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Notified in G.O's, dated 31st March, 1943.

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Small Arms Training

Volume I, Pamphlet No. 7

·303-inch Machine Gun

Part II.—Training

(This pamphlet supersedes S.A.T., Vol. I, Pamphlet No. 7, Part II, Training, 1933, and S.A.T., Vol. I, Pamphlet No. 7, Supplement, 1940.)

1943

L.H.Q. AUST.
1943.

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GENERAL

Small Arms Training, Vol. I, Pamphlet No. 7, Part II, deals in general with the handling of the gun. It aims at training gun numbers in drill, and the application of drill to ground, thus fitting a man to take his place as a member of a machine gun team in battle.

It further aims at training headquarters of platoons (troops) and sections in their duties in the field.

The drills are arranged to meet the average conditions of mobile warfare. Latitude must be exercised in their application. For example, in an extensive programme shoot, Nos. 2 may require assistance.

The drills are generally appropriate to machine gun battalions and machine gun companies of infantry units; they can be adapted to suit the special requirements of other units armed with the medium machine gun.

NOTE.—Additional paras. have been included in this pamphlet to cater for the possible future introduction of the M.G. Dial Sight. These paras. are marked with a black vertical line on the margin. They will be disregarded until such time as the Dial Sight is issued in Australia.

S.A.T., Vol. I, Pamphlet No. 7, Part IIA, will be retained in order to preserve specific details in connection with the following:—

**HORSED CAVALRY.
INFANTRY LIMBER.
PACKSADDLERY.**

Part II will, however, be regarded as the authority for any machine gun training principles, etc., apart from the above specific details.

DEFINITIONS

(See also S.A.T., Vol. I, Pamphlet No. 7, Part III)

Arc of fire.—Arc over which it is desired that the guns can bear from a given gun position. Its boundaries are described as "right of arc" and "left of arc."

Auxiliary aiming mark.—A point off the target indicated by the fire controller (or located by the firer after a correction has been ordered in "taps"), used as an aiming mark in order to obtain fire effect.

Deflection.—A lateral displacement of the lines of any or all guns.

Direct fire.—When the gun is laid directly on the target by means of the backsight and foresight.

Fire control.—The necessary arrangements and orders for hitting the target.

Fire controller.—The individual responsible for giving the orders for the engagement of a target, to the men of a fire unit.

Fire direction.—The term applied to instructions given by the commander of more than one fire unit to the fire unit commanders, as to how their fire is to be applied.

Gun aiming mark.—A suitable mark on the line "gun-target," selected by the firer by adjustment of the tangent sight slide, to enable him to maintain fire effect whilst the target is temporarily obscured.

In action.—A machine gun is said to be "in action" when it is mounted with reference to its arc of fire (or direction indicated) and the necessary men, equipment and ammunition are present at the gun to enable fire to be opened when ordered.

Indirect fire.—When the gun is laid to hit a given target by other means than by laying on it direct.

Laying.—The process of elevating (or depressing) and traversing a gun until its axis is made to point in any given direction. On conclusion of this process, the gun is said to be "laid."

Line.—The direction in which a gun or guns are pointed.

Near limit of arc.—The near edge of the zone on which fire is required.

Observed fire.—When the effect of the fire can be observed from the gun or from the fire controller's observation post.

Observation post.—A post from which a particular area can be kept under observation or from which artillery and machine gun fire can be controlled and corrected.

Pivot gun.—The gun used as a basis for calculation.

Position in readiness.—The position at which the guns are taken off the means of transport, preparatory to coming into action. It will normally be the nearest point to the gun positions to which the transport can be brought.

Registering.—The recording of the direction and elevation necessary to hit any given target as found by ranging.

Rendezvous.—A pre-arranged place of assembly (R.V.).

Zero line.—A line of reference, on which all guns are parallel, and from which switches are measured.

SAFETY PRECAUTIONS

On all occasions when the gun and drill cartridges are used for instructional purposes, the instructor will carry out the following safety precautions:—

1. Inspect all D.P. Locks to ensure that the firing pin does not protrude through the firing pin hole.
2. Inspect all ammunition to ensure that all cartridges are of the drill type.

NOTE.—When instruction is being given in mechanical subjects, D.P. stores, if available, will always be used.

SECTION 11.—ELEMENTARY GUN DRILL

1. During elementary gun drill the gun will be mounted to suit the sitting position, but emphasis will be laid on the fact that, on active service, the tripod will always be adjusted to suit the ground and available cover.
2. The object of elementary gun drill is to render the man proficient in the duties of gun numbers in handling the weapon.
3. It aims at teaching the man:—
 - i. To mount and dismount the gun.
 - ii. To load and unload the gun.
 - iii. To bring the gun into action.
 - iv. To cease firing.
 - v. To adjust sights and lay the gun.
 - vi. To fire the gun, to stop firing and to go on firing.
 - vii. Consistency of tap and adjustment of clamp, traversing and the swinging traverse.
 - viii. Controlled corrections, direct and indirect fire.

Instructor's Notes

Methods of carrying out the drill.

1. References to stripless belts and boxes in this section are given in brackets wherever applicable.
2. The stores required vary according to the portion of the drill which is being carried out, but for all drills the squad requires a gun, tripod, spare parts case complete, condenser can, dummy tube and two belt boxes (ammunition box) with drill belts and drill cartridges (liners of ammunition box used for drill purposes will be minus lids).

When additional stores are required, details are given in the instructional notes.

The dummy condenser tube will consist of a 6 ft. length of rope with both end bounds with wire and with a steel wire hook at one end for attachment to the securing chain of the cork plug.

3. *Laying out the stores.*—Before the squad falls in, the gun and tripod will be placed in line on the ground a few paces apart, tripod on the left with the legs to the rear; the muzzle of the gun pointing to the front, the dummy condenser tube attached and the spare parts case close to and on the right of the gun. The belt boxes (ammunition box) and condenser can will be placed about a pace apart with the condenser can on the right, a few paces in rear of the gun and tripod.

4. *Falling in.*—The squad is fallen in, in single rank. The instructor details any three men to form the detachment. He falls them in a short distance in rear of the stores and numbers them off. The remainder of the squad under instruction is placed in such a position that the maximum benefit is derived although they themselves are not at the moment acting as Nos. 1, 2, or 3.

If at any time the instructor wishes to change round Nos. 1, 2 and 3, he should order "Fall out 1." No. 1 becomes No. 3, No. 2 becomes No. 1, and No. 3 becomes No. 2, the detachment re-numbering at once, the instructor detailing three fresh numbers to take their places when he wishes to do so.

5. The instructor must see that the standard of drill is maintained throughout, that the numbers remain still and correctly placed on the completion of any necessary movement, particularly in the sitting or lying positions.

When the instructor wishes to explain, criticise or demonstrate, he will first order "REST," to allow of relaxation of the muscles. Before the drill is resumed he will ensure that the numbers adopt the correct position, alert and ready for any order. This will be effected by the order "POSITION."

So far as is possible, the duties of No. 1 will first be taught, and practised by the whole squad. The instructor will then teach and practise the duties of Nos. 2 and 3 in the order, before drilling the detachment collectively.

The orders given by the instructor are given in inverted commas at the head of each paragraph. All orders will be given verbally.

LESSON 45.—TAKE POST

"Take Post."

The detachment, with the exception of No. 1, will turn to the right.

No. 1.

No. 1 doubles forward and lies down on the left of the tripod. He inspects the tripod to see that the elevating and crosshead joint pins are properly in position and turned down, both elevating screws equally exposed, traversing clamp sufficiently tight to prevent the crosshead from swinging round when the tripod is carried, the crosshead over the rear leg, tripod dial secure and all three legs together and clamped securely.

When Nos. 2 and 3 have reported to him, he reports "All correct" (or otherwise) to the instructor.

No. 2.

No. 2 doubles forward and lies down on the right of the gun. He places the strap of the spare parts case on his right shoulder and inspects the gun to see that the muzzle attachment, and blast deflector, if issued, are correctly adjusted, and the dummy condenser tube fitted, the feed block is in the gun and the front cover locked, the sliding shutter is closed, the tangent sight set at 600, the lock is in the gun and the "T" fixing pin is screwed home and vertical.

He reports "Gun correct" (or otherwise) to No. 1.

No. 3.

No. 3 doubles forward and lies down between the condenser can and belt boxes (ammunition box). He inspects the belt boxes (liners) to see that the rounds are in the ends of the belt

belts and pointing the right way. He closes and fastens the boxes. He inspects the condenser can to see that the cap is screwed in position and that the filler is secure.

He reports "ammunition and condenser can, correct" (or otherwise) to No. 1.

All numbers will now lie facing forward with their arms folded.

NOTE.—When the ground is wet, the detachment should be instructed to kneel instead of lying down, but waterproof sheets should be used to avoid this when possible.

LESSON 46.—MOUNT AND DISMOUNT GUN

Instructor's Notes

The instructor will indicate to the No. 1 the spot over which the socket is to be mounted and the direction in which the gun will point. This spot should be a few yards in front of No. 1.

The action of No. 1 in mounting and dismounting the tripod will be taught first, ending and beginning respectively at the point where No. 1 is seated behind the tripod, and has withdrawn the joint pins.

The duties of Nos. 2 and 3 will then be taught in that order, the additional duties of No. 1 being explained but not demonstrated. (A suitable sequence for guidance of instructors is given in App. II.)

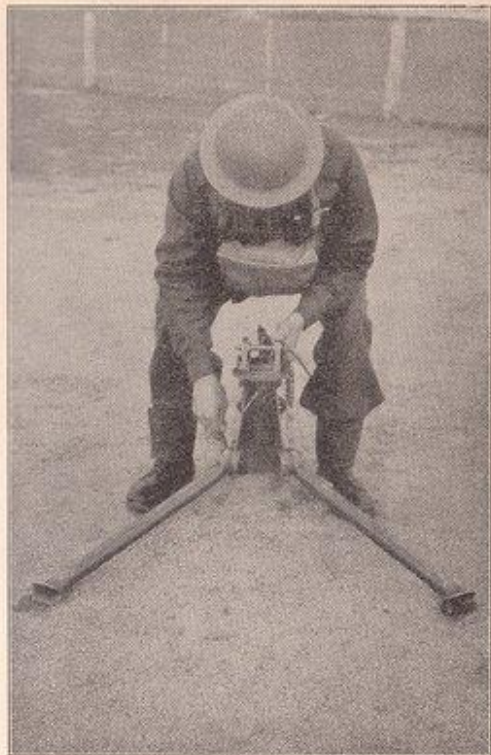
"Mount gun."

No. 1.

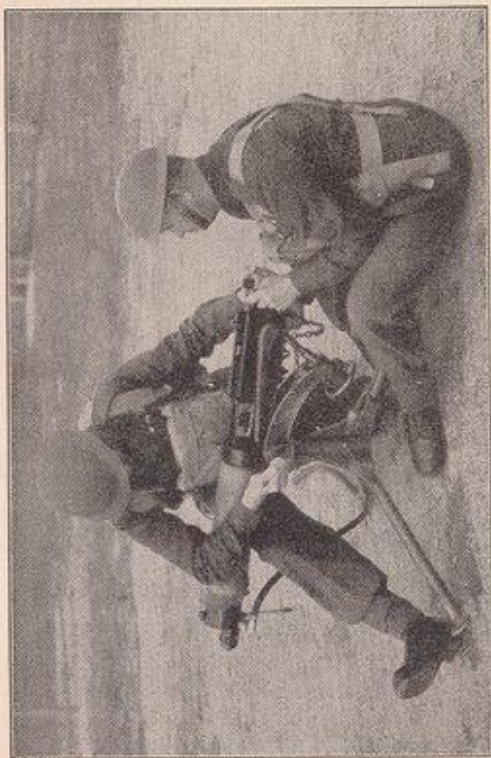
No. 1 jumps to his feet, picks up the tripod and doubles forward with it, placing it on the ground with the socket on the spot indicated. Standing astride the legs, he loosens both jamming handles simultaneously, grasps the crosshead as far forward as possible with both hands, and with a forward and upward movement, erects the tripod.

Supporting the tripod with the left hand at the crosshead bracket, the left forearm resting on the thigh, he ensures that the rear leg is on the ground and the socket upright over the spot indicated and tightens up both jamming handles with the right hand if possible. After putting a final pressure with each hand on the jamming handles, he sits down behind the tripod, removing the elevating and crosshead joint pins.

As soon as No. 2 places the gun on the tripod No. 1 hands him the crosshead joint pin and grasps the left traversing handle with his left hand. When No. 2 has inserted the crosshead joint pin, No. 1 will insert the elevating joint pin and turn the handle down. He levels the gun by means of the elevating wheel and tests by tapping the traversing handles to see if the traversing clamp is "sticky," tightening it if necessary and sits, looking straight in front of him, with his elbows supported by the inside of his thighs, his third and little fingers round the



ERECTING THE TRIPOD



MOUNTING THE GUN

traversing handles, forefingers on top, second fingers underneath the safety catch and thumbs resting lightly on the thumbpiece.

No. 2.

No. 2 opens the sliding shutter and, picking up the gun with his left hand grasping the right traversing handle and condenser tube, and his right arm over the barrel casing, doubles forward to the right side of the tripod, arriving about the time No. 1 is removing the pins. On arrival at the gun, he allows the free end of the condenser tube to fall clear.

He sinks on his left knee, places the gun on the tripod, supporting the barrel casing with his right thigh and with his right hand drives in the crosshead joint pin which No. 1 has handed to him, finally turning the handle down. He retains his hold with his left hand on the right traversing handle until the pin is home.

No. 2 then places the condenser tube in a convenient position and lies down on the right of the gun, looking towards the gun, his head in line with, but below the level of the feed block. When No. 3 has brought up the belt boxes (ammunition box), and condenser can, No. 2 places the former in line with the feed block and inserts the dummy condenser tube into the latter.

No. 3.

No. 3 disengages the quick release strap of the belt boxes and unscrews, but not completely so, the cap of the condenser can. He doubles forward to the right side of the gun, carrying the belt boxes (ammunition box), in his left hand, the condenser can in his right, arriving there just as No. 2 lies down. He places the condenser can in a suitable position near the tripod and the belt boxes (ammunition box) within easy reach of No. 2, with the quick release strap (securing pin) towards the feed block. He unfastens the ammunition box. He removes the cap of the condenser can, doubles back to a suitable position in the right rear and lies down.

NOTES.—When the gun has been mounted and Nos. 1, 2 and 3 are in position, the instructor should remark whether:—

The actions of Nos. 1, 2 and 3 and their final positions were correct.

The tripod is mounted with reference to the direction indicated.

The gun is level and the crosshead over the rear leg.

The socket is upright and over the spot indicated.

The tripod is at a suitable height for No. 1 (until No. 1 has been taught to mount the gun in service positions, the instructor will see that the rear leg is suitably adjusted before the gun is mounted).

The sliding shutter is open.

The traversing clamp is not too loose.

The elevating and crosshead joint pins are home and locked.

The jamming handles are really tight.

The belt boxes are (ammunition box is) close to and in line with the feed block, with the quick release straps (securing pin) disengaged, condenser can in position, and tube inserted in it.

The squad will be shown how to correct a leaning mounting on the first occasion it arises.

"Dismount gun."

No. 1.

No. 1 removes both pins, steadies the gun with his right hand and, after No. 2 has removed the gun, replaces the pins and turns the handles down. He jumps to his feet, stands astride the rear leg of the tripod and loosens both jamming handles simultaneously, allowing the tripod to collapse on the ground. Grasping the crosshead with both hands and giving the tripod a sharp upward and forward movement, he folds up the legs and places the tripod on the ground. He lies down on the left of the tripod, clamps up both jamming handles and reconditions the tripod as in "Take Post."

No. 2.

No. 2 pushes the belt boxes (ammunition box) to the right, jumps to his feet, seizing hold of the condenser tube with his left hand and after No. 1 has removed both joint pins, No. 2 will lift the gun off the tripod, holding the right traversing handle and tube with the left hand and with the right arm over the barrel casing. He moves to the right, clear of No. 1, closes the sliding shutter and places the gun on the ground. He lies on the right side of the gun, reconditioning it as in "Take Post."

No. 3.

No. 3 doubles forward, seizes the belt boxes (ammunition box) in his left hand and the condenser can in his right and places them on the ground a few paces in rear. He lies down between the belt boxes (ammunition box) and condenser can, reconditioning them as in "Take Post."

NOTE.—The instructor will order "Replace Stores" when he wishes the stores to be returned to their positions as originally laid out.

When indoor instruction is being carried out and it becomes necessary to avoid damage to the floor surface, the tripod may be dismantled in the following manner:—

Taking the weight of the tripod with the left hand, loosen both jamming handles. Using the rear leg as a lever, pull the tripod upright, allowing both the front legs to swing back against the rear leg. Clamp both jamming handles and place the tripod on the floor.

The above method is also of advantage when dismantling on very muddy ground, to avoid mud, etc., getting into the clutch plates. It will be the normal method when dismantling the tripod under night conditions.

LESSON 47.—LOAD AND UNLOAD.

"Load."

No. 1 pulls the crank handle on to the roller with the right hand and advances his left hand to the left of the feed block ready to grip the belt. When No. 2 has passed the tag of the belt through the feed block, No. 1 grips it and pulls the belt through the feed block as far as possible. He must pull the belt gently and straight when doing so. He releases the crank handle and repeats the above movements. Whilst pulling the crank handle on to the roller the belt will be held, but not pulled, with the left hand.

No. 2, holding the belt box with the left hand (opens the ammunition box), throws the lid completely open with the right hand and, seizing the end of the belt with the right hand at the point where the tag joins the fabric, forefinger along the tag, pushes the tag through the feed block as far as possible. He must ensure that the belt is not twisted on entering the feed block.

NOTES.—Emphasise that the belt must be pulled gently and straight through the feed block. The men must avoid the natural tendency to pull it to the rear, i.e., towards No. 1, which might prevent the round being fed correctly into the feed block. Should any man exhibit a tendency to slur the loading motions, it may be advisable to make him load "by numbers," counting aloud whilst doing so.

The actions of Nos. 1 and 2 in loading and unloading will be taught together.

"Unload."

If the tangent sight has been in use, No. 1 lowers it with his left hand. At the same time, without touching the belt, he pulls the crank handle on to the roller twice in succession with the right hand, allowing it to fly forward again in each case. He presses the top and bottom pawls of the feed block with his right hand, the top pawls with the fingers, and the bottom with the thumb, taking care to keep his hand clear of the entrance to the feed block.

When the belt is being withdrawn and the last round is clear of the feed block, he will press the thumbpiece.

No. 2 withdraws the belt from the feed block when No. 1 presses the pawls, steadying the belt with his left hand near the belt box (ammunition box) and his right hand near the feed block. He packs the belt correctly in the box and closes the lid. (He packs the belt correctly in the liner, and replaces the wooden cover.)



FIRING POSITION - SITTING

LESSON 48.—ACTION AND CEASE FIRING

"Action."

Nos. 1, 2 and 3 perform the duties learnt in "Mount Gun" and "Load," the gun being loaded as soon as it is correctly mounted. (Plate 8.)

"Cease firing."

Nos. 1, 2 and 3 perform the duties learnt in "Unload" and "Dismount Gun," the gun being dismounted as soon as it has been unloaded correctly.

LESSON 49.—CLEAR GUN AND STAND CLEAR

"Clear gun."

No. 1 pulls the crank handle on to the roller, raises the rear cover, removes the lock from the lock guides, and eases the crank handle forward, allowing the lock to rest against the hinge of the rear cover, and resumes his holding. He reports "Gun clear."

NOTES.—If the gun is loaded, "Clear gun" will be preceded by "Unload." If it is desired to replace the lock in the gun and close the rear cover, but not to load the gun, the command "Lock in — cover down," will be used.

"Stand clear."

Nos. 1 and 2 jump to their feet and stand at ease in rear of the gun, No. 2 on the right, No. 3 standing at ease at his position. No. 2 will leave the spare parts case in his former position.

No. 1 will leave dial sight, if in use, on the gun.

NOTE.—The command "Take post" will be used when it is desired that Nos. 1 and 2 should adopt their positions at the gun, No. 3 resuming his position.

LESSON 50.—TO ADJUST SIGHTS AND LAY THE GUN

Instructor's Notes

Before the lesson is begun, instruction in aiming must have been given. A few simple targets will be pointed out, the object being not to teach Recognition, but clean and accurate handling by the No. 1. The instructor should order "Lay" when he wants No. 1 to do so.

If no natural aiming points are available, a landscape target may be used, being placed at any convenient distance from the gun.

The gun will be loaded before the exercise begins.

"... hundred (or fifty) . . . Indication . . . lay."

No. 1 raises the tangent sight and adjusts the slide to the range ordered. When ordered, he begins to lay the gun by tapping the gun until the correct direction is obtained, and elevating or depressing until the aim is correct. He orders

No. 2 to loosen the traversing clamp when a large change in direction is necessary, and to tighten the clamp again when the gun is roughly aligned on the target.

When tapping the gun, or turning the wheel, No. 1 maintains control of the gun by keeping the disengaged hand on the traversing handle.

When the gun is laid, he orders "On" to No. 2, who raises his left hand in line with No. 1's shoulder; at the same time No. 1 raising the safety catch with his second fingers.

