G

SHORT RANGE PRACTICE

INSTRUCTION PRACTICE

Fire tables I, II, and III of course E

TABLE XIV.—*Rapid fire*

Range (feet)	Time (seconds)	Shots	Targets	Position	Remarks
50	75	10	SB–D–3.....	Prone to kneeling, rush 25 yards.	Loop sling.
50	75	10	.....do.....	Prone to prone, rush 25 yards.	Do.

RECORD PRACTICE

TABLE XV.—*Slow fire*

Range (feet)	Time	Shots	Targets	Position	Remarks
50	No limit..	10	SB–A–3.....	Kneeling.....	Loop sling.
50	....do.....	10	SB–B–5.....	Prone.....	Do.

TABLE XVI.—*Rapid fire*

Range (feet)	Time (seconds)	Shots	Targets	Position	Remarks
50	75	10	SB–D–3.....	Prone to kneeling, rush 25 yards.	Loop sling.
50	75	10	.....do.....	Prone to prone, rush 25 yards.	Do.

NOTE.—When 25 yards is not available, a shorter distance may be used, reducing the time 2 seconds for each 5 yards.

b. The following indicates the amount of ammunition for each course and the qualification scores:

Course	Ammunition	Possible score	Expert	Sharpshooter	Marksman	Unqualified
E	230	200	180	160	130	Less than 130.
F	210	200	180	160	130	Less than 130.
G	130	200	180	160	130	Less than 130.

SECTION XIII

CALIBER .30 PRACTICE

53. General principles.—Range practice is divided into two parts:

a. Instruction practice which represents the application with service ammunition of the principles taught in the preparatory exercises. During instruction practice the soldier works under the supervision of a coach. The coaching methods prescribed in this section apply to instruction practice only.

b. Record practice in which the soldier fires for qualification as a test of his ability as a rifleman. Coaching is prohibited during the firing of record practice.

54. Importance of correct trigger squeeze.—*a.* Any man who is physically fit to be a soldier and who has had a proper course of preparatory instruction can aim and hold well enough to make a score of over 40. Scores that are under 40 are nearly always due to pressing the trigger incorrectly. The coach therefore will concentrate his attention on the trigger squeeze. He, of course, checks the position, the aiming, and the holding of the breath from time to time to see that the instruction on these points has not been forgotten, but by far the greatest amount of the coach's time will be devoted to requiring the pupil who is firing to press the trigger so steadily as not to know exactly when the discharge will take place.

b. It can always be proved to the pupil that he will be a good shot as soon as he learns to press the trigger properly, by having the coach press the trigger while the man under instruction holds and aims the rifle, as described in paragraph 58*c*. Shots fired in this way from either the sandbag rest position or the prone position are almost always well placed. This is a very valuable method of coaching poor shots and is often a means of improving the scores of men who are classed as good shots.

55. Order of firing.—The instruction practice firing should begin as prescribed in the tables outlining each course. These tables are made to fit the usual case, but organization commanders are not required to adhere rigidly to them when special circumstances make it advisable to modify the procedure in

order to take the best advantage of the time and ammunition and the range facilities available. The general plan of beginning with slow fire in the sandbag rest position and following with slow fire in the prone position without the sandbag will be adhered to.

56. **Use of sandbag rest.**—The sandbag rest is used at the beginning of the course, not to teach steadiness of hold but to facilitate instruction in the proper method of pressing the trigger. The sandbag assures such a steady hold that the temptation to the beginner to snap in his shot at the instant the sight touches or drifts past the bull's-eye, which is the cause of nearly all poor shooting, is eliminated. With the sandbag rest the sights can be held fixed at the bottom edge of the bull's-eye while the firer squeezes the trigger with such a steady pressure as not to know exactly when the rifle will go off, which is the basis of all good shooting. The habit of correct trigger squeeze, having been acquired by firing with a sandbag rest, will in all probability be retained while firing prone and in the more unsteady positions—sitting, kneeling, and standing.

57. **Pads.**—Men will be required to wear pads on the shoulder and, if the ground is hard, on the elbows, for the first three or four days at least. A pad can easily be improvised by putting a pair of woolen stocks under the coat or shirt so as to protect the shoulder and the upper muscles of the arm. After a few days of firing the muscles become hardened so that the pads are not essential, but it is advisable to wear them throughout the entire period of range practice.

58. **Coaching.**—*a. General.*—(1) During instruction practice each man on the firing line will have a coach to watch him and to help him correct errors. This statement does not mean that each man must have an old or experienced shot beside him. Any man of good intelligence who has been properly instructed in the preparatory work and who has been given instruction in coaching methods can be used with good results and should be used when more experienced coaches are not available.

(2) It is good practice to have expert coaches in charge of one or more targets, usually on a flank, to which particularly difficult pupils are sent for special coaching.

(8) Great patience should be exercised by the coach so as not to excite or confuse the firer. Everything should be done to encourage him. It is often a good plan to change coaches. It is necessary to do so when the coach shows signs of reaching the limit of his patience.

b. Position of coach.—The coach will take the same position as the man who is firing—prone, sitting, kneeling, or standing—so as to be able to watch his trigger finger and his eye.

c. Watching the eye.—Errors in trigger squeeze, which are the most serious and the hardest to correct, can be detected by watching the pupil's eye. If his eye can be seen to close as the



FIGURE 20.—Position of coach.

rifle goes off, it is because he knew when it was going off and consequently was not squeezing the trigger properly. The explosion and the shock will cause a man to wink, but this wink cannot be seen, due to the sudden movement of the head that takes place at the same time. If the firer can be seen to wink it is because he winked first and jerked the trigger afterward.

d. Use of dummy cartridges in slow fire.—If the pupil is seen to be flinching, or if he is doing poor or mediocre shooting, the coach first checks his aim by the aiming device. Having assured himself that the pupil is aiming correctly, the coach has him turn his head aside while he, the coach, puts in a cartridge and shoves the bolt home. Occasionally the coach loads in a dummy cartridge instead of a live one without letting the pupil know what he has done. Then the flinch, indicated by the shoulder being shoved forward at the same time that the trigger is pressed, will be evident even to the firer himself. The coach

then proves to him by squeezing the trigger a few times, as explained in *e* below, that his poor shooting is due to faulty trigger squeeze.

e. Coach squeezing the trigger.—(1) To squeeze the trigger for the firer, the coach lies with his right elbow on the ground to steady his hand, places his thumb against the trigger and his first finger against the back of the trigger guard. In this way he can apply pressure to the trigger by a pinching action of his thumb and first finger.

(2) The coach then watches the firer's back, and between 5 and 10 seconds after the firer begins to hold his breath he applies enough pressure to discharge the piece. Shots fired in this way are almost always accurately placed. After discharg-



FIGURE 21.—Coach squeezing trigger.

ing the piece a few times the coach lets the firer try a few shots alone, to see if he can press the trigger the same way the coach pressed it, so as not to know just when the rifle will go off. Sometimes it is necessary to repeat this exercise, but the majority of beginners can be permanently cured of the tendency to flinch by a few minutes of this kind of coaching. Old shots who are flinchers require more time and patience.

f. Duties of coach in slow fire.—(1) The coach observes the pupil carefully and corrects all errors. He pays particular attention to see—

(*a*) That the sights are blackened and that they are set at the correct range.

(*b*) That the ammunition is free from dirt.

(*c*) That the pupil has the correct position, gun sling properly adjusted, body at the proper angle, elbows correctly placed, and the cheek pressed firmly against the stock.

(*d*) That the magazine is loaded from a clip in the correct manner.

(*e*) That the slack is taken up promptly.

(*f*) Whether or not the pupil flinches (by watching his eye).

(*g*) That the pupil calls his shot each time he fires.

(*h*) That the pupil keeps his score book correctly.

(*i*) That the pupil is holding his breath properly (by watching his back occasionally).

(*j*) That the aiming is correct (by watching through the aiming device occasionally).

(2) When necessary, the coach applies the coaching methods described in *d* and *e* above.

59. **Final precautions for slow fire.**—The following precautions should be read over each time before going to the firing point. They will be read by the instructor to the assembled pupils at the beginning of instruction and record practice.

a. Be sure both the front and rear sights of your rifle are properly blackened.

b. Take your score book to the firing point and obtain your erevation and windage from it for the first shot.

c. Fire your first shot very carefully and then, if necessary, change the sights to bring the second shot into the bull's-eye.

d. Always aim at the bottom edge of the bull's-eye for all shots.

e. Never try to make a bullet hit closer to the bull's-eye by changing the aiming point. When you wish to change the hitting place of the bullet, do so by changing your rear sight.

f. Do not change your windage until you have looked at your score book to find out how much of a change you need; then look at your wind gage to see how much windage you have before you start to make the change.

g. Plot all of your shots in the score book. Watch the score book to see where your group is going. Try to bring the center of the group to the center of the bull's-eye by making the necessary change in your sight setting.

h. Do not change your sights unnecessarily. If you have made two or three good shots and then make a bad one, do not

change your sights on account of the bad one because it is almost certain that it is your own fault.

60. Rapid fire.—*a. Importance.*—The true value of a soldier as a rifle shot depends upon his ability to deliver rapid fire, or more properly speaking, continuous fire, accurately. The tendency to jerk the trigger, and consequently to flinch, is very strong in rapid fire. This tendency must be corrected before it can become a fixed habit. Constant vigilance and attention to every detail by the coach is an absolute requisite.

b. Use of dummy cartridges.—(1) Range dummy cartridges may be used in rapid fire to save ammunition if not mixed with loaded cartridges in the same clip. See paragraph 73 for safety precaution in case of misfire.

(2) Range dummy cartridges, very similar in appearance to the service ammunition, are issued by the Ordnance Department for this purpose. They are issued to use on the rifle range with loaded cartridges, and this is the only use of them which is permitted. Practice dummy cartridges of such shape and color as to be readily distinguished from the service cartridge must be used in all other exercises requiring the use of dummy cartridges.

