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ROYAL NAVAL HANDBOOK
OF
SMALL ARM COURSES
FOR
HIS MAJESTY'S FLEET
1939
B.R. 161/1939
ROYAL NAVAL HANDBOOK
OF
SMALL ARM COURSES
FOR
HIS MAJESTY'S FLEET
1939

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Lords Commissioners of the Admiralty

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ROYAL NAVAL HANDBOOK OF SMALL ARM COURSES FOR H.M. FLEET, 1939.

ADMIRALTY,
MARCH 1939.

B.R. 161/1939, R.N. Handbook of Small Arm Courses for H.M. Fleet, 1939, having been approved by My Lords Commissioners of the Admiralty, is hereby promulgated for information and guidance.


By Command of Their Lordships,

To all Flag Officers, Captains, Commanders, and Commanding Officers of H.M. Ships and Vessels.

A.2

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PART I.

MUSKETRY.

CHAPTER I.

GENERAL INSTRUCTIONS.

The purpose of musketry training is to render the individual proficient in the use of small arms, to make him acquainted with the capabilities of the weapon with which he is armed, and to give him confidence in its power and accuracy. Musketry training should also qualify officers to control and direct fire under service conditions.

Musketry should not be regarded as a form of skill-at-arms. It should be associated in theory and practice with manoeuvre in the field.

Musketry training varies according to the range facilities and ground available; it includes preliminary training, range practices, field practices and theoretical instruction.

NOTES TO INSTRUCTORS.

General Methods.—Teach, Practise, Test.—Lessons in any one subject should never exceed a half hour, and may frequently be shorter.

The foundations of good marksmanship are laid during elementary training. Instruction must therefore be thorough, progressive and systematic; faults must not be passed over, but must be immediately corrected. An instructor who fails to detect mistakes and omits to correct them in a simple and reasonable manner is useless.

As soon as individual perfection has been attained it must be combined with smartness and rapidity.
The knowledge possessed by the instructor is necessarily wider than that required by the pupil; only essentials should be imparted.

Necessary explanations should be as brief as possible; they must invariably be illustrated if the matter permits. During periods of rest, men should have explained to them the practical application of what they are being taught, and should be frequently catechised.

Tests of elementary training may be carried out from time to time during instruction to ascertain a man’s progress. The competitive spirit should be fostered in the section.

**Discipline.**—Although individual instruction is an essential feature of elementary training, and methods should be as little mechanical as possible, no relaxation of discipline must be allowed.

Any tendency to slackness or inattention must be at once checked, and may be corrected by the introduction of words of command and such simple collective drill as the squad is capable of performing.

The instructor must keep a close watch upon himself: he is the pattern for his squad; he must make his personality felt, he must be clear, concise and forceful; he must infuse life and energy into his instruction; he must possess that confidence in himself which can only be acquired by a thorough knowledge of this subject, and he must remember that good instruction requires at all times the full mental and physical energy of both instructor and pupil.

The objects of this book are:

1. To provide a handbook on the use and efficient upkeep of the Service Rifle and Pistol.

2. To give authority as to the Range practices to be carried out, and the awards of Prize Money and Badges that may be made.

3. To explain the procedure to be carried out on Ranges by Range Staffs and Ships’ Companies.

4. To provide Instructors with a “Sequence of Instruction.”

5. To provide information on Muskettry and Pistol firing which, although it is too advanced to be taught to the ordinary classes that pass through a Range in a week, will be of value to the Officers and Instructors who find themselves in a ship which has a considerable time to spend on a Range or is called upon to provide a landing party for Active Service.

6. Drill for Rifle and Pistol, photographs of positions, and instructions with regard to equipment will be found in the Royal Naval Handbook of Field Training, B.R. 159.
CHAPTER II.

DESCRIPTION OF RIFLE.

Names of the Parts of Rifle, Short M.L.-E., Mark III, Referred to in the Plates 1 to 3.

1. Butt sling swivel.
2. Bayonet.
5. Knox-form.
6. Swivel piling.
7. Seating for safety catch.
8. Safety catch.
9. Locking bolt stem.
12. Striker.
14. Striker collar with stud.
15. Bolt head tenon.
17. Locking bolt.
18. Locking bolt flat.
19. Locking bolt thumb-piece.
20. Locking bolt aperture sight stem.
21. Locking bolt stop pin recesses.
22. Locking bolt safety catch stem.
23. Locking bolt safety catch arm.
24. Locking bolt screw threads.
25. Locking bolt seating.
27. Sear.
28. Sear seating.
29. Sear spring.
30. Magazine catch.
31. Full bent cocking-piece.
32. Short arm of sear.
33. Trigger ribs.
34. Trigger.
35. Trigger axis pin.
36. Magazine case.
37. Magazine platform spring.
38. Magazine auxiliary spring.
39. Guard trigger.
40. Spring and stud fore-end.
41. Lower band.
42. Nosecap.
43. Protector foresight.
44. Sword bar.
45. Boss for ring of bayonet crosspiece.
46. Swivel seating.
47. Nosecap barrel opening.
48. Inner band.
49. Inner band screw.
50. Inner band screw spring.
51. Blade foresight.
52. Foresight block.
53. Foresight block.
54. Key foresight block.
55. Crosspin foresight block.
56. Backsight bed.
57. Backsight bed crosspin.
58. Backsight bed sight spring screw.
59. Backsight leaf.
60. Backsight slide.
61. Backsight slide catch.
62. Backsight fine adjustment worm wheel.
63. Windgauge.
64. Windgauge screw.
65. Backsight ramps.
66. Stock fore-end.
67. Protector back sight.
68. Handguard front and rear.
69. Spring handguard gear.
70. Lower band groove.
SHORT RIFLE, MAGAZINE LEE-ENFIELD (MARK III).

PLATE 1.
SHORT RIFLE, MAGAZINE LEE-ENFIELD (MARK III).

PLATE 2.

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SECTION I.—THE SHORT MAGAZINE LEE-ENFIELD RIFLE,
MARK III.

1. Weight of rifle with magazine empty, Mark III, about 8 lbs. 10½ ozs.
   Weight of sword-bayonet without scabbard, about 1 lb. 1 oz.
   Length of butt, long, about 1 ft. 1½ in.
   " normal, about 1 ft. 1¼ ins.
   " short, about 1 ft. ¾ in.
   " rifle with normal length of butt, without sword bayonet, about 3 ft. 8½ ins.
   " rifle with normal length of butt, with sword bayonet, about 5 ft. 2 ins.
   " barrel, about 2 ft. 1½ ins.

Calibre .303 in.
Rifling system Enfield.
Twist of rifling left hand; 1 turn in 10 ins. or 33 calibres.
Muzzle velocity (Mark VII ammunition, about 2,440 f.s.)

Number of grooves 5.
Depth of grooves 

\[
\begin{align*}
\text{at muzzle} & \quad 0.0065 \text{ in.} \\
\text{at breech, to within 14 ins.} & \\
\text{of muzzle} & \quad 0.00575 \text{ in.}
\end{align*}
\]

Width of lands .0936 in.
Sighting system Adjustable, blade foresight, radial backsight, with vertical adjustment.

Method of loading Charger, holding 5 cartridges.

2. The Mark IV is converted from the Lee-Enfield long rifle, and is similar to the Mark III, with the exception of the butt plate, which retains the strap on which the number of the rifle is marked, no disc being fitted on the butt for that purpose.
Note.—The Mark IV rifle is only issued to the Army. Earlier marks are obsolete, but may be issued in an emergency.

3. The Short Magazine Lee-Enfield rifle is constructed on the bolt system, the breech being closed by a bolt worked by a lever on the right side. The bolt contains the mainspring and striker.

4. The striker is inserted from the front of the bolt; its rear end passes through the mainspring, and screws into the cocking-piece, thus connecting the cocking-piece and bolt. The front of the mainspring bears against the collar on the striker, and the rear end against the back of the bolt chamber.

5. The bolt head is a separate component. It carries the extractor, extractor screw, and a V-shaped spring, and is connected with the bolt by means of a screwed tenon. A hook on the right of the bolt-head, which engages with a rib on the body, secures the bolt-head when the bolt is rotated.

6. On the left of the body, about a cartridge length from the mouth of the chamber, the end of the ejector screw projects into the bolt way. In front of the ejector screw, the left side of the body is cut away to afford clearance for the thumb, when loading with the charger.

7. Immediately in rear of the thumb clearance is the bridge charger guide.

8. A cut-off which consists of a flat piece of steel hinged to the right side of the body is provided, and is moved by means of a thumb piece.

9. On the left of the body a socket is arranged to receive the safety catch, which consists of a small transverse locking bolt and pin. The former is threaded at the part where the pin works. On the thumb piece being forced back, it engages in one of the recesses cut in the cocking-piece, which is then locked. The pin is brought into action by means of the screw on the locking-bolt; its front end engages in the short cam groove at the rear end of the bolt, and thus prevents the rotation of the bolt.

10. There are two holes or gas escapes in the body, one on either side of the breech, to facilitate a lateral escape of gas in case of a burst cartridge; there is also a third hole or gas escape in the bolt-head, in case of a blow-back of gas from a defective cap.

11. The magazine is made from sheet steel, and holds 10 cartridges. The cartridges rest on a platform, which is actuated by a spring made from ribbon steel. To afford a smooth bearing for the platform an auxiliary spring is fixed by a lip and stud to the front of the magazine. There are two patterns of magazines—Nos. 3 and 4 (for use with Mark VII ammunition). No. 3 magazine has a stop clip on the right side and a spring lip on the left side, and No. 4 magazine is provided with fixed lips on either side. The magazine can be released by pressing the catch which projects through the trigger guard in front of the trigger. The number of the magazine is marked on it.

12. The upper band and nose-cap are formed in one piece with an extension in front, on which the ring of the cross-piece of the bayonet fits, and a bar underneath the rear end, to hold the pommel of the bayonet. Lugs are provided to carry a swivel if required. Wings are attached to protect the foresight. The outer band carries the band swivel. The inner band, by which also the barrel is attached to the fore-end, is one inch in rear of the outer band. It is fixed by a screw passing through the fore-end, round which is a spring to maintain the necessary pressure against the barrel.

13. The butt and fore-end are separate. The butt has a butt trap cover with spring to enable an oil bottle and pull-through to be carried in the stock bolt hole. It has a pistol grip, and a brass butt plate fixed by two screws; on the right side is a brass disc on which to stamp marks of identification. In front is the butt swivel stem to
which the swivel is attached. Butts are issued in four lengths, differing by \( \frac{1}{4} \) inch from one another, one being longer and two shorter than the normal. The normal butt is not marked, but the others are marked respectively on the heel, "L," "S," and "B" (Long, Short and Bantam). Men should be provided with arms according to their build and preference. The rear end of the body is formed with a socket into which the butt fits, and is held in position by the stock bolt, which is squared at the front end to fit the keeper plate in the fore-end, thus preventing the stock bolt from turning, and the butt from becoming loose. When stripping the rifle the fore-end must first be removed before turning the stock bolt.

14. The barrel is screwed into the body and secured to the fore-end by the inner band, nose-cap, outer band, and trigger guard.

15. A wooden handguard completely covers the barrel. It is in two pieces, being divided at the centre of the back-sight bed; the front portion is held by the outer band, and by a metal cap, which fits into a recess between the nose-cap and the barrel; the rear portion is held by springs gripping the barrel. Both portions rest on the fore-end, and are quite free of the barrel.

16. The foresight is of blade pattern. For Mark VII ammunition in seven heights (marked −06, −045, −03, −015, 0,015, and 03 respectively) to allow any deviation from the normal in the shooting of individual rifles to be corrected. It is adjustable laterally. It is dovetailed into the foresight block band, which is secured to the barrel by means of a key and pin.

17. The backsight is fitted with a leaf and has a curved ramp on each side of the bed, on which the slide rests and by means of which elevation is obtained.

18. The backsight protector is level with the rear end of the leaf, and is fixed to the fore-end with a screw and nut.

19. The leaf is pivoted to the front end of the bed, and is graduated on the right by lines for every hundred yards from 200 to 2,000 yards, the even numbers only being marked by figures.

20. The slide can be adjusted for every 50 yards, and is retained in position by the worm wheel which engages in a rack on the right of the leaf. The wheel is disengaged from the rack by pressing the stud on the left inwards. The lines on the left of the leaf give graduations for 25 yards.

21. Small increases and decreases of elevation can be obtained by rotating the worm wheel, the periphery of which is divided by thumb-nail notches into 10 parts, each part giving a difference of 5 yards of range. One complete revolution of the wheel thus corresponds to a difference of 50 yards.

22. The windgauge, where so fitted, is adjusted by means of a screw with milled head on the right. It is provided with a scale, each division on which represents 6 inches per 100 yards. Between the screw head and the windgauge is a small friction spring which prevents accidental movement of the windgauge. This spring gives a click at each quarter revolution of the screw, and 6 clicks, or one and a half revolutions of the milled head, are equivalent to one division on the scale.

23. On the left side of the rifle long range sights, where so fitted, are provided for ranges from 1,500 to 2,800 yards. These sights consist of an aperture sight pivoted to the rear of the body, and a dial sight, with pointer, secured by means of a screw to the fore-end in rear of the outer band. The ranges are marked on the dial plate.

SECTION 2.—ACTION OF THE MECHANISM, &c.

1. On raising the bolt lever the bolt is rotated to the left, thereby forcing the stud on the cocking-piece to move backward from the long to the short groove in the rear of the bolt; this action withdraws the striker about \( \frac{1}{4} \)th of an inch. At the same time, a steel lug on the
under side of the bolt works down an inclined slot on the left side of the body, withdrawing the bolt about \( \frac{1}{4} \)th of an inch, and effecting primary extraction.

2. The charger containing 5 cartridges is placed between the guides, and the cartridges are forced into the magazine by the thumb.

3. On **pushing the bolt forward**, the charger is thrown out and the full bent of the cocking-piece is brought against the nose of the sear. The cocking-piece and striker are thus held stationary whilst the bolt travels forward, the mainspring being compressed between the collar of the striker and the rear end of the mainspring chamber in the bolt.

4. **During the forward movement**, the lower part of the bolt head engages behind the upper part of the base of the top cartridge in the magazine and pushes the cartridge into the chamber.

5. On **turning the bolt to the right**, the breech is finally closed by the rib on the bolt working over the resisting shoulder on the right side of the body; at the same time the lug on the bolt works into the recess cut on the left side of the body.

6. On **pressing the trigger**, when the rifle is at full cock, the two ribs on the trigger bear in succession on the lower arm of the sear and produce a double pull-off, the first pull bringing the nose of the sear to the bottom of the bent of the cocking-piece, and the second pull finally releasing the cocking-piece; the mainspring then carries the striker forward, exploding the charge.

7. The **shock of the discharge** is taken equally on either side of the body; on the right by the resistance column bearing against the resisting shoulder, and on the left by the bolt lug bearing against the rear wall of the recess in the body.

8. If the bolt has not been properly turned over when the trigger is pressed, the stud on the cocking-piece either causes the breech to close automatically by striking against the rounded corner of the division between the two grooves of the bolt, causing the bolt to turn down and the breech to close, or else the stud on the cocking-piece strikes full against the division between the two grooves, and prevents the striker flying forward. If then the bolt is closed by hand, the whole action becomes locked as the rear nose is engaged by the half bent, which is undercut, whilst the cocking-piece stud travels half-way down the longer groove; consequently the trigger cannot be pressed, nor can the bolt be rotated until the action is placed at full cock by drawing back the cocking-piece.

9. On **opening and drawing back the bolt**, the back edge of the rim of the cartridge case catches against the ejector and is thrown out of the rifle to the right.

In practice this action only takes place in the case of a bulleted round, when the case is held in the bolt face until the bullet is clear of the breech.

An empty case, being shorter and therefore being clear of the barrel sooner, is normally thrown out to the right by the action of its rim frictioning against the sloping portion of the groove hollowed out in the left side of the body immediately behind the breech.

10. The **safety-catch** may be used when the cocking-piece is either at full-cock or in the fired position. In neither case can the cocking-piece be moved backward or forward, nor the bolt be rotated. Care should be taken to see that the bolt lever is in its lowest position before moving the safety catch, as if it is slightly raised when the safety catch is moved there is a possibility of the aperture sight spring being strained and weakened.

**Section 3.—To Strip the Bolt.**

Remove the extractor spring, extractor screw, and extractor. Remove the striker keeper screw, and see that the stud on cocking-piece is in the long cam.

Unscrew the bolt head, and remove the striker, mainspring, and cocking-piece with the tool supplied. If
the striker is so tight in the cocking-piece that the bolt-head cannot be moved by hand, place the head in the bolt hole of the body and turn the bolt about a quarter of a turn over to the left (this only applies to early patterns). If it is found that the striker is not released by unscrewing the bolt-head to the full extent, draw back the cocking-piece until the stud is clear of the end of the bolt and turn it to the right, so that the stud rests on the rear end of the bolt; screw home the bolt-head; then replace the cocking-piece, with the stud in the long cam, and unscrew the bolt-head.

**Section 4.—To Assemble the Bolt.**

Place the mainspring, striker, and bolt-head in the bolt, and screw home the bolt-head for about six turns; then place the cocking-piece on the bolt, so that the stud is in the long cam, and screw home the bolt-head; draw back the cocking-piece until the stud is clear of the end of the bolt, and turn it until the stud rests on the rear end of the bolt. Unscrew the bolt-head about six turns; turn the cocking-piece so that the stud moves into the long cam. Screw home the striker until the end is flush with the rear end of the cocking-piece, and the keeper-screw recess in the striker is in correct position; replace the keeper-screw, move the cocking-piece to the short cam and screw home the bolt-head, being careful to see that it is screwed fully home before replacing the bolt in the rifle. If it is found impossible to screw home the striker in the cocking-piece by hand, extra leverage may be obtained by placing the bolt-head in the bolt hole of the body. Replace the extractor, extractor screw, and extractor spring.

**Section 5.—To Remove the Magazine Platform.**

In No. 3 magazine, push the stop clip forward to the disengaged position shown in dotted lines, slightly depress the rear end of the platform at A (Plate 4), and lift the front end at B with the fingers, at the same time
pressing the platform to the right side and upwards; then pull the platform forward with a slight wriggling lateral movement (taking care to keep the rear side-ears C above the ribs of the case D), and lift the platform with its spring out of the magazine. Under no circumstances must leverage be applied to the lip of the platform at the front end F to force it out. If force is found necessary a knife blade may be placed on top of the auxiliary spring at the front of the magazine at G, with the point resting under the front of the platform at the left side of the lip at H and a slight upward pressure will release the platform.

No. 4 magazine, depress the rear end of the platform at N (Plate 4) as far as possible, at the same time holding up the front end; then pull the front end at O towards the rear end of the case P until it passes under the front lips Q Q and between the inner forward ribs R R in case through which it is sprung. The front end of the platform should then rise up out of the case. Then tilt the rear end of the platform N sideways—the left side S uppermost—and draw forward out of the case.

SECTION 6.—TO ASSEMBLE THE MAGAZINE PLATFORM.

No. 3 magazine, place the spring in the case, and tilting the right side of the platform down slightly at J, press back the rear end of platform into the case just above the ribs D; then see that the front ears K are just in front of the ribs of the case at L, slightly depress the rear end of the platform at A, and press the front end down with a sharp pressure at M; then push back the stop clip against the stop.

No. 4 magazine, insert the rear end N of the platform in front of the rear lips T T on the case, tilting it sideways so that the right side U enters first; then depress the rear end until the front end is below the level of the front lips Q Q on the case, then press forward, forcing the front end through the internal ribs R R in the case.
CHAPTER III.

CARE AND CLEANING OF RIFLES.

SECTION 1.—GENERAL INSTRUCTIONS.

1. Wear in the bore of a rifle is caused by:—
(1) Friction of the bullet.
(2) Erosion, or wearing away of the surface of the bore, by propellant gases.
(3) Friction due to cleaning materials.
(4) Fouling.

When care is used in cleaning, 5,000 to 6,000 rounds can be fired from a rifle before it becomes unserviceable.

Undue wear is caused by improper and unnecessary use of the pull-through gauze, to prevent which it is most important that the Instructions for Cleaning be adhered to. It is recognised that it may be necessary to modify these instructions to suit local climatic conditions, or individual rifles which are in a bad state of preservation.

2. The Bore.—When a rifle barrel is new the interior of the bore carries a high polish, and this is a great safeguard against rust and metallic fouling, but it must be recognised that as the bore becomes worn this polish will diminish. Efforts to restore it with wire gauze on the pull-through result in unnecessary wear. At the same time, it must be clearly understood that, in a well-cared-for rifle, while the brilliancy of the polish will diminish, the lands of the bore should still be bright and free from all stain of rust or fouling.

The principal effect produced by the propellant on the rifle is the gradual wearing away of the steel at the forward end of the chamber and in the adjacent bore. This is termed erosion. It is not a very serious trouble in ordinary rifles, which are unlikely to be used for a great number of rounds, but in machine guns it is one of the principal factors determining the life of the barrel.

A further effect, which is traceable to the explosives used, is the tendency of the barrels of small arms to become rusty after firing. This is not accentuated by the gases produced by the propellant, but is due to the products of combustion of the cap compositions.

These compositions almost always contain chlorate of potash, which on firing is converted into potassium chloride. Particles of this salt settle in the bore, where they absorb moisture and cause rusting of the adjacent steel. Since potassium chloride is readily soluble in water, the simple expedient of rinsing out and drying the barrel after firing is sufficient to obviate its effects.

3. The pull-through.—A pull-through fitted with a weight, and an oil bottle to contain G.S. lubricating mineral oil, are carried in the recess in the butt of the rifle. The pull-through is packed above the oil bottle as follows:—Hold the pull-through (loop end) between the forefinger and thumb of the left hand so that the end falls about 2 inches below the third finger; roll it loosely three times round the first three fingers. Slip the coil off the fingers, and lap it tightly with the remainder of the cord, leaving sufficient to allow the weight to drop easily into the recess in the butt. Push the cord into the trap, leaving the loop end uppermost, drop the weight into the recess, and drop the trap. The pull-through is made with three loops: the first (i.e., nearest the weight) is for the gauze, when used; the second for the flannelette; the third is provided as a means of withdrawing the pull-through in case of a jamb, and flannelette or gauze should not be placed in this loop. When signs of wear appear, a new cord should be taken into use to avoid the risk of the pull-through breaking in the rifle. If a breakage does occur the rifle must be at once taken to the ordnance artificer. No attempt should be made by the seaman to remove the obstruction.

4. Wire Gauze.—Wire gauze is supplied in piece, 2½ inches by 1½ inches, and in attaching it to the pull-
through the following method should be adopted:

Turn the shorter sides of the gauze towards the middle, so that the longer sides take the form "S" open the upper loop of the pull-through and put one side of it in each loop of the "S," then coil each half of the gauze tightly round that portion of the cord over which it is placed till the two rolls thus formed meet.

The gauze must be thoroughly oiled before use to prevent its scratching the bore.

As the gauze should search out the grooves, it must fit the bore tightly. When it fails to do this it should be partially unrolled and packed with paper or flannelette to increase its bulk. Great care must be exercised to see that grit is removed from the gauze and pull-through before use.

Gauze should be used only when really necessary, and after the fouling or rust has been removed it should be at once taken off the pull-through, except on active service.

Platoon Commanders are responsible for the condition of the arms on their charge, and for so instructing the men in the use of the gauze that no unnecessary wear of the bore may result.

5. Oil.—No oil, other than G.S. lubricating mineral oil, should be allowed to remain in the bore, except in hot stowages, where the mineral oil may be thickened by mixing with an equal quantity of mineral jelly. The function of this oil is to cover the bore with a waterproof film, and thus prevent moisture attacking the steel and forming rust. It must be well worked into the flannelette with the fingers, otherwise it will be scraped off by the breech end of the barrel. When paraffin has been used all traces should be thoroughly removed, and the bore coated with G.S. lubricating mineral oil, for paraffin, though an efficient agent for removing rust, does not prevent its formation.

6. Cleaning Material.—No gritty or cutting material, such as emery powder or bath brick, is to be used for cleaning any parts of the rifle.

SECTION 2.—GENERAL INSTRUCTIONS FOR CLEANING.

1. Fouling.—In order that the Instructions for Cleaning may be understood, the causes of fouling are to be explained.

Fouling may be said to be of two kinds:

(i) Internal.

(a) Corrosive.—The forcing into intimate contact with the metal of the products of combustion of the propellants and cap composition. This type shows itself in sweating or the appearance of a dark deposit on the surface of the bore which promptly sets up rust.

(b) Metallic.—Particles from the surface of the envelope of the bullet adhering to the surface of the bore. These appear in irregular streaks or patches on the lands and in the grooves towards the muzzle end.

When a rifle which normally shoots well becomes inaccurate, metallic fouling may be the cause. No attempt must be made by the man to remove this form of fouling. The rifle should then be taken to the ordnance artificer.

(ii) Superficial.—Caused by the deposit on the bore of the solid products of the charge and the cap composition. This always arises after firing, especially after firing blank.

The result of neglect in either case is the same, viz., the formation of rust in the bore, and, as a consequence, corroded barrels, calling for the use of wire gauze, or even more drastic treatment, thereby causing unnecessary wear.

Internal fouling can be removed satisfactorily by the use of boiling water. If for any reason this method of cleaning cannot be used, the barrel will sweat, and a hard black crust of fouling will appear in the bore. This will turn to red rust if not removed, and the rifle will
then require repeated cleaning with flannelette and probably with gauze for a time, which will vary according to climatic conditions and the state of the bore.

Superficial fouling is readily removed when warm, by the use of a pull-through and flannelette, but if it is allowed to remain in the barrel it will become hard, and have a corrosive effect equal to that produced by internal fouling.

2. *Use of the pull-through.*—Remove the bolt from the rifle, and in order to ensure the gradual compression of the gauze, if used, and of the flannelette, drop the weight through the bore from breech to muzzle. The pull-through should be drawn through in one motion, otherwise the spot where the flannelette is allowed to rest, while a fresh grip of the cord is being taken, will not be properly cleaned. Very great care must be taken not to allow the cord to rub against the muzzle, otherwise a groove, technically known as cord wear, will be cut which in course of time will destroy the accuracy of the rifle.

3. Only regulation flannelette is to be used. When cleaning or drying the bore after washing out with water, a piece of dry flannelette large enough to fit the bore tightly (about 4 inches by 2 inches) should be placed in the second loop of the pull-through. For oiling the bore, a slightly smaller piece of oily flannelette, which will fit the bore loosely, should be used. Care must be taken not to use too much oil, as it will be squeezed out of the flannelette at the entrance to the bore, and will run down into the bolt when the rifle is placed in the rack, and may then cause misfires.