Should No. 1 fail to understand an order at any time he will call "Repeat."

LESSON 51.—FIRE, STOP AND GO ON

"Fire."

No. 1 instantly presses in the thumbpiece as far as possible by a quick and even movement of the thumbs, keeping his eyes directed on the target. He will fire in bursts, keeping the thumbpiece pressed for about four seconds before releasing and pressing again, checking his aim between bursts. No. 2 lowers his hand.

"Stop."

No. 1 immediately releases pressure on the thumbpiece and safety catch. He checks his aim, relying on to the original point of aim if necessary and calls "On" to his No. 2.

NOTE.—The wheel should occasionally be turned while No. 1 is firing in order to ensure correct relaying when "Stop" is ordered.

"Go on."

No. 1 resumes the action as detailed under "Fire." No. 2 lowers his hand.

LESSON 52.—CONSISTENCY OF TAP AND ADJUSTMENT OF CLAMP

Instructor's Notes

The gun will be loaded.

1. To teach a consistent tap.

The object is to develop a consistent automatic tap, in order that the line of sight is displaced the same amount each time the gun is tapped.

NOTES.—The instructor will explain the following points:—

- i. A strong tap with a tight clamp is preferable to a weak tap with a loose clamp.
- ii. When tapping with either hand, the gun must be held correctly with the other hand, and safety catch kept raised.
- iii. The eyes must be directed to the front, and not at the rear end of the gun or along the sights.

Each man will be practised in tapping the gun in both directions. The instructor noting the consistency. Correct holding will be taken after each tap.

2. To adjust the clamp.

Instructor's Notes

Additional stores:—M.G. Target (S.A.T., Vol. V, 1931, Plate 66).

The gun will be mounted and loaded 25 yards from the target.

The object is to ascertain the degree of tightness required in the traversing clamp in order that the line of sight may be displaced 15 minutes each time the gun is tapped.

The instructor will teach how to test and adjust the clamp. He will explain to the men that the interval between bulls, at a distance of 25 yards, subtends 15 minutes. He will ensure that if the gun moves too much or too little when the men are testing the clamp, that the clamp is altered and not the tap.

Whenever the gun is mounted or a new No. 1 takes post at the gun, or after the clamp has been loosened for a big change in direction, No. 1 must test the adjustment. The instructor should point out the importance of this and also the importance of the "feel" of the correct tightness, as later on no row of bulls will be available to assist in the adjustment.

3. Combination of consistency and adjustment.

NOTES.—The instructor will explain that the object of this exercise is to test the man's consistency of tap and adjustment of clamp and will warn No. 1 that in this particular case he will NOT check his aim or relay between bursts or on the command "Stop." The men will be exercised in traversing in both directions. Progressive instruction will be given in tapping right and left, on a M.G. target.

The instructor will inform the No. 1 which way he has to tap and will then give a suitable range and order to get the gun laid on to one end of a horizontal row of bulls.

When ordered, No. 1 will lay the gun on to the bulls-eye indicated.

On the command "Fire," No. 1 fires a burst, releases pressure on the thumbpiece, and strikes the traversing handle, deflecting the gun through an angle of 15 minutes. He fires another burst, taps as before, and will continue to do so, firing a burst after each tap until ordered to stop.

LESSON 53.—TRAVERSING

Instructor's Notes

Additional stores:—M.G. Target (S.A.T., Vol. V, 1931, Plate 66).

The instructor will explain that the object of this lesson is that, in traversing, the firer will combine consistency of tapping with the maintenance of the line of sight on the target.

NOTE.—The instructor will warn No. 1 that he will NOT check his aim or relay on the command "Stop," in order that the accuracy of his traversing may be ascertained.

For drill in traversing, the gun will be mounted and loaded 25 yards from the M.G. target. The instructor will inform the No. 1 which way he has to traverse, and will then give a suitable range and order to get the gun laid on to one of an oblique row of bolls.

No. 1 proceeds as in Lesson 52 (3), except that, after each tap, before firing again, he relays his gun on to the target immediately above or below the point to which his tap has carried it.

LESSON 54.—SWINGING TRAVERSE

Instructor's Note

Additional stores:—M.G. Target (S.A.T., Vol. V, Plate 66).
The instructor should explain:—

- I. That this method of traversing is only employed against targets at close range, when the normal method of traversing is likely to prove too slow.
- II. Since the vibration of the gun renders it easy to swing, the traversing clamp should not be so loose that No. 1 loses control of the gun.
- III. The rate of movement should be such that the line of sight is moved about 1 yard in 2 seconds, when the target is 25 yards from the gun, the movement of the gun is almost imperceptible.
- IV. The thumbpiece should be pressed before the gun begins to move. The importance of the mounting being upright must be emphasised.
- V. The principles of this lesson can only be explained during Elementary Gun Drill as the correct actions are only possible when the gun is firing ball ammunition.

No. 1 loosens his traversing clamp and then lays as before on the right or left end of the target. When ordered to fire, he swings the gun slowly to the right or left, maintaining pressure on the thumbpiece throughout. He moves the gun, not by a movement of the forearms alone, but by keeping the upper part of the body fairly rigid and forcing it over in the required direction.

LESSON 55.—CONTROLLED CORRECTIONS — DIRECT

Instructor's Notes

The gun will be loaded and fire opened before the lesson begins.

The object is to teach No. 1 to relay after altering the sights in obedience to a correction in elevation.

"Stop . . . Up (or Down) . . . Go on."

No. 1 adjusts his sights in accordance with the order, relays on to his original point of aim by turning the handwheel, and continues firing.

LESSON 56.—CONTROLLED CORRECTIONS — INDIRECT

Instructor's Notes

Additional stores:—Bar foresight, aiming post.

Before this lesson No. 1 must have received instruction in the use of the graduations on the handwheel and in aiming over the bar foresight. He should have an elementary knowledge of the function of the aiming post.

The gun will be mounted, bar foresight affixed, and an aiming post planted about 10 yards in front of it. The sights will be set at 2,500, and the instructor will lay the gun on the aiming post. The gun will be loaded and fire opened before the exercise begins.

To execute an order correcting the elevation when firing indirect.

"Stop" . . . "All Up (or Down) . . . Degrees . . . Minutes" . . . "Go on."

No. 1, using the graduations on the handwheel, elevates or depresses the gun through the angle ordered. He readjusts his line of sight on to the aiming post by moving his tangent sight side up or down.

Additional stores:—Dial sight and aiming post.

The gun will be mounted, dial sight attached, and an aiming post put out about 15 yards in front and to a flank. A suitable range will be set on the range drum of the dial sight, and the instructor will level the bubble and adjust the collimator to the aiming post.

Before this lesson No. 1 must have received instruction in the use of the graduations on the elevation drums of the dial sight. He should have an elementary knowledge of the functions of the aiming post.

1. Elevation.

The object is to teach the No. 1 to re-level the bubble after adjusting the range drum, or angle of sight drum of the dial sight, in obedience to a correction in elevation.

1. "Stop . . . Up (or Down) . . . Hundred (or Fifty) . . . Go on."

No. 1 adjusts the range drum as ordered, elevates or depresses the gun by turning the handwheel until the bubble is central, checks and, if necessary, adjusts the collimator for elevation.

ii. "Stop . . . Up (or Down) . . . Minutes . . . Go on."

No. 1 adjusts the angle of sight drum as ordered, elevates or depresses the gun by turning the handwheel until the bubble is central, checks, and, if necessary, adjusts the collimator for elevation.

2. Deflection.

The object is to teach the No. 1 to relay on to the aiming post, after adjusting the deflection drum, in obedience to a correction in deflection.

"Stop. Right (or Left) . . . Degrees . . . Minutes."

No. 1 adjusts the deflection drum as ordered, then taps the gun over until the aim is again relaid on to the aiming post. When relaid the bubble should be central; if not, the No. 1 will centralize it by turning the handwheel, and readjust the collimator on to the aiming post.

SECTION 12.—TESTS OF ELEMENTARY GUN DRILL AND INSTRUMENTS

1. The following tests have been devised to assist officers in testing the efficiency of their men in Elementary Gun Drill and to ensure that no detail of the drill is overlooked. It is important that these tests should not be considered solely as competitions against time, for although quickness is necessary, accuracy is the first essential. No man should therefore be passed as efficient unless all points are carried out correctly even though he may complete them in the standard time. Whilst passing the tests for accuracy, men who slightly exceed the standard time should be tested again before being put back for further instruction.

2. The tests must be carried out in strict accordance with the detailed instructions given under the appropriate paragraphs of Elementary Gun Drill, for unless the smallest details are insisted upon, the time limit will not be applicable. In carrying out the tests, time can be saved if the first detachment complete tests 1 to 4 consecutively, the remainder can be carried out as convenient.

3. It should be noted in tests 1, 2, 3 and 4 that ALL numbers are being tested in their own particular duties as Nos. 1, 2 or 3, and that the tests should not be regarded as a test for the No. 1 only. Therefore, a man is not considered to have passed these tests until he has passed in the duties of all numbers.

4. It is essential for each man to have passed Tests 1 to 6 before proceeding with the annual M.O. course. A record will be kept by each company or similar unit, commander and produced for inspection as required.

5. Method of conducting the tests.

The conditions of the test will be explained before the test begins, including the time allowed for the test, and when the time allowance begins and finishes.

NOTE.—If a stop watch is not available, a time keeper must be appointed.

Stores required — as for all Elementary Gun Drill, in tests 1 to 8.

Words of command will be given as in the appropriate headings in Elementary Gun Drill.

Test No. 10 will be carried out by full rank N.C.O.'s. only.

Name of task (1)	Conditions before task (2)	No. of tasks (3)	Time allowed, (4)	To pass (5)	Remarks (6)
No. 10 Director. Places required— 1 director. 1 aiming post.	An aiming post will be put out to represent a tree, a director will be mounted 50 feet from the aiming post on a level bubble central, the index pins at 180 degrees and the socket undamped. The aiming post to be directed to be held will be indicated. The director will be held within 10 degrees either side of the target.	One.	30 seconds from the command "Go" until the sights have been ruled on.	Angles correct within 10 minutes for direct and 15 minutes for elevation.	The angle of sight to the target which is to be directed must not exceed 1 degree plus or minus. The N.C.O. will indicate the target and measure the angle of sight. He will then indicate the angle of direction to the aiming post. Both angles being called out.

SECTION 13.—SIGNALS

1. In addition to the signals already taught in Infantry Minor Tactics, 1941, Appendix A, the following signals are necessary for fire control and use in the field by machine gun units.

2. They will be more easily remembered if, instead of being taught in one lesson, they are introduced when the relative stage of training is reached.

3. Fire control signals.—

Signal	Interpretation	When taught
No. 2 with his hand raised in line with and behind the shoulder of No. 1.	Gun ready to fire.	Whilst teaching adjusting sights and laying the gun in E.O.D.
NOTE.—On the order "WIND," or on a correction being given, No. 2 will lower his hand. He will raise his hand again when No. 1 has made the necessary allowance.		
Both arms fully extended, raised from the sides to a position level with the shoulders and lowered again. This motion is repeated quickly several times.	Action.	} Before and During Section Drill — Direct Fire.
Arm swung in a circular motion in front of the body.	Crease firing.	
Fire controller with his hand raised above the shoulder.	Prepare to fire.	
Fire controller's hand lowered to the side.	Fire.	
Fire controller's arm waved horizontally to and fro.	Stop.	

NOTE.—No. 2 will order No. 1 to stop.

Fire controller — Semaphore.

U	UP 50 yds. or 10 mins.	} During Platoon Drill — Indirect Fire.
N	DOWN 50 yds. or 10 mins.	
T	RIGHT 30 mins.	
L	LEFT 30 minutes.	

4. Field signals.—

- | | |
|---|--|
| A. Platoon, etc., Serjeant,
or
Section Commanders,
or
Section Corporals,
to join immediate superior. | } Before Section
Training. |
| AA. All N.C.O.'s. to join immediate superior. | |
| B. More ammunition required. | } During Section
Drill — Direct Fire. |
| H. Trucks to come forward. | |
| W. Water required. | |

**SECTION 14.—ADVANCED MACHINE GUN
HANDLING**

The object is to adapt the lessons taught in Elementary Gun Drill as far as possible to service conditions.

This subject provides an essential link between drills and collective training, and should be commenced as soon as men are proficient in Elementary Gun Drill.

It should be practised again within each Section at the beginning of the period allotted for section training.

LESSON 57.—MAN-HANDLING OF LOADS

Instructor's Note

Stores required:—

Gun, tripod, condenser can and dummy tube, 5 belt boxes (3 ammunition boxes) with belts and drill cartridges, spare parts case. All to be at service weights. Service equipment will be worn and weapons carried, as proficiency is attained.

I. Explain and demonstrate.

The methods of carrying the gun, tripod, etc., taught in drills are not always the most convenient for carrying long distances, or when concealment from ground observation is necessary. Any comfortable method may be adopted, which does not damage the load, and which conceals from the enemy the nature of the load carried. The following methods are suggested:—

I. Tripod.—

- (a) Walking or doubling — under the arm or in front of the body.
- (b) Crawling — any convenient method. The tripod may be dragged along the ground, provided that the dial is not damaged.

II. Gun.—

- (a) Walking or doubling — across the body, barrel casing resting on the right forearm, left hand gripping the left traversing handle and free end of the condenser tube; or

Close to the right side with the muzzle pointing upwards. It will be held with the right hand at the crosshead bracket, and the free end of the tube may be pushed through the traversing handle.

- (b) Crawling.—The man will lie on his right side, head to the front, weight of the body supported on the right elbow, right knee bent. He will support the gun with the barrel casing resting on the right forearm, the breech casing on the inside of the right thigh. He will grasp the left traversing handle with the left hand, which will also contain the free end of the tube. He will crawl forward making use of his right elbow and left leg.

iii. Belt (ammunition) and condenser can.—

- (a) Walking or doubling.—One belt box (liner) under each arm and one belt box (liner) or the condenser can in one hand.
- (b) Crawling.—Any convenient method may be adopted. A suggested method is that the leather handles of a belt box (handle of an ammunition box) may be hung over the toe of the man's boot. By this method the man can crawl on his side with the two belt boxes, one on either foot (one ammunition box on one foot) and can hold the condenser can in one hand.

iv. Two-men load.—

NOTE.—The gun will be unloaded before the movement described below is carried out.

- (a) If it is required to move a gun and tripod, which have already been mounted, a short distance to a new position, the whole may be carried by two men as follows:—
 - No. 1.—Right hand on rear leg, left hand, containing the condenser can, on the left front leg.
 - No. 2.—Left hand, on the right front leg, carrying belt boxes (ammunition box) in the right hand.
- (b) The gun, mounted on the tripod, can be moved by two men crawling forward, each grasping a front leg.

2. Practice squad.

LESSON 58.—MOUNTING THE GUN ON EXPOSED GROUND

Instructor's Note.

Stores required:—

As for Lesson 57.

1. The instructor will explain to the men that the mounting taught to them during drills is not always the most suitable under service conditions owing to the necessity for concealment and the unevenness of the ground.

2. Explain and demonstrate:—

1. Mounting and dismounting the tripod.

To mount the tripod.

No. 1 crawls forward with the tripod, placing it over the spot indicated. Keeping as low as possible on the left of the tripod with his head to the front, he loosens the jamming handles of the two front legs and opens them by rocking the tripod, first to

one side and then to the other. He adjusts the rear leg so that when the tripod is mounted it will be at its minimum height.

(NOTE.—In obtaining the minimum height, it will be found with most tripods that a firm mounting cannot be obtained by closing the rear leg right up to the socket. It will usually be necessary to adjust the rear leg back one tooth from the socket.)

He raises the tripod until the socket is upright and, according to his physique and/or the need for concealment, adopts either of the following methods:—

- (a) Clamps up the left front leg and releases the tripod with the right jamming handle unclamped; or
- (b) Clamps up both front legs. The adjustment of the leg, or legs, may be done by rocking the tripod as described previously.

After men have been practised in the above, the following will be introduced:—

An alternative method of mounting the tripod.—

Before giving him the order "Mount gun," the No. 1 will now be told to set the rear leg at an angle suitable for the selected gun position. In addition the two front legs will be swung forwards and upwards and be clamped in a suitable position over the rear leg.

To dismount the tripod.—

No. 1 will loosen the left and rear leg jamming handles, and will adjust the rear leg to the sitting position. He will close the legs together and tighten up all jamming handles.

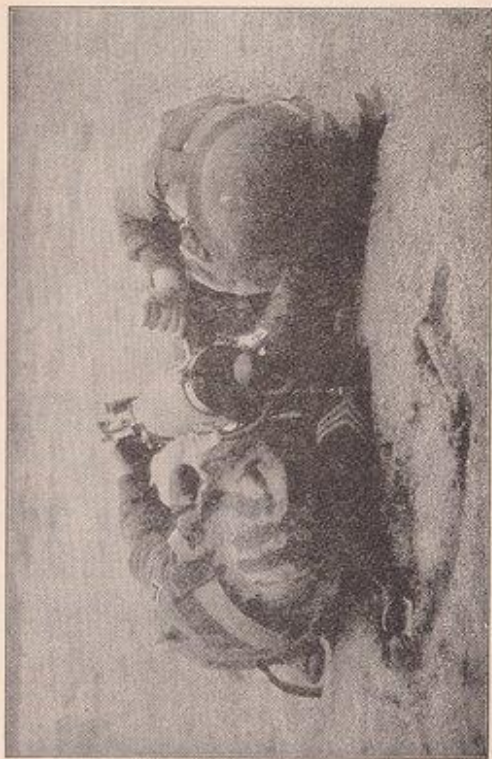
ii. Mounting and dismounting the gun and tripod.

To mount gun.

No. 1 will remove the elevating and crosshead joint pins. No. 2, crawling forward with the gun, will time himself to arrive at the position when No. 1 has prepared the tripod as above. He will then open the sliding shutter. Together they will mount the gun on the tripod, No. 2 inserting the elevating joint pin; No. 1 the crosshead joint pin.

Should the right front leg not have been clamped by No. 1 in the erection of the tripod, No. 1, placing his right hand on the right side of the socket, will pull the socket upright and order No. 2 to tighten the right jamming handle. No. 2 can assist in the raising of the socket by pushing against it, both Nos. taking care to keep their heads and hands below the level of the barrel casing.

No. 1 will then swing round, keeping as low as possible, and will lie with his legs to the front, right leg crossed over the left, his back and neck supported by No. 2. No. 2 will lie on his right side



MOUNTING THE GUN, RIGHT LEG UNCLAMPED

34



MOUNTING THE GUN, RIGHT LEG CLAMPED

35



NORMAL FIRING POSITION

36



ALTERNATIVE FIRING POSITION

37

supporting No. 1 in the back with his right thigh and at the neck with his left knee.

No. 3 WILL NOT disengage the quick release straps of the belt boxes (will prepare the ammunition boxes and replace the covers and securing pins), nor unscrew the cap of the condenser can. He will crawl forward only far enough to place his stores within reach of No. 2, screening himself behind the Nos. 1 and 2 as much as possible.

No. 2 will place the stores in their correct positions, disengaging the quick release straps of the belt boxes (pull out the securing pins of the ammunition box), unscrew the cap of the condenser can and insert the tube.

NOTE.—An alternative firing position for No. 1 under certain conditions would be:—

Lying, each elbow rested on a belt box (ammunition box) placed parallel to his body, on each side of the rear leg. Should only 1 belt box (ammunition box) be available for use as a support, the tripod may be mounted with the rear leg at an angle to the line of fire, the box being laid at right angles to the firer and used to support both elbows.

iii. To dismount the gun.

No. 3 will crawl forward to a position in rear of the gun to take the belt boxes (ammunition boxes) and condenser can, which have been handed back by No. 2, who will first have fastened the quick release straps of the belt boxes (replaced the covers and securing pins of the ammunition boxes) and the cap of the condenser can. No. 3 will then crawl clear of the position with his stores.

Nos. 1 and 2 will then either:—

Crawl back, dragging the mounting, and dismount it under cover; or

they will dismount the gun as follows:—

No. 1 will remove both pins and, after No. 2 has removed the gun, will replace them or, if considered necessary owing to the physique of No. 2 and/or the circumstances of concealment—

No. 2 will loosen the right jamming handle. No. 1 will then remove both pins and, after No. 2 has removed the gun, replace them.

No. 1 will then swing round, keeping as low as possible and dismount the tripod as described previously.

No. 2 will remove the gun, crawl clear of the position with it after closing the sliding shutter.

3. Practice squad.

LESSON 59.—MOUNTING THE GUN ON UNEVEN GROUND

Instructor's Note

Stores required:—

As for Lesson 57.

During the demonstration of dismounting the tripod, as soon as the mounting is behind cover, allow the squad to view that mounting as it appears on level ground. This will enable them to visualise how the legs could have been adjusted beforehand for that particular gun position.

Explain that movement at the gun position can be avoided if the tripod legs can be adjusted under cover to suit the ground.

1. Types of ground selected should include:—

- i. The side of a slope for firing in any direction.
- ii. The top of a narrow bank, with the object of obtaining maximum command.
- iii. The side of a bank, in order to clear the top or to fire along it.
- iv. A hedgerow, in order to fire through it.
- v. A shell hole.
- vi. Broken ground.

