

I
J. L. SINKING ¹⁰

RIFLE AND MUSKETRY EXERCISES

FOR THE

ROSS RIFLE

1914



H.Q. 516—16—1
20 m 2—14
(Reprint).

OTTAWA
GOVERNMENT PRINTING BUREAU
1914

W.M. Lochard
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CHAPTER I.

RIFLE EXERCISES.

1.—General Rules.

1. Recruits, before they commence the Rifle Exercises, are to be taught the names of the different parts of the rifle and the care of arms as laid down in the Handbook of the Ross Rifle 1913.

2. The rifle exercises will not be performed at inspections and will only be practised by units larger than a squad for purposes of ceremonial.

3. Drilling by numbers should be carried out at intervals and restricted to the instruction of recruits, and should, in the case of the Active Militia, be curtailed as far as possible.

4. The recruit having been thoroughly instructed in the rifle exercise by numbers will be taught to perform them in quick time, the words of command being given without the numbers, and executed as detailed in the following sections, with a pause of one beat of quick time between each motion.

5. Instruction in the rifle exercises should be combined with firing instruction; the recruit should be accustomed to regard his rifle from the first as his chief means of destroying the enemy, and not merely as an implement to be carried at drill or manoeuvres.

Squad drill with arms should be practised occasionally in extended order to accustom men to handle their rifles steadily and correctly when separated from their comrades.

6. In performing the various motions of rifle exercise the hand should be carried the shortest way to the rifle.

7. Arms may if desired be sloped from the *Stand-easy* on the command **Slope-arms**. When the squad is at the slope it will be taught to go through the motions of the order, **Stand-at-ease**, and **Stand-easy**, on the command **STAND-EASY**.

8. Squads with arms will be practised in the different marches and variations of step, described in "Infantry Training."

The disengaged arm will be allowed to swing naturally as described for marching in quick or double time without arms respectively.

2.—The Order.

The recruit will fall in as directed in "Infantry Training" Sec. 30, with the rifle held perpendicularly at his right side, the butt on the ground, its toe in line with the toe of the right foot. The right arm to be slightly bent, the hand to hold the rifle near the lower band, (.22 Cadet Rifle, at the most convenient point,) back of the hand to the right, thumb against the thigh, fingers slanting towards the ground.

When each man has got his dressing he will **Stand-at-Ease**.

3.—The Stand-at-Ease from the Order (with or without bayonets fixed.)

Stand-at-Ease.

Incline the muzzle of the rifle slightly to the front with the right hand, arm close to the side, at the same time keeping both legs straight, carry the left foot about one foot length to the left, the left arm steady.

4.—The Attention from Stand-at-Ease.

The left foot will be brought up to the right and the rifle returned to the Order.

5.—The Slope from the Order.

**Slope-Arms.
One.**

Give the rifle a cant upwards with the right hand, catching it with the left hand above the guard, forearm horizontal, the right hand at the small of the butt, thumb to the left, elbow to the rear, rifle barrel pressed into the shoulder.

Two.

Carry the rifle across the body, and place it on the left shoulder, trigger guard to the left. Seize the butt with the left hand, the first two joints of the fingers grasping the upper side of the butt, the thumb one inch above the toe, the upper part of the left arm close to the side, the lower part horizontal, and the heel of the butt in line with the centre of the left thigh.

Three.

Cut away the right hand to the side.

6.—The Order from the Slope.

**Order—Arms.
One.**

Bring the rifle down to the full extent of the left arm, at the same time meeting it with the right hand, in line with the left shoulder, arms close to the body.

Two.

Carry the rifle to the right side, seizing it with the left hand at the upper band, butt just clear of the ground.

Three. Place the butt quietly on the ground, cutting the left hand smartly to the side.

7.—The Present from the Slope.

Present—Arms. Seize the rifle with the right hand at the small, both arms close to the body.

Two. Raise the rifle with the right hand perpendicularly in front of the centre of the body, trigger guard to the left; at the same time place the left hand smartly on the stock, fingers pointing upwards, thumb close to the forefinger, point of the thumb in line with the mouth; the left elbow close to the butt, right elbow and butt close to the body.

Three. Bring the rifle down perpendicularly close in front of the centre of the body, trigger guard to the front, holding it lightly at the full extent of the right arm, fingers slanting downwards; at the same time meet it smartly with the left hand so that the forearm is horizontal, thumb pointing towards the muzzle; at the same time place the hollow of the right foot against the left heel, both knees straight. The weight of the rifle to be supported by the left hand.

8.—The Slope from the Present.