(3) It is advisable to have each order, when it comes to the firing point, simulate a score of rapid fire, using dummy cartridges or having the cut-off turned down.

c. Use of spotters.—Spotters will be used in rapid fire on target D. When the target is run up to be marked, with a spotter in each shot hole, a picture of the group is obtained immediately. If enough issue spotters for this purpose are not available, each organization commander will have enough made for his organization. Spotters can be made out of cardboard and ordinary baling wire. A good tin spotter can also be made out of the tops of small cans.

d. Duties of the coach.—(1) The coach observes the pupil carefully and corrects all errors. He pays particular attention to see—

(*a*) That the sights are blackened and that they are set at the proper range.

(*b*) That the gun sling is properly adjusted.

(*c*) That the pupil assumes the correct position.

(*d*) That he takes up the slack promptly.

(*e*) Whether or not the pupil flinches (by watching his eye).

(*f*) That he works the bolt rapidly.

(*g*) That while working the bolt the pupil keeps his eye on the target, the rifle to his shoulder, and his elbows in place.

(*h*) That he reloads the magazine from a clip properly and quickly.

(2) These operations follow each other, and the coach can watch each in turn. The coach will also at times watch the pupil's back to see if he holds his breath while firing each shot. In the case of a difficult pupil it is advisable to have two coaches watching him fire.

(3) Any lack of a smooth and rapid bolt operation indicates that the preparatory training has not been sufficient, and additional preparatory rapid-fire practice will be given.

61. Final word.—Good shooting is a matter of instruction and not of mere practice. It requires no inborn talent. If the instruction is good, the shooting will be good. Practice without the proper instruction will produce only a small percentage of good shots, and those only after they have learned by long experience what they should have been taught in the beginning.

62. General provisions governing courses.—*a. Instruction practice.*—(1) The instruction practice outlined for each course is meant to serve as a guide. Only the general plan of beginning the practice in the prone position at all ranges with the sandbag rest need be followed. The amount of instruction practice to be given and the number of shots to be fired at each range will be such as to conform to the authorized ammunition allowances.

(2) The five shots in rapid fire at each range will be fired in one score of two clips, one containing five dummy cartridges, the other, five loaded cartridges. The order in which the clips are fired is optional with the firer. This form of practice is excellent training and saves ammunition. Its use at other times during the instruction practice is authorized and recommended.

(3) The amount of instruction practice is not limited to that prescribed in the tables. Such additional practice as time and ammunition allowance permit will be given.

(4) The procedure prescribed in section XV for record practice is applicable to instruction practice with the following exceptions:

(*a*) Scores are not required to be kept in the pit.

(*b*) Only such officers and noncommissioned officers are on duty in the pit as are necessary to preserve order and insure efficient pit service.

(*c*) The scores may be kept on the firing line in any manner authorized by the organization commander.

b. Record practice.—The order of sequence in firing the record course may be changed when local conditions make such action advisable.

63. Course A.—*a. Instruction practice.*

TABLE I.—*Slow fire*

Range (inches)	Time	Shots	Target	Position
1,000	No limit	5	A 1,000-inch	Prone with sandbag, loop sling.
1,000	do	5	do	Prone, sling optional.
1,000	do	5	do	Sitting, sling optional.
1,000	do	5	do	Kneeling, sling optional.
1,000	do	5	do	Standing, sling optional.

TABLE II.—*Rapid fire*

Range (inches)	Time (seconds)	Shots	Target	Position
1,000	60	[1] 5	D 1,000-inch	Prone from standing, sling optional.
1,000	60	[1] 5	do	Sitting or kneeling from standing, sling optional.

[1] See par. 62*a* (2).

TABLE III.—*Slow fire*

Range (yards)	Time	Shots	Target	Position
200	No limit	5	A	Prone with sandbag, loop sling.
300	do	5	A	Do.
500	do	5	B	Do.

TABLE IV.—*Slow fire*

Range (yards)	Time	Shots	Target	Position
200	No limit	5	A	Prone, loop sling
300	do	5	A	Do.
500	do	10	B	Do.

TABLE V.—*Slow fire*

Range (yards)	Time	Shots	Target	Position
200	No limit	5	A	Sitting, loop sling.
200	do	5	A	Kneeling, hasty sling.
200	do	5	A	Standing, hasty sling.

TABLE VI.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Target	Position
200	60	[1] 5	D	Kneeling from standing, loop sling optional.
300	70	[1] 5	D	Prone from standing, loop sling optional.

[1] See par. 62*a* (2).

TABLE VII.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Target	Position
200	70	[1] 5	D	Kneeling from prone, running 25 yards, loop sling optional.
300	80	[1] 5	D	Prone from prone, running 25 yards, loop sling optional.

[1] See par. 62*a* (2).

b. Record practice.

TABLE VIII.—*Slow fire*

Range (yards)	Time	Shots	Target	Position
200	No limit..	10	A.....	5 standing, 5 kneeling, hasty sling.
500	...do.....	10	B.....	Prone, loop sling.

TABLE IX.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Target	Position
300	70.....	10	D.....	Prone from standing, loop sling.

TABLE X.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Target	Position
200	70.....	10	D.....	Kneeling from prone, running 25 yards, loop sling optional.
300	80.....	10	D.....	Prone from prone, running 25 yards, loop sling optional.

NOTE.—When 25 yards is not available, a shorter distance may be used, reducing the time 2 seconds for each 5 yards.

64. Course B.—*a. Instruction practice.*

TABLE I.—*Slow fire*

Range (inches)	Time	Shots	Target	Position
1,000	No limit..	5	A 1,000-inch.	Prone with sandbag, loop sling.
1,000	....do.....	5	.....do.....	Prone, sling optional.
1,000	....do.....	5	.....do.....	Sitting, sling optional.
1,000	....do.....	5	.....do.....	Kneeling, slip optional.
1,000	....do.....	5	.....do.....	Standing, sling optional.

TABLE II.—*Rapid fire*

Range (inches)	Time (seconds)	Shots	Target	Position
1,000	60.....	[1] 5	D 1,000-inch.	Prone from standing, sling optional.
1,000	60.....	[1] 5	.....do.....	Sitting or kneeling from standing, sling optional.

[1] See par. 62*a* (2).

TABLE III.—*Slow fire*

Range (yards)	Time	Shots	Target	Position
200	No limit..	5	A.....	Prone with sandbag, loop sling.
300	....do.....	5	A.....	Do.

TABLE IV.—*Slow fire*

Range (yards)	Time	Shots	Target	Position
300	No limit..	5	A.....	Sitting, loop sling.
300	.....do....	5	A.....	Kneeling, hasty sling.
200	.....do....	5	A.....	Standing, hasty sling.

TABLE V.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Target	Position
200	60.....	[1] 5	D.....	Kneeling from standing, loop sling optional.
300	70.....	[1] 5	D.....	Prone from standing, loop sling optional.

[1] See par. 62*a* (2).

TABLE VI.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Target	Position
200	70.....	[1] 5	D.....	Prone from prone, running 25 yards, loop sling optional.
300	80.....	[1] 5	D.....	Do.

[1] See par. 62*a* (2).

b. Record practice.

TABLE VII.—*Slow fire*

Range (yards)	Time	Shots	Target	Position
200	No limit..	5	A.....	Standing, hasty sling.
300	...do.....	10	A.....	Kneeling, sling optional.

TABLE VIII.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Target	Position
300	70.....	10	D.....	Prone from standing, loop sling.

TABLE IX.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Target	Position
200	70.....	10	D.....	Prone from prone, running 25 yards, loop sling optional.
300	80.....	10	D.....	Do.

NOTE.—When 25 yards is not available, a shorter distance may be used, reducing the time 2 seconds for each 5 yards.

65. Course C.—*a. Instruction practice.*

TABLE I.—*Slow fire*

Range (inches)	Time	Shots	Target	Position
1,000	No limit..	5	A 1,000-inch.	Prone with sandbag, loop sling.
1,000	...do.....	5	.....do.....	Prone, sling optional.
1,000	...do.....	5	.....do.....	Sitting, sling optional.
1,000	...do.....	5	.....do.....	Kneeling, sling optional.
1,000	...do.....	5	.....do.....	Standing, sling optional.

TABLE II.—*Rapid fire*

Range (inches)	Time (seconds)	Shots	Target	Position
1,000	60.....	[1] 5	D 1,000-inch.	Prone from standing, sling optional.
1,000	60.....	[1] 5	.....do.....	Sitting or kneeling from standing, sling optional.

[1] See par. 62*a* (2).

TABLE III.—*Slow fire*

Range (yards)	Time	Shots	Target	Position
200	No limit..	5	A.....	Prone with sandbag, loop sling.
200	...do.....	5	A.....	Prone, loop sling.
200	...do.....	5	A.....	Sitting, loop sling.
200	...do.....	5	A.....	Kneeling, hasty sling.
200	...do.....	5	A.....	Standing, hasty sling.

TABLE IV.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Target	Position
200	60.....	[1] 5	D.....	Kneeling from standing, loop sling optional.
200	70.....	[1] 5	D.....	Prone from prone, running 25 yards, loop sling optional.

[1] See par. 62*a* (2).

b. Record practice.

TABLE V.—*Slow fire*

Range (yards)	Time	Shots	Target	Position
200	No limit..	5	A.....	Kneeling, sling optional.
200	...do.....	5	A.....	Standing, hasty sling.

TABLE VI.—*Rapid fire*

Range (yards)	Time (seconds)	Shots	Target	Position
200	60.....	10	D.....	Kneeling from standing, loop sling optional.
200	70.....	10	D.....	Prone from prone, running 25 yards, loop sling optional.

NOTE.—When 25 yards is not available, a shorter distance may be used, reducing the time 2 seconds for each 5 yards.

66. Course D.—*a. Instruction practice.*

TABLE I.—*Slow fire*

Range (inches)	Time	Shots	Target	Position
1,000	No limit..	10	A 1,000-inch.	Prone with sandbag, loop sling.
1,000	...do.....	10	.....do.....	Prone, sling optional.
1,000	...do.....	10	.....do.....	Sitting, sling optional.
1,000	...do.....	10	.....do.....	Kneeling, sling optional.
1,000	...do.....	10	.....do.....	Standing, sling optional.