2. Explain and demonstrate:—

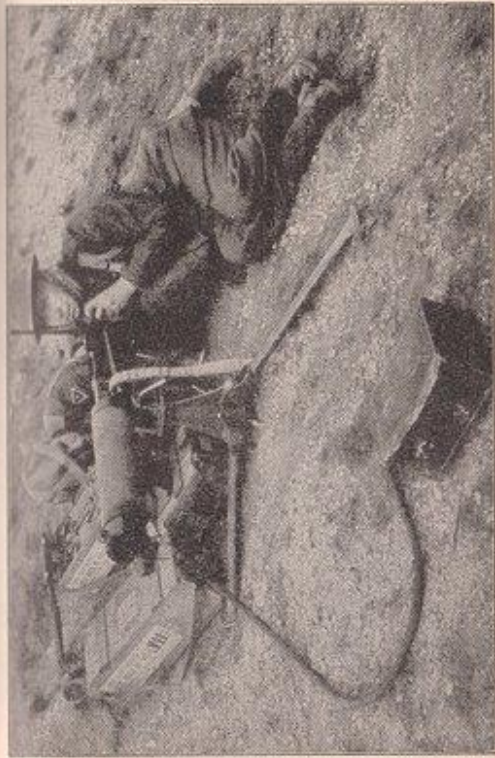
- i. Mounting the gun and tripod by moving under cover to a gun position on uneven ground and by adjusting all the legs.
 - ii. Dismounting the gun and tripod by dragging the mounting behind cover.
 - iii. Mounting the gun in rear and working forward with it mounted, to the selected gun position.
3. Practise squad, in all above phases.

NOTE.—In examining each mounting, the instructor will point out that the following conditions must be fulfilled:—

- i. The mounting must be as low as possible, consistent with obtaining a view of the arc of fire or target.
- ii. The position of the rear leg must be governed by the shape of the ground, irrespective of the direction in which the gun has to fire.
- iii. The socket must be mounted upright, and over the spot indicated.
- iv. The shoes only, and not the legs, must be bearing on the ground.
- v. The ground supporting each shoe must be sufficiently firm to ensure that the shoe does not slip during firing.
- vi. No part of the tripod must interfere with the elevating wheel.



FIRING DOWN A SLOPE



GUN MOUNTED ON SIDE OF SLOPE

LESSON 60.—BRINGING THE GUN INTO ACTION, AS PART OF A SECTION, MAKING USE OF COVER

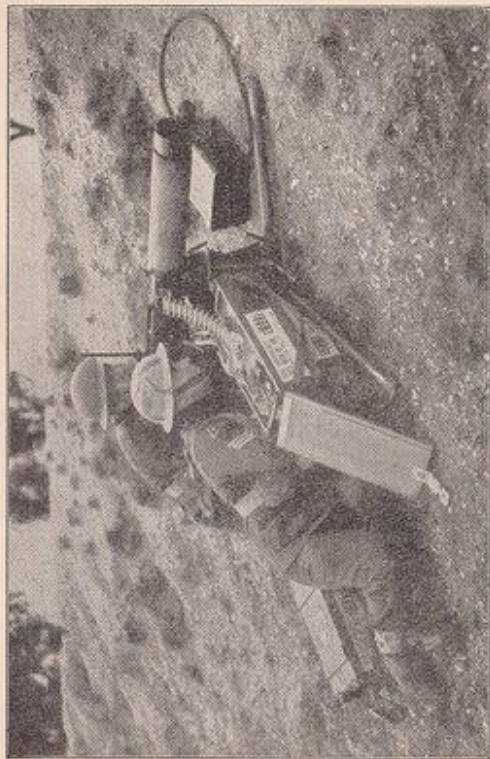
Instructor's Note

Stores required:—

As for Lesson 57. Equipment will be worn, and arms carried.

Explain and demonstrate:—

- i. Explain that the object of this lesson is to practise bringing the gun into action with the minimum exposure to enemy observation and maximum cover from fire. The importance of this in training for war will be emphasised.
- ii. Describe briefly the methods by which a section commander may bring his guns into action. (See Sec. 22.)
- iii. Explain the necessity for good team work between—
The section corporal in rear.
The gun numbers of the sub-section.
The section commander and his orderly in front.
- iv. Decide previously on—
 - (a) A target and/or arc of fire.
 - (b) One gun position from which to engage it.
 - (c) Ground from which the enemy can observe.
 - (d) A point close behind the gun position to which the sub-section has been led under cover, under the section corporal.
- v. Assemble the gun numbers, with their stores, at this point behind the gun position.
Explain the situation regarding enemy observation, etc., and then order them into action using one of the methods in Section 22, detailing a man to act as section orderly if necessary. Order section corporal to control movements.
- vi. When the gun is in action, discuss the following:—
 - (a) Ability of the gun to do its task.
 - (b) Suitability of the mounting.
 - (c) Position of the stores at the gun.
 - (d) Position of No. 1 with regard to concealment and freedom of action.
 - (e) Position of No. 2 with regard to—
Concealment.
Observing signals from fire controller.
Attention to feed.
Assisting in Immediate Action.
 - (f) Position of remaining Nos. in regard to concealment, all-round protection, and their duties in action.



GUN MOUNTED ON SIDE OF SLOPE

(g) Method of mounting the gun without undue exposure.

(h) The move forward of the gun numbers with regard to concealment and time.

(i) Action of the section orderly (if used).

(j) How the gun position adopted could be improved by the use of camouflage or digging.

vii. In further stages, practise will be given in fire discipline (direct fire), the maintenance of the gun in action, and in the complete duties in the occupation of a gun position from the position in readiness, including a long carry.

SECTION 15.—VEHICLES

LESSON 61.—LOADING TRUCKS

It is not the intention that there should be any rigidity in the distribution of loads and personnel to vehicles. These may be modified to suit varying conditions.

The drills and field duties described in this pamphlet are based on the distribution of loads and personnel shown in this section.

Instructor's Notes

Stores.—Three trucks. Complete stores of 1 section and platoon H.Q.

Lay out the stores in four groups as under:—

Group 1.—Platoon commander's truck.

" 2.—Platoon serjeant's truck.

" 3.—Odd sub-section truck.

" 4.—Even sub-section truck.

1. Explain:—

i. Platoon personnel are distributed as follows:—

Platoon headquarters.

Platoon commander's truck.—Platoon commander
2 range-takers.
2 orderlies.
Driver.

Platoon serjeant's truck.—Platoon serjeant.
2 scouts (gun nos.).
Driver.
Batman.

Motor cycle.—Platoon orderly

Each section.

Odd sub-section truck.—Section commander
5 gun nos.
Driver.

Even sub-section truck.—Section corporal.
5 gun nos.
Driver.

2. Load each vehicle in turn (for details, see Plates).

3. Practise squad.

4. Summary of tools carried in M.M.G. Coy.

	Picks		Shovels		Total	
Company H.Q. truck	—	3	—	5	3	5
Platoon serjeant's truck	—	5	—	5	15	15
Sub-section truck	—	2	—	2	24	24
Total in M.G. company	—	—	—	—	42	44

NOTE.—Each range-taker and each No. 3 and No. 4 carries an entrenching tool.

5. The following Plates illustrate methods of packing adopted under the British Army organisation, using Dial Sight equipment and Mk. VIIIz ammunition. Modifications, to suit Australian equipment, etc., will be necessary, the essential being to ensure that sub-sections have with them in the vehicle concerned all their stores and ammunition.

The loads for the even sub-section truck will be the same as are shown for the odd sub-section truck, less the following:—

- Machine carbine.
- Case, cans oil.
- Rattle.
- Instrument box.
- Wire cutters.
- Aliming post.
- Night firing equipment.

In addition, a spare parts box and spare condenser can will be carried on each even sub-section truck.

NOTES.—1. When boxes, instruments, are issued they will be carried in the platoon commander's truck and each section commander's truck. They will contain:—

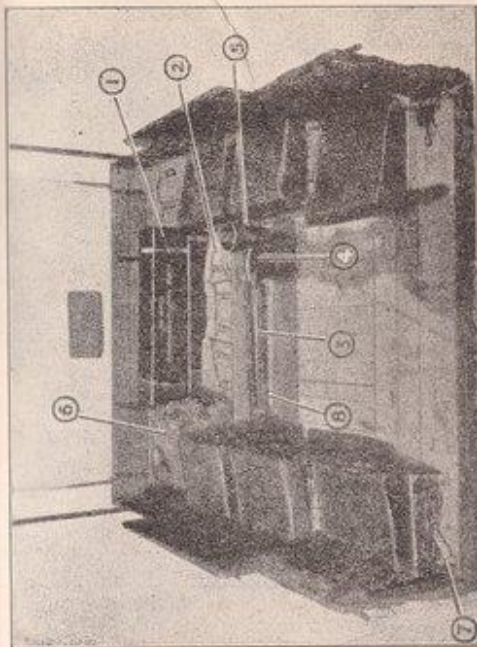
Platoon commander's truck	Section commander's truck
Cases, batteries and bulbs 2	Cases, batteries and bulbs 2
Bulbs 2	Bulbs 2
Batteries 2	Batteries 2
Director, in case	Pins, crosshead joint 2
Plotter, M.G.	Chains 2
Protractor resector, in case	Pins, elevating 2
Screw, clamp, checking traverse	Chains, elevating 2
Lamps, electric 2	Lamps, electric, No. 1 2
	Night firing pegs, in case.

2. The Machine carbine is not shown, but will normally be with the section commander. Where the number of machine carbines on issue do not permit of this, the allotment will be as directed by the company or platoon commander, according to the number of weapons available for distribution.

3. "Ammunition boxes" are of the wooden type, containing two stripless belts, each in a sealed-down tin liner, and are therefore equal to two normal metal belt boxes as regards quantity of ammunition.

PLATOON COMMANDER'S TRUCK

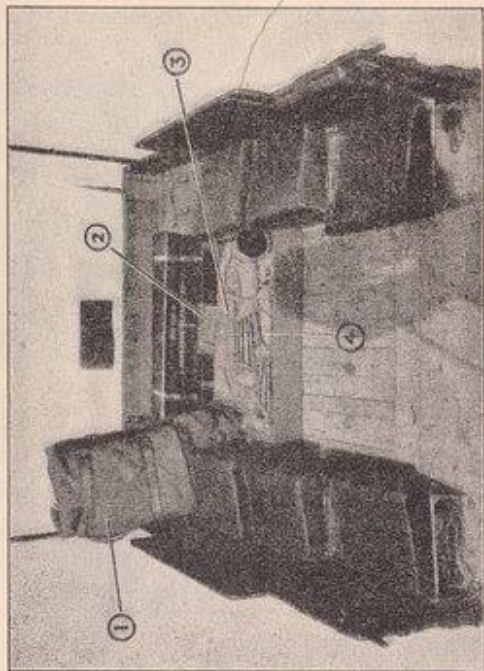
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1. Range-finder in boxes (2).
2. Packs (5).
3. Stands, director.
4. Director.

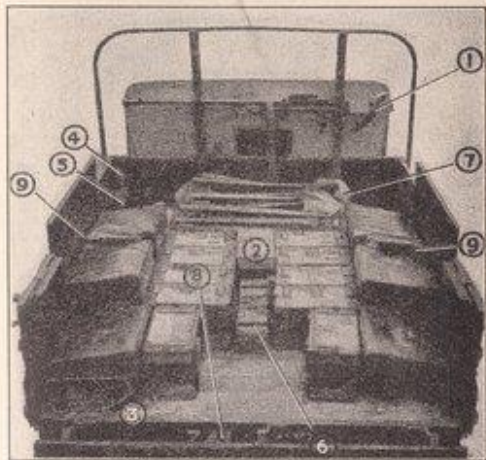
5. Megaphone.
6. Camouflage.
7. Truck tow rope.
8. Zero posts (4).

PLATOON COMMANDER'S TRUCK
(Top layer)



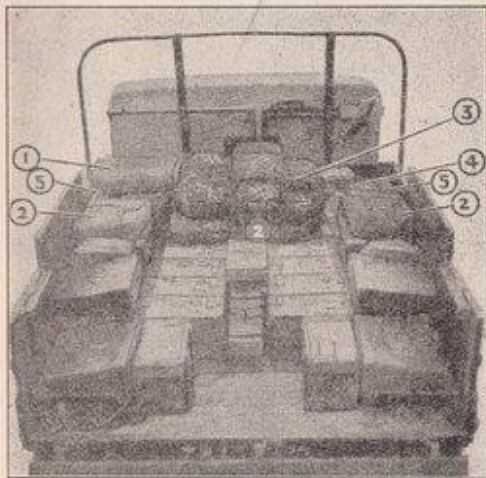
1. Officer's valise.
2. Plotter M.G.
3. Resector protractor.
4. Cases, rangefinders and stands (2).
Rattle.
- 5.

PLATOON SERJEANT'S TRUCK
(Bottom layer)



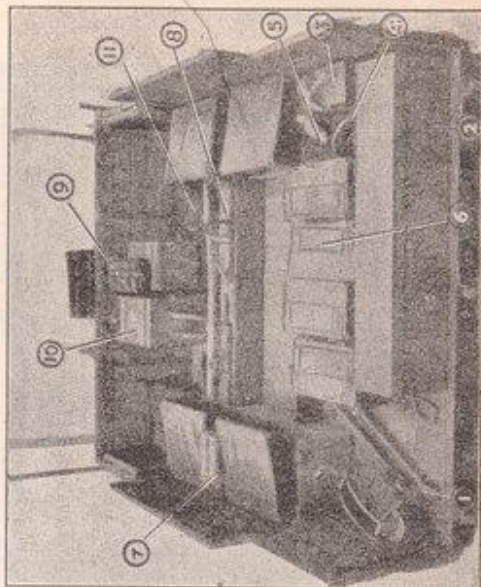
1. Anti-tank rifle.
2. One box .55 ammunition.
3. Truck tow wire.
4. Matchet.
5. Cases, cans, oil.
6. One box grenades.
7. Picks (3), shovels (2).
8. 17 boxes ammunition, Mark VIII.
9. Four magazines for anti-tank rifle.

PLATOON SERJEANT'S TRUCK
(Top layer)



1. Truck cover.
2. Packs (5).
3. Camouflage nets (2).
4. One tin bleach paste (28 lb.)
5. Ammunition boxes, Mark VIII (3).

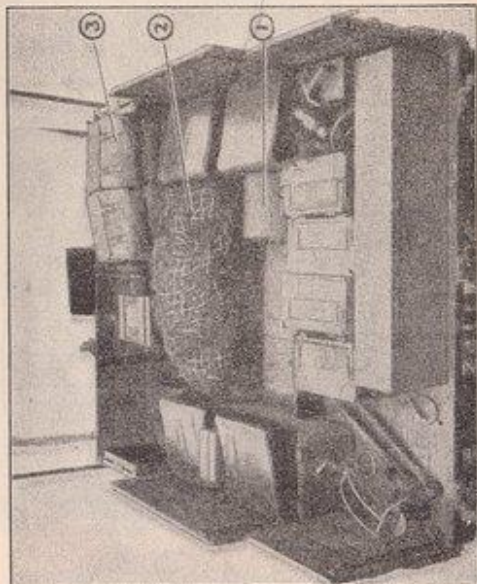
ODD SUB-SECTION TRUCK
(Bottom layer)



1. Tripod.
2. Gun chest.
3. Condenser can.
4. Condenser tube.
5. Spare parts case and blast deflector.
6. Ammunition boxes, Mark VIII (4).
7. Dial sight.
8. Picks (2), shovels (2).
One set night firing pegs.
Aiming post.
9. Old linen.
Two metal belt boxes.
10. Cases, cans, oil.
11. Ammunition boxes, Mark VIII (3).
Metal belt boxes (2).
12. Torches (2).
M.G. cape and gloves.
Aiming lamp.
Matchet.
Wirecutter.
Rattle.

ODD SUB-SECTION TRUCK

(Top layer)



1. Truck cover.
2. Camouflage nets (3), and spider.
3. Pecks (7).

SECTION 16.—VISUAL TRAINING

1. The methods taught in S.A.T., Vol. I, Pamphlet No. 2, 1937, Lessons 1 to 11, must be the groundwork of the machine gunner's visual training.

Owing, however, to the fact that machine guns are fired at longer ranges than other small arms, and to close grouping of the gun, even minor inaccuracies in indication and recognition may result in the target being missed altogether.

Also, it is often necessary to fire machine guns under conditions where the safety of our own troops has to be considered and any inaccuracy might endanger them. For these reasons the methods taught in S.A.T., Vol. I, Pamphlet No. 2, are amplified here.

2. Sequence and system of training.—

The following will be the sequence of individual instruction:—

i. Officers and N.C.O.'s—

Visual training.

The organisation of the arc, including the use of range cards (J.D.).

Indication.

Fire orders.

ii. Gun numbers—

Visual training.

Judging distance up to 1,000 yards.

Recognition.

Application of fire orders.

iii. The rangefinders; scouts and orderlies will require instruction in visual training and elementary indication and recognition on the same lines as for Officers and N.C.O.'s.

3. Individual instruction of officers and N.C.O.s.

i. Visual training.

Attention should be called to those features which are of particular interest to the machine gunner, e.g., positions for observation to the front and to the flanks, positions that offer a good field of fire, areas on which observation of fire is likely to be obtained, localities from which enemy attacks may develop, the visibility of skylines, etc. By such practise a necessary introduction will be obtained to the more detailed study of cover, reconnaissance, and the selection of gun positions. Practice in the use of field glasses should be combined with the above.

ii. The organisation of the arc and range cards.

Instruction should be given having regard to a tactical situation. Particular attention should be paid to the choice of reference points, to the orders to be given to the range taker, and to estimating ranges from the key ranges on a range card.

iii. Indication.

The sequence of instruction will be as laid down in S.A.T., Vol. I, Pamphlet No. 2, the instruction stores and technical methods involved being adapted to machine gun requirements. For example, directors will be used instead of aiming rests.

iv. Fire orders.

As soon as a satisfactory standard of indication has been reached, Officers and N.C.Os. will be practised in giving out fire orders for various targets. Landscape targets may be used in the preliminary stages. Examples of direct fire orders will be found in Pamphlet No. 7, Part III, Section 24.

During the later stages of training the time taken to give out the fire order will be noted, and when necessary it will be pointed out where time could be saved. This will be of particular importance in the engagement of moving targets. The details of fire discipline in connection with fire orders is practised in Section Drill — Direct fire (Sec. 17, Lesson 68).

4. Individual instruction of gun numbers.

i. Visual training.

As in S.A.T., Vol. I, Pamphlet No. 2, extended to suit machine gun requirements.

ii. Judging distance up to 1,000 yards.

All ranks will be taught to judge distance up to 1,000 yards. The method and sequence of instruction will be as laid down in S.A.T., Vol. I, Pamphlet No. 2.

iii. Recognition.

Instruction in recognition must only be given by N.C.Os. who have reached a high standard of indication. The sequence of instruction will be as laid down in S.A.T., Vol. I, Pamphlet No. 2, landscape targets or the miniature range being used in the preliminary stages. During this instruction, the Nos. 1 will be at the guns, and on the conclusion of the indication will be ordered to lay on the point of aim indicated. The instructor will check the point of aim. Not more than four guns should be used at one time by one instructor.

iv. Fire orders.

As soon as a satisfactory standard of recognition has been reached, the men will be practised individually in the detail of applying fire orders to the gun.

NOTE.—It cannot be stressed too strongly that the best method of getting guns on to a target is for the section commander to lay them himself. When this method is impracticable, e.g., exposure of positions or personnel, some other method must, of course, be adopted. This will normally be verbal indication.

LESSON 62.—INDICATION AND RECOGNITION (WITHOUT AIDS)

Instructor's Note

Stores:—

Gun, tripod, landscape target. Directors, or rifles on aiming rests. The landscape target can be used, but every opportunity should be taken of practising on the ground.

1. The arc of fire.

Explain that the area of ground to be watched, and within which targets will be engaged, is known as the "Arc of Fire." The arc is bounded by the "Right of Arc" and "Left of Arc"; each limit being an imaginary line passing through the gun position and some easily described point on the landscape in the direction required. Similarly, an imaginary line, known as the "Near Limit of Arc," can be described from right to left across the area to indicate that only the ground beyond this line and within the limits mentioned above, need be considered.

2. Demonstrate how, whenever possible, the gun itself will be laid on to the point to be recognised. This is the simplest and most direct method of indication.

Explain how an instrument, for example, a director or "pointer staff," can also be used.

Explain that the approximate right, centre, or left of arc can be of great assistance to denote a general direction, viz:—
"Right of Arc — White House." "Centre of Arc — Bright Yellow Patch."

3. Practise the squad in indication (Officers and N.C.Os. only) and recognition by the means above, insisting on an accurate aim every time the gun is laid.

LESSON 63.—INDICATION AND RECOGNITION (WITH AIDS)

Instructor's Note

Stores:—

Gun, tripod, graduated glasses, slide rule, degree scale painted on the wall (or portable degree scale — see Pamphlet No. 2, Lesson 6). Directors, or rifles on aiming rests. Use a landscape target if necessary, but preferably practise on the ground.