The use of two single pull-throughs attached to one another so as to make a double one is strictly forbidden, because this practice has been found to produce cord-worn barrels.

4. *Cleaning before firing.*—The action will be wiped with an oily rag, and all traces of oil will be removed from the bore and chamber by the use of a pull-through and flannelette.

**SECTION 3.—METHOD OF CLEANING.**

1. *Cleaning after firing Blank Ammunition.*—The superficial fouling should be removed as soon as possible by pulling pieces of dry flannelette through the bore till it is view clean. Cleaning should be thorough because, there being no bullet to scour out the fouling left by the preceding round, there is a great accumulation of superficial fouling. When the bore is clean it should be lubricated with oily flannelette before being placed in the rack. The following day the bore should be wiped clean and re-oiled, after which, unless firing takes place, the oil should only be removed for inspection. When blank firing precedes practice with ball, the rifles will be thoroughly cleaned before ball practice commences, particular care being taken to see that no cordite remains in the bore.

2. *After firing Ball Ammunition.*—The bore should be wiped out so as to remove superficial fouling. Whenever possible it will be washed out with water as described in paragraph 3 of this Section, and oiled. If hot water is not available the rifle will be cleaned as directed in paragraph 1. Should this method prove ineffective, the gauze must be used, but normally in peace time wire gauze should only be used for:

(i) The removal of hard fouling, the result either of neglect to remove superficial fouling before it has had time to become hard, or of sweating after firing ball ammunition when it has not been found possible to wash out the bore with water.

(ii) In the case of a rusty or corroded barrel, for the removal of free rust which, owing to the pitted condition of the bore, is likely to appear.

The bore should be wiped clean and lubricated the day after firing ball ammunition, and again every alternate
day for ten days. Subsequently the oil will be removed only for inspection.

3. Cleaning with water (hot if possible).—Remove the bolt and place the rifle to be cleaned, muzzle downwards, over some vessel which will catch the water after passing through the barrel in order that it may be returned to the boiler. Insert a funnel in the breech of the rifle, and pour two quarts of boiling water slowly through the barrel, taking care not to splash water into the action. Stand the rifle, muzzle downwards, to drain for a few seconds, then thoroughly dry the barrel by means of the pull-through and chamber stick used with dry flannel. After the bore and chamber are thoroughly dry, insert a piece of oiled flannelette in the second loop of the pull-through and thoroughly lubricate the bore and chamber. The effect of the hot water treatment is most satisfactory if applied at once; its application should not be delayed beyond 24 hours. It should be used on every occasion on which the rifle is fired. If firing is to be discontinued for some days, the rifle should be wiped out and lubricated every alternate day for ten days.

Note.—If hot water is not available, cold water may be used instead, but more will be required.

4. Metallic Fouling.—Nickelling or metallic fouling of the bore should be guarded against. It is caused by a portion of the cupro-nickel of the envelope of the bullet being left on the surface of the bore, and appears as a whitish streak on the lands, or as a slight roughness on the edge of the grooves. If it is deposited near the muzzle or the breech it is visible to the eye when the bore is clean, but in the centre of the bore it can only be detected by the use of the gauge plug. It is a cause of inaccuracy, and if a rifle for no apparent reason shoots badly, its presence should be looked for as a possible explanation. The seaman should make no attempt to remove it himself, but should hand his rifle to the ordnance artificer or other qualified person to be cleaned.

5. .22-inch Rifles.—The foregoing instructions should be followed as far as possible with .22-inch rifles firing ordinary ammunition.

When non-rusting (Ixx) ammunition, which leaves a protective deposit in the bore, is being used, the bore is not to be cleaned or oiled. If the deposit left by non-rusting ammunition is removed, the bore is to be left oiled until the rifle is required for shooting again, when it will be dried out in the ordinary way. Once the deposit has been replaced by firing there is no further need for cleaning or oiling the bore.

The protective coating from non-rusting ammunition is not effective unless the bore is clean when it is first deposited.

6. Cleaning the Action and Outside.—Thoroughly clean the bolt, paying particular attention to the face of the bolt head, the striker point, was escape, and extractor. If the bolt requires cleaning inside, it should be taken to the ordnance artificer.

See that the recess for the extractor spring is clear of dirt. Take out the magazine and wipe out the inside of the body and the entrance to the chamber with an oily rag. Remove all dirt from the charger guide, the sear and its seating, and from the extractor recess in the front of the body. Clean the inside of the magazine with a dry rag. See that the U of the backsight is free from dirt.

7. The instructions regarding the use of an oily rag for cleaning the bolts and bodies will not apply to dusty countries, where all parts of the action will be kept dry and clean.

SECTION 4.—INSTRUCTIONS FOR CARE OF ARMS AND AMMUNITION.

1. The mainspring should never be allowed to remain compressed except when the rifle is loaded, as the spring
will thereby be weakened. The position of the cocking-piece shows whether the main spring is compressed or not.

2. The Pull-off is the amount of pressure which is required to release the nose of the sear from the full bent of the cocking-piece; it should not be heavier than 6 lb. nor lighter than 5 lb. Any defects therein should be remedied only by the ordnance artificer.

3. The magazine must not be removed from the rifle except for cleaning purposes, and to avoid weakening the spring, cartridges should only be kept in it when necessary. A failure of the spring to raise the platform can usually be overcome by tapping the bottom of the magazine smartly with the palm of the hand. If the failure recurs, the rifle should be taken to the ordnance artificer for examination and repair.

4. The bolts of rifles are not to be exchanged. Each bolt is carefully fitted to its own rifle, so that the parts which take the shock of the explosion have an even bearing, and the use of a wrong bolt will affect the accuracy of the rifle. The number stamped on the back of the bolt lever should agree with that stamped on the right front of the body.

5. Care should be taken to prevent the browning being rubbed off the rifle.

6. No petty officer or man is permitted to take to pieces any portion of the action, except as prescribed for cleaning, nor is he allowed to loosen or tighten any of the screws unless authorised to do so by his platoon commander.

7. In dusty countries it may be found necessary to cover the muzzle and bolt with a cover of khaki or other suitable material, to prevent the dust gaining access to the interior of the rifle, but anything in the nature of a plug in the muzzle is expressly prohibited.

8. A missfire arises from:
   (i) A defective cartridge.
   (ii) A defective rifle.

   In case (i) the cartridge will be tried in another rifle, and in case (ii) the rifle will be taken to the ordnance artificer for examination.

9. The oil will only be removed from the bore of the rifle:
   (i) Immediately before firing.
   (ii) For inspection, which, except after firing (see paragraph (ii), Section 3), should not as a rule be more often than once a week.

In all cases it will be replaced as soon as possible. After firing with bayonets fixed, the bayonet should be carefully wiped before it is returned to the scabbard. All oil should be removed from the blade before replacing the bayonet in the scabbard.

10. Neither the cartridge nor the chamber of the rifle are, on any account, to be oiled before loading, nor is any other form of lubricant to be used with a view to facilitating the extraction of the empty case. Such a procedure greatly increases the thrust on the bolt-head, due to the explosion of the charge, and is liable to injure the rifle, and also affects the accuracy.

11. Ammunition should be kept perfectly dry and clean, and should not be exposed to extremes of temperature.

**Section 5.—Special Instructions for Stripping Rifle for Cleaning.**

1. *Removing the Bolt.*—Raise the knob as far as it will go, draw back the bolt-head to the resisting shoulder, and release it from the retaining spring. Raise the bolt-head as far as possible and remove the bolt.

2. *Replacing the Bolt.*—See that the resisting lug and cocking-piece are in a straight line, and the bolt-head (399/995)
screwed home. Place the bolt in the body with the extractor upwards, and press it forward until the head is clear of the resisting shoulder. Turn the head downwards until it is caught by the retaining spring. Close the breech and press the trigger.

3. To remove the Magazine Platform.—See Chapter II, Section 5, page 22.

4. To assemble the Magazine Platform.—See Chapter II, Section 6, page 23.

5. To assemble the Bolt.—See Chapter II, Section 4, page 22.

CHAPTER IV.

THE THEORY OF RIFLE FIRE AND ITS PRACTICAL APPLICATION.

SECTION 1.—APPLICATION OF THEORY.

A knowledge of the theory of rifle fire is of great importance in enabling the best use to be made of the powerful and accurate weapon with which the man is armed, but it is of equal importance that such knowledge should be correctly applied. The moral conditions under which fire is delivered in war are very different from those of peace. It is therefore essential that deductions, made from the theory of musketry or from the results of fire delivered under the conditions of peace, should be considered in the light of careful study of the circumstances of modern warfare.

SECTION 2.—DEFINITIONS.

The *axis of the barrel* is an imaginary line following the centre of the bore from breech to muzzle.

The *line of departure* is the direction of the bullet on leaving the muzzle, i.e., the prolongation of the axis of the barrel.

The *line of fire* is a line jointing the muzzle of the rifle and the target.

The *line of sight* is a straight line passing through the sights and the point aimed at.

The *culminating point* is the greatest height above the line of sight to which the bullet rises in its flight; this is reached at a point a little beyond half the distance to which the bullet travels.

(399/995)
The first catch is that point where the bullet has descended sufficiently to strike the head of a man, whether mounted, standing, kneeling, lying, &c.

The first graze is the point where the bullet, if not interfered with, will first strike the ground.

The dangerous space for any particular range is the distance between the first catch and the first graze.

The following definitions are required for machine-gun work only:

- The angle of tangent elevation is the angle between the axis of the bore and the line of sight.
- The angle of sight is the angle between the line of sight and the horizontal plane. It may be either positive or negative, according as the target is above or below the firing point.
- The angle of quadrant elevation is the angle between the axis of the bore and the horizontal plane.
- The angle of departure is the angle between the line of departure and the horizontal plane.
- The angle of jump is the angle between the line of departure and the axis of the barrel before firing.

Section 3.—Rifling.

A gun barrel is said to be rifled when it has spiral grooves cut down the "bore." Rifling a barrel enables an elongated bullet to be used; the advantage of this form of bullet is that it has great weight in proportion to the surface directly opposed to the air; it has therefore great power of overcoming the resistance of the air, and thus keeping up its velocity. When the charge is fired, the bullet is forced into and follows the grooves up the barrel, thus leaving the muzzle with rotation on its longer axis. This tends to keep its point foremost and therefore to ensure accuracy of flight.

Section 4.—Forces Acting on the Bullet.

1. Three forces act on the bullet: the explosion of the charge, gravity, and the resistance of the air. The
explosion of the charge drives the bullet forward. Gravity, i.e., the natural attraction which draws all unsupported bodies towards the centre of the earth with ever-increasing velocity, acts on the bullet immediately it leaves the muzzle. The resistance of the air causes the velocity of the bullet to decrease rapidly.

2. The combined effect of these forces causes the bullet to travel in a curved line called the trajectory, the curvature of which becomes more pronounced the longer the bullet is exposed to their action.

3. In explaining the trajectory to men it is not sufficient to draw a diagram representing a trajectory distorted in respect of height and range, nor to throw any object to a distance as a practical illustration. It is most desirable, in addition, to show the path of the bullet at various ranges, say 400 and 800 yards, by means of discs raised on poles at every 100 yards, or some similar device.

Section 5.—Elevation.

1. In order to allow for the fall of the bullet, it is necessary to direct the line of departure as much above the object to be hit as the bullet will fall below it, if the axis of the barrel of the rifle is pointed at the mark. This raising of the barrel to allow for the curve of the trajectory is termed giving elevation.

2. The target must, of necessity, be kept in view; the rifle is therefore provided with sights which permit the firer to give the elevation required whilst keeping his eye fixed on the mark.

Section 6.—Sighting of Rifles.

1. In the sighting of rifles a "mean" graduation for each range has been adopted, and a high general standard of accuracy for all practical purposes is thus obtained.

Each rifle is carefully tested before issue, but it must be understood that no two rifles behave in an exactly similar manner, and that even if compensation could be made for every error in the sighting of the rifle before issue, wear of parts and loosening or tightening of screws, &c., would bring about faults from time to time. It is therefore necessary that every man should study the shooting of his own rifle, and make himself acquainted with any incorrectness of the graduations marked on the backsight, in order that he may be in a position to give his rifle the correct elevation for the estimated or ascertained range of the target.

2. At longer ranges the backsight elevation may be regarded as the best possible guide under all conditions, or any error may be ascertained by using a long range sighting target.

Section 7.—Jump.

1. Owing to the shock of discharge a vibratory or wavy motion is set up in the barrel, and at the moment the bullet leaves the bore the muzzle is usually deflected from its original axis. It therefore rarely happens that the line of departure coincides with the axis of the barrel before firing and the angle between the two is known as the angle of jump. Jump may be either positive or negative according as the muzzle is deflected upwards or downwards with reference to the axis of the barrel.

2. Normally with Mark VII ammunition the jump is upwards, and allowance has to be made, but no two rifles shoot exactly alike.

3. Less serious variations are caused by small differences in the stocking of individual rifles, and to overcome them, without interference with the standard form of backsight, varying heights of foresight are provided. In the short rifle, each .015 inch difference
in height of foresight makes a difference of about 2\(\frac{1}{2}\) minutes in the angle of departure.

4. Lateral jump has also to be considered, but as variations can be readily allowed for by adjusting the position of the foresight to the right or left, it is of less importance.

5. Resting the rifle.—This will affect the jump of the rifle. The effect will be reduced to a minimum when the rifle is rested at the point of balance. When firing over cover the left hand or wrist should be rested, as this hand grips the rifle at the point of balance.

SECTION 8.—DRIFT.

1. Drift is the term used to express the lateral deviation of the bullet after it has left the barrel. This deviation, which is considerably less than that caused by jump, is brought about by the rotation of the bullet and the position which it assumes in its flight. The left-handed rifling of the service rifle causes the bullet to rotate from right over to the left, and, owing to gyroscopic action, the point works over slightly to the left. The consequent increased air-pressure on the right side of the bullet therefore forces it to the left.

2. The deflection due to drift at distances below 1,000 yards is negligible. At 1,500 yards it may be regarded as about 7 feet.

SECTION 9.—EFFECT OF FIXING THE BAYONET AND OF A HEATED OR OILY BARREL.

1. When the bayonet is fixed to the muzzle of the rifle, its weight checks the movements and vibration, called the "jump," and in consequence affects the position of the muzzle at the moment of the departure
Plate 5.

TRAJECTORIES OF MARK VII AMMUNITION AT VARIOUS RANGES.

8½° Above ground (Cavalry)

5½° Above ground (Infantry)

1° Above ground, Rifle fired from prone position

8½° Above ground (Cavalry)

5½° Above ground (Infantry)

Rifle fired from prone position 1° above ground

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of the shot, and the primary direction given to the bullet.

2. No two rifles shoot exactly alike, but usually the effect of fixing the bayonet is to cause the bullet to hit about 1 foot higher at 300 yards' range.

3. It will be seen from Plate 5 that with the backsight adjusted for the distance in question, allowance having been made for fixing bayonets, if necessary, a Mark VII bullet does not rise above the height of a man on foot at 600 yards, or above the height of a mounted man at 700 yards' range. It is therefore evident that against a rush of savages or a charge of cavalry, effective fire can be maintained within these ranges without alteration of the backsight, provided that the aim is taken at the ground line.

4. The first round fired from an oily barrel is liable to follow an erratic course, the rifle throwing sometimes high, sometimes low, and at other times to the right or left; a dry rag should therefore be passed through the bore before practice is commenced.

SECTION 10.—DANGEROUS SPACE.

1. Plate 5 illustrated the manner in which the dangerous space decreases as the range increases, the reduction being due to the steeper angle at which the bullet descends at the longer ranges.

The extent of the dangerous space further depends on:

(i) The firer's position and the consequent height of his rifle above the ground.
(ii) The height of the object fired at.
(iii) The flatness of the trajectory.
(iv) The conformation of the ground.
In regard to:
(i) The nearer the rifle is to the ground...
(ii) The higher the object fired at...
(iii) The flatter the trajectory...
(iv) The more nearly the slope of the ground conforms to the angle at which the bullet falls.

2. A general knowledge of the angle of fall of the bullet in the last 100 yards of its flight, at the shorter ranges, is essential as a guide in deciding when individual fire may be opened with effect. As has been stated, the longer the range the more abruptly does the bullet fall; consequently the greater the distance the more accurately must the range be ascertained. Hence, the limits of individual fire are to a great extent governed by the curve of the trajectory and the power of correctly estimating ranges; and unless the strike of the bullet can be observed, individual fire cannot be effective on small targets at the longer ranges.

3. The firer must also thoroughly understand how the dangerous space is affected by the conditions mentioned in this Section.

E.g., suppose he is firing in the prone position with Mark VII ammunition, and aims at the ground line of a prone figure at 500 yards’ range, the dangerous space of his fire will be about 60 yards. If, however, he stands to fire, the dangerous space is reduced to about 40 yards.

SECTION 11.—RICOCHECTS.

1. Bullets which rebound after striking the ground or any other obstacle and continue their flight are said to ricochet.

2. Ricochets may occur from any surface, and bullets may ricochet two or even three times before their flight is finally arrested. At long range, they are less likely to ricochet from soft ground than from hard smooth surfaces.
SECTION 13.—FIRING UP AND DOWN HILL.

When a shot is fired at a target placed on the same level as the firer, the forces acting on the bullet cause it to travel in its greatest curve, and the greatest elevation for any given distance must therefore be given to the rifle. If a shot is fired perpendicularly upwards or downwards no elevation is required, for the bullet will travel in an approximately straight line until its impetus is exhausted. Hence it follows that when shooting up or down hill less elevation is necessary than when the object is on the same level. The elevation to be used can be best ascertained by careful observation of fire.

SECTION 14.—BAROMETRIC PRESSURE AND TEMPERATURE.

1. Rifles are sighted for the following conditions:
   (i) Barometric pressure, 30 inches (sea-level).
   (ii) Thermometer, 60° Fahrenheit.
   (iii) Still air.
   (iv) A horizontal line of sight.

2. The effect of atmospheric conditions other than wind need not normally be considered on active service. It is sufficient if it is realised that, when firing at high altitudes, less elevation may be necessary. The variation will only be about 50 yards at 800 yards' range at a height of 4,000 feet. Alterations of temperature need not be taken into consideration except that when cartridges have become heated in the sun, rifles are likely to shoot high.

SECTION 15.—WIND AND LIGHT.

1. The chief cause of trouble to the firer in individual firing is the effect of wind on the path of the bullet. The direction and strength of the wind can be judged by watching trees, grass, &c., by observing the rate of movement of the radiation of heat from the ground (commonly called "mirage"), and by personal sensation.

2. A side wind acts on the greater surface of the bullet, and has consequently more influence on its flight than a wind blowing from the front or rear.

3. For strong head or rear winds increase or reduce the elevation by 50 yards at 1,000 yards' range or by 100 yards at 1,500 yards' range.

4. The allowance for a cross wind can be obtained as follows:

   At 500 yards it is necessary to aim off an amount in feet equal to the force of the wind by Beaufort's scale at right-angles to the line of fire. At other ranges the amount to aim off varies roughly as the square of the range. For example:

   Wind is estimated to be Force 3 from the right.
   At 500 yards aim off 3 feet to the right.
   At 1,000 yards, aim off $3 \times 4 = 12$ feet to the right.
   At 1,500 yards, aim off $3 \times 9 = 27$ feet to the right.

   For oblique winds a proportion of the above allowance must be made.

5. In bad light the foresight is less distinctly seen than in good light, and more of it is unconsciously taken into the line of sight. This naturally affects the elevation used, less being required on a dull than on a bright day.
CHAPTER V.

JUDGING DISTANCE.

Section 1.—General.

1. Distances may be judged (i) by measuring the intervening ground with the eye in terms of some familiar unit such as 100 yards; (ii) by the apparent size of the object if its size is known (visual angle); (iii) by the visibility of the object as affected by light, atmospheric effect, background, &c.

2. All methods should be practised until it is found that distances can be approximately judged from the general impression conveyed to the eye, but the observer must bear in mind that his judgment may be influenced by certain conditions of ground, light, &c., which are mentioned below.

3. Men will first be familiarised with short units of distance not exceeding 600 yards, and this distance (600 yards) they should particularly recognise as the limit of individual fire. They will at the same time study the visibility of the human figure standing, kneeling and lying, at known distances. They will be required to remember the results of their observations, and be given further opportunities of seeing figures in varying conditions of light, atmosphere, and background.

4. They will afterwards be taught the influence exercised by ground, and features in the landscape, on general impressions of distance.

5. Objects are over-estimated—
   When kneeling or lying.
   When both background and object are of a similar colour.
   On broken ground.

6. Objects are under-estimated—
   When the sun is behind the observer.
   In bright light or clear atmosphere.
   When both background and object are of different colours.
   When the intervening ground is level or covered with snow.
   When looking over water or a deep chasm.
   When looking upwards or downwards.
   When the object is large.

7. Practice will follow in judging the distances of natural objects, features of ground, and men in various attitudes, reasons being given for his estimate by each observer, and the local conditions being carefully examined and explained by the instructor before passing on to the next object.

8. Assistance may be obtained by making a maximum and minimum estimate of the distance, and taking the mean for correct, trying to halve the distance and judge the half distance first, or by judging the distance of some object of known size which appears to be in the vicinity of the objective, should the latter be a fold in the ground or of unknown size.

9. As progress is made the time allowed for judging distances should be limited, but rough guessing is never to be allowed. Further training should include deduction as to distances drawn from any known ranges previously communicated, estimation of lateral distances and measurement of the visual angle by means of a protractor, the foresight, the barrel of the rifle, or similar method.
SECTION 2.—RANGE FINDING BY OBSERVATION OF FIRE.

1. Observation of results is the best means of correcting errors in sighting, but it is only practicable when the ground in the vicinity of the objective is of a nature to show the strike of the bullets, or when the enemy is in the open.

2. A considerable volume of rapid and concentrated fire is necessary to enable the strike of bullets to be observed, and for this purpose one or more machine guns, or not less than one platoon or its equivalent, should be employed. The distance and nature of the ground will determine the volume of fire required, but the greater the difficulty of observation the greater must be the volume of fire.

3. An elevation well under the estimated distance should first be selected, and if the fire can be observed, the elevation should be increased by not less than 100 yards at a time until the nucleus of the bullets is seen to fall on the desired spot.

4. The point at which the fire is directed may be the actual objective or ground in its vicinity which is more suited to observation of the strike of the bullets.

5. The best position from which to observe fire is behind, and, if possible, above the firers, but in this position the bullets which fall short will be most easily seen, and may be mistaken for the nucleus of the fire; further, all shots will appear to strike nearer to the observer than is really the case.

6. To an observer on or behind a flank of the firers, shots which pass over the mark will appear to fall towards the side on which he is posted, and those which drop short to fall towards the opposite side. Thus, if the majority of shots seem to an observer on the right flank to fall to the right of the mark, the range has been over-estimated, and if to the left, under-estimated.

CHAPTER VI.

AIMING INSTRUCTION.

SECTION 1.—STAGES OF INSTRUCTION.

1. Aiming will be taught in stages, as follows:
   Explanation of the theories of sighting, elevation, and deflection.
   Method of adjusting the sights.
   Explanation of aiming with the backsight and foresight.
   Aiming with scrupulous accuracy from a rest.
   Demonstration of results of inaccuracy in aiming.
   Aiming combined with trigger pressing.
   Declaring point of aim at moment of discharge.
   Aiming from a rest at figures and ground.
   Aiming at indistinct targets described by word of mouth.
   Aiming off, making allowance for deflection as ordered.
   Judging deflection allowance for wind and aiming off without orders.
   Aiming up and down.
   Rapid adjustment of sights in accordance with orders.
   Aiming and snapping without a rest in all positions.
   Rapid alignment of sights.
   Aiming off for movement.
   Fire discipline exercises.

2. It is immaterial whether the instruction is given in the above order, but further training should be deferred until the eye is shown to be accurate in aiming. Ample time should be devoted to trigger pressing and declaring the point of aim on discharge; this instruction may conveniently be given indoors.

3. Aiming instruction should proceed simultaneously with firing instruction and muscle exercises, short lectures and questions being included in the daily programme.
SECTION 2.—ACCURACY IN AIMING.

1. Especial care will be taken that the sights of any rifle used in aiming instruction are in perfect order.

2. The aiming mark in the earlier stages will be a special aiming target placed at a distance not exceeding 100 yards, but when the habit of accuracy has been acquired, service targets will be used, and care will be taken that there is no falling off in accuracy owing to the shape and comparative invisibility of these targets.

3. The instructor must inspect the sights frequently to ensure that they are correctly adjusted in accordance with his orders.

4. He will explain the following rules, and demonstrate the results to be anticipated from common errors in aiming:

   (i) The backsight must be kept upright.
   (ii) The left or right eye, according to the shoulder from which the man shoots, must be closed.
   (iii) Aim must be taken by aligning the sights on the centre of the lowest part of the mark, the top of the foresight being in the centre of, and in line with, the shoulders of the U of the backsight.

When these principles have been mastered, the instructor will loosen the sling, adjust the sights for any given range, and aim from the rest at the target, taking care that his eye is immediately above the butt-plate.

5. It will be convenient to use a sandbag aiming rest to steady the head during the aiming. Having aimed, he will call on each individual to observe the correct method of aligning the sights on a mark. Each man will then act similarly, when the instructor will verify the aim, point out errors, and explain how they would have affected the accuracy of the shot, and how they are to be avoided. He should occasionally call on a man to point out any errors which may have been made by his comrades.

6. Extreme accuracy of aim must be insisted on even during the first lesson.

SECTION 3.—COMMON FAULTS IN AIMING.

The most common faults in aiming are:

(i) Taking too much or too little foresight into the U of the backsight.

It should be explained that a fine or half sight will cause the bullet to strike about 7 inches and 4 inches lower respectively per 100 yards of range, than when the correct sight is taken.

The following method will be found useful to guide a man in taking the correct amount of foresight:—Lay the edge of a piece of paper on the upper edge of the backsight cap, when the sight will appear as shown in one of the subjoined diagrams. A piece of cardboard laid on the cap and held in place by an elastic band will answer the same purpose.

(ii) Inaccurate centring of the foresight in the notch of the backsight.

Men should understand that this inaccuracy will deflect the muzzle of the rifle to the side on which the line of aim is taken, e.g., if aim be taken over the right edge of the U the direction of the line of fire will be to the right of the line of sight.