Slope—Arms.— Bring the right foot in line with the left and place the rifle on the left shoulder as described in the second motion of the *Slope* from the *Order*.

Two. Cut the right hand smartly to the side.

*9.—The Present from the Order.**

Present—Arms Give the rifle a sharp cant upwards with the right hand, catching it with the left hand with the forearm horizontal and the right hand grasping the butt at the small, thumb to the left, elbow to the rear.

Two. Bring the rifle to a perpendicular position in front of the centre of the body, turning the guard to the left; at the same time place the left hand smartly on the stock, fingers pointing upwards, thumb close to the forefinger, point of the thumb in line with the mouth; left elbow close to the butt, right elbow and butt close to the body.

Three. As in the third motion of *Present* from the *Slope*.

*10.—The Order from the Present.**

Order—Arms— Carry the rifle to the right side and seize it with the right hand at the lower band, and with the left hand at the upper band, butt just clear of the ground, at the same time bring the right foot smartly up to the left.

Two. Place the butt quietly on the ground as at the *Order*, cutting the left hand away to the side.

11.—Fixing Bayonets.†

Fix— Seize the handle of the bayonet with the left hand, knuckles to the front, thumb and fingers to the rear, at the same time push the muzzle of the rifle sharply forward and turn

*For Rifle Regiments only.
†On the word **Fix**, the right hand man will take three paces forward resuming his place in the line when the third motion is completed.

the head and eyes to the right, the right hand man looking to the left.

Two. Taking the time from the right hand man draw the bayonet, turning the point upwards and keeping the elbow down. Place the handle on the bayonet stud, with the ring over the muzzle, pressing it home to the catch. Body and head to be erect.

Three. Taking the time from the right hand man, (who will raise his disengaged hand to the full extent and in line with the shoulder), bring the rifle to the **Order**, at the same time cut away the left hand to the side, turning the head and eyes to the front.

*12.—Unfixing Bayonets.**

**Unfix—
Bayonets.—
One.** Keeping the heels closed, place the rifle between the knees, guard to the front, and grasp the handle of the bayonet with the right hand, knuckles to the front, thumb of left hand on the bayonet bolt spring, draw the rifle into the body with the knees, and press the spring. Raise the bayonet about one inch, and at the same time turn the head and eyes to the left,

Two. Taking the time from the left hand man, raise the bayonet off the stud, drop the point to the left side, arm in front of the rifle, bayonet ring to the rear and at the same time seize the scabbard with the left hand and place the point of the bayonet into it.

*On the word **Unfix**, the left hand man will take three paces forward, resuming his place in line when the fourth motion is completed.

Three. Taking the time from the left hand man (who will look inwards and raise his right arm), force the bayonet home, and bring the right hand to the lower band.

Four. Taking the time from the left hand man, cut away the left hand to the side and return to the **Order**, turning the head and eyes to the front at the same time.

13.—Inspecting Arms on Parade.

1. The men will stand at the **Order**.

**For
Inspection.
Port—Arms.** Cant the rifle, muzzle leading, with the right hand smartly across the body, trigger guard to the left and downwards, the barrel crossing opposite the point of the left shoulder, and meet it at the same time with the left hand at the guard swivel, thumb and fingers around the rifle, the left wrist to be opposite the left breast, both elbows close to the body.

Disengage the safety catch, open the breech and grasp the butt with the right hand immediately behind the bolt, thumb pointing to the muzzle.

**Ease—
Springs.** Close the breech, press the trigger, engage the safety catch and return the hand to the small.

**Order—Arms.
One.** Holding the rifle firmly in the left hand, seize it with the right hand at the lower band. (For .22 calibre rifle well above the left).

Two. As in second motion of **Order** from *Slope*.

Three. As in the third motion of *Order from Slope*.

2. When arms are inspected, the officer will see that the sight is at zero both for deflection and elevation, and that the magazine platform works freely. Each soldier, when the officer has passed the file next to him, will, without further word of command, close the breech, press the trigger, engage the safety catch, order arms, and stand at ease.

3. If it be necessary to examine arms, the men will be cautioned to remain at the *Port*.

On the command *Examine-Arms*, both ranks will come to the position for loading, with the muzzle of the rifle so inclined as to enable the officer to look through the barrel, the thumb nail of the right hand being placed in front of the bolt to reflect light into the barrel.

The officer will look through each barrel to see that it is clean and free from rust. The soldier, when the officer has passed the file next to him, will close the breech, press the trigger, engage the safety catch, order arms and stand at ease.