Reference points.

1. Explain that:—

- i. Reference points in a machine gun arc may be as far apart as 30 degrees. In deciding on the number of reference points, the object to be employed, and their distance apart and from the guns, the fire controller must consider the nature of the arc of fire and his task. As a general rule, as few as possible should be used, so as to avoid confusion.
- ii. They should be in the areas where targets may be expected to appear. When the enemy is tied to definite lines of approach, or moving targets are likely, it may be necessary to choose a few reference points close together to facilitate rapid switching.
- iii. The points originally used for describing the right and left of arc should not be employed as reference points unless specially named as such.

2. Practise (Officers and N.C.Os. only) in the selection of reference points in accordance with the above considerations.

Degree method.

3. The squad must first know their own hand angles (S.A.T. Vol. I, Pamphlet No. 2, 1937, Lesson 6).

4. Explain that:—

i. Fire controllers should measure horizontal and vertical angles by means of the graticules in their field glasses or slide rule. If for any reason it is necessary for them to use hand angles, it should be remembered that they will normally be in the lying position. Therefore, when their individual hand angles are being determined, these should also be checked lying down.

ii. At the gun, degrees included in an indication will normally be measured by hand angles.

When it is necessary to give out angles the following form will be followed—

4° 35' = Four degrees, three five minutes.

12° 5' = One two degrees, five minutes.

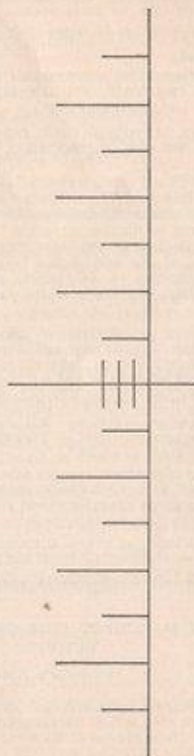
10° 20' = One owe degrees, two owe minutes

The words "right" or "left," or "elevation" or "depression" will precede the number of degrees or minutes, when required.

NOTE.—In all examples, this form of phonetic spelling is used to represent the figure 0.

The following figure is an example of a graticule on service field glasses.—

The central vertical line measuring 1° degrees above the horizontal and a half degree below, the remaining vertical lines showing a measurement of a half degree and a degree alternately in height and a lateral measurement of the same amount respectively. The three horizontal bars are marked at 10 minutes depth from each other.



NOTE.—Whenever graticules are inserted in service field glasses, the angular measurement is shown on the body of the instrument frame.

5. The class will practise, Officers and N.C.Os. indicating targets by the methods in para. 4 above; the men will only practise Recognition by these means, and laying the guns as ordered.

Finger method.

6. All ranks must also be conversant with the "Finger" method of Indication (see S.A.T., Vol. I, Pamphlet No. 2, 1937, Lesson 6).

Combination of vertical clock ray and degree and finger measurement will also be practised.

Wide targets.

7. Explain that:—

- i. The indication of the ends of a target with width requires particular attention.
- ii. The insertion of the word "From" before the description of one end of the target and "To" before the description of the other, will normally suffice to indicate the limits of the targets.

Example:—

"Centre of Arc — bush — from bush to right — five o'clock — three degrees — tree."

If the indication is difficult, this method of wording may not always be possible, and the words "From" and "To" would have to be used as in the following example:—

"Centre of arc — house — left — small bush — left — gap in hedgerow — left — 7 o'clock — faint dark mark — from bush to mark."

If such an indication, to avoid misunderstanding, the words "Right Limit" and "Left Limit" may be used to indicate the flanks. The above example would then be:—

"Centre of arc — house — left — 9 o'clock — small bush — right limit — left — 9 o'clock — gap in hedgerow — left — 7 o'clock — faint dark mark — left limit."

8. The class will practise as in para. 5 above.

LESSON 64.—DIRECT FIRE ORDERS FOR GUN NUMBERS

Instructor's Note

Stores:—

Two guns, tripods, belts and belt boxes (ammunition boxes), drill cartridges, etc., and, if no open country is available, landscape target. Field glasses or slide rule.

1. Explain and demonstrate:—

- i. Point of aim, according to method of fire.

- ii. Overlap at ends of targets and of beaten zones in centre of oblique targets, having a different range to each end.
- iii. Wind allowance and its effect on the point of aim before and during firing.
- iv. Length of bursts.
- v. Rate of fire.
- vi. Action of No. 1 on the command "Stop."

2. Take examples of all types of targets, including moving targets, using various methods of indication.

3. During the indication of targets, No. 2 will always watch the front and follow the indication. Where side wind allowance is ordered, No. 2 will view the auxiliary aiming mark picked up by No. 1.

NOTE.—Instructors and leaders will be given instruction on similar lines. In their case, directors or rifles on aiming rests are included under "Stores." All except the Nos. 1 view the target through the directors, or over the rifle sights. Range (ranges) and method of obtaining the range is notified.

A member of the squad is then selected and gives a suitable order to engage the target, the efficiency of the order being determined by the result at the guns. A variation of this method is for all concerned, except the Nos. 1, to write their fire order, the controller selecting either the best or the worst example, ordering the member concerned to deliver it and illustrating its value by the result at the guns. Members of the squad delivering a fire order should adopt a position consistent with service conditions. The Nos. 1 should be changed after each example is dealt with.

During the application of the fire order, the controller will specify whether or not any observation of strike has been obtained.

JUDGING DISTANCE TEST

Details of the usual test in judging distance are set out in S.A.T., Vol. I, Pamphlet No. 2, Section 3.

SECTION 17.—SECTION DRILL— DIRECT FIRE

Instructor's Notes

Stores:—

For all periods of section drill the following stores are required:—

2 guns, 2 tripods, 2 condenser cans, 2 condenser tubes (dummy), 2 spare parts cases, 1 spare parts box, 2 aiming posts, 14 belts and belt boxes (at least 5 ammunition boxes), drill cartridges, 2 clinometers and bar foresights. Picks and Shovels will be included during later stages.

Dial sight equipment: 2 dial sights, 1 aiming post.

When additional stores are required, a note to that effect will be found under the heading of each lesson.

Barrel casings and condenser cans will be filled and belt boxes, if possible, made up to service weight by improvised means. All personnel should wear service equipment and carry arms.

SAFETY PRECAUTIONS WILL BE CARRIED OUT BEFORE ANY PERIOD OF DRILL BEGINS

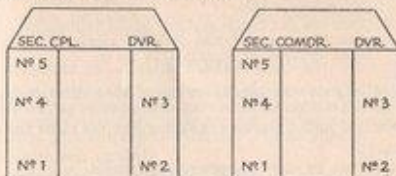
1. Signals and Lesson 57 of Advanced Machine Gun Handling must be taught before proceeding with section drill (see Secs. 13 and 14).

2. As proficiency is attained, the drill will be carried out introducing cover. This cover may be natural or artificially created with small screens, sandbags, chairs covered with ground sheets, etc. The direction of enemy observation will be indicated.

3. The object of section drill is to teach and exercise the section personnel in their drill duties as a fire unit employing direct fire.

4. Beginning of drill.—Before the drill begins, the instructor will fall the personnel in, detail a section commander (where the instructor is himself acting as section commander this will not be necessary), a section corporal and the requisite gun numbers. In addition, he will inform the section corporal, number of belts required, where the trucks are to be sent to when the required stores have been removed and reported correct — for drill purposes this need only be a short distance in rear. He then gives the order "Take Post" and all ranks will take up their positions in the trucks as shown by the following diagram.

5. Position of personnel in trucks:—



NOTES.—1. No. 5 will be a fully-trained gun number. He should not be given any special duty as regards drill. He is there to replace casualties and to assist in the chain of supply. He is specially valuable in a long carry. When "preparing for action" he will normally remain in the truck, assisting, if necessary, in handing out ammunition, arms, etc. He will normally return with the truck to the position ordered and assist in camouflaging the truck. Then he and the driver will leave the truck, and both of them will take up a concealed position from which they can keep in touch with each other and with the chain of supply.

2. For drill purposes, trucks should not be less than 20 yards apart at the "Take Post" position.

LESSON 65.—PREPARE FOR ACTION AND COME INTO ACTION

Instructor's Note

Additional stores:—2 sub-section trucks.

Section corporal (having dismounted) ". . . belts, prepare for action."

He moves to a suitable position in the vicinity of the trucks where he can best supervise the actions of the gun numbers and direct their movement from the trucks, positioning the Nos. 1.

As soon as the stores have been inspected and reported correct, he will dispose of the trucks as ordered, warning drivers where to return to when signalled for. If the covered position for the trucks is some distance from the gun position, he will have the spare parts box removed before the trucks move off, arranging for its disposition with a suitable member of the sub-section. He will then take up his position, centrally in front of the section.

Drivers.—

1. Move to rear of trucks and control the lowering of tailboards.

ii. Assist Nos. 2 to place the gun chests on the ground and open the lids.

iii. Replace the gun chests and fasten the tailboards. Await orders from the section corporal, moving their trucks when ordered or signalled to do so.

Nos. 1.—

Remove tripods and double to positions indicated on the ground by the section corporal. Assume position beside tripods.

Remove dial sights, placing the straps over the right shoulder.

Nos. 2.—

i. Assisted by drivers, remove gun chests.

ii. Take from trucks, condenser tubes, spare parts cases, the clinometers and bar foresights, placing straps of the cases over the right shoulder, after removing blast deflectors, and the straps of the clinometers over the left.

iii. Remove guns from chests and attach condenser tubes and blast deflectors.

iv. Double forward to a suitable position a few paces to the right of their Nos. 1, placing the guns on the ground and assuming positions beside them.

Nos. 3.—

Take out the condenser can, 2 belt boxes (1 ammunition box) and an aiming post. Double to a suitable position centrally in rear of their Nos. 1 and 2, placing the stores on the ground and assuming position between them.

No. 3 of the odd sub-section will take out an aiming post.

Nos. 4.—

Take out the remaining ammunition ordered and carry the boxes to No. 3's position (making as many trips as are necessary). They then return to a central position in rear of the section and await orders from the section corporal.

The gun numbers will examine their stores as in Elementary Gun Drill, Nos. 1 reporting "No. . . . all correct" (or otherwise) to the section corporal on completion.

Section commander.—

Indicates positions where guns are to be mounted and the direction in which they will point.

"Action."

Nos. 1, 2, and 3.—Will mount the gun on the position indicated in accordance with the detail for "Action" in Elementary Gun Drill. Nos. 3 will make the necessary journeys to place all ammunition at the guns, finally being positioned by the section corporal.

Section corporal.—After positioning the Nos. 3 and as soon as the situation permits after the guns are in action, he will report to the section commander and receive details of the

tactical situation. He will then organise his chain of supply and local protection of the section, finally assuming a position from which he can best supervise the work behind the gun position and be available if required.

LESSON 66.—CEASE FIRING AND ON TRUCKS

Section commander signals "H" for trucks. When section corporal acknowledges, section commander orders "Cease firing." (If aiming posts have been put out, the section commander must first give the orders "Unload," "Clear guns.")

"Remove dial sights."

Section commander.—"Cease firing."

Drivers:—

i. Drive their trucks to the position previously ordered and lower tailboards.

ii. Place gun chests on ground and open lids.

Nos. 1, 2, and 3.—Will cease firing as in Elementary Gun Drill. Nos. 3 make as many journeys as necessary to remove the condenser cans and all belt (ammunition) boxes from the gun position. Nos. 3 will first bring in the aiming posts, if in use.

No. 3 of the odd sub-section will bring in the aiming post.

Nos. 4.—Take up a position just in rear of Nos. 3.

Section commander.—"On truck."

Nos. 1.—Replace their tripods in the trucks and dial sights.

Nos. 2.—

i. Return to trucks and remove condenser tubes and blast deflectors.

ii. Replace guns, fasten chests, and, assisted by drivers, put chests on trucks.

iii. Return condenser tubes, spare parts cases, clinometers, bar foresights, and blast deflectors to their correct positions.

Nos. 3.—Return condenser cans, aiming posts, and as many belt (ammunition) boxes as they can carry, to their correct positions.

No. 3 of the odd sub-section returns the aiming post.

Nos. 4.—Return all belt (ammunition) boxes left behind by Nos. 3. Nos. 4 will return the aiming lamps, if in use, on their first journey.

No. 4 of the odd sub-section will return the aiming lamp on his first journey.

Drivers.—Assisted by Nos. 2, replace gun chests, and when all numbers are on the trucks, fasten the tailboards.

NOTE.—On completion of their duties all numbers will resume their positions in the trucks. The section commander and section corporal will supervise the action at their own trucks.

The section corporal will ensure that the spare parts box, if removed from the truck, is returned by one of the higher numbers.

LESSON 67.—LONG CARRY

Instructor's Notes

Additional stores:—Extra ammunition boxes.

When the gun position is an appreciable distance from the position in readiness, the section corporal will detail loads evenly throughout the section. Nos. 4 and 5 will return for any ammunition boxes which cannot be carried in the first journey.

During the carry, the section will move, as directed by the corporal, in such formation as he considers suitable to cater for the protection and concealment of the unit.

At the end of the carry, all belt (ammunition) boxes will be placed with Nos. 3, Nos. 4 then assuming a central position, a short distance in rear of the section, awaiting the orders of the section corporal. Nos. 5, if present, will remain with them.

LESSON 68.—FIRE DISCIPLINE

Instructor's Notes

Additional stores:—Landscape target, if necessary.

Before carrying out this stage of the drill the man must have had sufficient instruction in receiving fire orders.

The instructor will detail an arc of fire and reference points. When a satisfactory standard has been reached, the section should be exercised with the fire controller on the right of, or between guns, and with a No. 3 to relay signals, if necessary.

Practice of fire orders in all forms, including the allowance for side wind, is an essential part of this drill, particular attention being paid to all points of fire discipline, checking of aims and actions of gun numbers.

Occasions arise on higher training when gun numbers have little to do. These are excellent times to practice fire orders.

LESSON 69.—THE REPLACEMENT OF BREAKAGES

Instructor's Notes

Additional stores:—Spare parts box.

1. Where the spare required is carried in the spare parts case:—

No. 2 replaces the broken part from the spare parts case. If the lock is broken and is repairable, he will hand it with the wallet to No. 3.

No. 3 will carry out the necessary repair and return the lock and wallet to No. 2 at the first opportunity. In all cases, the broken part will be retained.

2. Where the spare part required is not in the spare parts case:—

The part is called for. No. 4 or 5 takes it from the spare parts box and passes it forward through No. 3 to No. 2. The broken part is returned to the spare parts box.

NOTE.—The section corporal is responsible that broken parts are replaced immediately the situation allows.

Where considerable stripping of the gun is necessary, e.g. changing a barrel, Nos. 1 and 2 should pay due regard to cover, withdrawing the gun and tripod behind existing cover when such is available in the immediate vicinity.

LESSON 70.—TO CONTINUE FIRING IN THE EVENT OF THE TARGET BECOMING OBSCURED

1. When the target is likely to be obscured for a short time only:—

Section commander:—

"Step." (Nos. 1 relay on target.)

"Pick up gun aiming mark."

No. 1 picks up a suitable gun aiming mark (Lesson 20, para. 3, vi.).

No. 2 sets tripod dial to zero when the gun is laid, checks elevation with the clinometer, notes the aiming mark and the setting in the tangent sight.

Nos. 1 lower the tangent sight, attach the dial sight, set range to target on the range drums, level the bubble by the angle of sight drum, and pick up a gun aiming mark, using the collimator.

Nos. 2 put the tripod dial at zero, note gun aiming mark, range and angle of sight.

2. If the target is likely to be obscured for some time, and time permits:—

Section commander:—

"Unload" — "Clear guns."

No. 1 unloads and clears gun as in elementary gun drill.

Section commander:—

"Out aiming posts."

Aiming posts are planted by Nos. 3 (Lesson 37A).

"Out aiming posts."

No. 1 closes rear cover.

No. 3 puts out the aiming post centrally about 15 yards in front of the guns.

Nos. 1 align the collimators on the aiming post.

The section commander gives the necessary orders for loading and re-engagement of the target. When the period of obscuration is considered to have passed, he will engage the target by direct means.

NOTE.—Obscuration of wide targets will entail gun aiming marks being picked up "a quarter way in" from the flanks, the section commander specifying the number of taps, right and left, required before resuming fire.

**LESSON 71.—TO MAKE PREPARATION IN DAYLIGHT
TO CONTINUE FIRING IN DARKNESS**

Instructor's Notes

Additional stores.—Two torches, two aiming lamps.
One aiming lamp.

Section commander.—

Sends for the section corporal, Nos. 4 and any night firing stores which are not already at the gun position. They move to a position in the centre and slightly in rear of the Nos. 3. No. 4 of the odd sub-section.

Section commander.—

"Prepare for night firing."

Section commander takes post at No. 1 gun, the section corporal at No. 2 gun.

Nos. 1 relays on target (or aiming post, if firing indirect). Nos. 2 set the tripod dial at zero when the gun is laid. They check the elevation on the gun, with the clinometer, and attach the bar foresight, if not already on. Nos. 1 remove their hands from the traversing handles whilst bar foresights are being attached by Nos. 2.

Nos. 4 bring the night firing boxes and torches forward, handing a torch to the section commander or corporal, and the night sights to their Nos. 2. They then assume their positions in the vicinity of their respective guns and to its left rear.

Nos. 2 hand the night backsight to Nos. 1 and attach the night foresight to the bar foresight, Nos. 1 attaching the night backsight.

Section corporal.—

When his gun team have completed the above actions, reports to the section commander "No. 2 Ready."

Section commander.—

"Unload" — "Clear guns" — "Out aiming lamps."

Nos. 3 move to their Nos. 4, receive a night firing box each and move out in front of their respective guns, taking with them an aiming post, if not already planted. They plant the aiming lamps under the direction of their Nos. 1, finally anchoring the box. They then connect the cord and return with it to their No. 4, reporting to the section commander on completion, e.g., "No. 3 of No. . . . In" and resuming their former positions, or as directed by the N.C.O. in charge of the respective guns.

NOTE.—N.C.Os. will check the aim on the lamps before ordering Nos. 3 to come in.

DIRECT FIRE

Nos. 1 relay on the target, lower the tangent sights, attach dial sights with drums and dials at zero.

Nos. 2 set the dial on the tripod at zero.

No. 4 of the odd sub-section brings up the night firing stores, and hands:—

1 torch each to the section commander and the section corporal, and the aiming lamp to the No. 3 of the odd sub-section.

Nos. 1 set the range (from the tangent sight) on the range drum, and then level the bubble by means of the angle of sight drum.

Section commander.—

"Unload" — "Clear guns" — "Out aiming lamp."

Nos. 1 close rear covers. No. 4 of the odd sub-section will put out the aiming post centrally in front of the two guns, place on the aiming lamp, secure the box, attach the line to the switch, and bring the reel back to the section commander.

Nos. 1 align the collimator on the lamp.

INDIRECT FIRE

Nos. 1 relay on the aiming post, and after No. 3 has attached the lamp, etc., as for direct fire, Nos. 1 align the collimator on the aiming lamp.

Section commander orders—

"Load" and "Fire" as required.

**LESSON 72.—TO CHANGE FROM NIGHT FIRING TO
DIRECT FIRE**

Instructor's Note

Additional stores:—As for Lesson 71.

Section commander.—

"Prepare for direct fire."

"Unload" — "Clear guns."

Nos. 1 and 2 act as in Elementary Gun Drill, the section corporal reporting for No. 2 gun.

Section commander.—

"In aiming lamps."

Nos. 3 move out around the flanks to the lamps, disconnect the cord and replace the lamp in its box, returning it to No. 4.

Nos. 4 reel in the cord, collect night sights from their No. 2 and the torch from the N.C.O. concerned. They replace all stores in the trucks, or in a position of security, according to instruction given by the section corporal.

Nos. 1 remove night backsights and hand them to their Nos. 2.

Nos. 2 remove night foresights and bar foresights.

Section commander and corporal resume their direct fire positions.

NOTE.—The aiming posts may be left out in position, any necessary instructions in this regard to be given by the section commander before ordering "In aiming lamps."

Section commander.—

"Prepare for direct fire" — "Unload" — "Clear guns" — "In aiming lamp."

Nos. 1 remove the dial sights.

No. 3 of the odd sub-section moves out, replaces the lamp in the box, and brings in box and aiming post. He collects the reel from the section commander and rewinds the line, replacing it in the box. He collects the torches from the section commander and section corporal, and replaces them with the aiming lamp, in a place of safety, until an opportunity occurs for them to be returned to the trucks.

NOTE.—To change from night firing to indirect fire:—

Nos. 1 check their aim on the aiming lamp.

No. 3 of the odd sub-section acts as for direct fire, except that the aiming post is left out.

Nos. 1 realign collimator on the aiming post.

SECTION 18.—PLATOON DRILL — INDIRECT

Instructor's Notes

SAFETY PRECAUTIONS WILL BE CARRIED OUT BEFORE DRILL BEGINS

1. Signals.—The required signals must be taught before proceeding with platoon drill, indirect (see Sec. 13).

2. As proficiency is attained, the drill will be practised, making use of cover as in section drill, direct fire.

3. Stores required.—Each section as for section drill, direct fire. 2 directors.

2 dial sights, 1 aiming post.