(iii) Fixing the eyes on the foresight, and not on the object.

If the eye is accommodated for the foresight the firer will retain only a blurred image of the target. This may not affect the result of his shooting at stationary vertical targets, but when firing at service targets which appear and re-appear, or at areas of ground, it will be necessary for him to watch the target closely.

(iv) Inclining the backsight to one side.

In this case the bullet will strike low, and to the side of which the sights are inclined. The resulting error will be considerable at long ranges.
SECTION 4.—AIMING AT THE GROUND, AND MARKING DOWN AN ENEMY.

1. The eyesight must be gradually trained in aiming at figures or other service targets, and at ground which might conceal an enemy. For this latter purpose a man will be directed to show himself for a few seconds at different ranges. The squad will then aim from rests at the ground which they believe to be occupied. After a short interval the man will stand up, when errors will be corrected and criticised.

2. Further practice will be given in aiming at ill-defined targets described by word of mouth, which will lead up to the fire discipline exercises described in Chapter IX.

SECTION 5.—AIMING OFF FOR WIND.

1. The windgauge is not to be regarded as the normal means of making allowance for wind under service conditions, and it is to be set central for all firing practices. It may, however, sometimes be useful to know that one division on the windgauge scale is equivalent to 6 inches on the target per 100 yards of range (6 “clicks” go to one division).

2. A man should be taught to discriminate between mild, fresh, and strong winds by the effect which they exercise on natural objects, and to note the direction of the wind as front, rear, right angle, or oblique, by turning his face full towards the wind.

3. The approximate allowances in elevation or deflection for these winds at decisive range will be taught. Practice will be afforded in aiming off a full-length figure target according to the range, and the strength and direction of the wind, actual or supposed.

4. The man should be accustomed to make deflection allowance with reference to the breadth of the target, the full-length figure target being rather less than 2 feet wide. Such practices should be limited to 600 yards, but in addition there must be practice in aiming off at all ranges according to orders, the allowance being indicated if possible by reference to the breadth of the target, or intervals in a formation, or by selection of an auxiliary aiming point. If this is not possible, it must be expressed in feet or yards.

5. In such exercises it is necessary to employ a man at the target to indicate the correct point of aim with a marking disc after each aim taken by the men under instruction. The amount of allowance made will be observed by the instructor with an aim corrector, unless an aiming rest is used.

6. An aim corrector is an instrument consisting of a small piece of green glass fixed on the rifle barrel at such an angle that the firer sees his sights and the target through the glass, but at the same time an instructor, looking at right angles to the line of sight, can see a reflection of the line of sight as taken by the firer. The instrument is supplied to ships and to rifle ranges, fitted both for rifle fire and for machine-gun fire.

SECTION 6.—AIMING UP AND DOWN.

1. In aiming up and down, the aim should be directed at a point not more than 3 feet above or below the six o'clock line, according to the position of the target beyond or short of the zone for which the sights are set; but if the difference between the range and the sighting exceeds 200 yards, it will be best to alter the sighting.

2. To practise aiming up and down, men or disappearing targets should be brought into view for short periods of time at various ranges, the sights being adjusted as may be ordered.

SECTION 7.—RAPID ADJUSTMENT OF SIGHTS.

1. Instructors will frequently test their squads in setting their sights rapidly and accurately. They will
give orders for aiming or firing at definite targets, but without naming the range, and require their squads to adjust their sights before they bring the rifle to the shoulder. The careful adjustment of sights will thus become instinctive.

2. Adjustment of sights will also be practised in connection with movement of the firer or the target.

3. When there is time, the sights will be adjusted for every alteration in the range, and aim will be taken at the lowest part of the mark, but frequent small changes of sighting lead as a rule to loss of fire effect, and may be avoided by aiming up or down (Section 6).

SECTION 8.—AIMING OFF FOR MOVEMENT.

1. The instructions for aiming at moving targets in the following paragraphs will be given during the latter portion of preliminary training, practice in this form of shooting being carried out on 30 yards or miniature ranges, where the pace of movement may be regulated in strict accordance with that of service targets.

2. When firing at crossing targets, aim will first be taken on the object, then following it sideways the aim will be carried in advance, and kept in front of the object until the rifle has been fired. The distance to which the aim should be carried in advance of the target will vary according to the range, rate of movement, and direction of the movement.

3. Up to 500 yards’ range, aim should be taken:

   About 1 ft. in front per 100 yards, at a single man walking.
   2 ft. at a single man doubling.
   3 ft. at a single horseman trotting.
   4 ft. at a single horseman galloping.

Thus, at 100 yards, aim should be about the breadth of a man in front of an individual walking, and at 200 yards about a horse-length in front of a single horseman trotting. Fire will rarely be effective at a single man moving across the front at more than 300 yards’ range, or at a single horseman above 500 yards. At effective and long ranges, aim should be taken at the head of a body of troops moving to a flank.
CHAPTER VII.

FIRING INSTRUCTION.

SECTION 1.—TRIGGER PULL-OFF.

The pull-off is the amount of pressure which is required to release the nose of the sear from the full bent of the cocking-piece; it should not be heavier than 6 lbs. nor lighter than 5 lbs. in the short rifle; in other rifles, not heavier than 7 lbs. nor lighter than 5 lbs. Any defect therein should be remedied by the ordnance artificer only.

SECTION 2.—FITTING OF RIFLES.

Men are to be fitted with rifles having long, normal, short or bantam butts, according to their build and preference. The choice should be made after tests carried out in the standing and prone positions, and should be based on the readiness with which the firer brings his rifle up to the firing position and aligns his sights, without letting his nose and mouth come into close proximity to the thumb and fingers of the trigger hand. The butt selected should be the shortest which can be used comfortably when firing both standing and lying down in the correct positions.

SECTION 3.—CORRECT POSITIONS.

1. The position of each individual will be corrected in turn; the regulation position may be varied if physical characteristics render them unsuitable in any case, but awkwardness in the first stages of instruction will not be accepted as an indication that the regulation position requires modification.

2. In the early part of training, squads will not, as a rule, consist of more than seven men, who will be assembled round the instructor in a semi-circle. The instructor will explain the uses of the different firing positions, and illustrate them to the squad. Men will practise the motions separately until able to combine them, and assume each position rapidly and without constraint.

SECTION 4.—FIRING REST.

The firing rest will be frequently employed in early instruction to enable the man to support the rifle and rest his muscles, whilst the instructor modifies, or corrects, his position. An incorrect position, however, usually arises from want of accuracy in the preliminary actions which lead to it, and it is to these that attention must be given, for a faulty position, once acquired, cannot easily be corrected.

SECTION 5.—USE OF DUMMY CARTRIDGES.

1. Before dummy cartridges are used on parade, special precautions will be taken to ensure that neither ball nor blank ammunition is taken to the parade ground. The instructor will personally examine all cartridges, rifles, pouches, and bandoliers, before loading takes place.

2. Aiming instruction should proceed simultaneously with firing instruction and muscle exercises, short lectures and questions being included in the daily programme.

SECTION 6.—TRIGGER PRESSING.

1. Before he is permitted to practise snapping, a man will be given several lessons in the correct way of pressing the trigger. The rifle will be rested on sandbags or in an aiming rest, and the man will be seated with his elbows rested on a table. The instructor will first take steps to ensure that the man can move his trigger finger independently of the remainder of the hand and arm.
2. The instructor will explain (i) that as the trigger has a double pull-off, two distinct pressures are necessary to fire the rifle (the strength of the first pull is 3 to 4 lbs., that of the second 5 to 6 lbs.). The first pull should be taken when the rifle has been brought into the position for aiming; the second when the sights are aligned on the mark. (ii) That the direction of the pull-off is diagonally across the small of the butt. (iii) That the first joint of the forefinger should be placed round the lower part of the trigger, and (iv) that in order not to disturb the aim, breathing must be restrained when pressing the trigger.

3. Great care must be exercised to ensure that the forefinger is not placed on the trigger before the rifle is in contact with the shoulder, and that a firm grip is maintained with both hands while firing.

4. In order that he may learn from experience the pressure required to release the cocking-piece, the man will also be directed to place his forefinger under that of the instructor, but without exercising pressure, whilst the instructor carries out the motion. Then, to enable the instructor to ascertain whether the method is understood, the man will place his finger over that of the instructor, and exert the pressure. Finally, the man will himself press the trigger, while the instructor uses the aim corrector. The main object is to release the cocking-piece without disturbing the aim.

5. Special care will be taken that the breathing is restrained while pressing the trigger, and the man is always to say after the spring is released whether the aim was maintained truly at the moment of snapping. If not, he must state definitely the direction in which the rifle was pointed at the moment of discharge.

6. From time to time the instructor will test the aim and steadiness of each man with an aim corrector, and, if necessary, further lessons in trigger pressing will be given. Practice with miniature cartridge may advantageously be given to develop steadiness until range practice is begun.

7. Trigger pressing requires careful individual instruction, during which the necessity for determination and strong personal effort will be impressed on the mind of every man.

8. The sling is not to be used for steadying the rifle during firing instruction.

SECTION 7.—Firing Standing.

1. The standing position will as a rule be used on service to fire from breastworks, high walls, and cover, such as long grass or standing corn, or to take a snap shot, when advancing, so that the pace of the advance is not materially checked. It is a convenient position for elementary instruction, but when men have acquired facility in handling the rifle, they will be practised for the most part in the prone position in the open, and occasionally in the kneeling position, or lying behind cover.

2. To load.—On the command "Load," turn half right; carry the left foot to the left so that the body is equally balanced on both feet. Bring the rifle to the right side in front of the hip, with the muzzle pointing upwards, small of the butt just in front of the hip, grasping the stock with the left hand immediately in front of the magazine. Turn the safety catch completely over to the front with the thumb or forefinger of the right hand (if the thumb is used, care must be taken that the forefinger is outside the trigger-guard). Pull out the cut-off if closed, first pressing it downwards with the thumb, then seize the knob of the bolt with the forefinger and thumb of the right hand, turn it sharply...
upwards, and draw back the bolt to its full extent. Take a charger between the thumb and first two fingers of the right hand, and place it vertically in the guides. Then, placing the ball of the thumb immediately in front of the charger, and hooking the forefinger under the cut-off, force the cartridges down with a firm and continuous pressure until the top cartridge has engaged in the magazine.* Force the bolt sharply home, turning the knob well down, and, with the thumb or forefinger of the right hand, turn the safety catch completely over to the rear. Then button the pouch, seize the rifle with the right hand in front of the left, bring the left foot back to the right and order arms.

*The magazine will hold two charges of five cartridges each, but should, in ordinary circumstances, be loaded with one only, in order to avoid weakening the magazine platform spring by keeping it fully compressed for long periods. If, when on the line of march, it is desired to charge the magazine without loading the rifle, the top cartridge may be pressed downwards with the thumb and the cut-off closed.

Note (i).—The command “Load” is only required for drill purposes, or when charging rifles before leaving quarters on service. After the rifle is once charged, the man is responsible that his magazine is refilled at once whenever it has been emptied.

Note (ii).—During loading men are to look down at their rifles.

3. To unload.—As when loading, but after drawing back the bolt, without turning the knob down, work the bolt rapidly backwards and forwards until the cartridges are removed from the magazine and chamber, allowing them to fall on the ground; then close the breech, press the trigger, close the cut-off by placing the right hand over the bolt and pressing the cut-off down and inwards, apply the safety catch, lower the backsight, and order arms.

4. To adjust the backsight.—Hold the rifle in the loading position so that the lines on the backsight can be clearly seen. Press in the stud on the side of the slide with the right hand; move the slide until the line is even with the place on the leaf giving the elevation for the distance named, taking care that it is firmly-fixed.

5. To lower the backsight.—Press the stud inwards with the right hand, and draw the slide backwards as far as possible.

6. Fine adjustment, S.M.L.E. rifle.—Press the stud on the slide with the thumb of the right hand till the worm wheel can be easily revolved; turn the worm wheel with the first finger of the right hand until the required elevation is obtained. The stud must not be pressed to such an extent that the worm wheel is entirely disengaged from the rack.

7. Rest.—Seize the rifle with the right hand at the lower band, place the butt on the ground between the feet, clasp the back of the right hand with the left.

8. As you were.—Return to the load position.

9. To aim and fire.—Put the safety catch forward and direct the eyes on the mark. Then bring the rifle into the hollow of the right shoulder, press it in with the left hand. Grasp the small firmly with the thumb and three fingers of the right hand, place the forefinger round the lower part of the trigger, and exert sufficient pressure to take the first pull; the backsight to be upright, left elbow well under the rifle, right elbow a little lower than, and well to the front of, the right shoulder; place the cheek firmly down on the butt, keeping the face well back from the right hand and cocking-piece, close the left eye, align the sights on the mark, restrain the breathing, and press the trigger. After a pause bring the rifle to the loading position and repeat the practice, or apply the safety catch and order arms. Care must be exercised to ensure that the forefinger is not placed on the trigger before the rifle is in contact with the shoulder, and that a firm grip is maintained with both hands while firing.

10. Stop.—Load and apply the safety catch.
11. **Go On.**—Re-commence firing at the same target.
*Note.*—The number of rounds and rate of fire will be ordered, e.g., *Five rounds, Rapid, Go On.*

12. **Cease Firing.**—Load and apply the safety catch.

13. **Order Arms.**—As taught in rifle exercises.

14. During this exercise the instructor will explain to men that uniformly accurate shooting cannot be obtained unless the butt rests firmly in the hollow of the shoulder, and that the further the eye is kept from the backsight the more clearly will the sights be defined, the less strained the position of the head and neck, and the less the effect of recoil.

15. The firer should always declare the direction of his aim at the moment of discharge before removing the rifle from the shoulder, i.e., "correct," "high," "low," "right," "left," &c.

*Note.*—For other firing positions, and for plates, see "Royal Naval Handbook of Field Training, 1934."

**Section 8.**—**Inspection Tests.**

*Firing positions.*

Every man should be individually inspected in all firing positions, and the existence of any of the following serious faults should be noted in a book for production at subsequent tests, viz., firing from left shoulder, eye near cocking-piece or thumb in aiming, want of grip with either hand, excessive constraint, finger round trigger in loading position.

**Section 9.**—**Firing Prone.**

1. The prone position will generally be adopted by units on open ground, or when firing from continuous low cover, or from behind small rocks, trees, ant-heaps, &c. Preliminary instruction in firing, and firing exercises, will as a rule be carried out in the prone position.

2. **To lie down.**—Turn half right, bring the rifle across the body, hold it in the left hand at the point of balance. Place the right hand on the ground, and lie down on the stomach obliquely to the line of fire, with the legs separated, left shoulder well forward, left arm extended to the front, and rifle resting on the ground in a convenient position, muzzle pointing to the front.

3. **To load.**—As when standing.

4. **To unload.**—As when standing.

5. **To adjust sights.**—Draw the rifle back with the left hand until the lines on the backsight can be clearly seen, and proceed as when standing.

6. **To aim and fire.**—Proceed as when standing. To obtain elevation, the body must be raised on the elbows and slightly retired.

Men will be trained to assume the prone position rapidly, and to perform the loading and aiming motions with as little movement as possible. The oblique angle is not to be unnecessarily exaggerated. Behind objects affording a restricted amount of cover, the body and legs will be parallel to the line of fire if the oblique position would increase vulnerability.

**Section 10.**—**Rising from the Prone Position.**

1. Close feet, draw back rifle with left hand. Place right hand on ground, rise up on to the knees, with muzzle of rifle pointing upwards and towards the mark.

2. Take a pace forward with the left foot, at the same time seizing the rifle at the band with the right hand; rise, bring the left foot back to the right, turn to the front and at the same time come to the "order."

**Section 11.**—**Firing in other Positions.**

1. **Sitting** which is most suitable when on ground falling at a steep slope. In this position the right shoulder should be kept well back and the left forearm...
supported by the thigh, the right elbow resting against the right knee or unsupported, as desired.

2. **Kneeling**, used mainly when firing from continuous cover, such as a low wall, bank, or hedge, or in long grass, crops, &c., which would obstruct the line of sight if the prone position were adopted.

Men may kneel on either knee. The body may be supported on the heel or not, as desired; the left knee will be in advance of the left heel, and the left elbow rest on or over the left knee; the left leg, hand, and arm, and the right shoulder, should be in the same vertical plane when firing in the open kneeling on the right knee.

**SECTION 12.—POSITION BEHIND COVER.**

When firing from behind cover men must keep their eyes on the target between each shot; otherwise they may lose sight of the target, and this may result in their shooting without looking over the sights.

**SECTION 13.—USE OF COVER.**

1. Besides teaching the firing positions which are described above, the instructor will explain to his squad the best means of using various forms of cover for fire effect and protection. Cover for use during firing exercises will always be provided.

2. In the intervals of firing in the open the head should be lowered, but ground in front must still be watched by selected observers.

3. The value of cover from view and the means of concealment afforded by small folds in the ground, a few tufts of grass, &c., will be illustrated, and the tendency to attract attention by exaggerated movements of the head, arms, or rifle, in loading and aiming, will be pointed out and checked.

**SECTION 14.—RAPID LOADING.**

1. When a man is able to aim and fire steadily in all positions and from various classes of cover, he will be exercised in combining rapid loading with the greatest rapidity of aim consistent with accuracy.

2. Rapid loading will first be practised separately, using dummy cartridges in chargers. When five rounds have been inserted in the magazine, the bolt will be closed and turned over, and the rifle will be at once unloaded and another charger inserted similarly. Rapid loading should be practised in all positions, but especially in the prone position.

3. The rate of firing should be increased gradually, provided that faults of aiming and trigger pressing are not acquired. Short bursts of rapid fire only will be permitted, the firing being carefully regulated and controlled. A target will always be named.
CHAPTER VIII.

MUSCLE EXERCISES.

To accustom the muscles to the strain of prolonged firing, the following exercises will be performed daily during elementary training and frequently by trained men. Care must be taken that the men are not unduly fatigued. In each practice a conspicuous object, representing the target, will be indicated, and the rifle will invariably be thrown into approximate alignment with it. In the first and third exercises the correct aiming position will be assumed, including taking the first pull, bringing the cheek on to the butt, and closing the left eye, but without actually aligning the sights. In the second exercise the first pull will be taken when the right hand grasps the rifle, but the head will not be lowered, the left eye will not be closed, nor will the sights be aligned.

(i) 1ST PRACTICE.

(To be performed with and without bayonet fixed.)

Caution:—Muscle Exercise. 1st Practice.

Standing.—Load.

or

(Lying).

One.—Bring the rifle to the position for aiming, return at once to the position for loading, and continue the practice.

Unload.—As before.

(ii) 2ND PRACTICE.

Caution:—Muscle Exercise. 2nd Practice.

Standing.—Load.

or

(Lying).

One.—Bring the rifle to the position for aiming.

Two.—Quit the rifle with the right hand.

Three.—Seize the rifle with the right hand, and at the same time quit it with the left hand.

Note.—The words Two and Three will be given at intervals of about 10 seconds. The trigger will not be pressed when in the third position.

Unload.—As before.

(iii) 3RD PRACTICE.

(To be performed with and without bayonet fixed.)

Caution:—Muscle Exercise. 3rd Practice.

Standing.—Load.

or

(Lying).

One.—Bring the rifle to the position for aiming.

Unload.—As before.

Note.—The men will be trained progressively to hold the rifle in this position until they can do so without fatigue for two minutes.
CHAPTER IX.

FIRE DISCIPLINE TRAINING.

The use of all the foregoing instructions combined, and elementary training in working as one of a unit.

SECTION 1.—Fire Discipline.

1. When a man has profited sufficiently by the lessons of aiming and firing instruction, he will be practised in moving in extended order.

2. A high standard of fire discipline in the men is not less important than skilful direction and control of fire by the commanders.

3. Fire discipline means strict attention to the signals and orders of the commander, combined with intelligent observation of the enemy. It ensures the careful adjustment of the sight, deliberate aim, economy of ammunition, and prompt cessation of fire when ordered or when the target disappears. It requires of the man endurance of the enemy's fire, even when no reply is possible, and a cool and intelligent use of the rifle when superior control can no longer be exercised.

4. Fire opened without orders from a fire leader is called individual fire; only exceptional targets and very favourable atmospheric conditions will justify an individual skirmisher in opening fire at distances beyond (about) 600 yards.

5. While fire discipline should be such as to produce satisfactory results from individual fire, it should also ensure implicit obedience to orders for fire direction, collective action being necessary to give reasonable assurance of fire effect when opening fire at distances beyond (about) 600 yards, as well as to form a cone of fire for observation and correction of sighting.

SECTION 2.—Collective Fire.

1. When the fire of several rifles is combined for a definite purpose under the orders of a fire leader, it is called collective fire; the officer who defines the purpose for which fire is to be used is said to direct the fire, and it is the duty of subordinate commanders to control the fire in accordance with his orders.

2. Collective fire may be concentrated or distributed. Concentrated fire produces a cone of fire favourable to observation of results, and is more effective than distributed fire at the point of application. Fire may be distributed laterally (sweeping) or in depth (searching). Fire distributed laterally is to be preferred for neutralising an enemy's fire along any portion of his front, and fire distributed in depth gives greater assurance that some portion of the fire will be effective when the target has not been definitely located, or serious errors in sighting are to be expected. Fire used to cover movement or entrenchment should be carefully and systematically distributed. Against exceptionally vulnerable targets fire should be concentrated in order that its effect may be more clearly observed.

SECTION 3.—Rates of Fire.

1. The rate of fire will always be carefully regulated according to tactical requirements. Slow, desultory fire may disturb the enemy's aim, but it is opposed to principles of surprise. Short bursts of rapid fire may surprise the enemy before he can take cover; they favour observation of results, and afford intervals of time for adjustment of sights and fire discipline. The duration of such bursts must be strictly controlled. In order to ensure control and to facilitate the passing of orders, the number of rounds to be fired may be named, e.g., "5 rounds fire or rapid fire."

2. Men working in pairs for observation and mutual assistance may each fire about three rounds a minute. The rate of deliberate fire should not exceed six rounds.
a minute. In rapid collective fire the rate will vary according to the visibility of the aiming mark, the range, and the standard of training a man has reached. With a distinct aiming mark within about 1,000 yards, a well-trained man should be able to fire from 12 to 15 rounds per minute without serious loss of accuracy.

3. If rapid fire is ordered, every man will fire at his own best rate for combining rapidity with accuracy.

**SECTION 4. DESCRIPTION OF TARGETS.**

1. Collective fire cannot be effective unless the objective is described in such a way that every individual in the fire unit will immediately recognise his target or point of aim.

2. As targets will often be a fold in the ground or patch of open ground without any definite distinguishing mark, some system of describing targets is a necessary part of fire direction, and there should be only one system in use in any unit.

3. At the conclusion of a movement, or when occupying a position, officers commanding platoons will select one or more prominent objects as may be necessary in the front as description points approximately two hands apart, and impress upon all, the names by which these objects will be known in directing fire. When possible, no two of these points should be of a similar nature. Targets will, when necessary, be described with reference to these description points, using the clock face method, described in Part I, Chapter XV, Section 2.

4. Landscape targets should be used for preliminary lessons in the application of collective fire. Instruction may be given by means of these targets in the description and recognition of features of ground, and common objects in a landscape. The use of field glasses should be practised, and the targets will be found useful for explaining methods of attack and defence, the use of hedgerows as covered approaches, or methods of crossing open ground. Fire positions, sites for intrenchments, dead ground, positions for machine guns, areas likely to restrict fire owing to obstruction in the line of sight, ground to be crossed at top speed, &c., may be indicated as a preliminary to outdoor work.

**SECTION 5.—WORDS OF COMMAND.**

The following words of command will be used as may be found necessary:

- **At—Range.**
- **At—Object.**
- **Fire or Rapid Fire**
  
  - On which the firer will load, adjust his sights, aim and fire, slowly or rapidly.

- **Stop**
  
  - On which fire will be discontinued, and the firer will bring the rifle to the loading position, re-charge the magazine, and apply the safety catch.

- **Go On**
  
  - On which fire will be re-commenced at the same target.

  (*) Note.—Number of rounds and rate are to be ordered, e.g., five rounds, Go on.

- **Cease Firing**
  
  - On which the magazine will be re-charged, close the cut-off, close the bolt and ease the spring, and apply the safety catch.

  (*) Note.—This order is to be given when a permanent cessation of fire is required.

- **Rest**
  
  - On which the safety catch will be applied and an easy position assumed.

- **Unload**
  
  - On which all cartridges will be removed from the chamber and magazine, and other motions performed as detailed in para. 3, page 60.
SECTION 6.—PRELIMINARY EXERCISES.

1. The squad will be placed in line at one or two paces interval, and on the command from the instructor ("Standing," "Sitting," "Kneeling"): At range; At object; "Fire," or "Rapid Fire," will perform the necessary motions, and continue firing until the command "Stop" or "Unload" is given. If no orders are given as to the position, the squad will assume the prone position.

2. The standing, kneeling, and sitting positions will only be practised in conditions suitable to their employment.

3. If it is desired to change front or position, or to vary the objective, range, or rate of fire, the instructor will give the necessary commands, but without, as a rule, causing fire to cease.

4. All commands given during firing are to be passed down the line of firers.

5. The safety catch will be applied before a movement is undertaken.

6. When the squad has gained sufficient experience it will be taught when in motion to halt, take cover if possible, and deliver fire on the executive word "Fire" or "Rapid Fire" preceded by the necessary cautions.

7. To develop individuality, the complete detail of commands will occasionally be dispensed with. Thus, at an object appearing suddenly for a limited time, the executive command "Fire" or "Rapid Fire" only will be given, on which each individual will adopt the position he considers most suitable to the tactical conditions, adjust his sight, and open fire. The instructor will observe and criticise the positions and the sighting of the rifles.

8. Anticipatory orders will sometimes be given; for example:—"No. 1 Section 600 firwood, enemy is about to advance out of right or left edge of firwood, await my order to fire."

SECTION 7.—FIRE IN TWO RANKS.

(For use in savage warfare.)

1. Cautionary commands by the company commander:—

(By Platoons) (by Sections) At (range), At (object). Fire (or Rapid Fire).

2. Fire control orders by platoon or section leaders:—

(i) Fire (or Rapid Fire).—The rear rank closes on the front rank, taking a pace to the front with the left foot and a short pace to the right front with the right foot. The front rank kneels, the rear rank stands.

(ii) Unload.—After ordering arms the rear rank resumes its original position.