Note.—A squad when falling in for inspection in two ranks, the rear rank will be three paces from the front rank.

14.—The Trail from the Order.

Trail.

By a bend of the right arm give the rifle a cant forward and seize it at the point of balance, bringing it at once to a horizontal position at the right side at the full extent of the arm, fingers and thumb around the rifle.

15.—The Order from the Trail.

Order— Raising the muzzle, catch the rifle at the
Arms. lower band, and come to the *Order*.

Note.—The trail is not to be used in close order drill except by rifle regiments. It will be used when required for movements in the field in both close and extended order.

*16.—The Shoulder from the Order.**

Shoulder— Give the rifle a cant upwards with the right
Arms. hand and catch it with the left hand in line with
One. the elbow; place the second finger of the right hand inside the trigger guard (Mark II short rifle, around the bottom of the trigger guard), thumb and remaining fingers pointing downwards, the upper part of the barrel resting in the hollow of the right shoulder.

Two. Drop the left hand smartly to the side.

*17.—The Order from the Shoulder.**

Order— Grasp the rifle with the left hand in line with
Arms.—One. the elbow, at the same time slipping the right hand to the lower-band.

Two. Lower the rifle and place the butt quietly on the ground, at the same time drop the left hand smartly to the side.

*Rifle Regiments only.

18.—*The Shoulder from the Trail.**

Shoulder—
Arms.—One. By a bend of the right wrist bring the rifle to a perpendicular position, and grasp it with the left hand in line with the elbow, then seize it with the right hand as at the *Shoulder*.

Two. Drop the left hand smartly to the side.

19.—*Trail from the Shoulder.**

Trail—
Arms.—One. Seize the rifle with the left hand in line with the elbow, arm close to the body, slipping the right hand to the point of balance.

Two. Bring the rifle to the *Trail*, at the same time drop the left hand to the side.

20.—*Short Trail from the Order.*

Short—
Trail. Raise the rifle about three inches from the ground, keeping it otherwise in the position of the *Order*.

21.—*Use of the Short Trail.*

No word of
command is
given to
Short-Trail. If standing with arms at the *Order*, and directed to form fours, to close to the right or left, to step back, or to take any named number of paces forward, men will move at the *Short Trail*.

*Rifle Regiments only.

22.—*Fixing Bayonets on the March.*

Fix—
Bayonets. i. When at the *Slope* seize the rifle with the right hand at the point of balance and bring it to the *Trail*, with the muzzle sloping upwards in front of the right breast. Draw and fix the bayonet with the left hand. Bring the rifle to the *Slope*.

ii. When at the *Trail* raise the muzzle of the rifle and proceed as above described.

23.—*To change when at the Slope.*

Change—
Arms.—One. Seize the butt of the rifle with the right hand back of the hand up and slip the left hand to the small.

Two. Carry the rifle, turning the trigger guard outwards, on to the right shoulder bringing it well to the front so as to clear the head.

Three. Cut the left hand to the side.
Note.—To change arms from the right to the left shoulder act as above, reading left for right, and right for left.

24.—*The Secure from the Slope.*

Secure—
Arms.—One Bring the rifle down to the full extent of the left arm and seize it with the right hand in line with the shoulder.

Two. Turn the trigger guard to the front seizing the rifle with the left hand at point of balance.

Three. Give the butt a sharp cant to the rear, place the breech under the left arm-pit, knob of bolt to the rear, muzzle inclined slightly to the right and downwards, at the same time cut the right hand to the side.

25.—The Slope from the Secure.

Slope—Arms.—One. Bring the rifle to a perpendicular position opposite the left shoulder, at the same time meeting it at the small of the butt with the right hand.

Two. Carry the rifle on to the left shoulder, and grasp it with the left hand as at the Slope.

Three. Cut the right hand to the side.

26.—The Change when at the Trail.

Change—Arms.—One. Bring the rifle to a perpendicular position in front of the right shoulder, trigger guard to the front, upper arm close to the side, forearm horizontal, hand in line with the waist belt.

Two. Pass the rifle across the front of the body, catching it with the left hand at the point of balance, at the same time cutting the right hand smartly to the side. In this position the rifle is to be held perpendicular and opposite the left shoulder, trigger guard to the front, upper part of the left arm close to the side, left forearm horizontal, hand in line with the waist belt.

Three. Lower the rifle to the full extent of the left arm as at the *Trail*.

*27.—To Secure Arms from the Trail.**

Secure—Arms.

Keeping the grip of the right hand at the point of balance, bring the breech up under the arm-pit by bending the arm, the muzzle of the rifle slanting slightly to the right and downwards.