4. The object of platoon drill, indirect, is to teach and exercise the platoon personnel in their drill duties as a fire unit employing indirect fire.

5. In the detail of the drills the junior section commander repeats the angles when the guns are being placed on the original zero lines. It must be understood that he may be instructed to repeat other angles, e.g. elevations, distribution angles, etc., at the discretion of the fire controller.

In addition, section commanders are responsible that the angles, elevations, etc., are applied to the guns correctly, if necessary checking the work of the Nos. 1 themselves.

6. Beginning of drill.—Before the drill begins the instructor will fall the platoon in, detail off sections as in section drill, direct fire. Where the instructor himself is not acting as fire controller, he will detail one to act in that capacity.

Before the order "Take Post" the instructor will inform both section commanders of the following:—

Method of paralleling — including position of director, if necessary.

Pivot gun, if any.

Gun positions, frontage and direction.

Numbers of belts to be off-loaded at the position in readiness.

Where the trucks are to be sent when the required stores have been removed and reported correct. (For drill purposes this need only be a short distance in rear.)

Section commanders will acknowledge all verbal orders by raising the right hand fully above the head, lowering it to the side on recognition of the order. They will keep their hand raised if a repetition is required. They will repeat orders when necessary.

At the first opportunity, during the occupation of the position, the senior section commander will calculate the Minimum Q.A. required to clear the crest and report it to the fire controller.

LESSON 73.—PREPARE FOR ACTION

Instructor's Note

Additional stores:—Four sub-section trucks and a megaphone. On the order "Take Post" the senior section commander will place himself on that flank of the gun position nearest to the platoon O.P., from which position he is responsible for the general duties on the gun position.

The junior section commander will return to the position in readiness, order "... Belts — For indirect fire — prepare for action," inform the senior section corporal where the trucks are to be sent, and will place himself midway and in front of the platoon, and supervise in general the prepare for action. Both section corporals will supervise the work at their own trucks, finally joining their Nos. 4.

The action of each section will be as in section drill, direct fire.

Sub-sections will be positioned by the junior section commander. When the stores have been removed from the trucks, and have been inspected and reported correct, the senior section corporal will:—

1. Send Nos. 4 to join the trucks.
2. Send the trucks to the position ordered.
3. Arrange for the local protection of the unit, then place himself and the junior section corporal in the most suitable positions, from which they can supervise the communication between guns and trucks, the junior section corporal will normally remain in the rear area of the chain of supply.

If a long carry is necessary, the same procedure as in section drill, direct fire, will be adopted, except that the junior section commander will detail loads.

LESSON 74.—TO COME INTO ACTION

Senior section commander.—

"Junior section commander."

Junior section commander doubles forward to the senior section commander for any further orders (e.g., D.A.P.), moves away to the opposite flank of the gun position (pacing required gun frontage), kneels down and faces inwards.

Senior section commander.—

"For indirect fire — mount gun."

Both section commanders will indicate positions and direction, to the Nos. 1 of the section under their control, ensuring that the "inner" gun is at the correct interval and staggered.

Nos. 1.—Double forward, mount their tripods on the positions as directed by the section commander. They stamp in the shoes of their tripods before sitting down, having ensured that the socket is upright.

When the gun is mounted they will affix the dial sight and test the clamp.

Nos. 2.—Having mounted their guns, kneel on their left knees at the right side of the gun and attach the bar foresight.

Having mounted their guns will take up position as in direct fire.

Nos. 3.—Carry out their duties as in section drill, direct fire, finally taking up a position a short distance in rear of their guns.

Nos. 3 of the odd sub-sections put out the aiming posts centrally between the two guns of their section.

LESSON 75.—DIRECTOR METHOD

This method should be practised, using the director in different positions in relation to the guns.

Senior section commander.—

"All — on director" (clinometer and bar foresight equipment only).

Nos. 1 raise their tangent sights and lay on the socket of the director. When laid Nos. 2 set the tripod dial at zero.

Junior section commander.—

On designation of the first gun to receive its zero line, he will take up a position behind that gun. As each gun receives its zero line he will repeat the angle to the fire controller. He will then proceed along and in rear of the guns, checking each gun in turn for parallelism.

To check for parallelism he will kneel behind each gun and glance along each barrel casing. If there is a distant crest in front of the guns, the lines of fire of the four guns should be on approximately the same point. If there is a near crest, he will see where the line of fire of one gun crosses the crest in front, and will make his own approximation from this as to where the others should cross right or left of it. He will report immediately to the senior section commander should any gun not appear to be parallel.

Fire controller.—

"Zero lines."

No. . . .	— Right (or Left) . . .	Degrees . . .	Minutes.
No. . . .	"	"	"
No. . . .	"	"	"
No. . . .	"	"	"

Nos. 2 swing their guns through the angle ordered and re-set their tripod dials to zero. The setting of the dial will not be altered unless a "new zero" line is ordered.

Nos. 1 will place the angle ordered on the dial and deflection drums, and lay on the director. They will then re-zero the dial and deflection drums and adjust the collimator on to the aiming post.

Nos. 2 will set the tripod dial at zero.

LESSON 76.—POST METHOD

Instructor's Note

Additional stores.—Two zero posts.

The senior section commander marks the position (with reference to the posts) over which the pivot gun will be mounted.

On the order "For indirect fire — mount gun" the Nos. 1 and 2 of the pivot gun align the gun on the posts, moving the tripod right or left until the line of sight over the gun sight is in exact alignment of the posts. When this alignment has been checked by the senior section commander, Nos. 1 and 2 stamp in the tripod. The senior section commander re-checks the line of sight and ensures that the tripod dial is set at 180 degrees.

On the order "For indirect fire — mount gun" the Nos. 1 and 2 of the pivot gun align the gun on the posts, moving the tripod right or left until the line of sight through the collimator is in exact alignment of the posts. When this alignment has been checked by the senior section commander Nos. 1 and 2 stamp in the tripod, the senior section commander re-checks the line of sight, and ensures that the dial and deflection drums are set at zero.

Senior section commander.—

"All — On No. . . ."

Nos. 1 of the remaining guns lay on the socket of the pivot gun, using the gun foresight. When laid, Nos. 2 set the tripod dial to zero.

Junior section commander.—

Takes up his position behind the gun farthest from the pivot gun, repeats the angle back to the senior section commander and checks for parallelism, as in director method, commencing from the pivot gun.

Senior section commander.—

Lays the pivot gun on to the socket of each gun in turn, commencing with the most distant, and orders:—

"Zero lines."

No. . . . — Right (or Left) . . . Degrees . . . Minutes.

No. . . . — " " " "

No. . . . — " " " "

Nos. 2 swing their guns through the angle ordered and reset the tripod dial to zero. No. 1 of the pivot gun relays on the posts. The senior section commander checks the aim, ensures tripod dial is still at 180 degrees and finally orders No. 2 to set the dial at zero.

Senior section commander.—

Lays the dial sight on the collimator of each gun in turn, reading the angle from the front pointer of the dial and deflection drum.

Nos. 1, on receipt of the angle, set that angle on the dial sight and lay on the collimator of the pivot gun. When laid they will reset the dial sight at zero. No. 1 of the pivot gun will be ordered to re-zero his dial sight.

The senior section commander checks the aim and dial (closing the angle). Nos. 1 will adjust the collimator on to the aiming post.

Nos. 2 will set the tripod dial at zero.

Senior section commander reports to fire controller:—

"Guns on zero lines."

and orders the No. 3 of the pivot gun to bring in the fire controller's posts.

LESSON 77.—COMBINATION OF DISTANT AIMING POINT AND POSTS (OR TARGET)

Instructor's Notes

Additional stores.—Zero posts and director.

The fire controller will be responsible that either he or the senior section commander selects the distant aiming point.

The senior section commander will include the indication of the distant aiming point in his orders to the junior section commander. This indication will normally be carried out by laying a director, unless the D.A.P. is self-evident.

The angle between the D.A.P. and the Posts can be measured in either of the following two ways:—

1. By director — from position to be occupied by pivot gun.
2. By pivot gun in position, using the tripod dial.

Should the latter method be adopted, the senior section commander will adopt the following procedure:—

He will lay the pivot gun at the D.A.P., have the dial set at zero, swing the gun back to the posts and note the angle.

Both section commanders then lay the two guns nearest their own flank on the D.A.P., using the gun sights and order the Nos. 2 to zero the tripod dial when the guns are so laid.

Senior section commander.—

"Zero lines."

"All Right (or Left) . . . Degrees . . . Minutes."

Nos. 2 swing their guns through the angle ordered, tighten the traversing clamp and zero the tripod dial.

Junior section commander.—

Repeats back the angle ordered and checks all guns for parallelism, commencing with the pivot gun.

1. Distant aiming point and posts (angle measured by dial sight).

Senior section commander.—

"For indirect fire — mount gun."

Guns are mounted and pivot gun aligned as in post method. The senior section commander checks the alignment, the tripod legs are stamped in, and the alignment is re-checked. He then measures the angle distant aiming point and posts, using the dial sight.

Senior section commander.—

"Zero lines."

"All Right (or Left) . . . Degrees . . . Minutes."

The junior section commander repeats the angle. Nos. 1 set the dial sight at the angle ordered. Section commanders will check the setting on the dial sights and lay the guns of the section nearest to them on the distant aiming point, using the dial sight. Nos. 1 will then zero the dial sight and align the collimator on the aiming post.

Nos. 2 will set the tripod dial at zero.

Junior section commander will check for parallelism as in director method.

2. Distant aiming point and posts (or target). (Angle measured by director). Lesson 111 (2).

Guns are mounted as in Lesson 74, with the pivot gun as close as possible to the point from which the angle was measured.

Remainder of the drill as in detailed in 1 above, from the order "Zero lines."

Senior section commander reports to fire controller:—

"Guns on zero lines."

No. 3 of the pivot gun brings in the fire controller's posts, if used.

LESSON 78.—T.O.G. METHOD

Instructor's Notes

Additional stores.—4 zero posts.

Pivot gun as for "Post" method, the posts being lined on the director position. The remaining guns are paralleled as in "Post" method.

Senior section commander.—

"Out zero posts."

Nos. 3 put out zero posts as directed by Nos. 1.

Guns will be mounted as for director method. The angle of switch for the pivot gun will be put on the dial sight and the gun tapped over until the collimator is on the posts.

The remaining guns will be paralleled as in the post method.

The senior section commander will close the angle by setting the original angle of switch on the dial sight of the pivot gun and by checking back the aim on the posts.

No. 1 will zero his dial sight and re-adjust his collimator on the aiming post.

The senior section commander then reports to the fire controller:—

"Guns on zero lines."

LESSON 79.—TO PLACE THE NECESSARY ELEVATION ON THE GUN

Fire controller.—

"Elevation (or Depression) No. . . . (or All) . . . Degrees . . . Minutes."

Nos. 1 lower the tangent sight, open the rear cover and retain their holding.

Nos. 2 set their clinometers at the angle ordered, place the clinometer on the gun and place elevation on the gun (Lesson 31A). The clinometer is then removed and replaced in its case without re-setting it to zero.

Nos. 1 lower the rear cover and proceed to check crest clearance.

"No. . . . (or All) . . . Hundred (or Fifty) . . . Plus (or Minus) . . . Degrees . . . Minutes."

or

"Elevation (or Depression) No. . . . (or All) . . . Degrees . . . Minutes."

Nos. 1 act as taught in use of instruments.

To check crest clearance.

i. Near crest.—

When the gun has been laid for elevation (or depression) Nos. 1 set their tangent sights at 400 yards, and see that the line of sight over the gun foresight clears the crest. If it does not, they report to the section commander "No. . . . Gun does not clear crest."

ii. Distant crest.—

Senior section commander.—

"Check for crest clearance with sights at . . ."

(For method of obtaining this range, see Sec. 25, Lesson 114).

No. 1 sets the tangent sight at the graduation ordered and proceeds as in i. above. The senior section commander will report any gun which will not clear the crest.

Senior section commander.—

"Out aiming posts."

Nos. 3 plant aiming posts as directed by Nos. 1.

After aiming posts have been planted, Nos. 1 test the adjustment of their clamps, finally relaying on the bull.

Senior section commander.—

Reports to fire controller as soon as all Nos. 3 have returned to the gun position:—

"Guns ready to load."

Fire controller.—
"Load."

LESSON 80.—DISTRIBUTION AND CORRECTIONS

Fire controller.—

No. NIL.
No. —Right (or Left) . . . degrees . . . minutes.
No. " " " "
No. " " " "

No. 2 sets the bar foresight at the angle ordered.
No. 1 taps the gun across until his line of sight is on the aiming post. Nos. 1 and 2 then check elevation as under:—
No. 1 raises the rear cover.

No. 2 places the clinometer on the gun and levels the bubble by turning the elevating wheel. He then replaces the clinometer in its case.

No. 1 lowers the rear cover, raises the tangent sight and adjusts his line of sight on the bull by movement of the tangent sight slide and notes the reading.

NOTE.—Whenever No. 2 is making an adjustment to the bar foresight, No. 1 must release hold of the traversing handles, resuming his holding on completion of the adjustment.

Nos. 1.—Set the deflection drum to the angle ordered, tap the gun across until the collimator is on the aiming post. (He ensures that the bubble is central. If not, he will centralize it using the handwheel, and realign the collimator on to the aiming post.)

To tap right and left.

Fire controller.—
"Right and left . . . taps."

After this order has been received, Nos. 2 indicate guns ready to fire. When all guns are ready, the junior section commander will indicate to the senior, who will in turn indicate to the fire controller.

The right section will tap first to the left, and the left section will tap first to the right, by the amount ordered.

To make allowance for side winds.

Fire controller.—
"Wind, right (or left) . . . degrees . . . minutes."

On the order "Wind" both section commanders fully extend their right hand above the head, lowering it to the side on receipt of the allowance. Nos. 2 lower their hand.

No. 2 sets the bar foresight at the allowance ordered. If the bar foresight is not at zero, he adds or subtracts this amount to or from the angle on the bar foresight.

No. 1 taps the gun over until the line of sight is on the bull. Nos. 1 make the necessary adjustment on the deflection drum, and tap their guns over until the lines of sight are on the aiming posts.

Nos. 2 act as in section drill, direct fire.

As soon as guns are reloaded Nos. 2 and section commanders will indicate guns ready to fire.

Fire controller signals or orders—

"Fire."

Section commanders and Nos. 2 lower their hands.

Nos. 2 order fire if necessary.

Nos. 1 fire.

Fire controller signals—

"Stop."

Section commanders—repeat.

Nos. 2 repeat "Stop."

Nos. 1 stop.

Corrections during firing.

NOTE.—Any corrections during firing, signalled by the fire controller, must first be repeated by the senior section commander, before being given verbally to the guns.

i. Direction.—

Fire controller.—

"Stop" — "All right (or left) . . . degrees . . . minutes" — "Go on."

Nos. 2 alter bar foresight accordingly.

Nos. 1 relay and carry on firing.

Nos. 1 act as taught in controlled corrections—indirect, elementary gun drill.

ii. Elevation.—

Fire controller.—

"Stop" — "All up (or down) . . . minutes" — "Go on."

Nos. 1 act as taught in "controlled corrections—indirect." If the correction ordered is down, they re-check for crest clearance after making the correction.

Nos. 2 add or subtract the angle ordered to or from the setting on the clinometer.

NOTE.—Elevation must be given as a quadrant angle and not as a combination of range and angle of sight.

Fire controller.—

"Stop" — "All up (or down) . . . hundred (or Fifty)" — "Go on."

or

"Stop" — "All up (or down) . . . minutes" — "Go on."

Nos. 1 act as taught in "controlled corrections—indirect" (if the correction ordered is down, they will re-check for crest clearance).

NOTE—Should the correction not include the order to "Go on," Nos. 2 will indicate their gun ready to fire as soon as the correction is completed and Nos. 1 reload.

LESSON 81.—TO ENGAGE A NEW TARGET

Fire controller.—

"Stop. All — on zero lines."

Nos. 1 stop firing and release control of traversing handles.

Nos. 2 set bar foresights at zero.

Nos. 1 relay on the post. When reloaded, No. 2 check that the tripod dial is at zero.

Nos. 1 set their dials and deflection drums at zero and relay on the aiming posts.

Nos. 2 check the tripod dial to see that it is at zero.

Fire controller.—

"All — right (or left) . . . degrees . . . minutes."

(a) When the angle ordered can be put on the bar foresight—

No. 2 sets the bar foresight at the angle ordered.

(b) Where the angle ordered cannot be put on the bar foresight—

No. 2 swings the gun through the angle ordered by means of the tripod dial.

Nos. 1 set their dial sights to the angle ordered and relay on the aiming posts.

Fire controller.—

"Elevation (or Depression) No. . . . (or All) . . . degrees . . . minutes."

Elevation or Depression is placed on the gun as before.

(a) Where the angle of switch ordered can be put on the bar foresight—

No. 1 readjusts his line of sight on to the aiming post. He ascertains whether his gun will clear the crest and the aiming post.

(b) Where the angle of switch ordered cannot be put on the bar foresight—

Fire controller.—

"Unload" — "Clear guns" — "Out aiming posts" — "Load," etc.

Or the Fire Controller orders No. 1 to pick up a gun aiming mark and then continues with the remainder of the fire order.

Fire controller orders elevation as in Lesson 80.

Nos. 1 perform their duties as in Lesson 80.

LESSON 82.—CEASE FIRING AND ON TRUCKS

Instructor's Note

This lesson can be introduced to conclude any of the preceding lessons of platoon drill — indirect fire, as desired.

Fire controller signals "Cease firing."

Senior section commander acknowledges the signal. He then signals "H" for trucks.

Senior section commander.—

"Unload — Clear guns."

Guns are unloaded and cleared. The junior section commander reporting his section "clear" when both his Nos. 1 have reported to him.

"Remove dial sights."

"Cease firing."

The movement will be carried out as in section drill — direct fire, Nos. 2 removing the bars foresight before removing their guns. After placing the guns on the ground, they replace the bars foresight in the pouches. Nos. 3 move out and bring in the aiming posts before removing their stores at the guns.

Senior section commander.—

"On trucks."

Each section will act as in "On trucks" in section drill—direct fire.

LESSON 83.—FIRE CONTROL CHARTS

Instructor's Note

Additional stores.—Four fire control charts, four watches.

This drill is based on the assumption that all N.C.O.s have been informed that the fire will be controlled by fire control chart.

The guns are placed on zero lines by any method previously taught.

When the guns are paralleled the fire controller calls for section commanders and section corporals, and issues the fire control charts.

Section commanders and section corporals take post at their guns.

Fire controller.—

"Load."

"Prepare for Task 1."

The N.C.O. at each gun will issue orders to No. 1 in accordance with the detail on his chart. When their guns are ready to fire, they report to the senior section commander, who in turn reports to the fire controller "Guns ready to fire."

Fire controller.—

"Fire."

The N.C.O. in charge of each gun will control the rate of fire and lifts, etc., as shown on his chart. He will also order "Stop" at the end of each task.

Where time is allotted for "points during firing" on the fire control charts, the N.C.O. must see that this time is not exceeded.

SECTION 19.—SECTION DRILL — NIGHT FIRING

Instructor's Notes

Stores.—2 guns, 2 tripods, 2 spare parts cases, 2 condenser cans, 2 condenser tubes, 2 aiming lamp boxes, complete with night sights, 2 aiming posts, at least 10 belt boxes (5 ammunition boxes), belts and drill cartridges, 2 sets of pegs, line, 2 clinometers and bar foresights, 1 spare parts box.

2 dial sights, 1 aiming lamp box, 1 aiming post.

Both section commander and corporal will be in possession of a torch.

Should pegs, line, not be available, 2 short pegs, for gun positions, and 2 long pegs, for direction, will be used in lieu.

SAFETY PRECAUTIONS WILL BE CARRIED OUT BEFORE DRILL BEGINS

The object of section drill — night firing is to teach and exercise the section personnel in their drill duties as a fire unit by night. The following drill pre-supposes that guns are being brought up after dark. When proficiency is attained, the drill should be carried out under conditions of darkness.

Gun and direction pegs will be in position before the lesson commences.

LESSON 84.—TO PREPARE FOR ACTION AND COME INTO ACTION

Section corporal.—

"... Belts — For night firing — prepare for action."

All duties are the same as for indirect fire — prepare for action, except that the gun numbers remain with their equipment in close file in a central position, close to and in front—normally—of the trucks. Nos. 4 each remove a night aiming lamp box in addition to their normal duties, being assisted by Nos. 5.

The section corporal is responsible that all the necessary stores have been removed from the trucks. He will detail loads and move the section forward to a central position in rear of the gun pegs.

No. 4 of the odd sub-section removes the aiming lamp.

TO COME INTO ACTION

Additional stores.—

2 zero posts. These should be in position before this drill begins.

The section corporal reports to the section commander and is shown the gun peg of No. 2 gun, the direction of the rear leg, and the direction of his gun's direction peg.

and zero post.

Section commander and section corporal.—

"No. — For night firing, mount gun."