3. The normal firing positions in two ranks are rear rank standing, front rank kneeling. If it is desired to fire both ranks standing, or both ranks kneeling, or front rank lying, rear rank kneeling, the directions to do so will precede the command At (range), &c.

SECTION 8.—TESTS OF ELEMENTARY TRAINING.

1. Range practices and more advanced training may be regarded as waste of ammunition and time unless novices have been thoroughly grounded, and trained men are kept efficient, in elementary training. The following system of tests has therefore been designed in order to:—

(i) Provide instructors with a means of testing novices to ensure that they have reached a sufficient standard before they begin range practices.

(ii) Ensure that trained men have retained their efficiency.

(iii) Prevent any detail of elementary training from being overlooked.

(iv) Provide a standard to be attained by technical and other ratings who are unable to devote as much time as is desirable to elementary training.
It is important that teaching should not be confused with testing. In the former a man is instructed by example and explanation; in the latter he is questioned or ordered to carry out a certain exercise without any explanation or assistance, and either passes the qualifying standard or is relegated for further instruction.

2. Method of conducting the tests.

Oral tests.

(i) Care of arms and ammunition.
A few questions should be put to each man.

(ii) Description of natural objects.
Each man separately should be called upon to describe one or two objects in the landscape, and be questioned as to shape, colours, sizes, units of measure, &c.

(iii) General theoretical knowledge.
A few questions should be put to each man regarding the objects of, and reasons for, various details that have been taught him.

Inspection tests.

3. Firing positions.

Every man should be individually inspected in all firing positions, and the existence of any of the following serious faults should be noted in a book for production at subsequent tests, viz., firing from left shoulder, eye near cocking-piece or thumb in aiming, want of grip with either hand, excessive constraint, finger round trigger in loading position.

4. Fire discipline.

The rapid execution of all orders for fire direction, adjustment of sights after each advance in attack and before every advance of the enemy (represented by men detailed for the purpose) in decisive phases of engagement, should be tested.

Standard tests.

5. Eyesight.

(i) Four men as "points" should be placed under cover in various directions and at different distances, not exceeding 800 yards. The men to be tested lie down extended to two paces. Each point is called up by signal.

(ii) The man stands, kneels, or raises his head, according to the degree of visibility required, and fires four rounds of blank ammunition in half a minute, then returning to cover. During the half minute the observers adjust their sights and place their rifles at arm's length to the front. At the end of the half minute a whistle is blown, and those men who have failed to discern the point are noted, while officers record the elevations found on the sights.

(iii) In every case the point should be signalled to rise a second time in order that his position may be shown to those men who previously failed to see him, and half a minute should then be allowed to these men to adjust their sights.

(iv) Failures not to exceed one per man, but consideration must be given to the visibility of the points.

6. Recognition of targets and aiming points.

The men to be tested should each have an aiming rest or sandbags. A petty officer from behind them will describe some difficult aiming point, such as a point in a hedge or area of open ground. The men lay their rifles on the point which they recognise from the description. Four points should be described for every man tested.


The distances of four standing men should be judged at distances not exceeding 800 yards.
8. Adjustment of sights.

Several distances will be named and sights examined after 5 seconds.


Trigger pressing will be tested by means of the aim corrector.

10. Aiming off for wind or movement.

(i) Tested for wind with the aiming rest. The men will be ordered to lay their rifles on a point at some number of feet, not exceeding 6, right or left of another man. One foot of error only, measured from the regulation point of aim, will be allowed.

(ii) Allowance in aiming off for wind or movement will be tested with the aim corrector, the percentage of serious errors being recorded.


(i) The time required to bring the rifle from the loading position to the shoulder, on the command “Fire,” and to align the sights on an aiming disc held to the eye, will be measured with a stop or ordinary watch with a second hand. Position, prone.

(ii) The instructor will stop the watch when the trigger is pressed, provided he is satisfied with the aim. Four seconds will be the standard time.

12. Rapidity of loading.

(i) The men to be tested will be equipped with a pouch or cartridge pockets, and six chargers filled with dummy cartridges. The chargers will be placed in the pouches or pockets, which will be buttoned over them.

(ii) The time required to load, close the bolt, eject the cartridges, the rifle being held in the correct loading position, one charger being inserted at a time, the pouch or pocket, whether empty or not, being buttoned up every time a charger is withdrawn, will be noted. Standard time, 1 minute.

13. Rapidity of firing.

This will be a combination of 11 and 12. On the command “Rapid fire,” each man will load with dummy cartridges in chargers from the pouch or cartridge pocket, the pocket being buttoned up each time a charger is withdrawn, and aim 10 rounds at an aiming disc held to the eye. If the aiming is unsatisfactory, the test will be repeated more slowly. The time required will be noted. Standard time, 1 minute.

Section 9.—Important Points to be Observed in Rifle Discipline.

A man should:—

1. Recharge his magazine on every opportunity.
2. Make proper use of the safety catch.
3. In advance, to get up and down quickly.
4. When advancing select his next halting place, and move straight to it.
5. Make best use of cover.
6. Never press the trigger unless his sights are aligned on the mark.
7. Observe the enemy.

In Collective Fire.

8. Adjust the sight for range ordered.
9. Recognise aiming point described.
10. Count the number of rounds fired if necessary.
11. Limit his rate of fire to that ordered.
In Individual Fire.

(13) Carry on the fight.
(14) Select targets.
(15) Judge distance.
(16) Adjust sight.
(17) Alter point of aim from observation.
(18) Use rate of fire necessary.
(19) When possible join nearest commander.
(20) If wounded place ammunition where it will be found, and never discard arms and equipment.

CHAPTER X.

.22-INCH RANGE PRACTICES.

25 yards is the range normally used for these practices.

1. The object of these .22-inch practices is to test in a practical way whether the firer has absorbed his elementary training. In the case of young or untried shots, these practices should invariably be carried out before the firer commences the Annual Musketry Course. Men should be encouraged to fire, and helped to develop proficiency with the .22-inch rifle, by the provision of facilities for practice and the arrangement of suitable competitions.

2. The position of the body, arms, and hands, and the manner of pressing the trigger, also the position of the head when taking aim, are to be duly watched in this exercise, in order to discover and correct those errors which are fatal to good shooting, and which cannot be so successfully corrected when firing ball.

Rules to be observed during Practice.

3. Care is to be taken when carrying out .22-inch fire that the precautions for safety are fully adequate, and that there is no danger from bullets rebounding or of their striking metal and spattering.

4. If fire is taking place on deck or on an open range, the range is to be clear for 1,500 yards. Lookouts, to ensure that the range is clear, are to be posted.

5. The following penetrations have been observed with .22 ammunition at 25 yards:

<table>
<thead>
<tr>
<th>Material</th>
<th>Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft Deal</td>
<td>4 (\frac{1}{2}) inches</td>
</tr>
<tr>
<td>Oak</td>
<td>1 (\frac{1}{2}) &quot;</td>
</tr>
<tr>
<td>Sand</td>
<td>8  &quot;</td>
</tr>
<tr>
<td>Earth</td>
<td>5  &quot;</td>
</tr>
</tbody>
</table>
6. An Officer or Petty Officer is invariably to be put in charge of the range when the firing takes place. He is responsible that the regulations as to time of practice are obeyed.

7. If it becomes necessary for any purpose to cease firing, a responsible officer or petty officer is to see that every rifle is unloaded and the breech open.

Notes on Practice.

8. Practice with miniature cartridges is a valuable preliminary to firing with service ammunition, provided that the rifles possess a high degree of accuracy, and the methods of instruction are such as to expose and correct the faults of the firer.

9. The principles followed should be those of practice with service ammunition; at first there should be exercises in grouping only until a 3-inch standard is reached. Methods of correcting error according to the result of the last shot fired should be illustrated in the early stages by using an elementary target; correction should afterwards depend on observation of fire aimed at a figure target set up on a sawdust bank.

10. The rifles used should be service pattern, .22 inch R.F.

11. There should be an equipment of landscape and figure targets. With the aid of these targets, instruction may be given in the description of ill-defined service objectives, such as areas of ground, also in methods of judging distance, justification for opening fire and collective fire theory.

12. The windgauge may be used to represent wind, and the firers taught to aim off so as to correct the deflection given, acting sometimes on their own judgment, sometimes according to orders for fire direction.

13. It is desirable that firing should take place in the open air, if possible, so that artificial conditions of light and visibility may be avoided.

CHAPTER XI.

30-YARD RANGE PRACTICES.

1. When no classification range is available elementary practices with service ammunition may be carried out on a 30-yards' range. Such practice will render men familiar with the discharge of the rifle and improve their trigger release under easy conditions. No practice will take place unless an officer or experienced petty officer is present. All precautions for safety will be taken. Loading, in all positions except lying will be carried out with the rifle held just above the waist and the muzzle directed towards the target. Charging or uncharging magazines is not to be carried out with the muzzle pointing upwards.

2. Practice at disappearing, moving and landscape targets can be carried out as on miniature ranges but with service ammunition.

3. 30-yards' ranges are well adapted for the elementary practices of machine-gun detachments.
CHAPTER XII.

RANGE PRACTICES.

Range practices are the advanced stage of elementary training. Their object is to ensure that a certain standard has been reached by men before they go on to more practical shooting. They are fired at ranges up to 600 yards the limit of individual fire.

SECTION 1.—STANDARD.

1. The standard in elementary work is ensured by tests of elementary training. Range practices are only a waste of ammunition if this standard is not kept up.

2. After reaching a satisfactory standard with the .22-inch rifle, every man should begin his practice on the open range confident in his own powers and determined to prove his ability to hit.

3. In preliminary training the man has not accustomed himself to the shock of discharge. In some cases there is difficulty in overcoming the tendency to flinch from this shock, and this is one of the commonest causes of inaccurate shooting. Men who flinch should not proceed with firing practice; the cause of the flinching can be detected, and sometimes be removed after one or two rounds only.

4. It is a common experience that serious faults become formed habits in men before they are discovered by the instructor, and that they are exposed only after repeated visits to the range, by which time it will be difficult to correct them.

5. In order to compel analysis of faults to indicate clearly how defects may be remedied, and to remove all suspicion as to the accuracy of his rifle preliminary and qualifying practices are divided into exercises in (a) grouping and (b) applying fire.

SECTION 2.—FIRING POSITIONS AND USE OF COVER.

Regulation positions are obligatory in all range practices except those fired from behind cover when the positions must be adapted to the cover. Cover must not be specially prepared as a rest except that:

(i) A rest may be employed when firing from behind cover if the firing takes place over the cover.

(ii) If the rifle is fired from the side of the cover no rest is allowed.

(iii) No rest to be allowed for any other form of practice.

SECTION 3.—BASIS OF PRACTICES.

A course of range practices is based on a system of progressive instruction, and every practice is framed to illustrate some tactical use of fire or some essential point of elementary training.

SECTION 4.—GROUPING.

1. Grouping means firing a series of shots, usually five, at a distinct aiming mark without any alteration of sighting, or point of aim. Not carried out at distances over 100 yards. The diagram made by the shots is called a "Group." Grouping brings out the necessity for:—Absolute accuracy and consistency of aim, correct holding and trigger pressing, and control of nerves.

2. Men should see their groups measured and discussed.

3. The method by which the cause of a bad group is discovered is called the "Analysis of Faults."

SECTION 5.—ANALYSIS OF FAULTS.

1. The rifle is tested by an expert to show the man that the rifle is not to blame, or to discover if the rifle is inaccurate.

"Aim" tested by the aim corrector.

"Trigger pressing" tested with aim corrector.
"Sight" tested, near, by reading; distant, by counting distant objects.

"Nerves" the probable cause if the above are correct.

2. When a man has made a bad group, his faults should be analysed at once before leaving the range. A note should be made on the register of remedies to be used.

3. If rifle is at fault.—A man should not be expected to make considerable allowances to counteract the error of his rifle.

4. Throw of a rifle should be corrected by the ordnance artificer.

SECTION 6.—APPLICATION.

1. Application practices teach the firer to adjust his sight and point of aim, so as to apply his shots to a mark. Application brings out the necessity for consideration of the wind and elevation, confidence in his rifle and powers of shooting, and ability to aim for the next shot according to the point of aim at the moment of firing and the result of the last shot.

2. A man must be able to "group" before he can hope to "apply" with confidence.

3. As correction in sighting is seldom possible in individual firing in war, it is important to estimate the elevation and point of aim for the first shot.

4. The time limit for each shot in deliberate practices is 20 seconds.

SECTION 7.—SNAPSHOOTING.

Snapshooting means firing an effective shot in the shortest possible time. These practices bring out the necessity for watching the front, quickness of aim, observation of the strike of the bullet, change of point of aim from observations, and immediate reloading.

SECTION 8.—RAPID FIRE.

Rapid fire means firing as many rounds as possible with accuracy in a given time. Rapid fire brings out the need for clean and quick loading and handling of arms, quickness of aim, and working the bolt with the rifle in the shoulder. These practices give men an opportunity of finding their best rate.

SECTION 9.—SPECIAL INSTRUCTIONS.

1. Instruction on the firing point is an indispensable form of musketry instruction for the beginner, but if it leads to continual alterations of sighting to meet errors in shooting the firer is confirmed in his errors and his faults are only obscured. During the firing the instructor should watch the man, not the target and should insist on being told the probable result of the shot before it is signalled.

2. No departure from correct firing positions should on any account be permitted; the rifle must be gripped, the face kept back from the right hand and there should be no constraint.

3. The management of the breathing and the let-off must be noticed, and the man reminded of them continually so that his mind may be centred on the more important details of shooting and not on changes of wind or light, with which he will become familiar later.

4. Although care and deliberation are necessary in elementary instruction, men must not be allowed to fall into the habit of dwelling on their aim nor of aiming and returning to the loading position repeatedly before pressing the trigger.

5. There is no object in establishing a phenomenal standard of accuracy in elementary range practices and deliberate shooting; a satisfactory degree of proficiency is soon attained by the majority of men, and they should then proceed to timed instructional practices. It is in timed shooting at distances below 600 yards that a high degree of proficiency is desired.

6. In snapshooting practices, not only the exposure of the target but also that of the firer should be limited;
strict attention must be paid to positions behind cover and to firing with the least possible movement and exposure.

7. Snapshooting should be freely practised whenever opportunity offers, so that any tendency to jerk at the trigger may be overcome by constant practice.

8. In rapid firing a man of normal temperament should be able to attain the regulation rate with trifling loss of accuracy, but it is not desirable to make a great sacrifice of accuracy to produce even the regulation rate. Dexterity in loading and a habit of rapid alignment of the sights should be developed in preliminary training; in the range practices the opportunity is afforded to every man to ascertain his own best rate for combining accuracy in shooting with rapidity of fire so as to produce a high average of hits per minute, but there is no obligation to fire all the rounds allotted in any rapid practice.

9. The regulations for repetition and instructional firing are intended as a guide to officers responsible for instruction, and need not be observed in the letter, except in so far as they govern qualification or classification, when strict observance of all conditions is necessary.

10. Correction of sighting in individual firing is rarely possible in war. It is therefore important to estimate the elevation and deflection for the first shot. When a reasonable standard of skill in trigger pressing has been shown in grouping practices, and the principle of application is understood, further practice in slow fire should aim at successful application of fire from the first shot, and less importance should be attached to correction of sighting according to the signalling of a series of shots.

11. It is convenient to memorise the effect of right-angle winds at some one distance as a guide in estimating deflection allowance for winds of similar strength at other distances. 500 yards is a satisfactory range for this purpose, and the particulars given in Chapter IV, Section 14, should be studied.

12. The change which takes place in conditions of shooting when there is no signalling of each shot is not always appreciated, and it is essential that the importance of the first application of fire should be realised.

SECTION 10.—THE CONDUCT OF RANGE PRACTICES.

General Instructions.

1. Senior Naval Officers will cause such orders to be framed as local conditions necessitate to ensure safety, and will arrange that copies are always available for reference during practice. These orders will contain information as to the range duties required on ranges used by several units at one time. They should be as brief as possible, and should contain no amplification or repetition of instructions laid down in the regulations. The duties of range officers should be detailed.

2. Range practices, unless otherwise ordered, will be fired in musketry order.

3. Range practices should be fired, as far as possible, in favourable weather. It is of importance that novices' firing should not take place in cold and unsuitable weather, if it can be avoided.

4. Range practices should be fired in the order in which they appear in the programmes, but commanding officers may vary the order at their discretion. It is better, when time is pressing, to reduce the number of rounds fired in instructional practices than to hurry through them.

5. Grouping practices.—(i) One firer will be detailed to each target and fire five shots, maintaining the regulation point of aim throughout. Targets will be changed, and a second detail of men will fire similarly.

(ii) Both details will then proceed to the targets, see their groups measured, and note the positions of the points of mean impact with reference to the points aimed at. If it is impracticable, to
proceed to the targets the group may be marked by means of small spotting discs.

(iii) The groups will be measured with wire rings 4, 8, and 12 inches in diameter, counting 25, 20, and 15 points respectively. 10 points will be allowed for a 12-inch group with one wide shot.

(iv) The ring which will contain all the shots will be recorded as the measure of the group. A shot mark is included within a ring when it cuts the circumference of the largest circle which can be described within that ring by means of a pencil held at right-angles to the target.

(v) All shot marks found on a target will be included in the group to be measured. No points will be allotted to a group unless there are five shot marks at least on the target. If more than five shot marks are found on the target there will be no score and the practice will be repeated.

(vi) When the ring is placed to include all the shots the centre of the ring will be taken as approximately the point of mean impact; its distance from and direction with reference to the point aimed at will be recorded on the register (e.g., 7 inches, 4 o'clock).

(vii) On return to the firing point other details will fire, but steps will be immediately taken to ascertain the cause of any bad shooting of men in the first two details.

6. In slow practices 20 seconds is the time limit allowed for each shot, reckoned from the act of loading. If there is a tendency to exceed the limit, a whistle should be used to mark the beginning and end of each period, but not otherwise.

7. In firing from behind cover, the position adopted should be such as would enable the firer on service to obtain the fullest protection from the cover, having due regard to the efficiency of his fire. In the prone position the grip of the left hand should be maintained on the

rifle, and there should be no undue exposure of the shoulder or legs.

8. The timed exposure of targets for snapshooting and rapid fire practices will be reckoned from the time when the target is in position and stationary, to the time when it is again moved for lowering. The movements of raising and lowering the targets should be conducted with rapidity, but without jarring the target frames.

9. Timing in rapid practices should be reckoned from the word of command "Rapid Fire," and fire should be stopped by the command "Stop." The command "Rapid Fire" should be given as soon as the target appears. The target should be lowered to half-mast at the end of the time allowed for firing under orders of the officer on butt duty, but the officer superintending at the firing-point should also time the practice and order "Stop" at the end of the time allowed for firing, reckoned from the command "Rapid Fire." Four points will be deducted for every shot fired after the order to cease fire has been given.

10. The use of the windgauge or a fine adjustment will not be permitted in any practice.

11. If, in a timed practice, a jamb occurs which is not the fault of the firer, the time allowed for the practice will be increased to the extent due to the delay caused thereby. Should, however, a jamb in a rapid practice be due to a breakage of mechanism or other defect that cannot readily be rectified on the range, the whole practice will be fired again.

12. In the event of missfires, extra rounds will be allowed equal to the number of missfires in the practice concerned, a proportionate part of the time allowed for the whole practice being given for each extra round.

13. Omission to fire the rounds allotted and failure to fire during an exposure or run in disappearing prac-
tices will entail forfeiture of the rounds that should have been fired, and misses will be recorded for them.

14. Loading will always be through the magazine.

15. Dependence on the sling should be discouraged, and it will not be used for steadying the rifle in range practices.

16. No sighting shots are allowed.

17. Occasional shots to verify elevation or strength of wind, or to prove the accuracy of a rifle, may sometimes be fired by an officer or instructor, with the senior officer's permission. They will not be fired during classification practices or standard tests. Notification of their commencement and conclusion will be made to the officer in the butts by telephone signal, or bugle sound. The target in use will be lowered and checked, and a clean one raised for the occasional shots. When they are completed, it will be lowered and checked, and the original target raised for the firer to complete his rounds.

18. A coat or waterproof sheet may be used to protect the uniform, but except when firing from cover or when rests are authorised, neither rifle, forearm, wrist nor hand is to rest against anything or to be supported.

19. No man will load, or assume a firing position, until the senior officer present has ordered the practice to commence. After firing, men will return to the loading position, but will not open the breech in the slow practices until the last shot has been signalled. If it is necessary to suspend firing, all men who are in position will put on the safety catch until the order is given to resume the practice.

20. Aiming or snapping during target practice may only take place from the firing point after the red flag has been lowered. See Section 11—Range Duties, para. 1.

21. No one is allowed at the firing point except the men actually firing, the instructors, the register keepers and officers. All men not on duty at the firing point will ground or pile arms and remain not less than 30 yards in rear of the firing point.

22. During intervals of firing an opportunity should be given occasionally to all ranks for revising their impressions as to the visibility of the human figure at short distances, by placing men on the firing platforms up the range. The study of visibility under conditions of known distance and in relation to targets used for practice in shooting, is especially valuable.

23. Those men who are not actually engaged in firing should receive instruction in ground reconnaissance, use of the eyes, use of field glasses, range-finding and description of ground, while waiting behind the firing point.

24. No shouting is allowed; men next to fire will be brought up by signal.

25. Field glasses or telescopes will be carried by all officers and section commanders. The men should be encouraged to use them during spare time on the range.

26. The sights will be used as issued, without alteration of any kind. No additions, marking or colouring are permitted, nor are orthoptics allowed.

27. It is not possible for an officer or instructor adequately to supervise more than four targets. Platoons and other parties should not therefore, in ordinary circumstances, be allotted more than four targets.

28. Permanent working parties should not be required; platoons at practice have usually time to perform any necessary work. Minor duties, such as hoisting flags, drawing and issuing stores, &c., should be carried out by the range party permanently employed on a range.

29. Two markers will be allotted to each target.
SECTION 11.—PRECAUTIONS AGAINST ACCIDENTS.

To guard against accidents, the following orders will be observed:—

1.—(a) The attention of all concerned is to be drawn to the necessity for keeping the muzzles of rifles clear of sand, dirt, &c., during the practices, and every opportunity is to be taken to see that the bore is clear and free from any obstruction.

(b) Accidents with rifles have been reported in which the barrel has split near the muzzle, which are attributed to the bullet of the previous round remaining in the barrel. In the event of slight or no recoil being observed during practice, the firing from the particular rifle concerned is not to be continued until the bore has been examined and found to be clear. This is known as “a puff shot.” As under certain circumstances a missfire may be indistinguishable from a puff shot, this same procedure is to be carried out on all occasions of a missfire occurring.

(c) Should the accident occur of the barrel splitting, every endeavour is to be made to retain the penultimate cartridge case for return to the nearest Naval Armament Depot for special examination, together with some unfired cartridges of the same make and date. A report of the occurrence is to be forwarded to the Admiralty, in accordance with Article 895, King’s Regulation and Admiralty Instructions.

(d) Attention is also to be called to the danger and futility of the practice of tapping the base of the cartridge on the chamber casing before loading.

2. No firing will take place until a large red danger flag is hoisted on the signal staff at or near the butts, and the necessary look-out men posted.

3. A smaller red danger flag will be hoisted at the butts as a warning to cease fire. This flag will remain exposed during the entire period of cessation of fire, and will not be withdrawn until the whole of the butt party is under cover. No one will leave the butts until cessation of fire has been notified from the firing point.

4. A red flag will be kept raised at the firing point when no firing is taking place, and will be lowered only on the order of the superintending officer. This order will not be given until the flag at the butts has been withdrawn.

5. When cessation of fire is required, the superintending officer at the firing point will give the order. When all fire has ceased, he will cause the red flag to be raised, and the butt party to be informed.

6. Before practice takes place on a rifle range (other than a recognised Naval or Military range) in which it is proposed to use naval ratings for marking, the range is to be inspected by an officer to ensure that the arrangements for the safety of the marker are suitable and adequate, and in particular that no metal portions of the target are so situated as to be capable of being struck by a bullet from the firing points.

SECTION 12.—DUTIES OF OFFICER SUPERINTENDING AT THE FIRING POINT.

1. During preliminary and instructional practices he is to allow no person at the firing point but the officers, the instructors, and the men actually firing.

2. He is to ensure that the regulations as to target practice and local orders are obeyed.

3. He is to detail a petty officer or man to attend the telephone.
4. He is to detail instructors to supervise each section of targets.

5. He is to see that no assistance by way of coaching or spotting is given to men while firing the standard test practices.

6. He is to ensure that no more than the authorised amount of ammunition is expended.

7. He is to collect the butt registers from the officers on butt duty.

8. When there is no officer in charge in the butts, he is to ensure, by personal observation, that the marking in the butts is carried out in accordance with the regulations.

9. He is to allow no one at the firing point but the officers, the instructors, the register keepers and the men actually firing, or the two guns numbers required to fire an automatic weapon.

10. No man will load any weapon or adopt a firing position until the officer superintending at the firing point has ordered the practice to commence.

11. Dummy cartridges will not be taken on any range where ball or blank ammunition is fired, except when stoppage practices are being carried out. Dummy cartridges for this purpose will be taken on the range under the supervision of an officer, and will not be carried in the men's pouches. They will be accounted for on the conclusion of the practice.

SECTION 13.—Responsibility for Examination of Weapons and Bandoliers before Leaving the Firing Point and Range.

The officer superintending at the firing point is responsible that the weapons are unloaded and that the men are not in possession of unauthorised ammunition. He will have an examination made to ensure that these points have been attended to before the firers leave the firing point. A further examination will be carried out by the officer in charge of range parties before they leave the range.

SECTION 14.—Duties of Officer Superintending in the Butts.

He is responsible that the following duties are correctly carried out:

1. To see that the targets are of the proper dimensions, and sufficiently clean to enable shot holes to be easily distinguished.

2. To see that the butts and appliances are in good order, and to report damage and deficiency.

3. To explain all regulations and local orders to the markers and to ensure their observance.

4. To detail markers to targets.

5. To cause all targets to be lowered during cessation of fire.

6. To cause all targets to be lowered during cessation of fire.

7. To cause all targets to be lowered during cessation of fire.

8. To check personally the target of each firer, and enter the value of all hits in the register; occasional shots will be entered in the columns provided for the purpose. No erasure is to be made. If alteration is necessary, a fine line will be drawn through the figure, the correct value written against it, and the amendment verified by the officer's initials.