TABLE II.—*Rapid fire*

Range (inches)	Time (seconds)	Shots	Target	Position
1,000	60.....	[1] 5	D 1,000-inch.	Prone from standing, loop sling.
1,000	60.....	[1] 5	...do.....	Sitting or kneeling from standing, sling optional.
1,000	70.....	[1] 5	...do.....	Prone from prone, running 25 yards, loop sling optional.

[1] See par. 62*a* (2).

b. Record practice.

TABLE III.—*Slow fire*

Range (inches)	Time	Shots	Target	Position
1,000	No limit..	5	A 1,000-inch.	Kneeling, sling optional.
1,000	...do.....	5	.....do.....	Standing, hasty sling.

TABLE IV.—*Rapid fire*

Range (inches)	Time (seconds)	Shots	Target	Position
1,000	60.....	10	D 1,000-inch.	Kneeling from standing, loop sling optional.
1,000	70.....	10	.....do.....	Prone from prone, running 25 yards, loop sling optional.

NOTE.—When 25 yards is not available, a shorter distance may be used, reducing the time 2 seconds for each 5 yards.

SECTION XIV

GENERAL PROVISIONS GOVERNING RANGE PRACTICE

67. Permanent range personnel.—The successful operation of a rifle range requires the following personnel:

a. Commissioned.—A range officer or a chief range officer and assistants.

b. Enlisted.—A noncommissioned officer in charge of the pit and such fatigue details as may be required.

68. Range officers.—*a. Appointment.*—When rifle practice is held simultaneously or successively by different organizations on a large range where more than one range officer is required, the senior officer appointed for such duty will be designated as the chief range officer. When only one range officer is appointed, he will be designated as the range officer.

b. Duties.—The chief range officer or the range officer makes timely estimates for material and labor to place the range in

proper condition for the practice season, and supervises and directs all necessary repairs to shelters, butts, targets, firing points, and telephone lines. He exercises direct supervision over the practical operation of the rifle range during the practice season. He maintains order, regulates the distribution of ranges and targets, and, in general, assists the officer in charge of firing by using the means necessary to secure efficient and accurate service from the working force of the range. He provides for the safety of the markers and any visitors. When necessary, he provides range guards and instructs them in the methods to be used for the protection of life and property within the danger area. In case there is no range officer present the senior officer on duty with troops firing performs the duties of range officer.

69. Noncommissioned officer in charge of the pit.—A competent noncommissioned officer and such assistants as the post commander may deem necessary will be detailed permanently during the practice season in charge of arrangements in the pit. The noncommissioned officer in charge of the pit is responsible to the senior range officer for the discipline and efficiency of all target details. He sees that all of the target equipment is kept in a serviceable condition; that the desired targets are ready for firing at the appointed time; and that all target details as they enter the pit are provided with the proper flags, marking disks, paste, pasters, and spotters.

70. Order of instruction and record practice.—*a.* The practice season opens with instruction practice. Each person will complete instruction practice before proceeding with record practice.

b. When record practice is once begun it is carried to completion before any other practice is permitted.

c. As a rule record practice will not be fired by any rifleman on the same day that he fires any part of instruction practice. However, when the time allotted to range practice is very limited, the officer in charge of firing may authorize record firing on the same day. Instruction and record practice will not be conducted simultaneously except on ranges where the firing

points are in echelon or where the instruction firing takes place on a different part of the range.

71. Uniform.—The uniform to be worn during instruction practice and record firing will be prescribed by the commanding officer.

72. Equipment.—The garrison belt or the field belt, stripped, will be worn during instruction practice and record firing.

73. Safety precautions.—Rifles will not be loaded in rear of the firing line (see par. 78c for rapid fire preceded by a run). On open 1,000-inch ranges having no danger area behind back stop all loading and unloading will be executed with the muzzle directed toward the target, and in rapid fire rifles will not be unlocked until firer is in prescribed firing position. If a misfire occurs, the bolt will not be opened for at least 10 seconds as it may be a hangfire.

Section XV

PROCEDURE GOVERNING RECORD PRACTICE

74. Organization of the firing line.—*a.* Scorers seated close to and to the right rear of the person firing.

b. Telephone operators 5 paces in rear of the firing line.

c. Persons awaiting their turn to fire 10 paces in rear of the firing line.

d. Low arm racks or rifle rests and cleaning racks 20 paces in rear of the firing line.

75. Target details.—The details for the supervision, operation, marking, and scoring of targets during record practice consist of officers, noncommissioned officers, and privates, as follows:

a. One commissioned officer assigned to each two targets. When it is impracticable to detail one officer to each two targets in the pit, an officer will be assigned to supervise the marking and scoring of not to exceed four targets. In this case the pit scores will be kept by the noncommissioned officer in charge of each target, who will sign the score card. The officer will take up and sign each score card as soon as a complete score is recorded.

b. One noncommissioned officer assigned to each target to direct and supervise the markers. This noncommissioned officer will be selected, except at a one-company post, from an organization other than the one firing on the target which he supervises. When a post is garrisoned by a single company so that it is impossible to detail noncommissioned officers of other companies to supervise the marking and scoring, those duties will be performed by the noncommissioned officers of the firing company. In record firing at such post new paper targets will be used for each day's firing. At the end of the day the company commander or one of his lieutenants will count the number of hits made in each division of the target and compare the totals with the recorded scores. Since the markers may inadvertently make errors in signaling hits, the record should be permitted to stand whenever an examination of the target gives results very closely agreeing with the recorded scores, but the markers should be cautioned to exercise greater care in the future. When there is more than one officer with the company one will be in the pit during the record firing.

c. One or two privates assigned to operate and mark each target. These privates may be selected from the organization firing on the target to which they are assigned.

76. Score cards and scoring.—*a.* Duplicate score cards will be kept, one at the firing point and one in the pit. These cards will be of different colors. The cards at the firing point will bear the date, the man's name, the number of the target, and the order of firing. The pit card will not show the man's name, but will bear the date, the number of the target, and the order of firing.

b. Entries on all score cards will be made in ink or with indelible pencil. No alteration or correction will be made on the card except by the organization commander, who will initial each alteration or correction made.

c. The scores at each firing point will be kept by a noncommissioned officer of some organization other than that firing on the target to which he is assigned, except in case of a 1-company garrison, when company officers will exercise special care to insure correct scoring. As soon as a score is completed the

score card will be signed by the scorer, taken up and signed by the officer supervising the scoring, and turned over to the organization commander. Except when required for entering new scores on the range, score cards will be retained in the personal possession of the organization commander and not allowed in the hands of an enlisted man from the beginning of record practice until the required reports of range practice have been rendered.

d. In the pit the officer keeps the scores for the two targets to which he is assigned. As soon as a score is completed he signs the score card. He turns these cards over to the organization commander at the end of the day's firing, or at such times as requested.

c. Upon completion of record firing and after the qualification order is issued the pit score cards of each man will be attached to his official score card kept at the firing point. These cards will be kept available for inspection among the company records for one year, and then destroyed.

77. Marking.—*a. Slow fire.*—(1) The value of the shot is indicated as follows:

(*a*) A bull's-eye, with a white disk.

(*b*) A four, with a red disk.

(*c*) A three, with a black and white disk.

(*d*) A two, with a black disk.

(*e*) A miss, by waving a danger flag across the front of the target.

(*f*) Ricochet hits will not be counted.

(2) The exact location of the hit is indicated by placing in the shot hole a spotter of size appropriate to the distance from the firing point. The center of the marking disk is placed over the spotter in signaling hits. No spotters are required on 1,000-inch ranges.

b. Rapid fire on target D.—(1) The same disks are used to indicate the value of hits as in slow fire.

(2) Spotters are placed in the shot holes before the target is run up for marking.

(3) The marking begins with the hits of highest value, the center of the disk being placed over the spotter, then swung

off the target and back again to the next spotter, care being taken each time to show only the face of the disk indicating the value of the shot being marked. The marking will be slow enough to avoid confusing the scorer at the firing point. When one spotter covers more than one shot hole the disk is placed over it the required number of times. Misses are indicated by slowly waving the red flag across the face of the target one time for each miss. Ricochet hits will not be counted.

78. Procedure.—*a. Slow fire.*—(1) *On the firing line.*—(*a*) One person only will be assigned to a target in each order.

(*b*) The scorer, as the value of each shot is signaled, announces in a tone sufficiently loud to be heard by the firer the name of the firer, the number of the shot, and the value of the hit, and records the value of the hit on the score card of the individual who is firing.

(*c*) Whenever a target is marked without the individual assigned to that target having fired, as will occur when some one fires on the wrong target, the scorer will notify the officer in charge, who will notify the officer assigned to that target in the pit to disregard the shot. This precaution is necessary to prevent errors in the pit record.

(*d*) When an individual fires on the wrong target he will not be scored a miss until the target to which he is assigned has been pulled down and the miss signaled from the pit.

(*e*) If the target is not half masked at the completion of a score on that target, or if it is half masked at the wrong time, the officer in charge of that firing point will adjust the matter at once over the telephone. This precaution is necessary to prevent the error from being carried on through the scores that follow.

(2) *In the pit.*—(*a*) The target is withdrawn and marked after each shot, except that on 1,000-inch ranges, the targets are marked and removed after each 5 or 10 shots, and replaced with new targets.

(*b*) When a shot is fired at a target, it is pulled down. The noncommissioned officer indicates the location of the hit to the officer, who announces its value and records it on the score card. A spotter is then placed in the shot hole, the previous

shot hole, if any, is pasted, and the target is run up and marked. The noncommissioned officer supervises the marking of each shot. The officer also exercises general supervision over the marking.

(*c*) When the pit score card indicates that a score has been completed, the target is half masked for about 30 seconds as a signal of such completion to the firing line. At the end of the 30 seconds the target is pulled fully down, the spotter removed, the shot hole pasted, and the target run up for the beginning of a new score.

(*d*) When a target frame is used as a counterweight for a double sliding target, the blank side of such frame will be toward the firing line.

b. Rapid fire on target D.—(1) *On the firing line.*—(*a*) One person only will be assigned to a target in each order.