NOTE.—The N.C.Os. should be on the enemy side of the peg and show a controlled torch beam on the collar and peg, to allow No. 1 to register his tripod correctly over them. Every effort must be made to prevent undue light.

No. 1 moves forward with his tripod to a position pointed out to him by the section commander or corporal, a few feet in rear of the gun peg. He mounts his tripod, removes the crosshead, hands it to the N.C.O. and, with the assistance of the N.C.O., places the tripod so that the cross-wires in the bottom of the socket are directly over the engraved marks of the collar on the peg and the centre of the socket is over the peg. The collar is rotated to register with the cross-wires. He stamps in the tripod shoes and after the N.C.O. has satisfied himself that the mounting is upright and directly over the gun peg, No. 1 replaces the crosshead, takes up his position and removes the joint pins.

The N.C.Os. at each gun call up their Nos. 2. No. 2 mounts the gun on the tripod, attaches the bar foresight and kneels at the right side of the gun. He attaches the night foresight when it is handed to him by No. 4, handing the night back-sight to No. 1, who attaches it to the tangent sight slide.

Nos. 1 and 2 mount their guns as in platoon drill — indirect, approximately over the gun peg.

No. 4 come forward following the Nos. 2, bringing with them the night aiming box, leaving any belt (ammunition) boxes in the charge of Nos. 3. They move to a position on the left flank of their respective guns and slightly to the rear, they open the boxes, extract the night sights and issue them to Nos. 2, returning to their box position.

Section corporal will report when his gun has completed the above, "No. 2 — Ready."

No. 3, when called for by the N.C.O. at the gun, will carry out their duties as in "Mount gun," elementary gun drill, with the exception that No. 3 of the odd sub-section remains on the gun position and receives the aiming lamp from No. 4.

No. 4 of the odd sub-section brings forward the aiming lamp and hands it to the No. 3 of the odd sub-section after the No. 3 has placed the ammunition box and the condenser can at the gun position.

LESSON 85.—TO OBTAIN DIRECTION AND ELEVATION DIRECTION

Section commander informs the section corporal to which direction peg he is going first. Calling the nearest No. 4 to him, he moves out to the indicated peg. On arrival, he orders the No. 4 to place the lamp as low down as possible behind the direction peg, so that the peg is outlined down the centre of

the lamp. The section commander should ensure that this has been done, by checking the front of the lamp. Section corporal moves to the gun indicated by the above.

Section commander.—

"No. . . . Direction."

No. 1 of the gun named aligns the gun on the direction peg. No. 2 sets the tripod dial at zero.

Section corporal checks the line, and setting of the direction dial, reporting "No. - Correct" as soon as he has finished. He then moves to the other gun, where the above procedure is repeated, finally returning to his own gun, if not already there.

NOTE.—When the direction pegs are in rear the procedure will be as above except that after direction has been given and the aim has been laid and checked, the tripod dial will be set at 180 degrees. The gun will then be swung around until the tripod dial pointer is at zero on the dial. The section corporal will then report "No. — Correct."

Section commander returns to his gun.

No. 4 returns to his position in the vicinity of his gun.

Section commander and corporal call for their respective Nos. 3.

Nos. 3 bring forward condenser cans, 2 belt boxes (1 ammunition box) and an aiming post each. They place the condenser can and ammunition at their guns and move to their Nos. 4 with the aiming post.

No. 1, assisted by the No. 2, moves the gun until the line of sight through the collimator is aligned through the zero post on to the lamp. If the lamp is some considerable distance from the gun, the section corporal should shine the torch into the front of the collimator.

Section corporal checks the aim, sees that the dial and deflection drums are at zero, orders the legs to be stamped in, re-checks, and orders No. 2 to set the direction dial on the tripod at Zero. Reports "No. . . . Correct."

Section commander, having given direction to both guns, will direct the No. 3 to put in the aiming lamp. He will then collect the zero posts, and return to his gun.

No. 3 of the odd sub-section will put in the aiming post, open the box, place on the aiming lamp, secure the box, attach the line, and bring the reel back to the section commander. He will then complete his ammunition duties.

ELEVATION

Section commander.—

"Elevation (or Depression) . . . degrees . . . minutes."

Nos. 1 and 2 place the elevation on the gun (as in Lesson 80) assisted by the supervising N.C.O., who should ensure that the light of his torch is obscured from enemy observation.

Nos. 1 then set their tangent sight at 2,500.

The section corporal will report when his gun has completed the above, "No. 2, Ready."

Section commander.—

"Out aiming lamps."

Nos. 3 will move out in front of the guns taking the aiming lamps and posts. They will switch on the light, place the lamp on the post, ensuring that it is facing the guns, and plant the post as directed by Nos. 1. When correctly planted, Nos. 1 will call "Correct" and the N.C.O. at each gun will check the aim on the lamp and the setting of the tripod dial before ordering No. 3 to "come in."

Nos. 3 will anchor the box securely, connect the cord and return it to their Nos. 4. They will then report to the section commander, "No. 3 of No. — In." The section commander, as they report, ordering them to complete their ammunition duties. When this has been done each N.C.O. will indicate a position for his No. 3 to adopt, other spare numbers moving as directed by the section commander.

The remainder of the drill in action is as for indirect fire.

Section commander—as for Lesson 80, platoon drill — indirect.

Nos. 1 act as in Lesson 80, platoon drill — indirect, with the assistance of the N.C.O. at the gun. They will then adjust their collimators on the lamp.

LESSON 86.—TO CEASE FIRING AND ON TRUCKS

Section commander.—

"Unload" — "Clear guns."

Guns will be unloaded and cleared, the section corporal reporting for No. 2 gun.

Section commander.—

"In aiming lamps."

Nos. 1, 2, 3 and 4 carry out their duties as in Lesson 72, section drill — direct fire, except that Nos. 4, on completion, remain with their aiming lamps, in their positions near their respective guns.

Nos. 1, 2 and 3 carry out their duties as in Lesson 72, section drill — direct fire.

"Cease firing."

Gun Nos. will act as in Lesson 66, section drill, direct fire.

After the guns have been dismounted, the section commander will fall in the section and check stores. He is himself responsible for the pegs, line, and zero posts.

The section will move back to the trucks, led by the section corporal, the section commander moving in rear; on arrival the section commander orders "On trucks."

This drill will be carried out as in section drill, direct fire, Nos. 4 replacing the aiming lamps in the trucks.

No. 4 of the odd sub-section will replace the aiming lamps in the trucks.

The section commander will place the zero posts in his truck until such time as they can be transferred to the platoon commander's truck."

LESSON 27.—FIRE CONTROL CHARTS

Instructor's Notes

Additional stores.—

Two fire control charts, two watches, four pegs.

Two zero posts.

The section commander and section corporal will each have a fire control chart.

The drill will be as already taught up to the stage of the aiming lamp being put out.

Section commander and section corporal.—

"Load."

"Prepare for Task 1."

Section corporal reports when his gun is ready.

Section commander.—

"Fire."

Each N.C.O. controls the fire of his gun as in platoon drill—indirect (charts).

When not actually firing on a task, guns will always be laid on the fixed line; guns will be half loaded, thumbpiece pressed and sentries posted. Where guns have a forward defensive task in addition to a penetration fixed line, they will be laid on the former.

SECTION 20.—OBSERVATION OF FIRE AND RANGING

GENERAL

1. Observation of fire deals with deducing from the strike of the bullets the position of the beaten zone with reference to the target, and is a necessary preliminary to ranging.

Ranging is the process of determining by observation of fire the direction and elevation necessary to hit a given target.

2. Observation of fire and ranging are normally carried out by the fire controller. In heavy fighting, where unit control may break down, control by the firer will become necessary. Except in very favourable circumstances, little reliance can be placed on observation by the firer at ranges over 800 yards. The training in ranging, therefore, is confined to ranges of 1,000 yards and under, using the naked eye.

3. Personnel will require training as follows:—

Officers and N.C.Os.—To observe and correct the fire at all machine-gun ranges, using field-glasses when necessary.

All ranks.—To observe and correct fire, using the naked eye up to ranges of 1,000 yards.

Range-taker.—To observe fire, using the range-finder, and to report the position of the strike.

4. Observation of fire.—

i. The possibility of observation of strike will depend on a variety of factors in addition to the distance of the observer from the target, of which the following are the most important:—

(a) The nature of the soil round the target. Sand, plough, and water generally give good results, but damp ground, long grass, and undergrowth are bad.

(b) Visibility as affected by light, mist or mirage.

(c) The position of the sun. When low in the horizon strike is easier to pick up than when it is high.

(d) Wind. A high wind tends to blow away the dust caused by the strike before it can be observed.

The action of the enemy will often be a clue as to whether fire effect is being obtained, e.g. cessation of hostile fire, etc.

In war the fall of shell and the strike of bullets from other small arms near the target will interfere with accurate observation.

ii. It is a fundamental principle in observation of fire only to accept information which is definite or certain, and not to act on what is uncertain or no more than probable. Thus, before any deduction can be made as

to the exact position of a beaten zone with reference to the target, it is necessary to decide whether the whole beaten zone is being observed or whether only a small portion of it is falling on ground which gives observation of strike, and if so, what portion of it.

Again, when a foreshortened view of the ground is obtained, it is possible to make errors of great magnitude if guesswork only is relied upon.

- iii. In the engagement of targets with width or depth the beaten zones of the guns of the fire unit are distributed over the target according to the method of fire employed. Under these circumstances it is not always possible to determine that full fire effect has been obtained owing to the difficulty of checking each individual beaten zone.
- iv. Tracer ammunition is only of value for determining correctness of line.
- v. It must be remembered that it is necessary to observe the area in which the beaten zone is to fall, rather than the ground in the immediate vicinity of the definite aiming mark.
- vi. It may occur that an area of ground adjacent to the target is specially suitable for observation. Under these circumstances it may be profitable to direct the fire on to this area in the first instance, correcting it on to the target as soon as observation has been obtained.
- vii. Bursts of fire must be long enough to enable the beaten zone to be "found," as well as to produce the required fire effect on the target.

5. Ranging.—

i. Ranging may be carried out:—

- (a) To correct fire on to a target as soon as the data obtained by observation warrant it.
- (b) To register the direction and elevation required to hit a target after fire effect has been obtained.

- ii. It is required to bring the centres of the beaten zones on to their correct positions on the target as soon as possible after the first burst. This may entail correction for elevation, or for direction, or for both.

LESSON 88.—OBSERVATION OF FIRE

Instructor's Notes

Stores.—

Sand model (or miniature range).
Strips cut to scale to represent beaten zones.

The instruction will take the form of a lecture on the subject matter of Sec. 20, illustrated on the sand model with the aid of models of beaten zones.

The instruction should be completed in the open country indicating types of ground and their effects on the beaten zones, showing approximate dimensions and giving practice to officers and N.C.Os. in use of graticules and field glasses.

The instruction to gun numbers will be confined to ranges up to 1,000 yards.

Opportunity should be taken on all occasions when ball ammunition is used to practise officers, N.C.Os., range-takers and gun numbers in observing the strike of bullets.

LESSON 89.—OBSERVATION OF FIRE AND RANGING

Instructor's Notes

Stores.—

Gun, tripod, slide rule or field glasses, and prepared range card.

1. Explain:—

- i. The general principles to be followed are:—

- (a) **Only correct when it is certain that full fire effect is not being obtained.**
- (b) When making corrections, unless the correction required can be determined accurately, **over-estimate it rather than under-estimate it**, always provided the safety of our own troops is not involved.

ii. Corrections for line.

Observation of machine-gun fire is normally carried out from a position near the guns. From such a position it is possible to measure the exact correction required, either with graticated glasses, slide rule, or hand angles.

iii. Corrections for elevation.

- (a) It is not possible to determine the exact amount by which the beaten zone is falling over or short of the target.

The length of the beaten zone being known, if the whole of it is seen it will give a useful guide as to the amount of correction to give, e.g. it might be estimated that the distance between the beaten zone and the target is either once or twice the beaten zone as seen on the ground.

- (b) It should be remembered that where a foreshortened view of the ground is obtained, the

tendency will be to under-estimate the correction required.

As a rule, therefore, bold correction should be given, particularly where there is no guide to the amount required.

The object is to include the target in a bracket rather than to creep towards it by inadequate corrections.

The actual manner in which corrections are given and acted upon will be found in Sec. 11, Lesson 55.

- iv. When the fire is being observed from a flank, the fact that the bullets appear to be falling behind or in front of the target, as viewed from the observation post, will give definite indications as to whether a right or left correction is required.

Again, bullets which are falling on the correct line gun-target will appear from the observation post to be right or left of it.

In these circumstances, to ascertain the actual position of the bullets with reference to the target, it is necessary to visualize the line gun-target on the ground and judge accordingly.

NOTE.—Gun numbers will be required to judge the range to targets up to 1,000 yards, officers and N.C.Os. up to 2,000 yards.

2. Method of instruction.—

1. Elevation.

- (a) Indicate a target to the firer and tell him to estimate the range.
- (b) Using his estimated range, give a fire order to bring fire to bear on this target.
- (c) Indicate the position on the ground where his bullets would fall, according to whether he has over- or under-estimated the range.

If this position is very difficult to indicate lay the gun on it.

- (d) The firer now judges the correction required, adjusts his tangent sight accordingly, relays on the target, and continues firing.
- (e) If he has not made a suitable correction, indicates where the bullets are now falling.
- (f) Continue as above until it is considered that he has brought fire to bear on the target.
- (g) The firer now reports the correct range to hit the target.

ii. Direction.

- (a) Give a fire order to engage any suitable target.
- (b) Indicate the supposed position of the shots right or left of the target.
- (c) The firer deflects his line of sight, to the left or right of the target, by the amount the shots fell right or left of it originally.
- (d) Check the line of sight. Inform the firer that the shots are hitting the target, or, if the firer is in error, indicate a fresh point of strike and continue as above until the suitable correction has been made.
- (e) The firer now notes his point of aim, and reports it.

iii. Direction and elevation combined.

The firer will be required to obtain the correct elevation to hit the target, and to indicate a gun aiming mark which will be the necessary deflection right or left of it.

NOTE.—This lesson will be carried a stage further with officers and N.C.Os.: the instruction will indicate the supposed position of the shots from a section or platoon of guns, and the fire controller under instruction will give the necessary correction to bring the fire on to the target.

SECTION 21.—HEADQUARTERS TRAINING

1. The object of headquarters training is to train the personnel of section and platoon headquarters in their duties in the field, by day and night, under varying conditions and on different types of ground.

2. The training will be carried out with such personnel as are necessary for any particular exercise selected from the following:—

Platoon headquarters.

- 1 platoon commander.
- 1 platoon serjeant.
- 1 orderly.
- 2 scouts (gun numbers).
- 1 batman.
- 2 truck drivers.

Each section.

- 1 section commander.
- 1 section corporal.
- 1 orderly.
- 1 range-taker.
- 2 truck drivers.

3. The platoon commander can combine the command of his platoon with directing an exercise.

Gun numbers and machine gun equipment are not required. Vehicles may or may not be taken out according to the exercise, at the discretion of the directing officer. The range-taker will invariably take his instrument when exercises are carried out on the ground. Platoon and section personnel taking part will be required to function correctly, and to issue the necessary orders based on the tactical situations as pictured by the directing officer.

4. As a preliminary to headquarters training exercises, commanders will be practised in the following:—

- i. Reconnaissance of section areas.
- ii. Reconnaissance of indirect fire positions.
- iii. Procedure in occupation and evacuation of positions.
- iv. Issue of orders.

NOTE.—iii. and iv. can usefully be carried out in the form of tactical exercises without troops.

5. In the preparation of an exercise:—

- i. Decide on main lessons to be taught.
- ii. Select suitable ground or prepare sand table.
- iii. Produce simple tactical situations which will bring out the lessons to be taught.
- iv. Make sure the orders issued are clear, and in themselves a lesson in the issue of verbal orders.

6. In conducting the exercise:—

- i. Assemble personnel taking part where the exercise starts.
- ii. Explain situations, issue any necessary orders. Personnel then act in accordance with the situation, and issue orders if necessary.
- iii. Criticise action and orders.
- iv. Issue subsequent situations, criticise action and orders at each stage.
- v. When necessary, the conducting officer will represent gun numbers for the purpose of receiving instructions.

SECTION 22.—BATTLE DRILL

INTRODUCTORY

1. Preliminary arrangements by the company commander.

i. Machine gun fire will normally be required as part of an organized fire plan.

Machine gun companies may be placed under command of, or in support of, a formation or unit. In all such cases the M.G. company commander will maintain close contact with the formation or unit commander.

ii. To ensure that, in any fire plan in which machine gun fire is to be used, there is no delay in preparations for the production of fire, certain preliminary arrangements by the company commander will have to be made, and in the following sequence:—

- (a) Initial orders for the distribution and, where necessary, the movement of platoons.
- (b) Warning order from the company commander when action is likely to be imminent. This order will contain instructions for the platoon commander (or commanders) to join him, and for any special movement to rendezvous by platoons under the platoon sergeant. The warning order will contain sufficient information to enable platoon commanders to carry out any preliminary reconnaissance before receiving orders.
- (c) As detailed a reconnaissance as time permits.
- (d) Orders to platoon commanders, which will include the following:—
 - Information.
 - Intention.
 - Platoon role.
 - Area.
 - Tasks in detail (including S.A.A.).
 - Timings.
 - Administration.
 - Intercommunication.

2. General.

i. The duties of a platoon in the field are dealt with in the lessons which follow. The details of procedure and occupation of positions will depend on the orders given by the M.G. company commander, whose preliminary arrangements are given in para. 1, above.

ii. Platoon areas are generally selected by the company commander, who must satisfy himself that the task can be carried out from the area detailed. In order to reduce the time required for reconnaissance by the platoon commander, such areas should be as well defined as possible.

iii. Owing to the difficulty of locating targets exactly, a platoon commander may often receive a target in general terms, e.g. a patch of gorse or the front edge of a wood. In this case he must, by every means in his power, attempt to locate the exact position of the enemy in the locality described, so that ammunition is not wasted by firing on unoccupied ground.

iv. In the occupation of a position it will be the duty of the platoon commander to determine, before the position is occupied, that the first target can be engaged, or task carried out, with safety to our own troops. When he is not controlling, he will, in his orders for the occupation of the position, inform the fire controller or controllers concerned that it is safe to fire on the first target, and will point out the position of our own troops.

The responsibility for subsequent safety will be with the fire controller.

The platoon commander should assist by keeping him informed as to the movements of our own troops.

3. i. **Fire direction** is the term used for the orders given by a commander of two or more fire units regarding the manner their fire is to be applied and covers, therefore, the immediate orders given by a fire controller.

ii. When firing direct, the platoon commander directs the fire of his two sections, the fire being controlled by the section commander. The only means of communication at the disposal of a platoon commander for directing the fire of his platoon is by orderly or signal. As a guide, therefore, it is considered that where a whole platoon is required to fire over one arc, the two sections should not be farther apart than about 300 yards. To minimize the effect of shell fire and to assist concealment, they should not be closer than about 100 yards.

iii. The platoon commander, in deciding whether he will order one arc for both sections or an arc for each, should remember that for ranges over 1,500 (2,000 for Mk. VIII) the fire of four guns is normally necessary in order to get full fire effect. Therefore, when targets over that range have to be engaged, they should be included in the arc of each section.

4. Direct fire.

i. The platoon commander reconnoitres his platoon area with a view to selecting section areas, positions in readiness, platoon headquarters and O.P., and decides on the disposal of his vehicles to positions under cover.

In deciding on section areas, the platoon commander will look for positions which offer the following advantages:—

Suitability for the task.

Ability to observe the movement of own troops.

Covered approaches.

Concealment for guns. (See Lesson 90, para. 12, ii.)

Ease of control.

Covered positions for vehicles.

ii. The section commander reconnoitres his area for a position for each gun and for a control post. In selecting these the section commander will consider the points detailed in the platoon commander's reconnaissance above. To prevent the occupation of unnecessarily exposed positions, he should be clear as to the exact nature of his task and the near limit of arc.

There are three methods of bringing the guns into action open to the section commander:—

- (a) To use the section orderly, when available, to mark one gun position, while he himself marks the other one, the guns being ordered or signalled into action independently; or
- (b) to signal the guns up in turn, pointing out to each No. 1 as he arrives the gun position, first target, arc of fire, and reference points; or
- (c) to go back and bring forward Nos. 1 with tripods as far as cover allows, and point out gun positions, etc., as in sub-para. (b), above.

iii. When firing over an arc, section commanders must exercise great care in the selection of targets and the moment to open fire. Targets which will have the greatest effect on the operations must be engaged first, and fire unit commanders should not allow themselves to be led into firing on targets which may be more obvious but not so dangerous tactically.

Premature opening of fire against unimportant targets may have the effect of disclosing the positions of the guns unnecessarily, and drawing enemy fire.

iv. In deciding on the rate of fire to be used the following factors must be taken into consideration:—

The tactical situation, the target, the range, the state of the ammunition supply, and the effect it is desired to produce in a given time.

5. Indirect fire.

i. The main occasions on which indirect fire is or might be employed may be summarized as under:—

- (a) When it is impossible, or inadvisable, to occupy a direct fire position.
- (b) In darkness, mist, or smoke.
- (c) When guns placed in depth in direct fire positions to prevent penetration in defence, can by this means alone, fire in front of the foremost troops.