9. In rapid practices, after each check, to cause the number of hits of each value to be signalled on each target.

10. If more hits, including ricochets, are found on a target than rounds fired during rapid and snap practices,
and where there are no means of identifying their origin, to signal the total number of hits of the several values in the usual way. The firer may then be given the option of firing again, with as little delay as possible, or of receiving the score obtained by dividing the total value of the hits on the target by the number of such hits and multiplying by the number of shots allowed. Fractions over $\frac{1}{2}$ count as 1; $\frac{1}{2}$ or under to be disregarded.

11. On the conclusion of a practice, to rule a line diagonally across the unused spaces in the register before signing it.

SECTION 15.—SIGNALLING AND SCORING.

1. Signals between the butts and firing point may be made by means of a flag as follows:

   (The signaller, whether at the firing point or butts, will face the target.)

   **Preparative** .... Waved above the head.
   **Ready to receive** or **send down** .... Held vertically above the head.
   Tens .... Lowered to signaller's right as many times as required.
   Units .... Lowered to signaller's left as many times as required.
   No hits .... Revolved two or three times from right to left.
   **Wash (or patch) out** .... Waved horizontally close to the ground.
   Practice finished .... Held upside down.
   Signal last shot .... Held horizontally above the head.

2. Hits on target may be indicated by marking and spotting discs.

<table>
<thead>
<tr>
<th>Signal</th>
<th>Methods of signalling</th>
<th>Value of hit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bull's-eye</td>
<td>White disc placed on shot hole</td>
<td>4 points</td>
</tr>
<tr>
<td>Inner</td>
<td>Black disc waved twice across the face of the target and placed on the shot hole</td>
<td>3 &quot;</td>
</tr>
<tr>
<td>Magpie</td>
<td>Disc twirled in front of the target and then placed on shot hole with black side towards firing point</td>
<td>2 &quot;</td>
</tr>
<tr>
<td>Outer</td>
<td>Black disc moved vertically up and down the left of the target, and then placed on the shot hole</td>
<td>1 &quot;</td>
</tr>
<tr>
<td>Miss, or ricochet</td>
<td>Red and white flag shown on the same side as the direction of the miss. If the direction cannot be determined, the flag will be waved across the face of the target</td>
<td>Nil.</td>
</tr>
</tbody>
</table>

3. When for any reason it is found to be impracticable to send the firers into the gallery after a grouping practice, the following signals may be used:

   - Bull's-eye signal denotes a 4-inch group = 25 points.
   - Inner " an 8-inch " = 20 "
   - Magpie " a 12-inch " = 15 "
   - Outer " a 12-inch " with one wide shot = 10 "

4. In slow practices, when a target is struck, the marking disc will be placed on the shot hole and kept in position sufficiently long to enable the firer to see the position of his shot.

5. When a shot strikes the target so that the circumference of the mark cuts the outer edge of any ring or figure, it is to be counted as hitting within that ring or figure, as the case may be. No shot is to be counted unless the whole or part of the mark of the bullet is seen on the face of the target. A ricochet usually makes a long ragged hole or mark.
6. In rapid practices, after each check, the number of hits of each value to be signalled on each target.

7. Each hit on the large snapshooting target counts 4 points.

8. In deliberate practices the marking will be signalled by exhibiting a black panel upon the dummy, as follows: —

<table>
<thead>
<tr>
<th>Outer (Scoring 1 mark)</th>
<th>Inner (Scoring 3 marks)</th>
<th>Bull's Eye (Scoring 4 marks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magpie (Scoring 2 marks)</td>
<td>Ricochet (Scoring 0 marks)</td>
<td>Examine</td>
</tr>
</tbody>
</table>

Section 16.—Orders for Non-Gallery Rifle Ranges.

Note.—A non-gallery range is one which has not a protected gallery from which the markers can work the targets.

1. On non-gallery rifle ranges, or in special cases at the discretion of the commanding officer, the register on which all hits or misses will at once be entered as signalled, will be kept at each firing point by a petty officer specially detailed for the purpose.

2. Targets will only be checked on the completion of the rounds allotted in timed practices, after occasional shots, or when the number of hits renders marking difficult. The officer on butt duty will signal the warning to cease fire, examine targets, mark off all hits or ricochets, and enter their value on the memorandum supplied for the purpose. He will then cause them to be signalled to the officer at the firing point (a marking disc showing the value of each series being placed on the target), who will compare them with the numbers recorded on the register, and enter the totals in the spaces provided for the purpose. The hits will then be patched.

3. In other respects the regulations for gallery ranges will be observed.
CHAPTER XIII.

FIELD PRACTICES—INDIVIDUAL.

SECTION 1.—FIELD PRACTICES—GENERAL.
1. All ranks should consider themselves as being under fire when within sight or effective range of the targets, and all criticism should be suspended once the practice has commenced until the results are made known on conclusion.

2. Though peace results give no reliable indication as to probable war results, they may afford a sound basis for useful deductions as to the relative values of different forms of fire and the vulnerability of various formations, when the figures of one practice are compared with those of another practice conducted under similar conditions.

3. The change which takes place in conditions of shooting when there is no signalling of each shot is not always appreciated, and it is essential that the importance of the first application of fire should be realised. Ratings, therefore, who are unable to fire field practices should fire some at least of the instructional practices without signalling. Such practices are called observation practices; the targets should be placed on the face of the stop butt or at the foot of the gallery bank, and may with advantage be falling or collapsible targets.

4. The earlier exercises for the smaller fire units will be carried out under simple tactical schemes framed by the company commander, and arranged so as to give a progressive training to all ranks engaged. Schemes will be so drawn up as to give separate instruction in each phase of the combat, rather than to combine in each exercise all the operations included in the execution of a successful attack. They will also be designed to illustrate the various situations which may be expected on active service. They should test the proficiency of leaders in making fire effective on first opening, and in regulating the volume of fire in accordance with the situation.

5. There must be further training in picking up an indistinct target, such as is likely to be presented in war; in estimating its range, in rapidly opening fire, and in making the best use of ground; every individual must learn to recognise the distances at which individual fire will be effective, and to act in co-operation with his comrades.

6. Special attention should be devoted to skill in making fire effective from the first opening, preliminary orientation and ranging, anticipatory orders for fire direction, rapid advance to the fire position, simultaneous opening of fire in full volume, and control of fire to ensure a means of rapidly breaking off an action if necessary.

7. The criticism of the conduct of the exercise should be complete, and should deal with the application of the tactical principles laid down as well as with the application of the principles contained in these regulations. In appreciating results, chief attention should be paid to the successful or unsuccessful result of the first application of fire, since surprise effect is all-important, and correction of sighting by observation is rarely possible in war.

8. Falling or collapsible targets are of great value in all field practices, and may be used with advantage in casualty competitions designed to test the relative abilities of two firing lines, which simultaneously fire at separate sets of targets representing their opponents. Each man is represented by a target placed in front of the opposing firing line, and becomes a casualty if that target falls. In this way superiority of fire is soon established by one or the other and fire ceases.

9. Disappearing targets should be used for defence practices. Targets for attack should be disappearing and collapsible. Orders should be sparingly given, so
that all ranks may be accustomed to think for themselves. It should be sufficient as a rule if the superintending officer, after full explanation of the scheme, limits his instructions to the direction of the advance, limits of fire, first opening fire, and general regulation of movement and reinforcement.

10. It is essential to give full information to the firers as to the object of the practice, and to criticise freely the good and bad points of their performance.

11. The firers may be most easily interested by drawing up a practical scheme, explaining it thoroughly beforehand, and notifying afterwards the results that should have been attained according to peace standards.

12. The firers should be formed into small squads, but there should be no fire control, nor any orders except such as may be necessary to regulate fire and movement in the interest of safety, and to ensure that the objects of the training are fully carried out.

13. At the conclusion of a collective field practice, in addition to criticism of the conduct of the exercise, there should be a conference as to the conclusions to be drawn from the results.

SECTION 2.—INDIVIDUAL FIELD PRACTICES.

1. In range practices a man should attain a high standard of skill in shooting at known distances, under easy conditions and in various positions, at large vertical targets, easy to see, and furnished with scoring or approximation rings, which enable the error in shooting to be expressed in figures convenient for comparative purposes. He should have confirmed in practice the lessons learned in preliminary training, and be thoroughly acquainted with the peculiarities of his rifle. He has fired in the open and from behind cover, in slow and rapid practices, and should have learned the rate of fire which in his own case best combines volume with accuracy. In snapshooting he has been brought to realise the necessity for rapid alignment of sights, and the value of time in taking advantage of targets exposed under service conditions.

2. At this stage of training there appears very often, among those who have developed a degree of skill above the ordinary, a tendency to specialise in the elementary form of slow shooting, and to regard as the ultimate object of musketry training what is, in fact, only a means to an end. Deliberate practice at an elementary target tends to inculcate a slow method of shooting, as minute attention to changes of wind and light are necessary to produce the best results under such conditions. Although experts in this form of shooting gain an admirable control of their nerves under rifle range conditions, they come to regard active exercise and timed firing as antagonistic to nerve control, and, owing to want of practical training, frequently fail under more difficult conditions to produce as good results as second-class shots. High scores in range practices bear no relation whatever to the results to be expected when firing under service conditions, even in peace time. The fine adjustment of the backsight is based on careful signalling of the position of every shot fired; but in collective firing there is little opportunity of ascertaining the result of any one shot, and at medium ranges correction of sighting depends upon observation of the nucleus of the cone of fire or of the effect produced by fire on the enemy’s movements.

3. Fine judgment of wind and light as acquired in deliberate shooting, and minute adjustment of the sights based on shot for shot marking, will return less value in war for the amount of energy expended in peace training than the study of fire direction in all its aspects of reconnaissance, ranging, collective grouping, and observation of the cone of fire. Range practices are therefore in no sense a final training; it is essential that further practice should take place under service conditions.
4. There must be further training in picking up an indistinct target, such as is likely to be presented in war; in estimating its range, in rapidly opening fire, and in making the best use of ground; every individual must learn to recognise the distances at which individual fire will be effective, and to act in co-operation with his comrades.

5. The distances should not exceed 600 yards. Training should be progressive in regard to targets, distances, and all other respects.

6. Individual field practices are conducted at distances less than 600 yards; collective field practices, if ground is available, should be fired almost entirely at longer ranges. When ground is not available for firing at ranges beyond 600 yards, practice in collective firing is necessarily conducted at shorter ranges, but such practice must be supplemented by fire direction practices without ammunition at longer ranges.

7. In the individual practices, each firer will be provided with a separate target; he will learn to fire at unknown distances, depending on the observation of a comrade for information as to the result of his shots; he will fire at targets representing an advancing enemy, and will advance himself, firing at each halt. He will learn to use ground for fire effect and cover, to pass all orders and information received, to recognise the limits for effective individual fire and the principles which govern the choice of targets in individual fire.

8. The value of every shot will be ascertained by markers, and notified to the firer. The men will, as a rule, fire alternately, working in pairs for mutual assistance. When a successful shot is observed, the correct sighting, as found, will be immediately notified by the firer to the remainder of the squad.

9. Any preliminary information as to the ground and results of range-finding at long ranges, which might be available on service, should be given in the later practices in order to combine all methods of ranging.

10. Every care should be taken to develop further the skill already acquired in snapshooting and rapid firing. The nerve control gained in deliberate shooting should be supplemented by vigour and alertness, deftness in loading, the habit of correct action under distracting conditions, and skilful use of cover, based on the determination to make fire effective.

11. Practice will be afforded in acting promptly against targets appearing suddenly and disappearing after a short period of exposure.

12. Some practice should be given in snapshooting in the standing position, during rapid advances at short range.
CHAPTER XIV.

FIELD PRACTICES—COLLECTIVE.

1. False standards of fire effect set up under artificial conditions lead to misconception as to the value of long range fire against low service targets, and individual firing may, in consequence, be employed where effective results can only be obtained by a liberal expenditure of ammunition, or time and ammunition may be wasted in useless firing at long ranges. The probability of error in judging distance under atmospheric influences at distances beyond 800 yards is such that there is little to be gained by developing a high standard of accuracy in shooting at such ranges. The difficulty in observing results is so great that a satisfactory degree of assurance of fire effect can only be obtained, beyond (about) 600 yards, by means of collective fire.

2. While fire discipline should be such as to produce satisfactory results from individual fire, it should also ensure implicit obedience to orders for fire direction, collective action being necessary to give reasonable assurance of fire effect when opening fire at distances beyond (about) 600 yards, as well as to form a cone of fire for observation and correction of sighting. Between 1,400 and 600 yards, carefully controlled collective fire produces better results than the uncontrolled fire of individual men, which ceases to be sufficiently effective beyond ranges of about 600 yards to counterbalance the expenditure of ammunition involved.

3. Special attention should be devoted to skill in making fire effective from the first opening, preliminary orientation and ranging, anticipatory orders for fire direction, rapid advance to the fire position, simultaneous opening of fire in full volume, and control of fire to ensure a means of rapidly breaking off an action if necessary.

4. The principal points to be considered are the choice of targets, the justification or necessity for opening fire, the volume of fire required to effect the object in view, the methods of ranging, the orders for fire direction, timing of movement, mutual support, regulation of volume of fire, concentration or distribution of fire, necessity for searching or distribution in depth, the probable dispersion of the cone of fire, probable error in ranging and judging atmospheric influence, the description and recognition of target and aiming point, reinforcement, ammunition supply, mutual assistance, passing of orders and information and communication with the flanks and rear.

5. Collective field practices are primarily intended to afford the commanders of fire units practice in their duties of direction and control of fire. With this must be combined the study of the results to be obtained from the delivery of fire at targets representing troops in different formations, on ground of varying character, in order that practical experience may be acquired of the principles which govern the employment of fire in the field.

6. In preparing a programme for collective field practices, regard must be paid to the amount of ammunition available. The greatest amount of instruction will be obtained for the ammunition expended if a company programme is framed and a series of tactical demonstrations is carried out by selected units, in the presence of the remaining units; but it is essential that all fire leaders should be exercised in the direction and control of fire, and that every man should be practised in the delivery of controlled fire while using ground for concealment and making short advances at top speed.

7. Officers and fire unit commanders must be practised in their duties of direction, control, and observation of fire, in the use of ground, and in mutual support. With
these must be combined the study of the results to be obtained from the delivery of concentrated fire at targets representing troops in different formations, and on ground of varying character, in order that practical experience may be acquired, of the principles which govern the employment of fire in the field.

8. Under the conditions of peace manœuvres with blank ammunition, fire control may be neglected, targets may be insufficiently described, and it is not known whether the firers recognise them; distances are sometimes roughly guessed, sights are not always adjusted, and men aim carelessly. Unless, therefore, tactical exercises are conducted sometimes with ball ammunition, there will be a want of realism in training during peace time.

9. Any omission or neglect in fire direction, as well as any failure to adjust the sights should, at this stage of training, be regarded very seriously.

10. In peace operations, owing to fire effect being absent and to the necessity for making a few rounds of blank last through hours of fighting, the tendency is to pay more attention to numbers, formations, and consequent vulnerability of opposing forces than to fire direction, fire control, and fire discipline. It is of the highest importance to guard against this tendency, and all commanders, at all periods of training in the field, should devote special attention to seeing that the principles of fire tactics are correctly taught and applied, so that neither bad habits may be acquired nor false lessons deduced from the more or less artificial conditions of peace operations.

11. Individual field practices are conducted at distances less than 600 yards; collective field practices, if ground is available, should be fired almost entirely at longer ranges. When ground is not available for firing at ranges beyond 600 yards, practice in collective firing is necessarily conducted at shorter ranges, but such practice must be supplemented by fire direction practices without ammunition at longer ranges.

12. When Tactical Exercises ashore involving the use of blank rifle ammunition are to be carried out, this order is to be impressed verbally by Platoon Commanders not only upon Section Leaders, but also upon individual men, who are to be ordered to stop firing on their own responsibility if the enemy is seen, or heard, or believed to have approached, within 20 yards, e.g., say the length of a cricket pitch.
CHAPTER XV.

NOTES FOR UNIT COMMANDERS ON CONTROL OF FIRE.

SECTION 1.—THE TRAINING OF THE FIRE UNIT LEADER.

1. Fire effect depends less upon individual marksmanship than upon the fire direction and control exercised by commanders. Though discipline is the first essential of fighting power, even the best disciplined men are ineffective in war without properly trained leaders.

2. Platoon and section leaders must be made to feel their responsibility at all times, and be trained to exercise command. The issue of any fight is ultimately in their hands, and will depend upon their leadership and previous training.

3. The first essential in a leader is that he should possess power of command; this can be developed by acquiring the necessary knowledge, by cultivating a good word of command, and by insisting on the prompt obedience of his men, by studying their character, and by setting such an example himself in appearance and bearing as will gain their confidence and respect.

4. Every leader must be able to employ the fire of his unit to the best tactical advantage; to this end the following points are essential:

   (i) He must be able to give clear, concise fire orders suitable for all occasions and targets, and exercise proper fire control over his unit.

   (ii) He must cultivate an eye for ground, so as to quickly select fire positions, and be able to take advantage of good lines of approach that afford cover.

   (iii) He must realise the close association of fire and movement, and know what formations to adopt in attack and defence, either to produce fire or in which to encounter it.

   (iv) He must understand the theory of and the principles that govern the application of infantry fire.

5. Leaders must themselves be skilled men-at-arms, capable of leading and controlling their units in the assault, and they must realise that it is to them their men will look for that example of skill, courage, and determination which will always decide the issue of every fight.

SECTION 2.—INDICATION AND RECOGNITION OF TARGETS.

1. It is imperative to have one system, by which a commander can point out a target to a man and be reasonably certain that the man recognises it.

   The system employed is as follows:

   (i) Reference points are chosen and pointed out. These are usually two or three prominent objects about which there can be no mistake. They should be about two hand-breathths apart and a reasonable distance away. The name by which they are known should be made clear to all, e.g., “tall tree,” “thick copse” (to distinguish them).

   (ii) When describing a target bearing obliquely from a reference point, its direction is indicated by the clock method. The reference point is imagined to be the centre of a clock face, and the observer will, therefore, be at six o’clock; the horizon just above the reference point will be at twelve o’clock. The target will be described as at eleven o’clock, or half-past four, &c.

   (iii) When indicating the distance of the target from its reference point, the method of finger breadths is used. Standing squarely facing the reference point, the observer extends his arm to the front, fingers pointing vertically upwards close together. He then closes one
eye, and observes that the distance laterally between the reference point and the target is represented by the thickness of one, two or three fingers or by one hand-breath.

2. The following examples illustrate the method:

Reference points:
(i) A conspicuous Church Tower to the front—“Church Steeple.”
(ii) A Tall Tree to the right flank—“Tall Tree.”
(iii) A Thick Copse, standing by itself to the left flank—“Thick Copse.”

Targets:
(i) “Church Steeple,” ten o’clock, three fingers, a thin straggly hedge.
(ii) “Tall Tree,” half past four, two fingers, some willows on the river bank.
(iii) “Thick Copse,” six o’clock, a cottage with three small windows.

3. For artillery and machine-gun work, where greater accuracy is needed, the men are taught to judge angles laterally, instead of using the finger method.

4. Indication and recognition is easily practised in any country. It is useful to have a key rifle, which can be laid by the instructor on the target.

SECTION 3.—THEORY.

1. All officers and instructors must have a working knowledge of the theory of rifle fire.

Firing up and down hill.—Only steep slopes have any great effect, viz., 20°, deduct 1/4th of the range; 40°, deduct 1/3; 60°, deduct 1/2.

Atmospheric conditions.—Variations in barometric pressure are very small except where firing at considerable altitudes (see page 44).
(a) All the shots are not in the same place.
(b) The shot holes are more numerous in the centre.
(c) Approximately half the shots are above the centre horizontal line, the other half below.
(d) Approximately half the shots are on the right of the centre vertical line, the other half left.
(e) The distance from the topmost shot and the lowest one is greater than that between the extreme right and left shots.

From the above we deduce the following:
(a) Since the shots are not in the same place, it follows that the trajectories of bullets do not coincide. The figure thus formed is known as the cone of fire.
(b) Since the shot holes are more numerous in the centre, we know that the cone of fire is denser in the centre than on the outside.
(c) (d) and (e) show us that the cone of fire is not circular but oblong in section, and that its density decreases uniformly from the centre to the outside.

3. The diagram represents the size of the rectangles which will contain the shots fired by an expert under the most favourable conditions at a service target at different distances.

Diagrams showing rectangles containing shot groups fired in the prone position with wrist and rifle unsupported, compared with a figure of a man lying in the open.

From this it will be seen what a small chance even an expert has of hitting a prone figure at distances over about 600 yards. Compare the chances of the average shot firing, say, on a windy day, when he is tired or hungry.

4. Since we cannot expect fire to be effective over 600 yards when employed individually, we must use collective
fire. Unless everyone works in conjunction no results can be hoped for.

5. Cone of fire from a number of rifles is larger than that from one, since skill, eyesight, &c., vary. The size will be still further increased if firers are tired, aiming mark is hard to see, &c.

6. Imagine that collective fire has been applied to a large vertical target marked with two concentric rings, and that a long mat has been laid out behind this target so as to collect all bullets passing through it:

That portion of the mat struck by all the shots passing through the target is known as the beaten zone.

That portion of mat struck by shots passing through the centre ring is known as the nucleus of the beaten zone.

That portion struck by bullets passing through both the centre and larger ring is known as the zone of effective fire or effective beaten zone.

The nucleus contains 50 per cent. of shots fired.

The effective beaten zone contains 75 per cent. of shots fired. The beaten zone 90 per cent. of shots fired.

The remaining 10 per cent. are too far out to be included.

7. Useful results can only be expected if the target for any range is included within the effective beaten zone. Experiments have shown that as the range increases the size of the effective beaten zone (E.B.Z.) decreases. This is due to the increased angle of descent of the bullet. Beyond 1,500 yards it increases again, especially laterally, owing to increased effects of errors in aiming, &c. Under favourable peace conditions it has been found that the size of the E.B.Z. varies very little when fired by different units.

8. The sizes of E.B.Z.'s on level ground are as follows:

<table>
<thead>
<tr>
<th>Distance</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 yards</td>
<td>330 yards long, 7' wide.</td>
</tr>
<tr>
<td>1,000 yards</td>
<td>180 yards by 14'.</td>
</tr>
<tr>
<td>1,500 yards</td>
<td>150 yards by 28'.</td>
</tr>
</tbody>
</table>

9. The permissible error in ranging is equal to half the depth of the E.B.Z. for any particular range, e.g.,

Assume target to be 1,000 yards distant, E.B.Z. for 1,000 Mark VII is 180 yards.

If range is obtained absolutely correct, half E.B.Z. will be one side of target, half the other.

If error of over 90 yards is made (i.e., half E.B.Z.), whole of E.B.Z. will miss target.

10. Effect of slope of ground on the size of E.B.Z.

It is important for officers and instructors to realise effect produced by E.B.Z. falling on to ground which is not horizontal, since it will guide them in use of ground.

Section 4.—Ranging.

1. Ranging is the means adopted for ascertaining the elevation required to hit an object; the range to be set on the sight of a man's rifle in order to hit a target is not necessarily the same as the geometric distance between him and the target. The corrections due to the wind, the atmosphere and other sources of error have to be applied to get the correct range setting.

2. Accurate ranging is of great importance; errors in elevation cause a greater loss of fire effect than personal errors at distances of over 600 yards.
Methods of Ranging.

3. Judging Distance by Eye.—This is most frequently used as other methods are often impossible, but this is the least reliable method of ranging, except by highly-trained men. See Chapter V—Judging Distance.

4. Observation of the Fall of Shot.—This is not often possible in practice, except on a rifle range, but when it can be carried out satisfactorily is the best means of ranging. Sufficient volume of fire must be employed, and short bursts of rapid fire often simplify observation. Objects in the vicinity of the target may be used to range on for better observation. The best position for observation is above and behind the firers.

5. Rangefinding with Instruments.—This is a valuable method if the instruments, and the trained men to work them, are available. A Barr and Stroud portable coincidence rangefinder may be used. The value of this method largely depends on the skill of the operators, who need careful training.

6. Aid to Rangefinding.—If a signet ring is held at arm’s length from the eye, it is useful to memorise the appearance of a man, standing at different ranges as seen through it. Devices which are based on similar principles to this can be purchased at military stores.

7. Use of Maps.—These are generally of too small a scale, but are useful for long range work.

8. Information from Artillery or other Troops.

9. Forward or Back Reckoning from Known Ranges.

Range Cards.

10. These cards should always be used in the attack, so that as the advance reaches certain well-defined points, the fire commanders know that the range of the enemy position has been reduced by a certain distance.

11. An example is shown in the diagram of a range card prepared for the defence of a position. The information should be obtained by the most accurate method available, and unless the angles can be obtained from a map, they must be estimated.

Judging Lateral Distance.

12. It is convenient for all officers and men to know some measurement that will cover one-tenth of a forward distance; for example, with the rifle held in the aiming position; the back sight protectors cover approximately 10 yards at 100 yards, and corresponding distances at longer ranges.

Range Card.

Section 5.—Fire Orders.

1. Fire Organisation Orders are issued by a Commander to secure co-operation in the fire of the various
arms and units. Fire Direction Orders are given by an Officer or P.O. commanding more than one fire unit to their fire unit commanders.

2. Fire Control Orders are given by the fire unit commanders to their men.

3. All orders may be written, signalled, passed verbally from man to man, or given verbally direct, except fire control orders, which are always passed or given verbally.

4. The normal fire unit is the section, but it may be the platoon.

5. Should the leader responsible for fire direction wish to keep the opening of fire in his own hands, he will add the caution "Wait my signal" to his order. Otherwise the fire unit commanders will at once act on a fire direction order by giving their own fire control orders to open fire.

6. Fire Control Orders may be of three different kinds:
   (a) Normal.
   (b) Brief.
   (c) Anticipatory.

   (a) Normal Fire Orders will be given in the following sequence:
      (i) Designation of unit, e.g., "No. 1 Section."
      (ii) Range.—This is given first, as once sights are adjusted the men can concentrate their whole attention on recognising the target, from which they need not then look away; also knowledge of the range limits the area to be searched for the target.
      (iii) Indication.—The target is pointed out, as explained in Section 2 of this Chapter. For concentrated fire the point of aim must be given. This may be part of the actual target or an auxiliary aiming point, or a distance indicated from either. When no special part of the target is mentioned, the

   centre of the lowest visible part is intended. When an auxiliary aiming point is given, the target should not be given as well, as this leads to confusion.