(*b*) When all is ready in the pit, a red flag is displayed at the center target. At that signal the officer in charge of the firing line commands: ***LOAD.*** The rifles are loaded and locked.

(*c*) The officer in charge of the firing line then calls so that all may hear, "Ready on the right? Ready on the left?" Anyone who is not ready calls out, "Not ready on No. —." If any individual fails to fire at all, he will be given another opportunity to fire, but if he fires any shots the score must stand as his record. He will not be permitted to repeat his score on the claim that he was not ready.

(*d*) All being ready on the firing line, the officer in charge commands: ***READY ON THE FIRING LINE.*** Rifles are unlocked and the position of *ready* assumed. The telephone orderly notifies the pit, "Ready on the firing line."

(*e*) The flag at the center target is waved and then withdrawn. Five seconds after the flag is withdrawn the targets appear, remain fully exposed for the prescribed period of time, and are then withdrawn. The firer takes the prescribed position as soon as the targets appear, and fires or attempts to fire 10 shots, reloading from a full clip taken from the belt.

(*f*) As soon as the targets are withdrawn the officer in charge commands: ***UNLOAD.*** All unfired cartridges are removed from the rifle and the bolts are left open. The men remain in posi-

tion on the firing line until they are ordered off by the officer in charge.

(*g*) As each shot is signaled it is announced as follows: "Target No. —, 1 five, 2 fives, 3 fives, 1 four, 2 fours, 3 fours, 4 fours, 1 three, 1 miss, 2 misses." The scorer notes these values on a pad and watches the target as he calls the shot. After the marking is finished he counts the number of shots marked, and, if more or less than 10, calls, "Re-mark No. —." If 10 shots have been marked, he then enters the score on the soldier's score card and totals it as follows: 5 5 5 4 4 4 4 3 0 0 equals 34.

(2) *In the pit.*—(*a*) The time is regulated in the pit by the officer in charge.

(*b*) When all is ready in the pit the targets are fully withdrawn and a red flag is displayed at the center target.

(*c*) When the message is received that the firing line is ready, the red flag at the center target is waved and withdrawn and the command ***READY*** is given to the pit details.

(*d*) Five seconds after the red flag is withdrawn the targets, by command or signal, are run up, left fully exposed for the prescribed period of time and then withdrawn.

(*e*) The officers in the pit examine each of their targets in turn, announce the score, and record it on the pit score card. Spotters are then placed in the shot holes and the targets run up and marked. The noncommissioned officer supervises the marking of each shot. The officer exercises general supervision over the marking.

(*f*) The targets are left up for about one minute after being marked and are then withdrawn, pasted, and made ready for another score. They may be left up until ordered pasted by the officer in charge of the firing line.

(*g*) If more than 10 hits are found on any target it will not be marked unless all of the hits have the same value. The officer in charge of the firing line will be notified of the fact by telephone.

c. Rapid fire (preceded by a run).—(1) *On the firing line.*—(*a*) One person only will be assigned to a target in each order. The firing line will be 25 yards in rear of the firing point.

(*b*) When all is ready in the pit a red flag is displayed at the center target. At that signal the officer in charge of the firing line commands: ***LOAD.*** The rifles are loaded and locked. The officer in charge of the firing line commands: ***LIE DOWN.***

(*c*) The officer in charge of the firing line then calls so that all may hear, "Ready on the right? Ready on the left?" Anyone who is not ready calls out "Not ready on No. —." If any individual fails to fire at all, he will be given another opportunity to fire, but if he fires any shots the score must stand as his record. He will not be permitted to repeat his score on the claim that he was not ready.

(*d*) All being ready on the firing line, the officer in charge commands: ***READY ON THE FIRING LINE.*** The telephone orderly notifies the pit, "Ready on the firing line."

(*e*) The flag at the center target is waved and then withdrawn. The officer in charge of the firing line commands: ***PREPARE TO RUSH.*** Five seconds after the flag is withdrawn the targets appear and the officer in charge of the firing line commands: ***UP.*** The firers move forward at a run as described in paragraph 12*c*, TR 420–85, and upon arrival at the firing point, the firers lie down, assume the firing position as described in paragraph 28*c*, and fire or attempt to fire 10 shots, reloading from a full clip taken from the belt. The targets remain fully exposed for the prescribed period of time, and are then withdrawn.

(*f*) As soon as the targets are withdrawn the officer in charge commands: ***UNLOAD.*** All unfired cartridges are removed from the rifle and the bolts are left open. The men remain in position on the firing line until they are ordered off by the officer in charge.

(*g*) As each shot is signaled it is announced as follows: Target No. —, 1 five, 2 fives, 3 fives, 4 fives, 5 fives, 6 fives, 7 fives, 8 fives, 2 misses. The scorer notes these values on a pad and watches the target as he calls the shot. After the marking is finished he counts the number of shots marked and, if more than 10, calls, "Re-mark No. —." If 10 shots have been marked, he then enters the score on the soldier's score card and totals it as follows: 5 5 5 5 5 5 5 5 0 0 equals 40.

(2) *In the pit.*—(*a*) The time is regulated in the pit by the officer in charge.

(*b*) When all is ready in the pit a red flag is displayed at the center target.

(*c*) When the message is received that the firing line is ready, the red flag at the center target is waved and withdrawn and the command ***READY*** is given to the pit details.

(*d*) Five seconds after the red flag is withdrawn, the targets by command or signal are raised, left fully exposed for the prescribed period of time, and then withdrawn.

(*e*) The officers in the pit examine each of their targets in turn, announce the score, and record it on the pit score card. The targets are then raised and marked. The noncommissioned officer supervises the marking of each shot. The officer exercises general supervision over the marking.

(*f*) After being marked, the targets are lowered, pasted, and made ready for another score. They may be left up until ordered pasted by the officer in charge of the firing line.

(*g*) If more than 10 hits are found on any target, the officer in charge of the firing line will be notified of the fact by telephone. See paragraph 103.

d. Rapid fire on target D (rifle) 1,000-inch range.—(1) *1,000-inch range with target pit.*—(*a*) Rapid fire from standing position to prone, sitting, and kneeling will be conducted in the same manner as prescribed for target D, except that the miniature targets will be removed and replaced with new targets after marking.

(*b*) Rapid fire preceded by a run will be conducted in the same manner as prescribed in paragraph 78*c*, except that the miniature targets will be removed and replaced with new targets after marking.

(2) When 1,000-inch range has no target pit, the following will govern:

(*a*) If the targets are covered by a curtain which can be opened to expose the face of the target and closed again to conceal it, or if the targets operate on a pivot, the rapid fire will be conducted as closely as practicable in conformity with the method set forth above for 1,000-inch range with target pit.

(*b*) If the targets are exposed all the time, rapid fire from standing to prone, kneeling, and sitting will be conducted by the officer in charge, who commands: 1. ***Lie down (kneel or sit down)***, 2. ***COMMENCE FIRING***, 3. ***CEASE FIRING.*** Time is taken from the first command.

(*c*) If the targets are exposed all the time, rapid fire preceded by a run will be conducted by the officer in charge, who commands: 1. ***Prepare to rush***, 2. ***UP***, 3. ***CEASE FIRING.*** Time is taken from the command ***Up.***

(*d*) After the command ***Unload*** and all unfired cartridges are removed from the rifle and the bolts are open, the officer in charge will direct the target detail to mark, remove, and replace the targets.

79. Use of telephones.—*a.* Telephones will be used for official communications only.

b. No one will ask over the telephone for information as to the name or organization of any person firing on any particular target, and no information of this nature will be transmitted.

c. The following expressions will be used over the telephone in the cases enumerated:

(1) When a shot has been fired and the target has not been withdrawn from the firing position, "Mark No. —."

(2) When a shot has been fired and the target withdrawn from the firing position but not marked, "Disk No. —."

(3) When the target has been withdrawn from the firing position and marked, but the value of the shot has not been understood, "Redisk No. —."

(4) When the firing line is ready for rapid fire, "Ready on the firing line."

(5) When a shot is marked on a target and the person assigned thereto has not fired, "Disregard the last shot on No. —."

SECTION XVI

RULES GOVERNING RECORD PRACTICE

80. Men marking targets not to know who is firing.—Officers and men in the pit will not know who is firing on any

particular target. Any officer or man who attempts to obtain this information or who attempts to transmit it either over the telephone or otherwise will be made the subject of disciplinary action by the proper authority.

81. **Coaching prohibited.**—Coaching of any nature, after the firer takes his place on the firing point, is prohibited. No person will render or attempt to render the firer any assistance whatever while he is taking his position or after he has taken his position at the firing point. Each firer must observe the location of his own hits as indicated by the marking disk or spotters.

82. **Use of instruments.**—*a.* The use of field glasses, telescopes, and sight-setting instruments is authorized and encouraged.

b. The use of instruments or devices for determining the force and direction of the wind is authorized and encouraged during instruction practice, but will not be used during record practice.

83. **Shelter for firer.**—Sheds or shelter for the firer will not be permitted at any range.

84. **Restrictions as to the rifle.**—Troops will use the rifle with which they are armed. The rifle will be used as issued by the Ordnance Department. The use of additional appliances, such as temporary shades for the sights, spirit levels, and orthoptic eyepieces, is prohibited. The sights may be blackened. Any authorized size of peep sight issued by the Ordnance Department may be used. Small arms and appliances issued by the Ordnance Department for test and report will not be used for determining classification.

85. **Trigger pull.**—The trigger pull will be at least 3 pounds, and, before record firing, will be tested (with the barrel vertical) by an officer.

86. **Ammunition.**—The ammunition used will be the service cartridge as issued by the Ordnance Department unless the use of other ammunition is authorized.

87. **Cleaning.**—Cleaning will be permitted only between scores.

88. Use of gun sling.—The gun sling will be used in connection with one arm only. For the purpose of adjustment for shooting, neither end will be removed from either sling swivel. No knot will be tied in the sling and the sling itself will neither be added to nor modified in any manner.