(d) When it is desired to place some guns in positions from which they can be easily withdrawn, and in which direct positions would not give such facility.

ii. When firing indirect, the platoon commander controls the fire of the platoon, unless the tactical situation demands his whole attention, or unless he is concerned with liaison duties. In these cases he will delegate the fire control to the platoon sergeant.

The platoon commander reconnoitres for:—

- (a) A position for the guns.
- (b) Fire control observation post.
- (c) Position in Readiness.
- (d) Covered position for vehicles.

iii. In selecting the gun position, the commander is influenced by:—

- (a) Crest clearance.
- (b) Enemy observation. (This may be from the flanks.)

6. Platoon headquarters.

The requirements are:—

- i. Ease of communication between sections, the O.P., and platoon headquarters.
- ii. Good covered approach.
- iii. Concealment.

NOTE.—Arrangements must be made for headquarters to be found easily by our own troops.

7. Observation post (O.P.)—The requirements are:—

- i. View of enemy positions or lines of approach, and ground over which our own troops may move.
- ii. Good covered approach.
- iii. Accommodation for the required number of men.
- iv. Concealment.

8. Control post (C.P.)—The following requirements are necessary:—

- i. Full view of the whole arc for which the section is responsible.
- ii. As inconspicuous as possible.
- iii. Good covered approach.
- iv. Accommodation for the required number of men.
- v. Concealment for fire control signals to be made.
- vi. Within voice control of the guns. Wherever possible the control post should be on the left of the guns.

9. Distribution of personnel and loads to vehicles.

The details of loads and distribution of personnel to vehicles are shown in Sec. 15, and are based on:—

- i. Availability of equipment and stores.
- ii. Restrictions imposed by weight and seating accommodation.
- iii. The necessity for means of forward reconnaissance without undue disturbance of personnel.
- iv. The fact that when a commander is required to carry out a task, whether as a section or as part of the

platoon, his range-taker must be available in the earliest stages of his reconnaissance.

The procedure for reconnaissance and occupation which follows is outlined to meet ordinary conditions. Under certain circumstances modification may be necessary and it is left to the commander to decide, in accordance with the situation, whether he can dispense with any detail or alter procedure.

The employment of the platoon (motor cyclist) orderly is not always specified because of the platoon's dependence on varying communication requirements.

METHOD OF INSTRUCTION

Instructor's Notes

The method of instruction will be as follows:—

1. Lecture on the subject matter of paras. 1 to 9 above.
2. Teach and explain the duties in each lesson with the aid of a prepared sand table.
3. Headquarters training exercises on the ground or sand table with the personnel required for any particular phase.
4. The duties of all commanders will be further practised in section and platoon training exercises, where all personnel and equipment are present. Technical as well as tactical problems should be included in these exercises.

Such exercises afford excellent opportunities for practising fire orders upon a natural landscape.

LESSON 90.—OCCUPATION OF A POSITION — DAY

The platoon commander.

1. When called for by the company commander, either for reconnaissance or for the receipt of orders, he will always take his reconnaissance party with him in his truck.

This will consist of:—

Two section commanders.

Two section orderlies.

Two range-takers.

Platoon orderly on a motor cycle.

2. When receiving orders the platoon commander will take his orderly with him. Whenever possible he should have at least one section commander with him who can also hear the company commander's orders.

The rest of the reconnaissance party will remain under cover as close as possible.

3. As soon as he knows his platoon area he will, if necessary, send a message to the platoon sergeant including:—

Brief information.

Platoon role.

Order to move the platoon to a R.V. near the area indicated by the company commander. This should include a warning about any particularly exposed places on the route.

His own action.

4. He will then decide upon his reconnaissance plan and will mentally note likely positions from which the tasks could be done.

5. The rest of the reconnaissance party will be put in the picture.

6. He will, if necessary, move to the area indicated.

7. On arrival in his area he will decide whether to use direct or indirect fire. Direct fire will be used whenever possible.

8. i. If he decided upon direct fire he will decide on:—

Section areas.

Positions in readiness for each section.

Arcs of fire and targets, if any.

Positions for trucks under cover.

Arrangements for local protection.

Positions of O.P. and platoon H.Q.

ii. He will find out the position of his own troops and will solve any immediate overhead safety problems.

iii. On completion of his reconnaissance, the platoon commander will issue orders to the section commanders, including as many of the following points as may be necessary, according to the situation:—

Information.

Intention.

First target, and arcs of fire.

Near limit of arc, if any.

Section areas.

Positions in readiness.

Arrangements for local protection.

Factors affecting safety.

Ammunition allotted.

Administration, including—

Ammunition supply.

Medical arrangements.

Position of section trucks under cover.

Position of platoon H.Q., O.P., and company H.Q.

Any light signals.

Zero hour, or time, orders, etc., re-opening of fire.

iv. He will send section commanders, accompanied by their range-takers and orderlies, to section areas to carry out their reconnaissance on foot.

9. i. The platoon commander will return to the platoon R.V. in his truck and will give orders to the platoon serjeant and section corporals as under:—

Brief information.

Intention.

Position in readiness and routes to them.

Section areas.

Ammunition required.

Places to which trucks are to go.

Time available.

He will send the section corporals to lead their sections to their positions in readiness; he will give additional orders to the platoon serjeant concerning:—

Position of platoon H.Q.

Local protection, and the siting of the anti-tank rifle.

When the platoon serjeant has carried out these duties he will report to the platoon commander for full information so that he will be in a position to take over command, if necessary.

ii. Alternatively, where ground permits, the platoon commander having completed this reconnaissance may point out to the orderlies the position in readiness for each section, and will tell them how many belts are required.

He will then send them to the platoon R.V. in his truck, with orders to guide the sections to their respective positions in readiness, and to inform the platoon serjeant of the position of platoon H.Q.

He will then issue orders to the section commanders as in 8, iii., above, and will send them on their reconnaissance.

On arrival of the platoon serjeant, he will give him orders including:—

Information.

Positions of O.P., platoon H.Q., and cover for vehicles.

Local protection and the siting of the anti-tank rifle.

10. When both sections have been reported in action, the platoon commander will send the platoon orderly to company H.Q. to report the platoon in action.

The platoon serjeant.

ii. 1. Will organize platoon H.Q.

ii. Will carry out any orders about local protection.

iii. When the section orderlies report to platoon H.Q. that their sections are in action, he will send one to the platoon commander to report the platoon in action, if this has not already been done.

iv. Will give orders for the concealment of platoon H.Q. vehicles.

v. As soon as the situation permits, he will come up to the platoon commander and get full information about the task

of the platoon, and the position of all the neighbouring troops, so that he can take over command instantly if required.

The section commander.

12. The section commander, on receipt of orders, will proceed to his section area accompanied by his range-taker, and orderly, if available.

i. On arrival he will give orders to the range-taker regarding:—

Arc of fire.

Points to which he requires ranges (i.e., target key ranges, and such points as will help him in the solution of any safety problem).

Time available.

Probable position of control post.

ii. He will reconnoitre for:—

Control post.

Two gun positions.

(Whenever possible these should provide cover from fire, view and air.)

iii. He will decide on reference points, and on the method by which he is going to bring the guns into action.

iv. He will bring the section into action by one of the methods given in Sec. 22, 4, ii.

v. When the section is in action he will report this fact to platoon H.Q., normally by sending the section orderly to platoon H.Q. Section orderlies will be sent via the platoon O.P. If the platoon commander is there he will send one orderly back to platoon H.Q. to report to the platoon serjeant and will retain the other with him.

vi. At the first opportunity he will explain the situation to the section corporal.

vii. When the opportunity arises he and the section corporal will pass on all available information to the rest of the section.

The section corporal.

13. i. On receipt of the platoon commander's orders will lead his section to its position in readiness.

ii. On arrival at the position in readiness, he will order "... Belts — prepare for action." will supervise the prepare for action, detail loads, and lead the section forward to the section area.

iii. He will dispose of the vehicles under cover as ordered.

iv. He will order guns into action when signalled for by the section commander.

v. In addition, he will report to the section commander for details of the task, arc of fire, targets, etc., and will organize the chain of supply from the vehicles to the section area, and the concealment or camouflage of the vehicles.

The order in which these tasks are performed will depend upon the situation at the time.

14. Duties during action.

i. Platoon commander.

- (a) Keeps in touch with the situation, carrying out reconnaissance where necessary.
- (b) Issues fire direction orders as required.
- (c) Reports the tactical situation, ammunition, and casualty states to the company commander.

ii. Section commander.

- (a) Controls the fire of his section, and interprets the fire direction orders of the platoon commander into fire control orders.
- (b) Locates and deals with targets.
- (c) Solves safety problems as they rise, and indicates safety limits.
- (d) Makes arrangements to continue firing in case observation is at any time interrupted.

iii. Section corporal.

Will supervise the chain of supply, and will so dispose the higher numbers as to prevent the section from being surprised from the flank or rear.

iv. He will periodically obtain the latest information from the section commander.

LESSON 91.—MODIFICATIONS FOR INDIRECT FIRE

1. Duties on decision to occupy the position.

The platoon commander.

i. Having decided to employ indirect fire, the following modifications will be made in the procedure for the occupation of a position given in Lesson 90.

ii. He will make a rough decision as to the gun position and the position in readiness, and then send his orderly to lead the platoon forward from the platoon R.V. to a point as close as possible to the gun position, which will normally be the position in readiness already chosen.

iii. The platoon commander will give orders to the range-takers as under:—

First target.

Any other points to which ranges are required.

Time available and place to which to report ranges.

iv. He will take with him a section orderly, a director and zero posts and will decide on:—

Gun positions.

Gun frontage.

Position in readiness.

Method to be employed.

Position of O.P. and platoon H.Q.

Position under cover for vehicles, and a point to which they will return when ordered.

v. He will issue to the section commanders, or to all N.C.Os. if the platoon has already arrived at the position in readiness, orders which will include:—

Information.

Intention.

Method of indirect fire to be employed.

Gun position and pivot gun if necessary.

Gun frontage.

Position in readiness.

Ammunition required.

Position under cover for trucks, and point to which they will return when ordered.

Arrangements for local protection.

Position of O.P., platoon H.Q. and company H.Q.

When fire is to be opened.

vi. The platoon commander will now complete his calculations to engage the target. At the first available opportunity he will give the platoon sergeant full information.

vii. The junior section commander will, unless orders have been issued to all N.C.Os., be responsible for meeting the platoon at the position of platoon H.Q. and the O.P., and of arrangements for local protection.

He will then take charge of the prepare for action as laid down in platoon drill — indirect fire (Lesson 73), and will inform the senior section corporal of the position under cover for the trucks.

2. Duties during the occupation.

i. The platoon sergeant.—

Establishes platoon H.Q.

Arranges local protection as ordered.

Reports to the platoon commander for full information.

ii. The senior section commander.—

Having received the platoon commander's orders, calculates minimum quadrant angle, supervises the guns coming into action, and carries out the duties laid down for him in platoon drill — indirect fire.

iii. The junior section commander.

When necessary, moves the platoon to the position in readiness. He orders "... belts — for indirect fire — prepare for action." If necessary, he details loads to higher numbers.

Moves the platoon forward in rear of the gun position. Carries out the duties laid down for him in platoon drill—indirect fire.

iv. The senior section corporal.

Assisted by the junior section corporal, sends the vehicles to the position under cover and tells the drivers where to return on being ordered.

Organizes the chain of supply.

3. Duties in action.

i. *The platoon commander.*

As in a direct fire position, except that normally he controls the fire of the platoon.

ii. *The platoon serjeant.*

Acts as second-in-command of the platoon and is prepared to take over the duties of the fire controller.

iii. *The senior section commander.*

Commands at the gun position and reports ammunition state to the platoon commander.

iv. *The junior section commander.*

Carries out such duties as laid down for him in platoon drill — indirect fire.

v. *The senior section corporal.*

Assisted by the junior section corporal, supervises and controls the supply from the vehicles to the gun position.

LESSON 92.—OCCUPATION OF A POSITION — NIGHT Duties where preliminary reconnaissance can be carried out in daylight.

i. *The platoon commander.*

(a) The platoon commander proceeds to his platoon area, taking with him a reconnaissance party consisting of:—

Zero posts.

Two section commanders with director and pegs.

Two range-takers.

Two orderlies.

If not otherwise required, the platoon serjeant should accompany this reconnaissance.

(b) On arrival he carries out his reconnaissance, including the selection of gun positions.

He orders the necessary ranges to be taken.

He, and the platoon serjeant, if present, proceed to carry out the pegging of the positions (as in Sec. 26), assisted by the section commanders.

ii. He now decides on:—

(a) The points shown in Lesson 90, §. 1.

(b) The type of concealment and extent of digging, if any, to be carried out.

(c) Positions in readiness for the sections and a rendezvous for the platoon.

(d) The approaches from the rendezvous to the positions in readiness and to the gun positions, arranging that these routes can be recognized in the dark.

iii. He gives the platoon serjeant and section commanders all available information regarding enemy, own troops, and targets, and issues orders on the points included in sub-para. ii, above.

He then leaves the range-takers or orderlies in the platoon area to safeguard the preparations made for occupation.

iv. When the reconnaissance is completed the party, less those required to safeguard the preparations, will return to the platoon, where the platoon commander will:—

(a) Prepare fire control charts and issue and explain them to the N.C.O.s concerned.

(b) Issue all available information to the platoon.

v. On occasions the reconnaissance party may have to be reduced to a minimum:—

Platoon commander, or platoon serjeant.

1 range-taker.

1 man with director and pegs.

In this event the platoon commander (or platoon serjeant) will be responsible for the pegging of both section areas.

He will issue orders as in iii, above, on return to the platoon.

2. Duties on occupation of the position.

i. On arrival at the rendezvous, if the section commanders were present during the reconnaissance, they lead their sections direct to the positions in readiness, and come into action.

ii. If the section commanders were not present during the reconnaissance the platoon commander, or the platoon serjeant, if he reconnoitred the position, takes forward one section to its position in readiness, orders the section corporal to prepare for action, leads the section commander to the gun positions, and points out the gun and direction pegs to the section commander. He then returns to the rendezvous and leads the other section to its position in readiness, and points out gun and direction pegs as for the other section.

iii. When necessary, he orders the platoon serjeant to collect the section vehicles and take them to the pre-arranged place.

3. Duties when no daylight reconnaissance is possible.

i. It is possible to arrange for fixed lines with fair accuracy at close ranges, provided that a light can be shown on the place where the fire is to fall.

The platoon commander first chooses positions for his sections by personal reconnaissance.

ii. Having given orders for the occupation of the positions he proceeds with a torch to the place or places where he requires the fire of the section and exposes a light in the direction of the guns. (For technical procedure, see Lesson 129.)

iii. A signal must be arranged to notify the platoon commander when guns have been correctly laid.

LESSON 23.—DUTIES SPECIAL TO DEFENCE

1. Duties on decision to occupy a position.

In addition to the points already given in Lesson 20, para.

8. III., the platoon commander will include in his orders:—
- (a) The position of our own troops in the vicinity of section areas and arcs of fire.
 - (b) Approximate areas in which fixed lines are to fall.
 - (c) S.O.S. signal and the action to be taken when S.O.S. signal goes up.
Normally, S.O.S. signals will only go up at night or when visibility is bad. Defensive fire on fixed lines will be required as soon as the S.O.S. goes up.
 - (d) Rate of fire and ammunition to be used on fixed lines.
 - (e) Any reservation of ammunition necessary for primary tasks.
 - (f) Any special orders for local protection and concealment.
 - (g) Orders regarding digging.
 - (h) Intercommunication.

2. Duties during the occupation.

i. The platoon commander.

- (a) Having given his orders, will ascertain from rifle units near his gun positions and in the area where his defensive fire is required to fall, the exact dispositions of their troops, so as to ensure necessary safety. He will also ascertain the positions from which the signal for defensive fire will be sent up, and will discuss the co-ordination of digging and wiring.
- (b) He returns to the section positions and gives orders in detail as to fixed lines, the positions from which the signal for defensive fire will be sent up, and any other points in para. 1, above, not already sufficiently dealt with.
- (c) He then visits nearby unit commanders and arranges to keep in touch with them.
- (d) As soon as he receives messages from his sections that they are in action, he reports his platoon in action to his company commander.

ii. The platoon sergeant.

Having established platoon H.Q. and arranged for local protection (including the siting of the anti-tank rifle), proceeds with platoon H.Q. vehicles to the position or positions ordered, takes over the section vehicles from the section corporals, and moves the whole as ordered.

He will then return to platoon H.Q. and obtain full information from the platoon commander.

iii. The section commander of each section.

On arrival in his section area, in addition to his duties given in Lesson 20, para. 12:—

- (a) Posts sentries.
- (b) Orders the range-taker to construct a range card for the arc, naming the points to which he requires ranges.
- (c) Orders the guns to be mounted in temporary positions to cover the arc, and to be laid on temporary fixed lines until the exact position of permanent fixed lines is decided upon.

NOTE.—In order to obtain concealment for such temporary positions it may be necessary to sacrifice a little of the allotted arc.

- (d) Immediately he receives details of the fixed line, has the guns laid on this line (Section 22).
NOTE.—Where guns have a forward task in addition they will be laid initially on the forward fixed line, and arrangements will be made for the switch from forward to penetration fixed line.
- (e) Arranges for the concealment of the position and stores.
- (f) Organises digging.
- (g) Orders the section corporal to take the vehicles to the position ordered.

- (h) Sends the section orderly to platoon H.Q. to report section in action.
- (i) Informs all ranks of the signal for defensive fire, the action to be taken in case of alarm, the positions of temporary alarm posts, and the details of ranges.
- (j) Selects permanent alarm posts, makes out the duty roster.
- (k) Marks in on his range card the area within his arc in which it is safe to fire.
- (l) He will take the earliest opportunity of visiting infantry posts near his area.

NOTE.—Throughout the occupation of the position, and whilst in action, the section commander will—
Ensure that any information regarding enemy, own troops, etc., received is immediately passed on to all ranks of his section.

iv. The section corporal of each section.

- (a) Ensures that all stores are removed from the vehicle, taken forward, and placed under cover near the gun position.
- (b) When ordered by the section commander, moves the section vehicles to the position ordered, and hands them over to the platoon sergeant.

- (c) Reconnoitres for a supply of water.
- (d) Reports to the section commander for full information and informs him of the result of his reconnaissance for water.

3. Inspection of a section area in defence.

The following are some of the points which a platoon commander will check when he inspects the area occupied by one of his sections in a defensive position. There are many points which are not mentioned and which will vary with the situation.

- i. Is the section commander in the picture?
 - (a) Does he know latest information about enemy?
 - (b) Own troops—
 - (i) Does he know their position?
 - (ii) Has he made contact with those nearest?
 - (iii) Has he full information about patrols?
 - (iv) Has he arranged for protection by neighbouring troops — e.g. dead ground?
 - (v) Does he know position of nearest H.Q.?

ii. The task:—

- (a) Arc—
 - (i) Can both guns cover the whole arc?
 - (ii) Organization of arc, including reference points.
 - (iii) Range cards: areas in which unsafe to fire marked in on range card; there may be short range card for use of section corporal.

(b) Fixed line—

- (i) Location and safety: remember platoon commander details an area in which fire is to fall. Section commander responsible for selecting actual point of aim and for ensuring that fire is safe and effective.
- (ii) Aiming posts planted. Tangent sights adjusted. Aiming posts planted and collimators adjusted.
- (iii) Bar foresights and tripod dials at zero. Deflection dials and tripod dials at zero.
- (iv) Elevation registered on clinometers and recorded. Range and angle of sight left on respective drums and recorded.
- (v) Aiming lamps ready for use.

iii. Stores:—

- (a) Everything off the trucks.
- (b) All ammunition handy to the guns.
- (c) Spare parts cases — must be complete.
- (d) Oil in traversing handles.
- (e) Stores not required at guns concealed in convenient and tidy dump.
- (f) Water: condensers full and source of supply reconnoitred.
- (g) Cases, cans, oil.
- (h) Spare parts box: all breakages replaced.

iv. Readiness:—

- (a) Sentry (or sentries) posted; gas detectors.
- (b) Duty rosters for sentry and digging made out.
- (c) Digging properly organized and in progress or completed.
- (d) Guns camouflaged as necessary.
- (e) Guns half loaded and thumbpiece pressed.
- (f) S.O.S. and place from which it will be sent up.
- (g) Alarm post — use of higher numbers to give local protection and all-round defence.
- (h) Alarm signal; gas signal.

v. Section personnel:—

- (a) Has all information been passed on to every man— especially regarding S.O.S.?
- (b) Does everyone know his action on the alarm signal?
- (c) Are all administrative instructions fully understood— including sanitary arrangements?
- (d) Do neighbouring troops know whereabouts of line of fire, and have arrangements been made to prevent their crossing it?
- (e) Does everyone know position of platoon H.Q. and route to it?

LESSON 94.—DUTIES SPECIAL TO WITHDRAWAL

1. Occupation of a position.

i. Normally, withdrawal will be part of a delaying action, in which case guns will be used on wide frontal arcs and will have the task of making the enemy deploy at long ranges. This will influence the choice of section areas.

ii. Positions must also be such that trucks can come up close to section positions when the guns are ordered out of action. Covered routes for the withdrawal will be necessary.