   For Distributed Fire.—The limits between which fire is to be distributed will be named. When a platoon frontage is given, each section will distribute along the whole front.

   (iv) Number of Rounds.—This is usually five. Safety catches will be put forward when the number of rounds is named.

   (v) Kind of Fire, e.g., "Fire" or "Rapid Fire." If rapid fire is ordered, firers will come into the aiming position on the word "Rapid."

   (b) Brief Orders.—These may be necessary at obvious targets, e.g.,
      "at those men, ½ left, rapid fire."
      "400, ½ right, men in the field, rapid fire."

   (c) Anticipatory Orders.—These may be given both in attack and defence, anticipating movements, e.g.,
      "No. 1 Section, 400, to your front, a trench, wait my order to fire."
      "No. 1 Section, 500, ½ right, a copse, enemy will come out of copse, await my order to fire."

7. Men should be trained, when re-loading in rapid fire after 5 rounds, to look towards their fire unit commander, in case fresh orders are to be issued. This is particularly important when the noise of firing makes it difficult to hear orders being passed.

SECTION 6.—METHOD OF PRACTISING FIRE ORDERS.

1. Fire orders should be frequently written down and afterwards discussed.

2. Communicating instruction.—Fire-unit commanders are formed up not less than fifty yards apart. The instructor gives a fire order to one, which is repeated by each in turn; the instructor checks the accuracy of the
order as it is passed, and criticises the way in which it is given.

3. Control on men.—Concealed men are called up individually and fire blank; meanwhile the squad, except the commander, is turned away. The men are called up; the squad is turned about. The commander gives his fire orders; the squad adjust sights and lay rifles from rests on the point at which they would have fired. The man is again called up, aims and sights checked, and the distance taken with a rangefinder. The fire orders and probable effect of fire are then criticised. As progress is made, two men may be called up at a time, and orders given for distribution between the points which they mark.

4. Use of key rifles.—These may be laid on points instead of using men; when using landscape targets, pins may be used to show the points on the miniature.

5. Control on dummy screens.—Suitable for a squad or section. The men with dummy screens may be concealed and called up when required. They may be used to represent small bodies of infantry in various formations, according to the number of dummy screens used and their arrangement, e.g.,
   A small body advancing in close formation.
   A small body moving to a flank.
   An extended line firing, or advancing.
   A firing line being reinforced.

Other targets may be used either separately or together with dummy screens.

6. In all the above exercises, unless the targets obviously represent service targets, commanders should be told what they are supposed to engage, e.g., in control on men: when a single man appears a commander might be told that a machine-gun is concealed at the point marked by the man. Only such fire as the supposed target justifies should be allowed.

7. Dummy screen exercises.—Suitable for one or more platoons. These are not tactical exercises, but are
g Unused in order to practise commanders in giving fire direction orders, and fire unit commanders in giving fire control orders. The suitability of otherwise of the orders should be discussed with reference to the nature of the targets, but without reference to possible tactical results. At first, direction orders must be given, and these must be accurately carried out by fire unit commanders, the orders in each case being full and detailed under a variety of situations. As proficiency increases, direction orders should be curtailed to develop initiative and judgment in fire unit commanders. The final object to be aimed at is the reduction of orders to a minimum without loss of control or effect.

SECTION 7.—Fire Control Exercise with Men.

(Suitable for a Platoon Exercise.)

An instructional exercise, with no tactical consideration, for the teaching of Fire Orders, Fire Control, Passing of Orders, and Fire Discipline. It can be carried out either in open country or on landscape targets. The former is, of course, best.

Open Country.

1st Phase.

1. Select a suitable piece of ground, giving good landscape in front.

2. Make up good fire orders; if possible, with assistance of one or two others. Each order should be framed to meet some imaginary situation.

3. Take ranges, or estimate distance as accurately as possible, to the various targets selected.

4. Choose exact position for each section, so as to ensure that each target is visible to all.

5. Place sections in position, in line, about 10 paces between sections, the fire unit commander kneeling behind his section. As proficiency increases, the sections can be placed further apart.
6. Give out the orders quietly to one commander, and have them passed from commander to commander along the line.

7. As a section commander shouts the orders to the next commander, the men of his section act on the orders.

8. After the orders have been given, commanders note how many men fired at correct target and other points, as in fire discipline training.

9. General criticism by the directing officer.

2nd Phase.

1. Commanders are called together and told that a certain situation exists.

2. They return to their sections and give fire orders to meet that situation.

3. Either:
   
   (a) Each commander writes down his orders before giving them or
   
   (b) Each commander has behind him a man who writes down what the commander actually says.

4. This enables all the orders given to be afterwards criticised.

5. The original orders having been made up with a view to some definite situation existing, these situations can then be used in the second stage.

Section 8.—Fire Action.

1. Fire alone can seldom win a battle; it is necessary to combine fire with movement, and so to close the enemy in order to gain a decisive victory. Success largely depends on the skilful combination of these two elements, and on making the best use of the ground occupied by oneself and the enemy, with knowledge of the vulnerability of targets.

2. Attack.—Fire should not be opened in the attack when satisfactory progress can be made without it. With fire, the infantry covers its own movement by beating down the enemy's fire and forcing him to take cover. Finally, with fire they prepare the way for the assault, and by combining fire and movement they come to close quarters with the enemy.

3. Covering Fire.—Covering fire is provided for advancing troops by artillery, machine guns or other infantry, to beat down the enemy's fire, force him to take cover, and so allow the infantry to go forward safely.

4. Defence.—In defence, fire can in the ordinary way be used more freely as the supply of ammunition is easier. It must not be forgotten that a passive defence without counter attacks will not inflict a serious defeat on the enemy.

5. Collective Fire.—The fire of any number of men under the orders of a leader is known as collective fire. It may be either concentrated or distributed. Collective fire is used as long as possible, as it has the following advantages:

   (a) It checks the expenditure of ammunition.
   
   (b) Its use keeps the men under control.
   
   (c) It enables fire to be used to the best tactical advantage.
   
   (d) It gives the best assurance of the correct sighting and point of aim.
   
   (e) It is the only means of surprise by fire.

Good fire effect cannot be produced without skilful fire direction by the platoon commanders, good fire control by the section leaders, and good fire discipline on the part of the men.

6. Fire Control.—Fire control includes all the duties of the fire unit commanders in handling the fire of their units according to the fire direction orders received. Should the fire direction orders be incomplete, or
should they lose touch with their platoon commander, they must be prepared to act upon their own judgment and their knowledge of the tactical situation. They must supervise the men of their sections and maintain strict fire discipline. They must keep keen observation on the movements of the enemy in their vicinity.

7. Fire Direction.—Fire direction includes all the duties of platoon commanders, which are necessary to enable the fire unit commanders under them to handle the fire of their units to the best advantage.

Elevation.—The target should be in the effective beaten zone, and all errors of the day must be allowed for. Every effort must be made to verify the elevation by observation of the strike of bullets, where possible.

Regulations of Volume.—Rifle fire should, as a rule, be delivered deliberately. Rapid fire should be considered as a reserve of power to be used when the occasion demands it.

8. Rapid fire may be required when it is necessary to beat down the enemy’s fire quickly; when covering the advance or withdrawal of other troops exposed to enemy fire; when pursuing an enemy with fire; when meeting cavalry attacks, or when good targets are exposed for a very short period; also in attack by covering fire, as a final preparation for the assault by men who have worked round to a flank, and in defence to beat off an enemy in the act of assaulting. It may also be employed to deceive the enemy as to the strength of the force engaged.

9. Short bursts of rapid fire, followed by pauses, favour observation of results and give time for adjusting the sights. They also facilitate the control of fire in critical situations.

10. Deliberate Fire.—Five or six rounds per minute.

11. Rapid Fire.—The best rate of individuals about 15 rounds per minute.

12. Oblique and Enfilade Fire.—This is more effective than frontal fire. A larger target is obtained, and errors in ranging are not so important if enfilade fire is used. The target normally will be that which is checking the advance, or is of the greatest tactical importance at the moment, but commanders should take full advantage of opportunities for enfilade fire against targets which appear to one side or the other of their line of advance. Neighbouring platoons can often be assisted in this way in the attack.

13. The Assault.—It is essential to obtain a superiority of fire over the enemy before delivering the assault on his position. Whenever possible, enveloping tactics should be used in order to bring converging fire to bear on the enemy’s position.
CHAPTER XVI.

ANNUAL AND GUNNERY SCHOOL COURSES OF MUSKETRY, AWARDS OF PRIZE MONEY AND BADGES.

SECTION 1.—GENERAL RULES.

1. The following officers and men are to carry out annually the instructional course of musketry hereinafter laid down:—

   (i) Seamen.
   (ii) Signal and W/T ratings.
   (iii) Stokers.
   (iv) Subordinate officers.
   (v) Volunteers.

2. All R.N. ratings who complete the Annual Rifle Course, Part I, are eligible for Marksman’s badges and prize money for proficiency in rifle shooting, subject to the regulations specified in Sections 5 and 6 of this Chapter.

3. All R.N.R., R.N.V.R. and R.A.F. personnel who are embarked in H.M. Ships may undergo the musketry course and are eligible for payment of prize money for proficiency in rifle shooting under the same conditions as R.N. ratings.

4. The course has been established so as to combine instruction with firing practice. Each part of the course extends over a period of 5 days, and the programmes laid down have been based on the assumption that classes will have 5 working hours a day on the range. Every endeavour is to be made by ships that this is obtained, and also that no more men are sent down to the range than can be instructed simultaneously, or than the capacity of the range will admit.

5. Classes should be limited to a maximum of 12 under one instructor; it is important that men should retain the same arms and accoutrements throughout the course.

6. The year, for musketry purposes, is to be considered from 1st July to 30th June, except for Royal Marines, for whom the weapon Training Year is 1st April to 31st March.

7. No firing is to take place unless an officer is present on the range.

SECTION 2.—THE ANNUAL RIFLE COURSE, PART I.

1. This course is designed to teach a man the correct manner of holding and firing the rifle, to familiarise the novice with the sensations of firing, and to carry out in practice the elementary principles of rifle shooting.

2. In the grouping and application practices, care is to be taken to avoid hurry, and assistance is to be given in order to dissipate nervousness and gun-shyness. If it is evident that bad shooting is due to nervousness, the man should be directed to unload, and should complete his rounds when the officer commanding the party thinks fit: but endeavour is to be made to ensure that every man completes Part I satisfactorily during the specified period of five days.

(399/985)
### Annual Rifle Course—Part I

<table>
<thead>
<tr>
<th>Practice No.</th>
<th>Target.</th>
<th>Nature of Practice</th>
<th>Range (Yards)</th>
<th>No. of Rounds</th>
<th>Method of Firing</th>
<th>Standard required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bullseye</td>
<td>Grouping</td>
<td>25</td>
<td>5</td>
<td>Prone, no cover</td>
<td>3-inch group. 5 hits on target and score of 10 points.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Application</td>
<td>25</td>
<td>5</td>
<td>Prone, no cover</td>
<td>Ditto.</td>
</tr>
<tr>
<td>3</td>
<td>As for 2</td>
<td>Snapshooting</td>
<td>25</td>
<td>5</td>
<td>Prone, no cover</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Start loaded, but not on aim; 6 seconds' exposure</td>
<td>Ditto.</td>
</tr>
<tr>
<td>4</td>
<td>Bullseye</td>
<td>Grouping</td>
<td>100</td>
<td>5</td>
<td>Lying in open, bayonet fixed</td>
<td>4 shots in 12-inch circle.</td>
</tr>
<tr>
<td>5</td>
<td>Bullseye</td>
<td>Grouping</td>
<td>100</td>
<td>5</td>
<td>Kneeling behind cover, bayonet fixed, using rest if available.</td>
<td>NIL.</td>
</tr>
<tr>
<td>6</td>
<td>Small target (4 ft.)</td>
<td>Rapid...</td>
<td>100</td>
<td>5</td>
<td>Lying in open, bayonet fixed. Time, 30 seconds.</td>
<td>All rounds fired to be on the target with a score of not less than 8 points.</td>
</tr>
<tr>
<td>7</td>
<td>Small target (4 ft.)</td>
<td>Snapshooting</td>
<td>100</td>
<td>5</td>
<td>Lying in open, bayonet fixed. 5-second exposures. Rifle to be loaded and on aim before each exposure. Cover and rest should be used</td>
<td>Ditto.</td>
</tr>
<tr>
<td>8</td>
<td>Small target (4 ft.)</td>
<td>Application</td>
<td>200</td>
<td>5</td>
<td>Lying in open, bayonet fixed</td>
<td>NIL.</td>
</tr>
<tr>
<td>9</td>
<td>Small target (4 ft.)</td>
<td>Rapid...</td>
<td>200</td>
<td>5</td>
<td>Lying in open, bayonet fixed. Start unloaded. Time, 30 seconds</td>
<td>NIL.</td>
</tr>
<tr>
<td>10</td>
<td>Snapshooting, large</td>
<td>Snapshooting</td>
<td>200</td>
<td>5</td>
<td>Lying in open, bayonet fixed. 5-second exposures. Rifle to be loaded and on aim before each exposure</td>
<td>NIL.</td>
</tr>
<tr>
<td>11</td>
<td>Large target (6 ft.)</td>
<td>Application</td>
<td>500</td>
<td>5</td>
<td>Lying in open, without bayonet</td>
<td>NIL.</td>
</tr>
</tbody>
</table>
### Annual Rifle Course - Part 1 (cont.)

<table>
<thead>
<tr>
<th>Practice No.</th>
<th>Nature of Practice</th>
<th>Target</th>
<th>Range</th>
<th>No. of Rounds</th>
<th>Method of Firing</th>
<th>Standard Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Application</td>
<td>Small</td>
<td>200</td>
<td>5 (330 amm)</td>
<td>Lying, bayonet fixed</td>
<td>40 points</td>
</tr>
<tr>
<td>13</td>
<td>Rapid</td>
<td>Small</td>
<td>200</td>
<td>10</td>
<td>Lying, bayonet fixed</td>
<td>40 points</td>
</tr>
<tr>
<td>14</td>
<td>Snapshooting</td>
<td>Large</td>
<td>200</td>
<td>8</td>
<td>Lying, bayonet fixed</td>
<td>40 points</td>
</tr>
<tr>
<td>15</td>
<td>Application</td>
<td>Large</td>
<td>500</td>
<td>5</td>
<td>Lying, bayonet fixed</td>
<td>40 points</td>
</tr>
</tbody>
</table>

### Notes

(i) Those who fail to reach the standard in any of the Practices 1-7 should have further instruction, and repeat the practice before going on to the next one.

(ii) Practices Nos. 6 and 7 are to be omitted for men who have qualified as marksmen in the last annual course.

(iii) Practice No. 11 is to be carried out before Practices 12 to 15.

(iv) The .22 practices should be carried out by the young or inexperienced shots. When circumstances permit, these practices should be carried out on board. When local conditions do not allow .22 firing to take place on board, they should be carried out at the .303-inch range or at a convenient .22 range ashore.

### 3. Objects of Annual Rifle Course, Part 1

**Practices Nos. 1, 2 and 3.** — To give practice to the firer in holding the rifle steady while sighting and pressing the trigger. Faults in sighting and trigger-pressing can be seen by the groups of shots, and definite instructions can be given to each firer to remedy personal errors.

**Practice No. 4.** — To show the firer how his rifle throws, i.e., whether straight or to the right or left. To give the opportunity to correct or discard an inaccurate rifle.

**Practice No. 5.** — To teach the firer to shoot from the kneeling position, and to employ cover and rest when available to the best advantage.

**Practice No. 6.** — To teach the firer to deliver a rapid volume of fire.

**Practice No. 7.** — To teach the firer to take a moderately quick aim, at the same time to press the trigger without snatching at it.

**Practice No. 8.** — To give practice to the firer in shooting at a stationary target, aiming off for wind; allowing for the "throw" of his rifle (if any) so as to get the best results under the weather conditions at the time of firing.
Practice No. 9.—To teach the firer to load rapidly and deliver a good volume of fire in a given time.

Practice No. 10.—To teach the firer to take a moderately quick aim, at the same time to press the trigger without snatching at it.

Practice No. 11.—To give experience in firing at long ranges.

Practices Nos. 12, 13, 14 and 15 are a test of the shooting abilities of the firer, a record of which is kept. They are called "The Standard Test Practices."

4. During the Standard Test Practices the men are to fire without the advice or assistance of the instructor, but occasional shots to verify the elevation or strength of wind may be fired at any time by an officer or instructor, with the senior officer's permission.

5. No sighting shots are to be allowed in standard test practices, but if for any reason a man has to fire with a strange rifle he may, with permission of the senior officer of the range, fire a grouping practice before he starts his standard test firings.

6. Only the standard test practices count towards prize money and badges.

7. Programme of Annual Course, Part I.

Total points obtainable 100.
For Marksman 75 and over.
1st Class Shot 60-74.
2nd Class Shot 40-59.
3rd Class Shot Below 40.

1st Day Description of rifle, Loading, Trigger Pressing, Aiming (use of sights), Standing Position, Kneeling Position, Prone Position, Care and Cleaning of Arms, Practices 1, 2 and 3.

2nd Day Cleaning and Mechanism of Rifle, Aiming off for wind, Rapid Loading, Aiming and firing with drill cartridges, Practices 4, 5, 6 and 7.

3rd Day Practices 8, 9, 10 and 11.

4th Day Standard Test Practices 12, 13, 14 and 15.

5th Day Revision and Spare Day.

Section 3.—Annual Rifle Course, Part II.

1. This is to be carried out by each section or platoon under its own officers and section leaders, as constituted in the ship's landing party organisation, and by all other ratings who are detailed to land armed with a rifle.

2. Part II may be carried out immediately on the conclusion of Part I or at a later date as may be ordered by the Commander-in-Chief.

3. If a considerable period has elapsed after the completion of Part I before commencing Part II, an extra allowance of 10 rounds of .303-inch ammunition per firer may be expended on suitable "working up" practices for Part II, at the discretion of the Senior Officer.

4. The principal objects of these practices are to give the firers experience in shooting under more practical conditions than in Part I, and to exercise the section leaders in taking charge of their men, giving fire orders, &c.

5. It is essential that section leaders should be given the opportunity of taking charge of the sections, and they should give all the necessary orders, platoon commanders exercising a general supervision.

6. Section leaders will not themselves fire.

7. The practices should be arranged as inter-platoon or inter-section competitions so as to stimulate interest.

8. The following practices may be modified if necessary to suit local conditions:

(i) Practice No. 1.—Fire with Movement.

Range 600 to 100. 10 rounds. Large (6 ft.) target, 1 per firer. Section is extended at 800 yards, rifles being loaded with 10 rounds.
When targets go up, advance to 500 and fire 2 rounds lying, section leader giving necessary orders.

Targets will be up for 1 minute and down for 15 seconds, during which sights are adjusted.

The advance is continued in a similar manner, firing lying, at 400 and 300; and kneeling, at 200 and 100.

Bayonets to be fixed before firing at 300. Safety catches must be right back during movement.

After firing at 100, a line of sacks is assaulted with the bayonet.

Firers should be allowed to look at their targets at the conclusion.

Scoring—4, 3, 2, 1.

(ii) Practice No. 2—Snapshooting, standing, during advance.

Range, 200 to 50. Five rounds. One ½ figure target per firer. Section is extended, standing, at 200 yards, bayonets fixed, and rifles loaded, with 5 rounds, safety catches applied.

When ordered, advance in line at the "quick" with arms, at the "high port," halting and firing one round, standing each time the targets appear.

Targets will appear 5 times, each time for 5 seconds, range at last appearance not less than 50 yards.

After firing the last round a line of sacks is assaulted with the bayonet.

Firers should be allowed to look at their targets at the conclusion.

Scoring—4 points per hit.

If it is not possible to do this practice advancing, it should be carried out at 100 yards.

(iii) Practice No. 3—Defence.

Section to be extended in a trench (if available) or lying behind cover. Range, 200 or 300 yards, 15 rounds per man.

Bayonets to be fixed and rifles loaded with 5 rounds, and may be on aim. Respirators are to be worn.

A medium snapshooting target makes 5 appearances, each of 5 seconds, at different parts of the butts and at irregular intervals spread over 2 minutes. (This represents the attackers bobbing up to fire.)

Fifteen seconds after the last of the above appearances, an extended line of ½ figure targets (1 per firer) is exposed for 40 seconds. (This represents the attackers advancing.)

These targets are dipped, or twirled, and at once put up again when hit.

Each man may fire at any target that appears.

Scoring—4 points per hit on any target.

(iv) Practice No. 4—Knock-out.

Range, 200. 10 rounds. 10 falling plates per Section. The practice takes place in heats, two Sections shooting against each other in each heat.

Sections are extended, standing, at 300 yards.

When ordered, advance to 200, lie down, load, and open fire. A section wins its heat if it:

(a) Knocks down all its targets first; or

(b) Has knocked down most targets at the end of the time limit of 1½ minutes; or

(c) In case of ties, has expended least ammunition.

As an alternative to conducting this practice by heats on the knock-out principle, each Section can only, time to knock down all targets being taken with a stop watch.

(v) Practice No. 5—Platoon Attack.

To be carried out with blank, as it will seldom, if ever, be possible on any Naval Rifle Range to fire ball with safety without restricting the movements of sections to such an extent as to make the attack unrealistic.

The scheme must be framed according to the ground available, the following being given as a guide:

(a) The Platoon is advancing in square formation when the two leading Sections (Nos. 1 and 2) are held up by fire from an enemy post about 500 yards away.

(b) No. 1 Section extends and opens fire, under cover of which No. 2 works forward to a
suitable fire position from which to cover the
further advance of No. 1 and so on.

e) Supporting each other in this way, the two
leading Sections advance to about 300 yards,
but can get no further.

(d) The Platoon Commander then decides to send
No. 3 Section off to the left with orders to
work round the enemy's flank and attack
him in rear, and at the same time to give
additional covering fire by moving No. 4
Section up on the right flank. These move-
ments are covered by the fire of Nos. 1 and 2
Sections.

(e) The Lewis Gun Sections then work forward
alternately to positions from which they can
give more effective covering fire, and the
Rifle Sections endeavour to close to assaulting
distance. The Rifle Sections will then
assault with the bayonet while the Lewis
Gun Sections keep up covering fire till the last
possible moment.

The enemy should be represented by medium snap-
shooting targets.

In the final stages a line of \( \frac{3}{4} \) figure targets may be
raised to represent a counter attack.

SECTION 4.—COURSES IN GUNNERY SCHOOLS.

1. These will be carried out during Officers' and Men's
Gunnery Courses as laid down in the "Gunnery Training
Manual."

2. Provided a man has shot no course previously
during the current musketry year, he is eligible for badges
and prize money for Part I.

SECTION 5.—PRIZE MONEY FOR RIFLE SHOOTING
PROFICIENCY.

1. No officer is eligible for prize money.

2. Gunners' Mates and Petty Officers for range duties,
on the Staff of Gunnery Schools, R.N. Barracks and
Rifle Ranges, are not eligible for the award of prize
money.

3. A man is eligible for badges and prize money on the
first course only that he shoots during the current
musketry year.

4. No prize money for rifle or pistol practice is to be
paid unless the practice has been carried out under the
supervision of a commissioned officer who is to be
present on the range throughout the practice, and who
will be held responsible for carrying out the regulations
strictly. At Gunnery School ranges this supervision
may be performed by the Warrant Officer borne for
range duties.

5. No prize money for rifle practice is to be paid unless
there has been a commissioned or warrant officer in the
butts during the firing of the standard practices. It is
the duty of this butt officer to satisfy himself that the
marking on the butts is correctly carried out. Where-
ever circumstances permit, the butt officer is to be
detailed from an independent ship.

6. Efforts are to be made before carrying out any
standard test firings to obtain markers from another ship,
and where this is not possible it is to be so stated on the
return, in which case the senior officer who approves the
payment of the prize money is to state whether he is
satisfied that it was not possible to obtain independent
markers.

7. When the amount of prize money is abnormally
large, the payment is not to be approved by the senior
officer without further enquiry, the prizemen, if he
considers it necessary, being made to fire again under
independent markers.

8. The year for musketry purposes is to be considered
from 1st July to 30th June, except for Royal Marines,
for whom the weapon Training Year is 1st April to
31st March.
9. The scale of prize money payable for the standard tests in the Annual Rifle Course, Part I, is as follows:

<table>
<thead>
<tr>
<th>Points Obtained</th>
<th>Prize Money Payable</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
<td>0 s. 6 d.</td>
</tr>
<tr>
<td>66</td>
<td>1 s. 0 d.</td>
</tr>
<tr>
<td>67</td>
<td>1 s. 6 d.</td>
</tr>
<tr>
<td>68</td>
<td>2 s. 0 d.</td>
</tr>
<tr>
<td>69</td>
<td>2 s. 8 d.</td>
</tr>
<tr>
<td>70</td>
<td>3 s. 4 d.</td>
</tr>
<tr>
<td>71</td>
<td>4 s. 0 d.</td>
</tr>
<tr>
<td>72</td>
<td>4 s. 8 d.</td>
</tr>
<tr>
<td>73</td>
<td>5 s. 6 d.</td>
</tr>
<tr>
<td>74</td>
<td>6 s. 4 d.</td>
</tr>
<tr>
<td>75               (Marksman)</td>
<td>7 s. 2 d.</td>
</tr>
<tr>
<td>76</td>
<td>8 s. 0 d.</td>
</tr>
<tr>
<td>77</td>
<td>9 s. 0 d.</td>
</tr>
<tr>
<td>78</td>
<td>10 s. 0 d.</td>
</tr>
<tr>
<td>79</td>
<td>11 s. 0 d.</td>
</tr>
<tr>
<td>80</td>
<td>12 s. 2 d.</td>
</tr>
<tr>
<td>81</td>
<td>13 s. 4 d.</td>
</tr>
<tr>
<td>82</td>
<td>14 s. 8 d.</td>
</tr>
<tr>
<td>83</td>
<td>16 s. 0 d.</td>
</tr>
<tr>
<td>84</td>
<td>17 s. 4 d.</td>
</tr>
<tr>
<td>85</td>
<td>18 s. 8 d.</td>
</tr>
<tr>
<td>86</td>
<td>20 s. 2 d.</td>
</tr>
<tr>
<td>87</td>
<td>21 s. 8 d.</td>
</tr>
<tr>
<td>88</td>
<td>23 s. 4 d.</td>
</tr>
<tr>
<td>89</td>
<td>25 s. 0 d.</td>
</tr>
<tr>
<td>90</td>
<td>23 s. 8 d.</td>
</tr>
<tr>
<td>91</td>
<td>28 s. 6 d.</td>
</tr>
<tr>
<td>92</td>
<td>30 s. 4 d.</td>
</tr>
<tr>
<td>93</td>
<td>32 s. 2 d.</td>
</tr>
<tr>
<td>94</td>
<td>34 s. 2 d.</td>
</tr>
<tr>
<td>95</td>
<td>36 s. 2 d.</td>
</tr>
<tr>
<td>96</td>
<td>38 s. 2 d.</td>
</tr>
<tr>
<td>97</td>
<td>40 s. 4 d.</td>
</tr>
<tr>
<td>98</td>
<td>42 s. 6 d.</td>
</tr>
<tr>
<td>99</td>
<td>44 s. 8 d.</td>
</tr>
<tr>
<td>100</td>
<td>47 0</td>
</tr>
</tbody>
</table>

Maximum points, 100.