89. Pads and gloves.—*a.* To reduce the shock or recoil, to prevent bruising the elbows, and to prevent irritation of the upper arm by the gun sling, pads of moderate size and thickness may be worn on either shoulder, on both elbows, and on either upper arm. Pads of such size, thickness, or construction as to form artificial support for the rifle are prohibited. Shoulder pads so designed by means of excessive size or thickness, quilting, rolls, ridges, or other devices as to aid materially in retaining the rifle butt in the firing position against the shoulder are prohibited. The use of a hook, small roll, or ridge on the sleeve of the shooting coat or shirt to keep the sling in place on the arm is prohibited.

b. A glove may be worn on either hand, provided it is not used to form an artificial support for the rifle.

90. Loading pieces.—Pieces will not be loaded except by command or until position for firing has been taken.

91. Warming or fouling shots.—No warming or fouling shots will be allowed.

92. Sighting shots.—Sighting shots form no part of the score and are not recorded as such. When sighting shots are prescribed they will be fired. If, through no fault of his own, a soldier's record score has to be continued because it was not completed, he will be given sighting shots with the new score, provided such shots are prescribed for that range.

93. Shots cutting the edge of bull's-eye or line.—Any shot cutting the edge of the figure or bull's-eye will be signaled and recorded as a hit in the figure or the bull's-eye. Because the limiting line of each division of the target is the outer edge of the line separating it from the exterior division, a shot touching this line will be signaled and recorded as a hit in the higher division.

94. Slow-fire score interrupted.—If a slow-fire score is interrupted through no fault of the person firing, the unfired

shots necessary to complete the score will be fired at the first opportunity thereafter. (See also par. 92.)

95. **Misses.**—In all firing, before any miss is signaled, the target will be withdrawn from the firing position and carefully examined by an officer, if an officer is on duty in the pit. Whenever the target is run up and a miss is signaled, it will be presumed that this examination has been thoroughly made. No challenge of the value signaled will be entertained or resignaling of the shot allowed.

96. **Accidental discharges.**—All shots fired by the soldier after he has taken his place at the firing point (and it is his turn to fire, the target being ready) will be considered in his score even if his piece was not directed toward the target or is accidentally discharged.

97. **Firing on wrong target.**—Shots fired upon the wrong target will be entered as a miss upon the score of the man firing, no matter what the value of the hit upon the wrong target may be. In rapid fire the soldier at fault is credited with only such hits as he may have made on his own target.

98. **Two shots on same target.**—In slow fire, if two shots strike a target at the same time, or nearly the same time, both will be signaled; if one of these shots was fired from the firing point assigned to that target, the hit having the highest of the two values signaled will be entered on the soldier's score and no record made of the other hit.

99. **Withdrawing target prematurely.**—In slow fire, if the target is withdrawn from the firing position just as the shot is fired, the scorer at that firing point will at once report the fact to the officer in charge of the scoring on that target. That officer will investigate to see if the case is as represented. Being satisfied that such is the case, he will direct that the shot be not considered and that the man fire another shot.

100. **Misfires in rapid fire.**—In the case of a misfire the soldier will cease firing immediately, the target will not be marked, and the score will be repeated. See paragraph 73 for safety precautions.

101. **Unfired cartridges in rapid fire.**—Each unfired cartridge will be recorded as a miss.

102. Disabled rifle in rapid fire.—If, during the firing of a rapid-fire score, the rifle becomes disabled through no fault of the soldier, he will repeat the score. The breaking of a clip in reloading will not entitle the soldier to another score.

103. More than 10 hits in rapid fire.—When a target has more than 10 hits in rapid fire, the target will not be marked. The soldier firing on that target will repeat his score, except when all the hits on target D or on target D (rifle) 1,000-inch range have the same value, when the target will be re-marked and he will be given that value for each shot fired by him.

SECTION XVII

TARGETS AND RANGES

104. Targets.—The specifications of dimensions of marksmanship targets, together with the value of hits in their divisions, are as follows:

a. Target A, the short-range target, used for 200 and 300 yards, is a rectangle 6 feet high, 4 feet wide, black circular bull's-eye, 10 inches in diameter, value of hit, 5; center ring, 26 inches in diameter, value of hit, 4; inner ring, 46 inches in diameter, value of hit, 3; outer, remainder of target, value of hit, 2.

b. Target B, the midrange target, used for 500 and 600 yards, is a square 6 feet on a side, black circular bull's-eye, 20 inches in diameter; center ring, 37 inches in diameter; inner ring, 53 inches in diameter; outer, remainder of target. Value of hits, same as on target A.

c. Target C, the long-range target, used for 800 and 1,000 yards, is a rectangle 6 feet high and 10 feet wide, black circular bull's-eye, 36 inches in diameter; center ring, 54 inches in diameter; inner space outside of center ring bounded by vertical lines 2 feet from each end of target; outer, remainder of target. Value of hits, same as on target A.

d. Target D, the rapid-fire target, is a square 6 feet on a side and has in its middle a black silhouette representing a soldier in the prone position. Value of hits in the figure, 5; in

the space immediately outside the figure, 4; in the space immediately outside the 4 space, 3; remainder of the target, 2.

c. Targets A (rifle) 1,000-inch range and D (rifle) 1,000-inch range are a reduction of targets A and D, respectively, from 200 yards to 1,000 inches. Value of the hits on the reduced targets are the same as for targets A and D.

105. Principles governing selection.—There are two classes of ranges: *Class A* ranges, which are more or less limited in extent, and are equipped for known-distance practice; *Class B* ranges, which are of extended area and diversified terrain, and are used for combat firing. The following paragraphs refer to Class A ranges only.

a. Rules for selection.—As the nature and extent of the ground available for target practice and also the general climatic conditions are often widely dissimilar for different military posts, it is not possible to prescribe any particular rules governing the selection of ranges, but only to express certain general conditions to which ranges should be made to conform. In view of the extreme range and penetration of the bullet of the United States rifle, M1903, it will be found necessary in the case of many posts to have target practice conducted at a distance of several miles from the post, a condition which necessitates the establishment of a camp on or near the range. The target practice can then be conducted without the interference of post duties.

b. Security necessary.—For posts situated in the thickly settled localities where the extent of the military reservation is limited, the first condition to be fulfilled is that of security for those living or laboring near or passing by the range. This requirement can be secured for Class A range by selecting ground where a natural butt is available or by making an artificial butt sufficiently extensive to stop wild shots. For complete security there should be no road, building, or cultivated ground nearer than 300 yards to either flank of the range nor than 2 miles to its rear.

c. Direction of the range.—If possible, a range should be so located that the firing is toward, or slightly to the east of, north. Such location gives a good light on the face of the

targets during the greater part of the day. However, security and suitable ground are more important than direction.

d. Best ground for Class A range.—Smooth, level ground, or ground with only a very moderate slope, is best adapted for a range. The targets should be on the same level with the firer, or only slightly above him. Firing downhill should be avoided.

e. Size of range.—The size of the range is determined by its plan and by the number of troops that will fire over it at a time. There are two general plans used in range construction; one with a single target pit and firing points for each range, the other with firing points on one continuous line, the target pits for the various ranges being in echelon. The latter type requires more ground and is less suitable for training troops.

f. 1,000-inch range.—There are two classes of 1,000-inch ranges: those requiring a danger area behind the back stop and those which do not. Where possible, open 1,000-inch ranges requiring no danger area behind back stop for use in cities should be so sited that sparsely settled territory is behind the back stop and so located that the range will not be a noise nuisance; 1,000-inch ranges requiring a danger area behind back stop must meet the same security requirements as Class A ranges.

106. Principles governing construction.—*a. Intervals between targets.*—To reduce to a minimum the amount of labor required in preparing the range, the targets should be no farther apart than is necessary to obviate the probability of a shot being fired on the wrong target. As a general rule, the intervals between targets are equal to the width of the targets themselves; that is, at short and midrange, 6 feet; at long range, 12 feet. Where the necessity exists for as many targets as possible in a limited space, this interval may be reduced one-half without materially affecting the value of the instruction.

b. Protection for markers.—(1) On all ranges protection must be provided for the pit details. This is done by excavating a pit for the targets or by constructing a parapet in front of them, or by a combination of these methods.

(2) Where there are several targets in a row, the shelter should be continuous. It must be high enough to protect the

markers. The parapet may be of earth, with a timber or concrete revetment, of sufficient thickness to stop bullets and from 7½ to 8 feet high above the ground or platform on which the markers stand.

c. Artificial butts.—If an artificial butt is constructed as a bullet stop, it should be of earth not less than 30 feet high and with a slope of not less than 45°. It should be extended about 5 yards beyond the outside targets and should be placed as close behind the targets as possible. The slopes should be sodded.

d. Hills as butts.—A natural hill to form an effective butt should have a slope of not less than 45°; if originally more gradual, it should be cut into steps, the face of each step having that slope. As a temporary expedient, the face of the hill may be plowed perpendicularly to the range, but as the bullets soon cut down the furrows this measure must be frequently repeated to prevent the danger of ricochets.

e. Numbering of targets.—Each target should be designated by a number. The numbers for ranges up to 600 yards should be at least 6 feet in height and should be painted black on a white background. The arabic is preferable to the roman notation, being more readily comprehended by the soldiers; if the numbers are made of the size suggested, they will always be quickly recognized. They should be placed on the butt behind each target or on the parapet in front, and not so far above or below as to prevent the firer seeing the number when aiming at the target.

f. Measuring the range.—The range should be carefully measured and marked with stakes at each 100 yards in front of each target. The stakes should be about 12 inches above the ground and painted white. They should have in black figures the number of the corresponding target and its distance. These stakes will then designate the firing points for each target at the different distances. Particular care should be taken that each stake thus placed is at right angles to the face of its own target.

g. Ranges parallel.—The different ranges for the same distance should all be parallel, so that similar conditions with respect to wind and light may exist. It is not essential, how-

ever, that the ranges employed for long-distance shooting should be parallel to those used for the ordinary company practice.

h. Firing mounds.—If it becomes necessary to raise a firing point on account of low ground, a low mound of earth no higher than absolutely required should be made. The mound should be level, sodded, and not less than 12 feet square. If the entire firing line is raised, the firing mound should be level, sodded, and not less than 12 feet wide on top.