It will be the duty of the platoon commander to lay down the places to which trucks may come.

iii. The normal duties for occupation of a position in defence will be carried out, subject to such modifications as are necessary to ensure these conditions, and to time available for occupying the position.

2. Preparation for withdrawal to a new position.

Normally, a warning order is issued and this will usually run as follows:—

“ — will withdraw. No rearward movement except recon parties before — hrs.
 Recon parties will report to — at — at — hrs.
 Thinning out may begin at — hrs.
 The position will be abandoned at — hrs.
 All personnel will be clear of — by — hrs.”

The platoon commander will—

- i. Send this message to his section commanders and will order the maximum reconce. parties he can spare to report to the new position.
- ii. Choose a platoon R.V. in rear of the position and a route to it for each section.
- iii. Reconnoitre the route to the company R.V., if any.
- iv. Decide the method of withdrawal.
- v. Arrange to bring up his vehicles, if necessary.
- vi. Issue orders to his section commanders about the above, giving—
 - Method of withdrawal and description of new position.
 - Timings.
 - Routes.
 - Platoon R.V. or section R.Vs. on the new position.
 - Company R.V., if any, and route to it.
 - Route platoon H.Q. to take.
 - Arrangements for bringing up trucks, if necessary.
 - The method by which the order to withdraw will reach the section commander.

The section commander—

He will make a plan for the removal of his stores and kit when thinning out begins, and will see that all are informed.

He will be responsible that the route to the platoon R.V. is reconnoitred.

3. Reconnaissance parties.

The minimum reconnaissance party is the—
platoon sergeant,
1 range-taker,
2 gun numbers (one per section),
platoon orderly.

The party will travel in a platoon H.Q. truck, taking pegs and a director if these are likely to be required.

Zero posts.

Sufficient tools should be taken to enable the reconnaissance party to make hasty emplacements or to improve the existing cover.

4. The reconnaissance of the new position.

The platoon sergeant will do the platoon commander's reconnaissance as in Lesson 90, 8, 1., and will order the range-taker to prepare range cards for both section.

If present, the section corporals will do the section commander's reconnaissance. If not, the platoon sergeant will carry out a complete reconnaissance of each section area and will point out the gun positions, arcs of fire, and positions in readiness to the two gun numbers who will act as guides. These guides will be posted on the route along which the platoon will

withdraw and, on the arrival of the platoon, each will lead his section to the position in readiness and then show the section commander the gun positions and tasks.

As soon as the reconnaissance is complete the platoon sergeant will send a message to the platoon commander giving him full information of the new position and of the arrangements he has made for the meeting of the platoon when it arrives.

The platoon sergeant will remain on the new position and, on the arrival of the platoon, will superintend its occupation. He will hand over to the platoon commander as soon as the occupation is complete.

5. The withdrawal.

Platoon commander—

- i. Will personally give the order or send a written message to withdraw.
- ii. Will satisfy himself that the withdrawal has been carried out.
- iii. Will take charge of the platoon at the platoon R.V. and move it to the new position, unless it has been necessary to order section R.Vs. on the new position.

Section commander—

- i. The actual method of withdrawal will depend upon the proximity of the enemy, the time available, the ground, and whether the withdrawal is to take place by day or night.
- ii. The platoon commander may decide to adopt one of the following methods or any variations of them:—

(a) A suitable method by day — particularly when there is cover available close behind the section area — is as follows:—

- (i) Trucks will be brought up under cover as close as possible to the gun position.
- (ii) Higher numbers and unwanted stores will be moved back to this point as soon as the time for thinning out arrives.

NOTE.—As a guide, section commanders, Nos. 1 and 2, and one other should be left at the guns.

- (iii) When the time for abandoning the position arrives the guns and remaining stores will be moved back under cover, loaded up, and the trucks will proceed to the platoon R.V.

(b) An alternative method:—

- (i) When the time for thinning out arrives one sub-section truck will be signalled up to a suitable position under cover. The higher numbers will move back the unwanted stores to this point and load them on to the truck. The truck will then proceed to a section R.V., tak-

ing as many higher numbers as are not needed for the final withdrawal of the guns. (See note in method (a) above.)

- (ii) The other sub-section truck will remain under cover until signalled for at the last moment, and will then come as close as possible to the gun position.
- (iii) Both guns and the remaining numbers will go back in this truck, which will move as rapidly as possible to the section or platoon R.V.

NOTE.—It may be found best in open country for the last truck to move as fast as possible right up to the gun position.

- (c) If the withdrawal is by night the following modifications must be made:—
 - (i) Trucks will not be brought up so close to the position as to jeopardize safety through noise.
 - (ii) Sufficient time must be allowed for the thinning out to take place quietly, by organized parties commanded by a N.C.O. or a senior private.
 - (iii) The section commander will ensure that sufficient personnel, ammunition, and stores are left with the guns to maintain them in action until the order to withdraw is given.
 - (iv) When the order arrives he will move back with the guns to the platoon R.V.

On arrival at the new position he will find out all details from the gun number of his section (see para. 3 above) and from the platoon sergeant, and will put the section into action himself.

iii. The platoon sergeant—accompanied by the minimum reconnaissance party—

- (a) In accordance with the orders he has received, and after reconnaissance of the ground, will select section areas, gun positions, and positions in readiness and a platoon control post.
- (b) Will point out the arcs of fire of the sections and reference points within these arcs to the range-taker, who will take the necessary ranges and prepare range cards for both sections.
- (c) Will point out the section gun positions, arcs of fire, and positions in readiness to the two gun numbers, who will act as section guides. The guides will then be posted on the line of withdrawal of the platoon or if the sections are withdrawing independently, at section rendezvous, from which they will lead the sections to their respective areas.

On arrival in these areas the guides will there give the section commanders all known information about the section positions.

- (d) Will send a message to the platoon commander informing him where the section guides will be posted and giving any essential information regarding the new position. He will remain on the new position, meeting the platoon commander on the latter's arrival there, and reporting fully about it and the situation as known. The platoon commander will in turn communicate that information to the section commanders.

6. Withdrawal to the new position.

i. The platoon commander—

- (a) Will give personally or send the order to withdraw, including any of the points in para. 2 above, which he has not previously given.
- (b) Will control the movement of the sections from the platoon rendezvous or, if the sections move independently to the new position, keep touch with their progress.

ii. The section commander—

- (a) On receipt of the order to withdraw, will order "Cease firing"—and, having signalled to the trucks to come up to their forward positions, "On truck."
- (b) When all stores and personnel are on the trucks, will lead them back by the selected route to the platoon rendezvous or to the section rendezvous.

iii. The section corporal—

Will be responsible for sending the trucks forward when signalled up by the section commander. He will then assist the latter in controlling the "On truck" action.

APPENDIX I

SPOTLIGHT APPARATUS FOR TRAINING M.G. PERSONNEL

After the apparatus has been correctly assembled to the gun, and all connections made (see sketch in box), the following is the procedure:—

Focusing.—Telescopic focus from the rear end of the spotlight projector.

Harmonizing.—The light must be harmonized with the tangent sight and this is done as follows:—

Set the spotlight sight (converted Lewis gun sight) and the tangent sight to the same range, e.g., 1,500 yards. Lay the gun on a good aiming mark and bring the light on to it by making vertical adjustments by means of the thumbcrew on the projector, and lateral adjustments by means of the clamping screw underneath the projector sight. Extreme accuracy is required in making these adjustments.

The apparatus is now ready for use.

The apparatus can be used for teaching N.C.O.s and men, exercising them in indication and recognition, for demonstrating fire orders, and for exercising men in interpreting fire orders, using combined sights and making corrections for wind.

In demonstrating fire orders it is necessary that the light should be controlled from the thumbpiece switch in conjunction with the vibrator, which is done quite easily by connecting the wiring up in a different way.

On the fire order being given the gun numbers carry out their duties in the normal way. In order to maintain the harmonization of the light with the tangent sight, it is necessary for the instructor or an assistant to adjust the projector sight to correspond with the tangent sight.

Example.—The order is given "All 1400."

No. 1 sets the tangent sight to 1,400 yards.

The instructor or assistant sets the projector sight to 1,400 yards.

In a case where the combined sight rule is applied:—

The order is given ". . . All 1600."

Nos. 1 set their tangent sights as ordered.

The instructor or assistant sets the projector sights to 1,600 yards, i.e., the correct range.

The order is given "Stop."

"No. 1 down 50."

"No. 2 up 50."

Nos. 1 set their tangent sights accordingly.

The instructor leaves his projector sights at 1,600.

This will have the effect on the target of one gun being slightly high, and the other being slightly low, and on opening fire the rings of light will have the appearance of overlapping beaten zones. It is here that the necessity for extreme accuracy in harmonizing is seen.

In teaching or exercising men in fire orders it is necessary that the light should be controlled independently of the thumb-piece switch. Hence the press switch which is controlled by the instructor. This control is necessary for the following reason:—

Instead of the No. 1 carrying out his duties as taught, occasionally checking his aim between bursts, traversing correctly 15 minutes, relaying on the command "Stop," etc., he would allow himself to be guided by the light. Whereas if the instructor controls the light, he can produce as necessary for the purpose of checking the action of the No. 1.

Making correction for wind.

On the upper side of the clamping plate of the projector sight will be seen a series of graduations. These are for making or checking corrections for wind. The graduations are of 15 minutes, and are adjusted by means of the small milled head screw at the side. Normally this scale must be kept at zero.

On a wind correction being ordered, the No. 1 makes his adjustment by tapping his gun. The instructor or his assistant adjusts the projector sight the amount ordered. On opening fire the light should now still fall on the target, showing whether the man's adjustment is correct or otherwise. On completion of the fire order care must be taken to re-zero the wind scale.

The vibrator should be used to teach the service burst, and later as a check on the man in doing so.

In using the apparatus the following suggestions are made:—

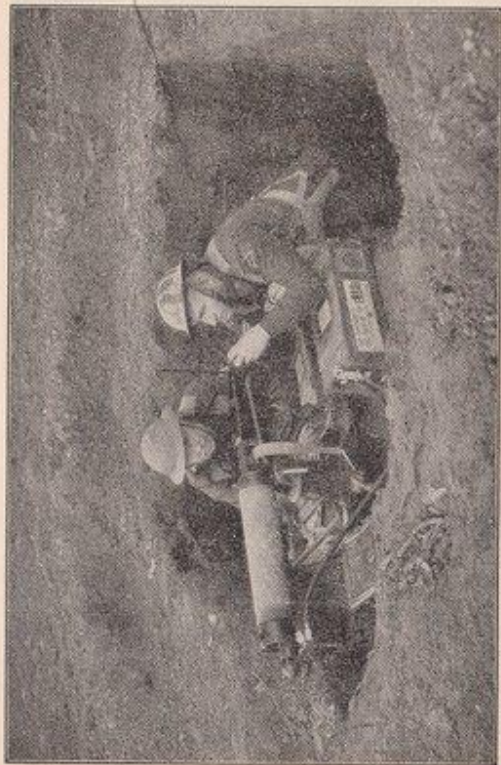
1. Service guns should be used to eliminate as far as possible any play between the gun and tripod.

2. As the apparatus will normally be used indoors, a "T" base or sandbags should be used to allow the traversing clamp to be adjusted correctly by the No. 1.

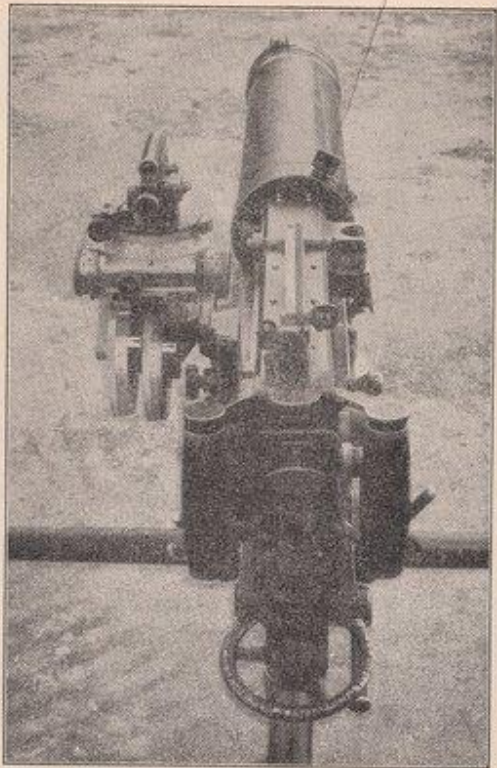
3. Guns must be placed as close together as possible, otherwise, as the guns are switched about over the landscape target, the light will tend to go out of focus, and errors will creep into the harmonization.



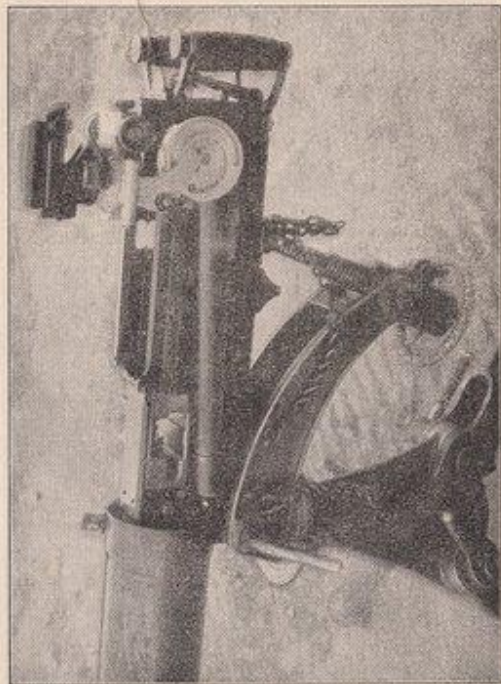
HASTY M.G. EMPLACEMENT OF SLIT TRENCH TYPE (INITIAL STAGE)



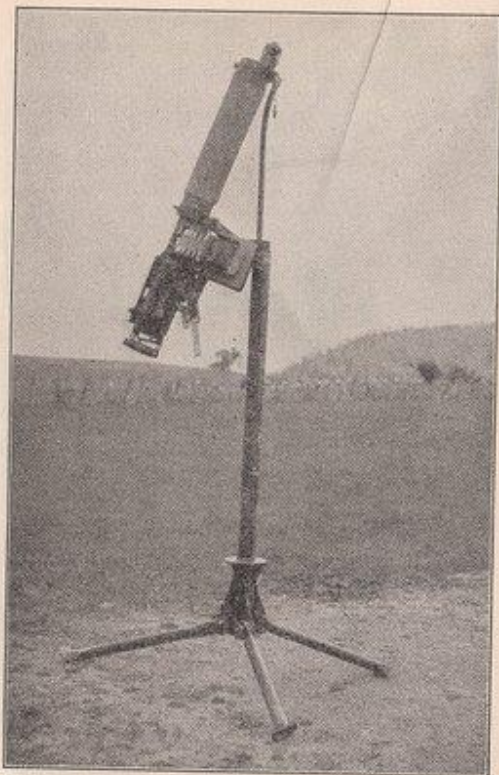
HASTY M.G. EMPLACEMENT OF SLIT TRENCH TYPE. LATER DEVELOPMENT



VICKERS DIAL SIGHT ATTACHED TO GUN



VICKERS DIAL SIGHT ATTACHED TO GUN



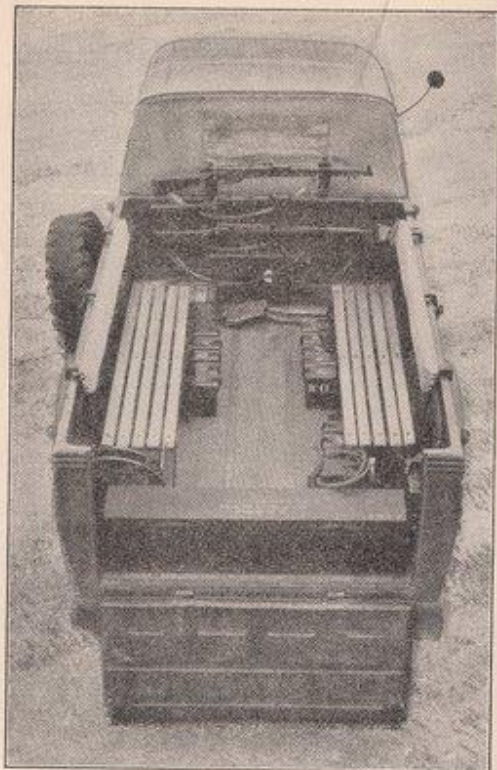
VICKERS A.A. FIELD MOUNTING (L.P.)
(Attached to Tripod of Mk. IV. Mounting)

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VICKERS A.A. FIELD MOUNTING (L.P.)

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M.G. SUB-SECTION TRUCK — AUSTRALIA (1-TON)
(Improvised arrangement)

APPENDIX II

1. Suggested method of teaching Lesson 46 — "Mount and Dismount Gun."

i. Mounting tripod.

Instructor's demonstration and explanation.

Dismounting tripod.

Instructor's demonstration and explanation.

- iii. Personnel practised in mounting and dismounting the tripod. On completion of the Dismount, the tripod will be returned to the "Take Post" position on the command "Replace Stores"; the next man to be exercised taking up his position beside the tripod when ordered.

A member of the squad is now ordered to erect the tripod and remain in position as the No. 1.

- iv. The Instructor explains the further duties of the No. 1 after the gun is carried forward and placed on the mounting, i.e., levelling the gun and ensuring that the traversing clamp is reasonably tight.

v. Mounting gun.

Instructor's demonstration and explanation (finish when pins are in and condenser tube is swung over to the right).

vi. Dismounting gun.

Instructor's demonstration and explanation (gun taken off and placed on the ground, etc., and the necessary actions of No. 1 explained).

Instructor takes the gun back to the "Take Post" position.

- vii. Personnel practised in Mounting and Dismounting the gun from the "Take Post" position (member of the squad remaining in position with the tripod and with the pins out to receive the gun — the tripod remains erected).

- viii. Instructor has the gun placed on the mounting again and explains the actions of No. 3 moving his stores forward and back and the actions of No. 2 in this connection.

- ix. Personnel practised in the actions of No. 3 in Mounting and Dismounting the gun.

Instructor has the stores placed at the gun and all 3 numbers in their correct position.

- x. Instructor recapitulates instruction, questioning, etc., of the complete actions of Nos. 1, 2 and 3 on the command "Dismount Gun."
- xi. Personnel of team in position carry out complete actions on command "Dismount Gun."
Instructor orders "Replace Stores."
- xii. Instructor recapitulates, etc., regarding actions necessary on command "Mount Gun."
- xiii. Personnel of team carry out complete actions on command "Mount Gun."
- xiv. Practice all personnel in complete actions of Mount and Dismount Gun by command.
2. Action of No. 1 on "Dismount Gun," Lesson 46, para. 1.
"He removes both pins."

In order to ensure that the gun, when the barrel casing is filled, does not tip forward, the elevating joint pin will be first removed, the gun being supported by the left hand at the left traversing handle. The gun is then steadied, preferably with the right forefinger on the right lower arm of the right traversing handle, keeping the elevating joint pin clear of the traversing handle. He then removes the crosshead joint pin. This procedure ensures that the right traversing handle is free to be grasped by the No. 2.

3. Ground action from Carriers, M.G. (Gear and personnel in position on ground).
"Action."

No. 1, carrying the tripod, moves to the position indicated and places the tripod on the ground. If carrying a belt box, he places it in a convenient position. Standing astride the legs, he opens both front jamming handles simultaneously and, holding the socket with both hands, thumbs inside the socket, with a forward and upward movement opens the front legs and erects the tripod. Holding the socket with his left hand, he clamps both front jamming handles with his right hand and sits down in rear of the erected tripod.

When the gun is placed on the tripod by No. 2, No. 1 will, if a belt box is available, load and then adjust the traversing clamp. He will level the gun if necessary.

No. 2 opens the sliding shutter and, holding the right traversing handle and condenser tube with his left hand and with his right arm over the barrel casing, will arrive as No. 1 is sitting down. He inserts the bottom of the pivot into the socket, ensuring that the chain of the crosshead joint pin does not foul the tripod dial and allows the pivot to sink into position in the socket. He releases control with both hands, throwing the condenser tube clear. No. 2 then collects the remaining ammunition and condenser can, placing them in position and assuming his position at the gun and inserts the tube into the can.

"Cease firing."

Nos. 1 and 2 unload the gun and whilst No. 2 is repacking the belt into the box, etc., No. 1 fully loosens the traversing clamp. No. 2 stands up and, grasping the gun and tube as when "mounting," lifts the gun clear. He moves slightly away, rests the gun on his leg and closes the sliding shutter. He then places the gun on the ground, assumes his position beside it, and collects his stores.

When the gun is removed, No. 1 stands up astride the rear leg and loosens both front jamming handles simultaneously, allowing the tripod to collapse. Holding the top of the socket as when mounting, with an upward and forward movement he closes the rear legs, places the tripod on the ground and assumes his position beside it, clamping up both front jamming handles on completion and collecting his share of the belt boxes preparatory to movement.