SECTION 6.—MARKSMAN BADGE.

1. Marksman.

*Standard.*—75 points or above.

*Badge.*—Cross rifles with star.

*Where worn.*—Right forearm above the cuff.

2. Marksman's badge is only to be awarded if the required standard is obtained in the first practice to be carried out during the musketry year.

3. Marksman's badges are to be worn from the date of receipt, and may be retained until the man fails to qualify for marksman at any subsequent firing, when they are to be given up.

4. All Gunners' Mates and Petty Officers for range duties are eligible to wear the Marksman's badge if they have earned it.

5. Gunners' Mates and petty officers for range duties are to fire with the first party that they go to the range with.
CHAPTER XVII.

RETURNS.

Firing Point Register S.287.

1. This is to be kept in ink and filled up on the ground, the men's names, &c., having been previously entered. The direction of the wind is to be shown by an arrow. The total of each man's points is to be transferred to the platoon return of rifle practice for the information of the ship's company.

Platoon Return of Rifle Practices. S.289.

2. Platoon results are to be filled up from the "firing point register" on Form S.289, and posted up in a public place for the information of the ship's company.


3. Ship's results are to be tabulated on Form S.290. A separate return is to be rendered for:

(a) Subordinate Officers,
(b) Seamen,
(c) Signal and W/T ratings,
(d) Stokers,
(e) Volunteers.

4. Forms S.290 are to be forwarded in duplicate to the administrative authority, together with the Commanding Officer's remarks on the practice.

5. On receipt by the administrative authority they will be dealt with as follows:

On giving approval for the payment of prize money:

(a) The original set will be forwarded to the Admiralty (D.T.S.D.), together with remarks on the practice or reason for no practice having been carried out.

(b) The duplicate set is returned to the ship, to be forwarded into office as an enclosure to the ledger after payment of prize money.

6. Commanding Officers of ships and establishments administered by the Home Port Commands carrying out annual rifle and pistol practices at the ranges attached to the three gunnery schools may approve payment of prize money in accordance with the scales laid down, and are to forward returns as follows:

(a) Original to Commander-in-Chief for transmission to the Admiralty (for Director of Training and Staff Duties Division).

(b) Duplicate to be forwarded into office as an enclosure to the Ledger.

7. Administrative authorities and officers referred to in the preceding paragraph are empowered to give approval for the payment of prize money, if they are satisfied the regulations concerning the conducting of the practices have been correctly carried out. In the event of approval being withheld, both sets of returns are to be forwarded to the Admiralty, together with a report as to the circumstances necessitating this action.

8. When practices have not been carried out during the musketry year, Form S.290 in original only is to be forwarded on the 1st July, showing the total number in each separate class in ship at that date (Seamen, Stokers, Signal and W/T ratings, and Subordinate Officers), together with the Commanding Officer's remarks as to the reason for not carrying out the practices.

9. The results of rifle courses are to be entered on the History Sheets of Seaman and Engine Room ratings immediately after the completion of the courses.

10. In the case of other ratings, the notation is to be made under "Examinations, etc.," on page 3 of the Service Certificate.
CHAPTER XVIII.

TARGETS.

SECTION 1.—UPKEEP OF TARGETS.

A list of stores for the upkeep of targets is shown in "Establishment of Naval Stores for Maintenance of R.N. Rifle Ranges at Home and Abroad" (B.R. 340). These books are supplied to the officers in charge of rifle ranges, and all stores are provided by the S.N.S.O. Damaged targets are passed from the butts to the target shed, where they are repaired by the range staff. The shot holes are patched up in the butts by the markers, targets being completely re-covered with paper when necessary. It is necessary to have a good supply of paste and of wooden battens 4½ ins. by 1½ ins.

SECTION 2.—TARGETS FOR R.N. RIFLE PRACTICES.

SERVICE TARGETS.

1. Large (6 ft.) and Small (4 ft.) Targets.—These consist of wooden frames on which canvas is stretched and nailed; paper of the appropriate colour is pasted on to this canvas. The rings are then marked in black or blue pencil.

This target is used at 200 yards (4 ft. square), and at 500 yards (6 ft. square).

<table>
<thead>
<tr>
<th>Target</th>
<th>Diameter of Circles</th>
<th>Diameter of Aiming Mark</th>
<th>Value of Shots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small (4 ft.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bull's eye</td>
<td>12&quot;</td>
<td>12&quot;</td>
<td>4</td>
</tr>
<tr>
<td>Inner</td>
<td>24&quot;</td>
<td>24&quot;</td>
<td>3</td>
</tr>
<tr>
<td>Magpie</td>
<td>36&quot;</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Outer</td>
<td>48&quot;</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
| Hits on targets outside the outer circles do not count for scoring purposes.

SNAPSHOOTING TARGETS.

2. Snapshooting, Large Medium

All hits count 4.

- Top Half Grey
- Black
- Bottom Half Khaki

22" Diameter 220 Sq. Area

[Diagram of target with dimensions and coloration]
**Figure Target.**

3. Made of three-ply wood, with a batten nailed on in *rear* to support it in the target frame. The targets may *be* held up by men in the trenches. All hits count 4.

---

**Falling Plate Target.**

4. Used as a disappearing target, &c. Made of three-ply wood nailed on a hinged batten, and fitted in the usual target frame.
Bull's Eye Target

5. For grouping practices.

A white patch is inserted on the bull's eye for grouping practices to give a distinctive aiming mark. It is of white paper, 3 in. wide and 4 in. high, and stuck on the target at "six o'clock on the bull."

---

**SECTION 3.—BISLEY TARGETS.**

**FIRST CLASS BISLEY TARGET.**

1. For use at 500 yards and 600 yards range.

The Bisley targets for use at 200 yards and 300 yards range are 4 ft. square, and of the same shape and colours as the first class Bisley target, the black semi-circle being 12 in. diameter at 200 yards and 15 in. at 300 yards. The dimensions are given in the following table:

<table>
<thead>
<tr>
<th>Target</th>
<th>Size</th>
<th>Value of Shot</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>500 yards and 600 yards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bull's eye</td>
<td>15 in. diameter</td>
<td>5</td>
</tr>
<tr>
<td>Inner</td>
<td>12 in.</td>
<td>4</td>
</tr>
<tr>
<td>Magpie</td>
<td>9 in.</td>
<td>3</td>
</tr>
<tr>
<td>Outer</td>
<td>7 in.</td>
<td>2</td>
</tr>
<tr>
<td>Remainder</td>
<td>72 in. square</td>
<td>0</td>
</tr>
<tr>
<td><strong>300 yards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bull's eye</td>
<td>7 in. diameter</td>
<td>5</td>
</tr>
<tr>
<td>Inner</td>
<td>15 in.</td>
<td>3</td>
</tr>
<tr>
<td>Magpie</td>
<td>9 in.</td>
<td>2</td>
</tr>
<tr>
<td>Outer</td>
<td>7 in.</td>
<td>0</td>
</tr>
<tr>
<td>Remainder</td>
<td>48 in. square</td>
<td>0</td>
</tr>
<tr>
<td><strong>200 yards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bull's eye</td>
<td>5 in. diameter</td>
<td>5</td>
</tr>
<tr>
<td>Inner</td>
<td>12 in.</td>
<td>4</td>
</tr>
<tr>
<td>Magpie</td>
<td>24 in.</td>
<td>3</td>
</tr>
<tr>
<td>Outer</td>
<td>16 in.</td>
<td>2</td>
</tr>
<tr>
<td>Remainder</td>
<td>48 in. square</td>
<td>0</td>
</tr>
<tr>
<td>&quot;Wantage&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bull's eye</td>
<td>8 in. diameter</td>
<td>5</td>
</tr>
<tr>
<td>Inner</td>
<td>16 in.</td>
<td>4</td>
</tr>
<tr>
<td><strong>300-yard Snapshooting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bull's eye</td>
<td>12 in. diameter</td>
<td>5</td>
</tr>
<tr>
<td>Inner</td>
<td>22 in.</td>
<td>4</td>
</tr>
</tbody>
</table>
CHAPTER XIX.

COMPETITIONS.

1. When drawing up rules for a rifle or revolver meeting, officers should remember that it is essential that debatable points should be settled beforehand. The following are some of the difficulties that occur, which should be allowed for in the rules of the meeting:

(a) A competitor shooting on the wrong target.
(b) A competitor who finds more shots on his target than the number he has fired.
(c) Missfires, in rapid practices.
(d) Jams, or defects in the mechanism of the rifle or pistol, not being the fault of the competitor.
(e) Use of slings.
(f) Use of aperture sights, orthoptics and other aids to shooting; use of the windgauge.
(g) "Puff shots." This is the name given to shots, which occur in pistol shooting, when the cartridge is not sufficiently filled, and the bullet either falls many yards short, or else remains in the bore of the pistol.

In the case of (g), it should be expressly forbidden for the competitor to continue the practice without first examining his weapon to ensure that no portion of the bullet is lodged in the bore.

The rules laid down for meetings under the auspices of the National Rifle Association will be found appropriate for most practices, and are published annually by the N.R.A.

2. The same lot of ammunition should be used throughout a competition.

3. In cases where some competitors are familiar with the range and some are not, it is a good thing to allow
an unlimited number of sighting shots until a competitor has satisfactorily found the target. This should only be at the commencement of the competition.

4. In important matches, butt registers should be kept as well as firing point registers. This is particularly important, where the register keepers and markers belong to the same unit as some of the competitors. In such cases care must be taken that the two registers are kept apart until they can be compared by the Umpire or Officer in charge of the meeting. The targets should be drawn for between each series to ensure that the markers in the butts do not know which competitors are firing at any particular target. The calculation of the results at each range and series should be checked by an Officer.

5. No coaching or spotting should be allowed in individual shoots, but in team matches it is usual to allow another member of the team to spot for and advise the firer.

6. Ricochets may be signalled.

7. No form of artificial rest is allowed for rifle or pistol shooting, unless it is expressly stated in the rules.
CHAPTER I.

GENERAL INSTRUCTIONS.

SECTION 1.—General.

1. A number of officers and other ranks are armed with the pistol.

2. These notes are written with the object of providing a system of instruction for the use of those officers and other ranks who are not expert pistol shots. They apply to all types of revolvers, but slight modifications will be necessary, according to the particular make of weapon used and the size of the firer’s hand, as it has been found by experience that the grip must be altered slightly if the firer has a small hand or short fingers.

3. The highly skilled exponent of 2-in. grouping attains his skill only by continuous practice. In the short time available for training officers and men armed with the revolver, this high standard of accuracy cannot be reached. Neither would this class of shooting be of value in war, when it is necessary, at the sacrifice of some degree of precision, to obtain the rapidity required to hit disappearing or moving objects.

4. The object of the training is to make practical shots of those officers and men armed with the Service pistol. A practical shot should be able to place a bullet in a 16-in. by 12-in. rectangle at 10 yards in one second.

5. In action three important points to be remembered are:—

(i) The point of aim, whenever possible, is the centre of the enemy’s waist.

(ii) Speed in firing. One or more effective shots is of vital importance.

(iii) The target is generally a moving one.

6. The method finally aimed at as the result of the training in all “Off hand” and rapid firing is that of shooting mechanically by sense of direction with extreme speed.

Effective shooting in war can best be accomplished by this method at medium and short ranges, it being the instinctive action of a man when firing a pistol in self-defence, and one to which he will revert when suddenly confronted by an attacking enemy.

7. The practical shot with the pistol can fire more quickly than his opponent armed with the rifle.

8. Shooting by sense of direction is the practical method for night firing.

SECTION 2.—Characteristics.

1. The pistol is a one-hand weapon, and as there is no support for the weapon or for the arm, the first essential is a proper grip. It should be immaterial in which hand the pistol is held, because if a proper grip is obtained the weapon will automatically point at the object.

2. The distance between the sights is short, so that a small error in aiming or a slight movement whilst pressing the trigger will often result in the target being missed, even at very short range.

3. The short barrel makes the pistol portable and handy, and enables a quick change of target to be made, but renders the weapon very dangerous if carelessly handled.

4. The size and weight of the bullet gives it considerable stopping power, and the velocity, although it is not very high (about 600 f.s.), is sufficient to cause a flat trajectory at short range.

5. The rate of fire is considerable until the pistol requires reloading; six well-aimed rounds can be fired by a moderate shot in 12 to 15 seconds, and by an expert in 5 seconds.
From these characteristics it may be concluded that in the hand of a trained shot the pistol is a quick and useful weapon up to about 50 yards, but in the hand of an untrained man it is of little use and dangerous.

**SECTION 3.—SEQUENCE OF TRAINING OFF THE RANGE.**

**NOTES.**—1. When picking up a pistol, always examine it to ensure that it is not loaded.
2. A pistol should never be opened or closed with the hammer cocked.
3. Always handle a pistol as if it were loaded.

**SECTION 4.—TESTS.**

Weapons will be proved immediately before all empty pistol practices and tests.

Before firing ball ammunition, those undergoing instruction should be tested for proficiency in handling the empty pistol. The test to be carried out at a distance of 4 yards between firer and instructor, the mark being an aiming disc held to the instructor’s eye.

Four out of the six aims should be accurate.

The test to be applied to both the “deliberate” and “off-hand” methods.

In the former, three seconds, in the latter, one second, will be the time limit for each “shot.”

All details applying to the method employed must be strictly observed.

**SECTION 5.—THE GRIP.**

The *Standard Grip.*—The grip for the right hand (see Plates Nos. 1 and 2):

1. The first joint of the index finger must be on the lower part of the trigger.
SECTION 6.—Position.

The body should be well balanced on both feet, which should be about 12 inches apart from heel to heel, the advanced foot pointing towards the target. Body erect and braced up. Pistol arm straight and stiff, pointing about one yard in front of the advanced foot. The head well balanced, and not inclined when sighting the pistol. The disengaged hand may be placed on the hip to help support the body.

SECTION 7.—Trigger-Pressing Instruction.

Correct trigger-pressing is of great importance. The pistol may be fired in two ways:

(i) By cocking action for single practice, and
(ii) By the trigger action for continuous practice.

(1) Cocking Action.—With correct grip and firm first pressure of trigger finger (approximately 2 lb.), the pistol should be fired by the squeeze of the whole hand, including a downward and forward pressure of the thumb.

Note.—(a) The first pressure is important; with it the pressure of the thumb will cause an automatic response of the trigger finger.

(b) The firer should not anticipate the precise moment for the fall of the hammer, but keep on squeezing with the whole hand until the fall of the hammer occurs, without disturbing the direction of the barrel.

(c) The pistol is to be cocked by the thumb of the pistol hand.

(2) Trigger Action.—With firm grip and stiff wrist, the trigger should be pressed with a slightly diagonal pressure, directed towards the thumb. The pressure should be continued steadily till the hammer rises and
falls forward without disturbing the direction of the barrel.

(3) In both methods, at the fall of the hammer, the finger should instantly release the trigger, so that the latter can return to its former position.

(4) In preliminary instruction the arm should be supported on the edge of a table or "rest," so that the firer can see whether the pistol moves on firing.

SECTION 8.—METHODS OF FIRING.

There are two ways of firing:—

(i) Snapshooting.

(ii) Deliberate aim.

These again are each divided into two methods:—

(i)—(a) Snapshooting—employing the cocking action and without use of the sights, known as the "off hand" method.

(b) Snapshooting—employing the trigger action, and without use of sights, known as the "rapid fire" method.

(ii)—(a) Deliberate aim, with fine alignment of sights, and employing both hands to control the pistol when lying down or shooting over cover. Known as the "prone" method.

(b) Deliberate aim, with fine alignment, when standing and using one hand only. Known as "deliberate aim standing."

DETAILS OF METHODS.

"Off Hand" Method.

(i)—(a) From the "ready" position, with pistol cocked and eyes on the mark. The pistol is raised in the vertical plane, the

"let off" so timed that the hammer falls the moment the weapon comes up to the line of vision. There is no delay for fine alignment of sights.

If firing consecutive shots, the pistol is lowered about 1 foot only. During this movement the hammer should be cocked.

"Rapid Fire" Method.

(i)—(b) From the "ready" position the pistol should be quickly raised, and the trigger pressure timed so that the round is fired immediately the pistol comes to the mark, the trigger smartly released, and the pressure again taken.

A strong grip and a stiff wrist are important when firing by the trigger action.

Deliberate Aim, "Prone" Method.

(ii)—(a) From the "rest" position. With the pistol in the right hand, bend the knees and place the left hand on the ground; lie on the stomach, the body and legs straight behind the line of fire, the chest raised and supported by the elbows. Hold the pistol in the correct grip with the pistol hand. Place the first joint of the thumb of the other hand over the knuckle of the second thumb joint of the pistol hand. Close the four fingers of the outside hand over the three fingers on the butt (see Plate No. 3).

To fire.—Cock the hammer with the thumb of the outside hand; raise the pistol, keeping it as far forward as possible, without strain. Take first pressure, align sights on the mark, and
apply the squeeze with a uniform pressure of both hands.

Deliberate Aim, Standing.

(ii)—(b) From the "ready" position, with hammer at full cock. Raise the pistol quickly to the mark, the arm fully extended. Close the disengaged eye, meanwhile tightening the grip of the hand. Take regulation aim, restrain breathing, and complete the squeeze, firing the shot without undue delay.

Note.—The first aim caught is generally the best for active service firing. The feet should be separated, the foot nearest the pistol arm in advance and pointing towards the target, the body erect and balanced firmly on both feet.

Section 9.—Aiming Instruction.

1. Deliberate Aim Practice:

(i) Select a small aiming mark at about 5 yards distant, assume the "ready" position, grip the pistol, stand firmly on both feet, body erect.

(ii) Raise the pistol steadily, arm fully extended, close the disengaged eye, restrain the breathing and take a regulation aim. Keep the wrist and arm stiff, head and body motionless. Lower the pistol in the vertical plane to the "ready" position, the eye, hand, pistol, leading foot and mark being in the same vertical plane. Without moving the head, glance down at the pistol, and note the exact amount of barrel visible (average about one-quarter). Raise the pistol steadily to the mark. Repeat. Practise the motions described till the pistol comes readily to the mark with sights aligned.

2. Off Hand Practice.—Assume the "ready" position, cock the pistol with eyes on the mark, arm fully extended, raise the pistol in the vertical plane, apply the squeeze of the hand so that the hammer falls at the moment the pistol comes up to the line of vision, without any delay for the fine alignment of sights.

The fully extended arm and the pistol should be raised as one from the shoulder.

If firing consecutive shots, the pistol will be lowered about 1 foot only immediately after firing, and the thumb should cock the hammer as the pistol is being lowered.

When the hammer has fallen six times the unloading and loading motions should be carried out.

This practice should be repeated till the pistol can be raised from the "ready" position to the mark and fired within a period of one second for each shot.

3. Rapid Fire Practice.—As in 2, but employing the trigger action. A trained firer should be able to fire six well-directed shots in four seconds.

Section 10.—Firing Instruction.

1. Strict regard to range discipline, and to details of positions and motions, is to be observed, and the instructions referring to the method employed followed.

The attention of the firer should be concentrated on the mark, not on the pistol, at the moment of firing. The common fault of flinching is primarily caused by the firer's attention being on the pistol instead of on the mark at the moment of firing.

Much empty pistol practice is necessary to obtain the timing of the "let off."

2. Selection of the Point of Aim.—The point of aim is the centre of the waist line whenever possible, or at a selected mark about two-thirds down from the top of the target and central. The eye should be focussed sharply on the point of aim when firing.

(399/995)
3. When firing at a crossing target, aim should be taken at or near the front edge of the target, according to its range and speed. The pistol must be kept moving when being fired; the arm and upper part of the firer's body should be kept rigid, the movement from the waist. Cocking action should be employed.

SECTION II.—NOTES ON THE USE OF THE PISTOL IN THE FIELD OR TRENCH WARFARE, WHICH SHOULD BE PRACTISED UNDER AS REALISTIC CONDITIONS AS POSSIBLE.

1. Whilst in the open, and whilst crossing wire or other obstacles, the hammer should be down, and the trigger finger should be outside the trigger guard.

2. However hurried a firer may be, he must never fail to pick a spot on his target as his aiming mark, nor to keep his eye focussed on the spot whilst firing.

3. The pupil must count his rounds as he fires. Failing such precaution, he is liable to be caught with an empty weapon.

4. He must remember to re-load, if possible, before his last round has been fired, and must use circumspection in choosing place and time for doing so.

5. The correct manipulation of the pistol must be borne in mind: e.g., by uncocking and re-cocking the pistol a live round may be passed over.

6. The body must not be unnecessarily exposed. When going round a corner the pistol should be in the firer's outside hand.

7. Fighting with an empty pistol. The grip of the pistol should be retained, and a strong jab delivered with the muzzle into the enemy's throat or eye. To grapple with an enemy armed with the bayonet, seize the opponent's rifle at the muzzle end, just behind the foresight, and push the point outwards.

CHAPTER II.

PRECAUTIONS.

1. In order to avoid all risk of accident, range rules and details of range drill must be strictly observed.

2. On each morning of the first two days preliminary instruction the following rules will be read to those under instruction:

   (i) A pistol is always to be treated as though it were loaded. A pistol is never to be brought to a range loaded, or be so pointed that, if discharged, it would endanger the firer or others.

   (ii) A pistol, on being drawn from the holster or taken up from a table, is to be immediately opened and examined.

   (iii) A pistol is never to be put into or carried in the holster with the hammer cocked.

   (iv) Whenever a pistol is picked up, it is to be opened and examined.

   (v) No weapon is to be loaded except by order of the officer in charge at the firing point.

   (vi) Both during and after loading, the pistol is to be kept pointing towards the target.

   (vii) Before firing begins the officer in charge at the firing point will see that everyone, except those firing, is at least five yards in rear of the firing point.

   (viii) An Officer or petty officer will be responsible for range discipline in rear of the firing point.

   (ix) After firing, the officer in charge will give the order "Unload." No one will be allowed to move towards the target until the officer in charge gives an order to close the targets.
(x) Before beginning practice with an empty pistol the pupil is to open the weapon and prove that it is not loaded. He may not change or hand over a pistol without again proving.

(xi) No snapping is allowed, except on the firing point, and only then under an instructor.

(xii) A table should be provided on the firing point, all firing to take place behind this table.

(xiii) Ammunition should be issued only on the firing point.

(xiv) The pistol should be rested on the front edge of the table with the muzzle clear after it is loaded, and should be returned there after each round has been fired, except in continuous practice.

(xv) Accidents with pistols have been reported in which the barrel has split near the muzzle, which are attributed to the bullet of the previous round remaining in the barrel. In the event of slight or no recoil being observed during practice, the firing from the particular pistol concerned is not to be continued until the bore has been examined and found to be clear. This is known as a "puff shot." As under certain circumstances a missfire may be indistinguishable from a puff shot, this same procedure is to be carried out on all occasions of a missfire occurring.

3. Should the accident occur of the barrel splitting, every endeavour is to be made to retain the penultimate cartridge case for return to the nearest Naval Armament Depot for special examination, together with some unfired cartridges of the same make and date. A report of the occurrence is to be forwarded to the Admiralty, in accordance with Art. 1235 (1), King's Regulations and Admiralty Instructions.

CHAPTER III.

NOTES FOR INSTRUCTORS.

1. When time is limited the instructor should endeavour to find out as quickly as possible the particulars in which his class is weak. He will then give such brief instruction as may be necessary to correct these faults, and give the men ample practice to overcome them before proceeding to the range. The instruction should be collective as far as possible, but individual instruction may be necessary for backward pupils. Too much detail tends to tire a class; demonstration will be found to be the best method of instruction. The instructor should make all possible efforts to interest the class in the time available before firing. The instructor must be able to show a class that it is possible to fire six rounds in twelve seconds.

Points to be observed when teaching.

2. Care and cleaning can best be explained and taught whilst stripping the pistol for instruction. Point out where gas fouling is found—why it gets there, and the method of removing it. Causes of jams, &c., can be explained at the same time, also how the different parts are likely to become burred and damaged.

3. The Characteristics of the pistol can best be explained by demonstration; show the rate of fire by snapping quickly and explain the importance of keeping the grip whilst firing rapid practices. Impress on the class the safety precautions and the danger in carelessly handling the pistol, whether loaded or not.

4. Grip.—Place the pistol in each man's hand in the correct position, taking into consideration the size of the hand. Explain it to him. When this has been done, make the class acquire the grip as laid down, and
practice it until each man knows when he has the correct grip; impress on the class the importance of always having the same grip.

5. **Stance** can best be demonstrated. See that each man is in a comfortable position; see that there is no leaning backwards or forwards, that the head is not inclined.

6. **Trigger Pressing** must be perfect. A good way to teach this is for the instructor to place his hand over that of the man who is holding the pistol and squeeze until the hammer falls. This should be carefully watched, and can soon be checked by making the man aim at the instructor's eye. Take particular notice of the trigger pressing when using the trigger action.

7. **Aiming and Firing Instruction.**—Take notice of each man's method of coming up to the aiming mark; by using an aiming disc, faults can soon be seen; this is a good opportunity of getting in a little muscle exercise, but care must be taken not to tire the men's arms. See that "Range Discipline" is carried out thoroughly, and check any tendency to carelessness. Do not allow talking behind the firing point, as it tends to put off those that are shooting. When demonstrating the firing practices make sure that you are in the correct position, and point out any faults you may have noticed in others. Remember that you are the standard that the class expects to reach, and that they are watching to find fault in you; so let there be no fault to find.

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CHAPTER IV.