i. Pit shed.—A small house or shed should be built in or near the target pit, in which the marking disks and signal flags and spare parts of the target frames for making immediate repairs should be stored. It should be sufficiently large to afford a shelter for the markers in case of a sudden storm.

j. Danger signals.—A socket for the staff of the danger signals should be placed on the markers' shelter in front of each target and so inclined that the flag will always fall clear of the staff and be readily seen. This flag will always be displayed when the target is in place and not in use. In addition to the danger signals at the targets, one or more danger signals will be displayed near the range to warn passers-by when firing is in progress. These signals will not be placed in such a position as to serve as streamers for judging wind on the range. They should be placed on the roads or on the crest of the hill, where they can plainly be seen by those passing.

k. Range house.—On large ranges where competitive firing is held, a house containing a storeroom and several office rooms should be erected in some central place off the range but in its immediate vicinity. Such facilities as will enable visitors to witness the firing satisfactorily should also be provided.

l. Telephone service.—Ranges should be equipped with a telephone system connecting the target pit with each firing point, the range house, and the post. The number of telephones should not be less than one to each 10 targets.

m. Electric bells.—On large ranges the installation for each five targets of an electric bell that can be controlled from a central point in the pit adds materially to the celerity and uniformity of target manipulation for rapid fire.

n. Covered ways between pits.—Where the pits are in echelon, covered ways or tunnels should be provided between the various pits. This construction will allow the pit details to be shifted with safety without interrupting the firing.

o. Scorers' tables and cleaning racks.—The range will be provided with scorers' tables, benches, and cleaning racks.

p. 1,000-inch range.—An open 1,000-inch range requiring no danger area behind backstop must meet the following minimum requirements:

(1) Vertical bulletproof backstop and wing walls (natural or artificial) not less than 30 feet high. Wing walls must cover at least 15° on each flank. In case of artificial wing walls, they should be set at an angle of 15° with the backstop toward the firing points.

(2) Ricochet pit in front of firing points providing at least a 4° slope downward from the normal line of fire from a prone position and extending to within 30 feet of the backstop and wing walls. If a vertical cliff or wall over 40 feet high is available, no ricochet pit need be provided.

SECTION XVIII

ADVICE TO INSTRUCTORS

107. Provisions not mandatory.—The provisions of this section are given as a guide and will not be considered as having the force of regulations. They are particularly applicable to emergency conditions when large bodies of men are being trained under officers and noncommissioned officers who are not thoroughly familiar with the training methods.

108. Size of class.—*a.* The size of the class will depend largely upon local conditions, such as the size of the range, the number of men to be instructed, and the duty being performed by the troops.

b. Where range facilities permit, it is best to have an entire battalion go through target practice, the battalion being relieved from routine garrison duty during the period of preparatory training and range firing.

c. In a post garrisoned by more than one regiment, one battalion at a time on the range from each regiment would be the usual procedure, where range facilities are ample and the range is close to the post.

d. In battalion or 2-company posts half the garrison should be on the range at a time.

e. At 1-company posts the entire company will usually undergo rifle practice during the same period.

109. Place of assembly for lectures.—Any small ravine or cup-shaped area makes a very good amphitheater for giving the lecture in case no suitable building is available. As a rule a natural amphitheater that is better suited to this purpose than a building can usually be found near each post or camp.

110. Assistant instructors.—*a.* It is an advantage to have the officers and noncommissioned officers trained in advance in the prescribed methods of instruction. When troops are taking up rifle training for the first time, such training is not always practicable nor is it absolutely necessary. A good instructor can give a very clear idea of how to carry on the work in his lecture and demonstration preceding each step. In the supervision of the work following the demonstration, he can correct any mistaken ideas or misinterpretations.

b. When one instructor is conducting successive organizations through target practice, it is advisable to attach to the first organization taking the course officers and noncommissioned officers of the companies that are to follow for the period of preparatory work and for a few days of range firing. These act as assistant instructors when their own companies take up the work. Such assistants are particularly useful when one group is firing on the range and another is going through the preparatory exercises, both under the supervision of one instructor. By attaching an officer from each company and a noncommissioned officer from each platoon to groups preceding their units on the range, an adequate corps of assistants can soon be built up.

111. Inspection of equipment.—*a.* The instructor should personally inspect the equipment for the preparatory exercises before the training begins. This equipment is often so carelessly made that it is practically useless. A set of model equip-

ment should be prepared in advance by the instructor for the information and guidance of the organizations about to take up the preparatory work. The sighting bars must be made as described, and the hole representing the peep sight must be absolutely circular. If the sights are made of tin, the holes should be bored by a drill in order to have them perfectly round. Good rear sights can be made for the sighting bars by using cardboard and cutting the holes with a punch for cutting wads for 10-gage shotgun shells. These punches are cheap and can be obtained at almost any hardware store. The sighting disks for short distances must have a perfectly round, black bull's-eye, with a background of white paper or target paper. Bull's-eyes painted on a white disk are not satisfactory; they get dirty very quickly so that the outlines are not distinct. Bull's-eyes cut out of black paper with a shotgun-wad cutter and pasted on white paper make satisfactory aiming points either to paste on the face of the disk or to use in position and trigger-squeeze exercises, when small gallery targets are not available for this purpose.

b. All equipment used in the preparatory exercises must be accurate and have the appearance of being carefully made. One of the objects of these exercises is to cultivate a sense of exactness and carefulness in the minds of the men undergoing instruction. They cannot be exact with inexact instruments, and they will not be careful when working with equipment that looks carelessly made.

112. Inspection of rifles.—No man is required to fire with an unserviceable or inaccurate rifle. All rifles should therefore be carefully inspected far enough in advance of the period of training to permit organization commanders to replace all inaccurate or defective rifles. Rifles having badly pitted barrels are not accurate and should not be used.

113. Ammunition.—The careful officer will take pains to see that the best ammunition available is reserved for record firing and that the men have a chance to learn their sight settings with that ammunition before record practice begins. Ammunition of different makes and of different lots should not be used indiscriminately.

114. Organization of the work.—*a. In preparatory training.*—(1) The field upon which the preparatory work is to be given should be selected in advance and a section of it assigned to each organization. The equipment and apparatus for the work should be on the ground and in place before the morning lecture is given, so that each organization can move to its place and begin work immediately and without confusion.

(2) Each company should be organized in two lines, 10 to 15 yards apart, and facing away from each other. In this way the company officers and other instructors, whose position is normally between the lines, have all of their squads under close supervision.

(3) The arrangement of the equipment is as follows:

(*a*) On each line are placed the sighting bars and rifle rests at sufficient intervals to permit efficient work.

(*b*) Fifty feet from each line is placed a line of small boxes with blank paper tacked on one side, one box and one small sighting disk to each rifle rest.

(*c*) At one side of each box a tall stake, about 8 inches wide, is driven into the ground. On each stake are three aiming targets, placed at the proper height for aiming from the prone, sitting, and standing positions.

(*d*) Two hundred yards from each line is placed a line of frames suitable for 200-yard shot group exercises, one frame to each squad. These frames have blank paper tacked or pasted on the front. A 10-inch sighting disk is placed with each frame. Machine-gun targets make acceptable frames for this work.

(4) In rapid-fire exercises the company is organized in one line, with D targets placed 200, 300, and 500 yards away.

(5) When sufficient level ground is not available for the above arrangement the organizations will have to vary from it in some particulars. It will nearly always be found, however, that all of the work except the long-range shot group work can be carried on in two lines.

b. In range practice.—(1) The range work should be so organized that there is a minimum of lost time on the part of each man. Long periods of inactivity while awaiting a turn on the firing line should be avoided. For this purpose no more men

should be on the range at one time than the number of targets available can accommodate efficiently, and waiting periods should be utilized in some form of instruction.

(2) The local conditions and the nature of the ground in the vicinity of the range will largely influence the means used to prevent loss of time.

(3) As a general rule six men per target is about the maximum and four men per target the minimum for efficient handling.

(4) When men are not in the pit or on the firing line their time can be spent in rapid-fire exercises, in sight-setting and sight-changing exercises, in preparatory exercises for pistol firing or actual pistol practice, in theoretical instruction in the use of the automatic rifle, in practice in estimating distance, in preparatory individual musketry exercises, or in such other forms of training as they need and the ground permits.

(5) Whatever means are employed to occupy this time the work must be well organized under a competent instructor and must be made interesting to the men. To go through an exercise in a perfunctory way merely to occupy the time is worse than useless.

(6) When it is desired to carry on pistol firing at the same time as rifle firing there may be a line of pistol targets set on the ground and to the flank of each rifle firing point, the pistol range being separated from the rifle range by 50 to 100 yards and the firing point being on the same line.

(7) In rapid fire it is advisable to have on the line the order that is next to fire and to have them practice with dummy ammunition or simulated fire. When the size of the firing point makes this action impracticable each order should be given a score of simulated fire before firing with ball cartridges or with ball and range dummy cartridges mixed.

(8) Subject to ammunition allowances the following method of carrying on range practice has been found to produce uniformly excellent results when the full allowance of time is devoted to the training:

(*a*) Organizations camp on the range (if it is more than a mile from the post).

(*b*) Firing is begun by a group consisting of approximately half of each organization. This group is made up of those proved to be the best by the examination on preparatory work and those known to be good shots. Under ordinary circumstances an allowance of from four to six men per target would result. The men who are not included in this first group make up all the pit details and undergo additional preparatory training, particularly in rapid fire.

(*c*) After about 30 hours' instruction practice all of the first group, except those few who have not been shooting well, fire for record.

(*d*) The second group, made up of those who have not fired and those who were rejected from the first group, now begins firing. The men who have completed record firing perform all fatigue.

(*e*) After about 30 hours' instruction practice all of this second group, who have been shooting well and have a very good chance to qualify, fire for record.

(*f*) During the remainder of the allotted time the efforts of the officers and noncommissioned officers are concentrated on the men who were not ready to fire for record with the second group. This last group fires for record by the end of the allotted time for range practice.

(9) When range facilities are such that the entire organization can fire at one time without having more than four or, at the most, six men per target, the same general scheme as that outlined above may be applied as follows:

(*a*) Firing is begun with all of the men of the organization taking part.

(*b*) After about 30 hours' instruction practice, all except those who have not been shooting well fire for record.

(*c*) The efforts of the instructors are concentrated on the remnant of the organization for the rest of the allotted time.

115. Model schedules.—The following schedules are suggested as guides, having six men per target:

a. For course A.

TUESDAY

	Hours
First step: Sighting and aiming	3
Second step: Positions	4
Care and cleaning of the rifle	1

WEDNESDAY

Third step: Trigger squeeze	5
Fourth step: Rapid fire	3

THURSDAY

Fourth step: Rapid fire	3
Sight setting and sight changing exercises	1
Score-book exercises	1
Final examination	2
Lecture on range practice	1

FRIDAY

Table I (simulated)	2
Table I	5

SATURDAY

Table II (simulated)	2
Table II	3

MONDAY

Tables III and IV, 200 yards (simulated)	1
Tables III and IV, 200 yards	3
Tables III and IV, 300 yards (simulated)	1
Tables III and IV, 300 yards	3

TUESDAY

Tables III and IV, 500 yards (simulated)	1
Tables III and IV, 500 yards	3
Table V (simulated)	1
Table V	3

WEDNESDAY

	Hours
Table VI, 200 yards (simulated)	1
Table VI, 200 yards	1
Table VI, 300 yards (simulated)	1
Table VI, 300 yards	1

THURSDAY

Table VII, 200 yards (simulated)	1
Table VII, 200 yards	1
Table VII, 300 yards (simulated)	1
Table VII, 300 yards	1
Table VIII	4

FRIDAY

Table IX	2
Table X	2

b. For courses B, C, and D.—The preparatory exercises and 1,000-inch firing are the same as course A. All other firing is conducted in a manner similar to course A reducing the time accordingly.

116. Value of lectures.—The lectures at the beginning of each step are an important part of the instructional methods. They are valuable in peace times and absolutely necessary in war times.

117. Method of giving lectures.—*a.* The lectures should be given to the assembled command or group undergoing preparatory rifle training up to and including a regiment or body of recruits of similar size.

b. The best qualified officer should be selected to make the talks and give the demonstrations for the entire group undergoing training. When a battalion takes up rifle training the talks and demonstrations should not as a rule be made by the captain or a lieutenant of each company. There is usually one officer available who by reason of his knowledge of the methods, and particularly of his personality, force, and clearness of dic-

tion, is better equipped than anyone else to do this work. This officer should be detailed for this duty and should make his talks and demonstrations to the assembled units. It is not necessary that he be an expert shot.

c. The notes on lectures which follow are to be used merely as a guide. The points which experience has shown to be the ones which usually require elucidation and demonstration are placed in headings in italics. The notes which follow each heading are merely to assist the instructor in preparing his lecture. The lecturer should know in advance what he is going to say on the subject. Under no circumstances will he read over to a class the outlines for lectures contained herein, nor will he read a lecture prepared by himself. During the lecture the headlines in italics made out by himself serve as a guide as to the order in which the subjects are to be discussed. If he cannot talk interestingly and instructively on each subject without further reference to notes, he should not be giving the lectures at all.

d. The one important thing is to show the men undergoing instruction, by explanation and demonstration, just how to go through the exercises and to tell them why they are given these exercises.

118. First lecture; sighting and aiming.—*a.* The class is assembled in a building or natural amphitheater in the open, where all can hear the instructor and see the demonstrations.

b. The following equipment is necessary for the demonstrations:

(1) One sighting bar.
(2) One rifle rest.
(3) One rifle.
(4) One small sighting disk.
(5) One 10-inch sighting disk.
(6) One small box.

c. The following subjects are the ones usually discussed in the first lecture:

(1) *Value of knowing how to shoot.*—(*a*) The rifle is the principal weapon of the Infantry in war. Expertness in its use gives the individual confidence and a higher morale.

(*b*) Individual proficiency increases the efficiency of Infantry as a whole.

(*c*) Rifle firing is good sport.

(2) *Object of target practice.*—(*a*) To teach men how to shoot.

(*b*) To show them how to teach others.

(*c*) To train future instructors.

(3) *Training to shoot well.*—(*a*) Any man can be taught to shoot well. Shooting is a purely mechanical operation which can be taught to anyone physically fit to be a soldier.

(*b*) It requires no inborn talent such as to play a violin or paint a picture.

(*c*) There are only a few simple things to do to shoot well, but these things must be done in a manner exactly right. If they are done in a manner only approximately right, the results will be poor.

(4) *Method of instruction.*—(*a*) The method of instruction is the same as in teaching any mechanical operation.

(*b*) The instruction is divided into steps. The man is taught each step and practices it before going to the next step. When he has been taught all of the steps he is taken to the rifle range to apply what he has learned.

(*c*) If he has been properly taught the various preparatory steps, he will do good shooting from the very beginning of range practice.

(*d*) Explain coach-and-pupil method. Why used.

(5) *Reflecting attitude of instructor.*—If the instructor is interested, enthusiastic, and energetic, the men will be the same. If the instructor (squad, section, or platoon leader) is inattentive, careless, and bored, the men will be the same and the scores will be low.

(6) *Examination of men on preparatory work.*—Each man is examined in the preparatory work before going to the range. An outline of this examination is given in paragraph 48. The questions and answers in this paragraph are of material assistance while going through the exercises of each step. Refer to them constantly during the preparatory period.

(7) *Method of marking blank form.*—Explain blank form, paragraph 15 c (3). Explain marking system by the use of a blackboard, if available.

(8) *Five essentials to good shooting.*—(*a*) Correct sighting and aiming.

(*b*) Correct position.

(*c*) Correct trigger squeeze.

(*d*) Correct application of rapid-fire principles.

(*e*) Knowledge of proper sight adjustments.

(9) *Today's work.*—First step, sighting and aiming.

(10) *Demonstration of first sighting and aiming exercise.*—Have a squad on stage or platform and show just how this exercise is carried on.

(11) *Demonstration of second sighting and aiming exercise.*—Assume that some of the squad have qualified in the first exercise. Put these men through the second sighting and aiming exercise and show just how it is done.

(12) *Demonstration of third sighting and aiming exercise.*—(*a*) Assume that some of the squad have qualified in the second sighting and aiming exercise. Put these men through the third sighting and aiming exercise and show just how it is done.

(*b*) Show how the squad is organized by the coach-and-pupil method so as to keep each man busy all the time.

(13) *Long-range shot group work.*—Show the class the disk for 200-yard shot group work. Explain how this work is carried on and why. Show some simple system of signals that may be used.

(14) *Final word.*—(*a*) Start keeping your blank form today.

(*b*) Organize your work so that all men are busy at all times.

(15) *Are there any questions?*

(16) *Next lecture will be tomorrow or* ——. (State hour and place.)

119. **Second lecture; positions.**—*a.* The following equipment is necessary for the demonstrations in this lecture:

(1) One rifle with sling.

(2) One sandbag.

(3) One box with small aiming target.

(4) One aiming device.

(5) Material for blackening sights.

b. The following subjects are the ones usually discussed in the second lecture:

(1) *Importance of each step.*—(*a*) Each step includes all that has preceded.

(*b*) Each step must be thoroughly learned and practiced or the instruction will not be a success.

(2) *Necessity for correct positions.*—No excellent shot varies from the normal positions. Few men with poor positions are even fair shots. Few men with good positions are poor shots. Instruction in positions involves correct aiming.

(3) *Blackening the sights.*—Explain why and demonstrate how this is done.

(4) *Gun sling.*—Demonstrate both of the gun-sling positions and explain why they are used, and when each is used.

(5) *Taking up the slack.*—Show the class the slack on the trigger. Explain why it is taken up in the position exercises. (Cannot begin to squeeze the trigger until the slack has been taken up.)

(6) *Holding the breath.*—Explain the correct manner of holding the breath and have the class practice it a few times. Explain how the coach observes the pupils' breathing by watching their backs.

(7) *Aiming device.*—Show how it is placed on the rifle and how it is used.

(8) *Position of the thumb.*—May be either over the stock or along the side of the stock. Explain why.

(9) *Joint of the finger.*—Trigger may be pressed with first or second joint. Second joint preferable when it can be done conveniently.

(10) *Prone position.*—(*a*) Demonstrate correct prone position, calling attention to the elements which go to make up a correct prone position; gun sling properly adjusted, body at the correct angle, legs spread well apart, position of the butt on the shoulder, position of the hands on the rifle, position of cheek against the stock, position of elbows.

(*b*) Mention the usual faults which occur in prone position.

(*c*) Demonstrate the correct position again.

(11) *Sandbag rest position.*—(*a*) Demonstrate in the same manner as described above for prone position.

(*b*) Demonstrate coach adjusting sandbag to the pupil.

(12) *Sitting position.*—Demonstrate in the same manner as described above for the prone position.

(13) *Kneeling position.*—Demonstrate in the same manner as described above for the prone position.

(14) *Standing position.*—Demonstrate in the same manner as described above for the prone position.

(15) *Assuming the prone position rapidly.*—(*a*) Prone position can be assumed and an aimed shot fired more rapidly than from any other position.

(*b*) Its application in war.

(*c*) Demonstrate, first by the numbers and then as one smooth movement.

(16) *Today's work; position exercises.*—(*a*) Demonstrate the duties of a coach in a position exercise, calling attention to each item.

(*b*) Demonstrate the position of the coach. Always placed so that he can watch the pupil's finger and eye.

(*c*) Place a squad on an elevated platform and show how the squad leader organizes it by employing the coach-and-pupil method, so as to keep every man occupied.

(*d*) Continue the long-range triangle work today.

(17) *Do not squeeze the trigger today.*—Take up the slack in these exercises but do not squeeze the trigger.

(18) *Keep the blank forms up to date.*—Examine each man in the squad at the end of the day's work and assign him a mark.

(19) *Are there any questions?*

(20) *Next lecture will be tomorrow or* ———. (State hour and place.)