**PISTOL DRILL.**

For drill and accoutrements, see "Royal Naval Handbook of Field Training" (B.R. 159).
CHAPTER V.

CARE AND CLEANING OF PISTOL.

SECTION 1.—GENERAL.

1. The pistol must be opened and closed gently, but never with the hammer cocked, neglect of which may lead to:

(i) Burring the extractor and body which would cause faulty extraction and difficulty in loading.
(ii) Premature explosions.
(iii) Injury to the extremity of the pawl, from which may result partial failure of rotation of the cylinder, and the pawl may not give its assistance in holding the cylinder in the firing position.

2. Never snap unless necessary.

3. Keep the pistol dry; dampness causes rust which will damage the pistol—the bore in particular.

4. If a pistol is damaged, or the mechanism at fault, it is to be dealt with by an Ordnance Artificer.

SECTION 2.—TO CLEAN A PISTOL.

1. Remove the cylinder (if time permits), and with the Service cleaning rod thoroughly clean the barrel from the muzzle end, taking care not to damage the rifling with the steel rod.
2. Use service 4-in. by 2-in. flannelette, with olive or G.S. lubricating mineral oil.
3. Clean the chambers of the cylinder thoroughly, and wipe any fouling from fore end and round the extractor.
4. Pay special attention to removing gas fouling in rear of the barrel, on the under side of barrel strap, and round the hammer and firing pin.
5. Also remove any lead that may be on the holster guides.

6. Replace the cylinder and lightly oil the pistol all over.
7. Remove oil from bore before firing.

SECTION 3.—CARE OF PISTOL AMMUNITION.

1. Always keep ammunition dry. If from any cause it gets wet and the outside dirty, wipe it over with a clean rag.
2. Ammunition that has any grit or mud on the bullet should not be fired, because it is liable to split the barrel.

SECTION 4.—TO TEST THE PULL-OFF OF A PISTOL.

1. Cock the pistol and hold it firmly against something solid, on a table or against a wall or fence.
2. Hook a spring-balance on to the trigger and pull obliquely across the butt at an angle of 45° to the barrel.
3. The pull-off should be from 6 to 8 lbs.; if more than 8, it should be eased.
4. Only an Ordnance Artificer should adjust the pull-off.

SECTION 5.—JAMS.

Jams may occur from any of the following causes:

(i) A cartridge having a thick base.
   Result.—Cylinder cannot revolve.
(ii) Mainspring, or mainspring auxiliary, broken.
   Result.—Pistol cannot be cocked.
(iii) Pawl or pawl-rack burred.
   Result.—Cylinder cannot revolve.
(iv) Grit will cause a pistol to jam; it should therefore always be kept clean and free from sand, &c.

SECTION 6.—MISSFIRE.

Missfiring are caused by the firing pin being worn or broken, or the cap of the cartridge being too much countersunk.

Remedy.—A new hammer or change the ammunition.
CHAPTER VI.

PISTOL COURSES.

There are two pistol firing courses, viz.:
(1) Annual Pistol Course, and
(2) Gunnery School Course.

SECTION 1.—ANNUAL PISTOL COURSE.

1. The Annual Pistol Course is to be carried out by:
   (i) All officers below the rank of Lieutenant-Commander.
   (ii) All Seamen Petty Officers.
   (iii) All Coxswains of Boats.
   (iv) All Signal and W/T ratings.
   (v) All men who in the ship's organisation for landing are armed with pistols.

Volunteers may carry out the course if time permits.
The above men are eligible for prize money, as laid down in Chapter VII.

2. The course lasts two days, and consists of instruction in pistol shooting, together with the firing practices laid down in clause 3 below. Instruction should be given on the following lines:
   (i) Characteristics and practical use of pistol.
   Safety precautions.
   Grip, stance and vertical lift.
   (ii) It must be shown that if grip and lift are correct, instinctive "sense of direction" will ensure that the pistol comes up with the sights on the point of aim. To begin with, it is desirable just to "catch the sights" before firing, but as training progresses this can be dispensed with at short ranges (10 yards or less) in order to obtain increased speed.
   (iii) Trigger pressing.
   Rapid fire by re-cocking. (More accurate if time permits.)
   Rapid fire by trigger action (necessary when extreme rapidity is required).
   Care and cleaning of pistol.
   (iv) Empty pistol practice. As much of this as possible should be given, in particular each firing practice should be rehearsed with empty pistols.
   (v) The firing practices should be interspersed with the other instruction, as it is undesirable for a man to fire too many rounds without a break.

3. Firing Practices.

   Practice No. 1.—10 yards. 6 rounds master hand.
   For each shot, cocked pistol to be raised from ready position and fired without undue delay, then return to ready position and re-cock.

   Practice No. 2.—As for No. 1, but with non-master hand.

   Practice No. 3.—10 yards, 6 rounds. Master hand cocking action. First shot as in Practice 1; pistol to remain up, re-cocking and firing remaining rounds without undue delay. Respirators are to be worn.

   Practice No. 4.—10 yards. 6 rounds master hand.
   Trigger action. As for No. 3, but after the first round pistol to be fired by the trigger action.

   Practice No. 5.—10 yards. 6 rounds non-master hand.
   First three shots to be fired by the cocking action, second three by the trigger action.
Practices 6–12 are the Standard Test Practices.

Practice No. 6.—10 yards. Snapshooting. 3 rounds each hand, cocking action. Targets to be exposed for 2 seconds, with at least 3 seconds between exposures. One shot to be fired at each exposure.

Practice No. 7.—10 yards. 6 rounds either hand, cocking action. Two targets, alternate shots to be fired at each. Time limit, 15 seconds.

Practice No. 8.—10 yards. 6 rounds either hand, trigger action. As for No. 7, but time limit 10 seconds.

Practice No. 9.—20 yards. 6 rounds either hand, cocking action. As for No. 7, but time limit 20 seconds.

Practice No. 10.—25 to 5 yards charging target. 6 rounds either hand, cocking or trigger action. Target advances 20 yards at a walking pace. Time limit, 12 seconds. Speeds of the target must be regulated so that it covers the 20 yards in 12 seconds; it must not approach nearer than 5 yards, even if it has been moved a little too fast.

Practice No. 11.—8 to 10 yards. Snapshooting at crossing target. 3 rounds each hand, cocking action. An interval sufficient to ensure safety should be allowed to change hands between the third and fourth rounds. Target to appear and move across line of fire a distance of about 3 yards in an exposure of 2 seconds. One shot to be fired at each exposure.

Practice No. 12.—10 yards. Snapshooting. 3 rounds each hand, cocking action. As for practice No. 6, but exposures to be for 1 second only. An interval sufficient to ensure safety should be allowed to change hands between the third and fourth rounds.


(a) No. of rounds required, 72.

(b) The \( \frac{1}{4} \) figure pistol target (see diagram) is used for all practices.

\( \frac{1}{4} \) Figure Pistol Target

\[ \begin{array}{c}
\text{Area} - 600 \text{ in}^2 \\
\text{Coloured KHAKI} \\
\text{Overall Dimensions} \\
\text{As for } \frac{3}{4} \text{-figure Rifle Target}
\end{array} \]

Scoring.—Each shot on the rectangle, 5 points; each shot on the rest of the target, 3 points.

(c) For snapshooting practices, targets may be raised from a trench or revolving targets can easily be fitted up as shown below.
Revolution Target for Snapshooting.

Broom Handle (or something similar)

Battens Attached to Uprights.

Stop Limiting Travel in Both Directions

Broom Handle

Appear. Disappear.

The charging target should be fitted on a simple sledge, as below.

The crossing target may be worked from a trench or fitted to the above sledge (slightly modified), and traversed between any convenient cover, such as old 6-ft. square targets.

(d) Practices 1–5 are preliminary and the scores made do not count. Although there are no time limits, firers must be encouraged from the start to fire their shots without undue delay, as the first sight caught is usually the best.

(f) At the start of all practices pistol may be cocked and must be held in the ready position, i.e., pointing to the front at an angle of about 45° downwards, and touching the table if fitted, until the order to fire or the target appears.

In snapshotting practices the pistol must be returned to the ready position after each shot until the target again appears.

(g) Penalties:—

For firing after the order to "Stop."—5 points for each shot so fired.

Practices 7, 8 and 9—

For firing consecutive shots at the same target.—5 points for each shot fired at the wrong target.

The score for each practice will not be less than zero.

(h) When, through no fault of the firer, there are too many hits on his target, he will be credited with the ones of higher value.

(i) Missfires. When a missfire occurs, firing from the pistol concerned is to be discontinued until the bore has been examined.

If a missfire or puff round has occurred (i.e., cap has been properly struck but bullet has not left the muzzle), another round will be allowed to replace the defective one; otherwise one unfired round will be forfeited.

The remaining rounds will then be fired with a proportional time limit.

Section 2.—Pistol Courses in Gunnery Schools.

These are carried out as laid down in the "Gunnery Training Manual."

CHAPTER VII.

PRIZE MONEY.

Annual Pistol Prize Firing and Return of Pistol Practices.

1. Annual competitive prize firing with Service pistols is to be carried out, if possible, at the same time as the annual rifle practice.

2. The year for pistol practices is the same as for musketry, viz., from 1st July to 30th June. A rating is eligible for prize money for the first pistol course only in each musketry year.

3. Men who carry out the standard test pistol practices, whether required to do so by the regulations or as volunteers, are eligible for prize money in accordance with the following scales:—

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<td>182</td>
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<td>187</td>
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4. The results of pistol practices are to be entered on the history sheets of seaman and Engine room ratings.
In the case of other ratings, the notation is to be made under "Examinations," etc., on page 3 of the Service Certificate.

5. Ship returns of pistol practice are to be forwarded in duplicate to the senior officer of the squadron or station, Form S.300 being used for the purpose.

Returns are to be dealt with as for returns of rifle practices (Chapter XVII, paragraphs 5-7, pages 142 and 143).

CHAPTER VIII.

DIRECTIONS FOR STRIPPING AND ASSEMBLING WELEY PISTOL, MARK VI.

SECTION 1.—THE WELEY PISTOL.

1. The principal parts are the barrel, the cylinder and the body. The barrel is pivoted to the body by means of a screw passing through a knuckle-joint, formed in a bracket, which projects beyond the breech-end. A strap or rib extends backwards from the top of the barrel. When the barrel is in the firing position, the rear end of the strap fits on to the body, and is locked down by the barrel catch. The cylinder is chambered to hold six cartridges. It revolves on a tube fixed in the bracket under the barrel. The stem of the extractor lies in this tube, surrounded by a spiral spring, which returns the extractor to position after it has ejected the cartridge cases. The extractor is forced out by a small lever in the knuckle-joint, as the barrel, on being pressed downwards, causes the cylinder to rotate on the joint pin.

ACTION OF THE MECHANISM, &C.

2. The pistol may be fired in two ways:
   (a) By the trigger action, for "continuous practice."
   (b) By the cocking action, for "single practice."

3. Trigger Action.—When using the trigger action, the trigger is pressed back almost to the guard, and released when the shot is fired. The rotation of the cylinder, compression of mainspring, and ignition of charge are carried out automatically as follows:
   (i) Assume that one shot has been fired.
   (ii) On pressing the trigger, the trigger-catch is withdrawn from the small slot on the cylinder; the pawl which is connected with the trigger is made to move upwards and slightly forwards; its point engages the
ratchet on the cylinder (causing the latter to revolve on its axis until a new cartridge is brought into position), and then assists to keep the cylinder in position.

(iii) At the same time the cylinder stop, rising through a recess in the body, engages with the wide slot on the cylinder, preventing the latter from rotating too far.

(iv) The action of pressing the trigger causes the trigger-nose to rise and engage with the hammer-catch.

(v) As the trigger-nose continues to rise, the hammer is rotated on its axis, the top portion swinging backwards, and thereby compressing the mainspring.

(vi) When the trigger has been pressed back sufficiently far the trigger-nose disengages from the hammer-catch; and the hammer is then free to fly forward, actuated by the compressed mainspring.

(vii) At the same time the trigger-catch, actuated by a spring, engages in the narrow slot in the cylinder. This keeps the cylinder steady, and retains it in position at the moment of firing.

(viii) The hammer-nose enters the firing hole, striking the cap and exploding the charge.

(ix) On releasing the trigger, it is forced back to its original position by the pressure of the mainspring auxiliary, actuated by the short arm of the mainspring, the cylinder being held by the trigger-catch.

(x) The hammer is at the same time brought back to the rebound position by the shorter side of the auxiliary bearing in the rebound-arm.

4. Cocking action.—When using the cocking action, the hammer is drawn back with the thumb till the nose of the trigger engages in the bent on the hammer, and the hammer is held in the firing position. This causes the mainspring to be compressed, the cylinder to be rotated, and the front cylinder to rise. On pressing the trigger the nose is released from the bent, and the hammer, actuated by the mainspring, is permitted to fly forward and explode the charge as before. The remaining components work as in firing by the trigger action.

5. In both methods, after each shot, the trigger must be allowed to come back freely by releasing the forefinger as much as possible, without taking it out of the trigger guard. As much greater accuracy can be obtained when firing single shots slowly than when firing all the chambers rapidly, and continuously, the latter method should only be adopted in emergency.

SECTION 2.—STRIPPING THE PISTOL.

1. Unscrew stock screw, and remove stock plates.

2. Unscrew trigger guard screws and remove trigger guard.

3. To remove mainspring—full cock, pass the fork of the cramp, over the mainspring, as far up as possible; release the trigger and remove the mainspring.

4. Remove mainspring auxiliary.

5. Unscrew trigger axis screw, and remove trigger with pawl attached.

6. Remove hammer axis screw, and remove hammer.

7. Unscrew coin screw, bear down on cylinder cam, and remove cylinder, unscrew cam lever screw, and remove cam lever, unscrew cam screws and remove cam.

8. Unscrew joint axis screws, push out joint axis pin and remove barrel from body, remove extractor lever.

To strip the cylinder:

9. Unscrew extractor nut, and remove spring and extractor.

Note.—Barrel catch spring should not be removed except for repair.
SECTION 3.—ASSEMBLING THE PISTOL.

To assemble the cylinder:—

1. Replace extractor and spring, screw home extractor nut.

To assemble the pistol:—

2. Replace cam, replace cylinder on its axis, and see that it revolves freely.

3. Replace extractor lever, replace barrel to the body, replace joint axis pin, taking care that the stud on the pin is opposite recess in body; replace joint axis pin screws.

4. Replace cam lever, cam lever screw, and cam screw.

5. Replace hammer; screw home hammer axis and see hammer works freely.

6. Replace trigger with pawl assembled and screw home axis screw.

Note.—In replacing trigger, nose of trigger should be between hammer catch and noset bent of hammer.

7. Replace mainspring auxiliary.

8. Replace mainspring, then full cock and remove cramp.

9. Replace trigger guard, screw home trigger guard screws.

10. Replace stock plates and screw home stock screws.

WEBLEY PISTOL.

1. BODY.
2. PAWL.
3. MAINSPRING.
4. MAINSPRING AUXILIARY.
5. BARREL CATCH.
6. CYLINDER CAM.
7. CYLINDER CAM LEVER.
8. EXTRACTOR.
9. HAMMER.
10. TRIGGER.
PART III

MACHINE GUN COURSES.
CHAPTER I.

Definition.

(i) A Light Machine gun is a continuous fire weapon which is normally fired from the shoulder with the aid of a rest.

(ii) A Heavy Machine gun is a weapon capable of prolonged continuous fire, which by the aid of a suitable mounting and instruments gives sustained accuracy.

LIGHT AND HEAVY MACHINE GUN COURSES.

SECTION 1.—GENERAL INSTRUCTIONS.

1. These are to be carried out annually by Nos. 1 and 2 of each Lewis and Vickers gun's crew in the ship's landing organisation.

2. The course is normally to be carried out at the time of the annual musketry course, but may, in addition, be carried out when ratings have first undergone the course of instruction on board to qualify them for their duties.

3. If time does not permit both musketry and machine gun courses to be undergone, preference is to be given to the Machine gun courses.

4. Section Leaders should invariably accompany their gun's crews when firing. If opportunity offers, further numbers of Machine gun sections should carry out appropriate practices selected from the course.

SECTION 2.—RETURNS OF MACHINE GUN PRACTICES.

Returns of Machine gun practices are to be rendered on form S.293, and in the manner prescribed for returns of rifle practice (Chapter XVII, paragraphs 5-7, pages 142 and 143).

SECTION 3.—PRIZE MONEY.

1. The award of prize money for machine gun practices is subject to the same conditions as those prescribed for Musketry courses (Chapter XVI, Section 5, pages 138 and 139), except that a commissioned or warrant officer need not be in the butts during the standard test practices. The officer superintending the firing is to satisfy himself that marking is correctly carried out.

The following scales are authorised:

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**SECTION 4.—Light Machine Gun Course.**

(190 rounds per firer.)

**No. 1.—Single Shots.**

Range, 25 yards. 5 rounds. M.G. Instructional Target. The five rounds to be fired singly at the same aiming mark.

**Note.**—If the gun does not shoot straight, foresight must be moved laterally, further rounds being fired to check the adjustment.

**No. 2.—Grouping.**

Range, 25 yards. 10 rounds, in two spaced groups of 5. M.G. Instructional Target. The two groups are to be fired at different aiming marks.

**Notes.**—If in each group 4 shots are not within a 3-inch ring, the practice is to be repeated.

**No. 3.—Distribution.**

Range, 25 yards. 20 rounds. M.G. Instructional Target.

The instructor will indicate two points about 10 inches apart in a horizontal line as the limits between which fire is to be distributed.

The firer will distribute his fire in bursts of 4 or 5 rounds, shifting his point of aim by about 2 inches for each burst. The shot holes should be distributed evenly within an inch of a line drawn at such distance above the aiming line as would be correct for the elevation used.

**No. 4.—Stoppage Remedy.**

Range, 25 yards. 25 rounds, but any convenient range and target may be used.

A stoppage should be set up about every 5 rounds, the firer not knowing what stoppage has been set up.

**No. 5.—Application (Slow).**

Range, 200 yards. 20 rounds. Small (4-ft.) target. Bursts of 4 or 5 rounds to be fired. The result of each burst will be signalled, sights being adjusted and point of aim altered as necessary.

**No. 6.—Rapid. Standard Test Practice.**

Range, 200 yards. 20 rounds. Small (4-ft.) target.
An empty magazine to be on the gun and the firer in the aiming position at the commencement of the time allowed.

Bursts of 4 or 5 rounds to be fired. Time limit, 25 seconds.

**Scoring**—2 points for each hit in the "inner" circle (2 ft. diameter), 1 point for each hit in the "outer" circle (4 ft. diameter). H.P.S. 40.

No. 7.—Distribution. Standard Test Practice.

Range, 200 yards. 30 rounds in two magazines.

Target screen, 10 ft. by 3 ft.

Gun to be loaded and on aim at the commencement.

Firer should start at one end of the target and distribute to the centre in 3 bursts, change magazines, start at the other end and distribute 3 bursts in the reverse direction.

Time limit—30 seconds.

**Scoring**—1 point for each hit on the screen, plus 3 points for each rectangle hit. H.P.S. 48. Hits on the dividing line between rectangles count to the rectangle most advantageous to the firer.

No. 8.—Firing at Extended Infantry. Standard Test Practice.

Range, 200 yards. 20 rounds. Target: 4 figures, 2 at least 2 yards apart.

Gun to be loaded, but with the butt on the ground.

Targets to be exposed for 15 seconds.

The firer should fire a burst of 5 rounds at each figure.

**Scoring**—1 point for each hit, plus 5 points for each figure hit. H.P.S. 40.

No. 9.—Application (Slow).

Range, 500 yards. 20 rounds. Large (6 ft.) target.

As for Practice No. 5.

No. 10.—Fire Discipline. Standard Test Practice.

Range, 500 yards. 20 rounds. Large (6 ft.) target.

Gun's crew to be in the "Take Post" position about 10 yards in rear of the firing point, magazine being on the gun but gun not loaded.

At order "Action," advance to the firing point, mount gun, load and lay.

These movements are to be carried out quickly and correctly, but there is no time limit.

As soon as all guns are ready, conducting officer will order "Fire."

Bursts of 4 or 5 rounds are to be fired.

Time limit from order "Fire," 15 seconds.

"Cease firing" will then be ordered, guns being cleared and returned to the "Take Post" position.

**Scoring**—2 points for each hit on the 6-ft. circle. H.P.S. 40.

Firer's ability is to be assessed on the scores made in Practices 6, 7, 8 and 10. H.P.S. 168.

Additional practices, designed to give section leaders experience in the tactical handling of their sections, observation of fire, etc., should be carried out if opportunity offers and facilities exist.

**SECTION 5.—HEAVY MACHINE GUN COURSE.**

(250 rounds.)

The practices are similar to those for the Light Machine gun, modified to suit the greater accuracy of the Heavy Machine gun.

Particulars are as follows:

**Practice No. 1.—Single Shot.**

Range, 25 yards. 5 rounds. M.G. Instructional Target. The five rounds to be fired singly at the same aiming mark.

**Note 1.**—If the gun does not shoot straight, foresight must be moved laterally, further rounds being fired to check the adjustment.

**Note 2.**—Shots should strike ½ of an inch to the right of the point of aim, as the axis of the barrel is this amount to the right of the Line of Sight.

(399/995)
Practice No. 2.—Grouping.

Range, 25 yards. 20 rounds in two spaced groups of 10. M.G. Instructional Targets. The two groups are to be fired at different aiming marks.

Note.—Two spaced groups each of 10 rounds will be fired. Nine out of each ten shots should be within a 3 inch ring. If not, the fault will generally be in the mounting, which should be examined for backlash, &c., and adjusted if necessary.

Practice No. 3.—Distribution.

Range, 25 yards. 20 rounds. M.G. Instructional Target.

(a) 10 rounds single shots will be fired. The object is to teach an "automatic tap" which will move the gun 15 minutes, i.e., 4 inches at 25 yards (the distance between each of the figures on the target).

(b) Half the rounds are to be fired traversing right, and half left.

(b) 10 rounds rapid will be fired. The object is to teach a "Swinging traverse." The shot holes should be distributed evenly along a 10-ft. screen. The practice is to be carried out traversing either left or right.

Practice No. 4.—Stoppage Remedy before firing.

Range, 25 yards. 25 rounds (but any convenient range and target may be used).

A stoppage should be set up about every 5 rounds, the firer not knowing what stoppage has been set up.

Practice No. 5.—Application (Slow).

Range, 200 yards. 20 rounds. Small (4-ft.) target.

Bursts of 4 or 5 rounds to be fired. The result of each burst will be signalled, sights being adjusted and point of aim altered as necessary.

Practice No. 6.—Standard Test Practice.

Range, 200 yards. 30 rounds. Small (4-ft.) target.

To be fired in bursts of about 10. Gun to be loaded, but must not be accurately laid at the commencement.

Scoring.—2 points for each hit in the "inner" circle (2 ft. diameter), 1 point for each hit in the "outer" circle (4 ft. diameter). H.P.S. 60.

Practice No. 7.—Standard Test Practice.

Range, 200 yards. 40 rounds in one belt. Target screen, 10 ft. by 3 ft.

To be fired in bursts of about 10. Gun to be loaded and on aim at the commencement. Gun to be traversed from right to left by automatic tapping.

Time limit, 30 seconds.

Scoring.—1 point per hit on the screen, plus 3 points for each rectangle hit. Hits on the dividing line between rectangles count to the rectangle most advantageous to the firer. H.P.S. 58.

Practice No. 8.—Firing at Extended Infantry.

To be omitted.

Practice No. 9.—Application (Slow).

Range, 500 yards. 20 rounds. Large (6 ft.) target.

As for Practice 5.

Practice No. 10.—Fire Discipline. Standard Test Practice.

Range, 500 yards. 30 rounds to be fired in bursts of about 10. Large (6 ft.) target.

Gun's crew to be in the "Take Post" position, about 10 yards in rear of the firing point.

At the order "Action," advance to the firing point, load and lay the gun; these movements to be carried out quickly and correctly, but there is no time limit.

As soon as all guns are ready, conducting officer will order "Fire."

Time limit from order "Fire," 15 seconds.

Cease Firing will then be ordered, guns being cleared and crew return to the "Take Post" position.

Scoring.—2 points for each hit on the 6-ft. circle. H.P.S. 60.
**Practice No. 11.—Standard Test Practice.**

Range, 300 yards. 40 rounds. Targets. Two M.G. screens close together, 20 ft. by 3 ft.

Details as for Practice No. 7, but gun to be traversed from left to right. H.P.S. 76.

Firing ability to be assessed on the scores made in Practices 6, 7, 10 and 11. H.P.S. 254.

**SECTION 6.—Notes on Practices.**

1. **Additional Practices.**—The following practices should also be carried out if opportunity offers and facilities exist:

   (i) Firing at longer ranges (800–1,500 yards) at any suitable ground, in order to obtain experience in observing the "beaten zone," and in applying the necessary corrections to cause the desired target to be enveloped.

   (ii) Firing tracer ammunition in order to demonstrate the size and shape of the "cone of fire" at different ranges.

2. **Stoppages.**—If a stoppage occurs, extra time will be allowed in proportion to the time lost thereby, provided that:

   (i) The firer carries out "Immediate Action" promptly and correctly.

   (ii) The stoppage is not due to neglect in attending to the "Points before firing" or to bad drill. No allowance will be made for a misfired round.

3. **Penalties.**

   (i) Two points will be deducted for each round fired after the order or signal "Stop."

   (ii) When through no fault of the firer there are too many hits on his target, he will be credited with those of higher value.

**SECTION 7.—Targets.**

**Machine Gun Instructional Target.**

[Diagram of a target with dimensions and color coding]

*Note.*—Other coloured paper may be used if desired.

1.—(i) Aim should be taken at the waist line of the figures, *i.e.*, where in practice it would be desired to place the mean point of impact of a burst. The instructor should set range on the sight in order to throw the shots up on to one of the horizontal lines.

(ii) If this target is not available, the practices may be carried out at any other suitable target on which black patches have been stuck to act as aiming marks.

2. Large and small targets for Practices 5, 6, 8, 9 and 10. As specified in Chapter XVIII for Rifle practices.

3. The screens used for Practices 7 and 11 are 10 ft. long and 3 ft. high, covered with brown paper. A 6-in. horizontal band of grey paper is pasted on the screen, the bottom of the band being on the centre line of the screen. The screen is divided into 6 rectangles by *vertical* lines 20 inches apart. Colours other than brown and grey may be used if desired.
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