120. Third lecture; trigger squeeze.—*a.* The following equipment is necessary for the demonstrations:

(1) One rifle with sling.
(2) One aiming device.
(3) One sandbag.
(4) One box with small aiming target.

b. The following subjects are the ones usually discussed in the third lecture:

(1) *Trigger squeeze most important.*—Read paragraph 32.

(2) *Sandbag rest.*—Explain why it is used in trigger-squeeze exercise.

(3) *Machine rest example.*—Lay the rifle on the table, pointing down the room and toward an imaginary target; assume that it is in a machine rest which runs on a track parallel to the line of targets; assume that you fire a shot which hits the left edge of a 36-inch bull's-eye 1,000 yards away; then move the rifle 36 inches to the right on the table as if it were sliding along the parallel track and assume that another shot is fired. Where does it hit? Answer: The right edge of the bull's-eye. Move the rifle backward and forward between these two positions and assume a shot is fired any time while it is moving. Where will it hit? Answer: In the bull's-eye. Now assume that you hold the butt of the rifle still and move the muzzle a fraction of an inch. Where will it hit? Answer: It will miss the whole target. It hits the target when the whole rifle moves, but misses it when only one end moves.

(4) *Pulsations of body.*—The natural movements of the body and its pulsations produce more or less parallel movement of the rifle. Very often men who are apparently very unsteady make good scores. You thus see that if you squeeze the trigger so as not to know when the rifle will go off, the shot is displaced only by the amount of the parallel movement and will be a good one. But if you give the trigger a sudden pull, or flinch, you deflect one end of the rifle, and the shot will be a poor one.

(5) *Aim and hold.*—If he is physically fit to be a soldier any man can easily learn to hold a good aim for quite a long time; 15 to 20 seconds at least. Poor shots are the men who spoil this aim when they set the rifles off.

(6) *Coach squeezing the trigger.*—(*a*) The fact that when the coach squeezes the trigger for the firer the shot is almost invariably a good one proves that poor shooting is all due to errors in the trigger squeeze.

(*b*) It is not necessary for the coach to watch the sights through the aiming device. By watching the firer's back he

knows when he is aiming and then presses steadily on the trigger. Demonstrate how it is done.

(7) *Flinchers.*—Flinching is an instinctive and subconscious act which no man can control. Any man who gives the trigger a sudden pressure will flinch. Excellent shots are the men who avoid this flinching by pressing the trigger in such a way as not to know when the discharge will take place.

(8) *When the rifle goes off before the man is ready.*—Often a man who has been doing poor shooting will state upon firing a shot, "I cannot call that shot. It went off before I was ready." Almost invariably these shots are well placed. His poor shooting has been caused by "getting ready" for them.

(9) *Calling the shot.*—Explain calling the shot and why it is done.

(10) *Today's work; trigger-squeeze exercise.*—(*a*) Demonstrate the duties of a coach in a trigger-squeeze exercise by calling attention to each item.

(*b*) The work is carried on as in position exercises, with the squeezing of the trigger added.

(*c*) Practice in the prone position only this morning, first with, then without, the sandbag.

(*d*) Finish up the long-range shot group work today.

(11) *Keep the blank forms up to date.*—Examine each man in the squad at the end of the day's work and assign him a mark.

(12) *Final word.*—Do not let yourselves become bored with this work. It is easy to learn, but it takes a lot of practice to train the muscles and to get in the habit of doing the right thing without thinking.

(13) *Are there any questions?*

(14) *Next lecture will be tomorrow or* ———. (State hour and place.)

121. Fourth lecture; rapid fire.—*a.* The following equipment is necessary for the demonstrations:

(1) One rifle with gun sling.

(2) Two clips of practice dummy cartridges.

(3) A short piece of cord.

b. The following subjects are the ones usually discussed in the fourth lecture:

(1) *Rapid fire true test of good shot.*—Superiority of fire in battle depends on the ability to deliver rapid and accurate fire.

(2) *Fire to be accurate.*—(*a*) Fire that is rapid without being accurate is of no value.

(*b*) Trigger squeezed the same as in slow fire.

(3) *Meaning of rapid fire.*—Rapid fire is merely continuous fire. The rapidity comes from working the bolt quickly, reloading the clips into the magazine smoothly, and keeping the eye on the target while operating the bolt.

(4) *Keeping the eye on the target.*—(*a*) Explain the advantages of this and how it gains time.

(*b*) Demonstrate the correct way to operate the bolt and the way a man does it who looks into the magazine each time.

(5) *Application in war.*—Explain the advantage of keeping the eye on the target in war.

(6) *Bolt-operation exercise.*—(*a*) Show how the trigger is tied back to the trigger guard and explain why.

(*b*) Demonstrate the exercise.

(7) *Operating the bolt in rapid fire.*—Show how it is done in the prone position and in the sitting positions, calling attention to the details in each case. (Trigger not tied in this demonstration.)

(8) *Necessity for great amount of rapid-fire practice.*—(*a*) A smooth and rapid bolt operation on the part of a soldier materially increases his rapid-fire scores and his efficiency in battle.

(*b*) Practice in loading clips of cartridges into the magazine also necessary.

(9) *The correct position.*—Even if it takes a few seconds longer, get into the correct position before starting to shoot.

(10) *Today's work; rapid-fire exercise.*—(*a*) Explain how exercises are to be carried on.

(*b*) Demonstrate the duties of a coach in a rapid-fire exercise, calling attention to each item.

(*c*) First hour today will be given to bolt-operation exercise and it will be repeated in short periods from time to time until each man qualifies.

(*d*) Some practice will be had in taking positions rapidly.

(11) *Keep the blank forms up to date.*—Examine each man in the squad at the end of the day's work and assign him a mark.

(12) *Are there any questions?*

(13) *Next lecture will be tomorrow or* ———. (State hour and place.)

122. Fifth lecture; effect of wind and light, sight changes, score book.—*a.* This part of the preparatory instruction can be given on any day in which the weather forces the work to be done indoors. If no bad weather occurs, this work should follow rapid-fire instruction.

b. The following equipment is necessary for the demonstrations:

(1) One A, B, and D target for each range at which each of these targets is to be used in range practice. These targets to be mounted on frames and marked with the proper windage and elevation lines.

(2) Ten spotters that can readily be stuck into the targets.

(3) Each man to have his rifle and a score book.

c. The following subjects are the ones usually discussed in the fifth lecture:

(1) *Targets.*—(*a*) Explain the divisions on the targets and give the dimensions of each.

(*b*) Call attention to windage and elevation lines. Have class compare them with diagram in the score book. Explain why lines are farther apart as the range increases.

(2) *Weather conditions.*—All weather conditions disregarded except wind.

(3) *Wind.*—(*a*) Explain how the direction of the wind is described.

(*b*) Explain how the velocity of the wind is estimated.

(*c*) Explain the effect of wind. Effect increases with distance from target.

(4) *Wind rule.*—State rule and explain it.

(5) *Wind-gage rule.*—State rule and explain it.

(6) *Elevation rule.*—State rule and explain it.

(7) *Light.*—Explain effect.

(8) *Mirage.*—Tell what it is and how it assists riflemen.

(9) *Shooting up or down hill.*—(*a*) Explain the effect on elevation.

(*b*) Remember this rule when shooting at hostile airplane.

(10) *Score book.*—(*a*) Explain the uses of score book on range.

(*b*) Have class open score books and explain items of keeping a score point by point.

(11) *Exercises.*—Give the class a number of small problems along the lines of the examples in paragraphs 45 and 47 as a demonstration as to how the day's work is to be carried on.

(12) *Today's work.*—(*a*) Study and practice in sight setting, sight changing, and the use of score book. Squad leaders and other instructors will work up problems for their groups. Coach-and-pupil method is also used in which the coach states the conditions for the pupil.

(*b*) Additional practice in the exercises of the preceding days and rapid-fire exercises.

(13) *Are there any questions?*

(14) *Next lecture will be tomorrow or* ———. (State hour and place.)

123. **Sixth lecture; range practice.**—This lecture and demonstration should immediately precede range firing. If the class is not too large, it should be given on a firing point of the rifle range.

a. The following equipment is necessary for the demonstrations:

(1) Material for blackening sight.
(2) One rifle with gun sling.
(3) One sandbag.
(4) One aiming device.
(5) Range dummy cartridges.

b. The following subjects are the ones usually discussed in the sixth lecture:

(1) *Preparatory work applied.*—Range practice is carried on practically the same as a trigger-squeeze exercise except that ball cartridges are used.

(2) *Coaching.*—(*a*) Each man must be coached during each shot in instruction practice.

(*b*) Coach watches the man, not the target. Coach does not keep the score for the pupil. Pupil must make his own entries in his score book. Coach sees that he does this.

(3) *Officers and noncommissioned officers.*—(*a*) Supervise and prompt the men acting as coaches.

(*b*) Personally coach pupils who are having difficulty in making good scores.

(4) *Spotters.*—(*a*) Use in both slow and rapid fire.

(*b*) If a spotter near the edge of the bull's-eye bothers the pupil in aiming, it may be removed before he fires again.

(5) *Sandbag rest.*—(*a*) Explain why it is used the first day or two of range fire.

(*b*) Demonstrate a coach adjusting the sandbag to a pupil.

(6) *Watching the eye.*—Explain how this indicates whether or not the pupil is squeezing the trigger properly.

(7) *Position of the coach.*—Demonstrate in each one of the positions.

(8) *Demonstration of coaching in slow fire.*—(*a*) Place a man on the firing point and show just what a coach does by calling attention to each item. See paragraph 58 *f*.

(*b*) Demonstrate the use of the aiming device.

(*c*) Demonstrate the use of dummy cartridges in slow fire.

(*d*) Demonstrate coach squeezing the trigger for pupil.

(9) *Demonstration of coaching in rapid fire.*—Same procedure as in paragraph 60 *d*.

(10) *Use of range dummy cartridges in rapid fire.*—(*a*) Show how range dummy cartridges are mixed with service cartridges for rapid-fire training and explain why this is done.

(*b*) Coaches will be alert in this kind of practice in order to prevent pupil from looking into the chamber.

(11) *Read final precautions for slow fire.*—See paragraph 59.

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