*28.—Trail Arms from the Secure.**

Trail—Arms. Lower the rifle to the full extent of the right arm at the *Trail*.

Note.—The rifle may be brought to the *Trail* from the *Secure* under either arm.

29.—Change Arms from Secure under right arm.

Change—Arms.—One.

As in "*One*" Change arms from *Trail*.

Two.

As in "*Two*" Change Arms from *Trail*.

By bending the left arm, bring the breech under the left arm-pit, muzzle slanting slightly to the left and downwards.

Note.—Arms may be changed in a similar manner from the left side.

30.—Slinging Arms.

The sling of the rifle having been loosened to the full extent, the soldier will pass the head and right arm between the sling and rifle, muzzle upwards, rifle hanging diagonally across the back.

*Rifle Regiments only.

31.—*Grounding and Taking up Arms.*

On the command **Ground Arms**, the rifle will be placed gently on the ground at the right side, trigger guard to the right. The right hand will be in line with the toe as the rifle is placed on the ground, then return smartly to attention.

On the command **Take up Arms**, the men will take up arms and come to the Order.

32.—*Piling and Unpiling Arms.*

The squad in two ranks will be taught to pile arms as follows:—

Pile—Arms.—One. The rear rank will take a pace forward and turn the barrels of their rifles towards the front rank. The front rank will turn about and place the butts of their rifles between their feet.

Two. The odd numbers of the front rank will incline their muzzles towards those of the even numbers, barrels downwards, slipping the right hand to the upper band, the odd numbers will then seize the rifles of the even numbers with the left hand in the same manner and hold up the piling swivels of both rifles with the fore-fingers and thumbs, crossing the muzzles by the right to bring the swivels together. The even numbers will drop the right hand to the side.

Three. The even numbers of the rear rank, holding their rifle sling upwards at the lower band, will incline the muzzles forward, and with the left hand will link swivels through the crossed muzzles of the front rank raising their butts as high as necessary to do so. The odd numbers

of the front rank will now turn the barrels of their rifles towards the even numbers of the rear rank, who will then place the heel of their butt six inches to the right of the toe of the right foot so as to make the pile secure.

Four. The odd numbers of the rear rank will lodge their rifles against the pile, and will then drop their hands to the side.

Stand—Clear. Ranks will step back one pace and turn to the right flank.

Stand—To. Ranks will turn inwards and take a pace forward.

Unpile—Arms.—One. The whole will seize their rifles at the lower band.

Two. Swivels will be unlinked by raising and inclining the butts inwards, and rifles brought to the **Order**.

Three. The front rank will turn about, and the rear rank will step back a pace.

The recruit will be taught this exercise in quick time.

In piling arms on parade, the word **Fall-Out** will be given after **Stand-Clear**. On again falling in, the men will place themselves as they stood before falling out.

33.—*Funeral Exercises.*

Slope—Arms. As usual.

**Present—
Arms.**

As usual.

**Reverse—
Arms.—
One.**

Bring the right foot smartly up to the left, throw the rifle out to the front to the full extent of the left arm, and give the butt a cant with the right hand towards the body, bring it inside the left arm and turning the muzzle straight over to the front, grasp the rifle with the right hand under the lower band, barrel to the front, muzzle pointing downwards, guard as high as the chin, and seize the small with the left hand without moving the rifle, arms close to the body.

Two.

Give the rifle a cant under the left arm, bringing the muzzle to the rear, sling uppermost, and seize the rifle with the right hand behind the body.

On command **Quick-March**, the rifle is brought from the Reverse to the Trail at the left side, butt leading, sling uppermost.

**Quick—
March.—One.** Quit the rifle with the left hand, and seize it again with the left hand at the point of balance.

Two.

Quit the rifle with the right hand, and bring it to the Trail, butt to the front, sling uppermost.

**Change—
Arms.—One.**

Bending the arm from the elbow, bring the rifle to a perpendicular position in front of the left shoulder.

Two.

Throw the rifle across the body to the right side, and seize it with the right hand, as at present held with the left.

Three.

Bring the rifle to the trail, sling uppermost.

When approaching the church-yard, on the command—**Slow-March**—the rifle is brought to the Reverse from the Trail at the left side.

Slow—March.

Give the rifle a cant underneath the left arm-pit with the left hand, and seize it at Reverse.

**Rest on your
Arms.—
Reversed.**

Quitting the rifle with the right hand, bring it with the left to a perpendicular position and lower it until the muzzle rests upon the toes of the left foot; then extend the right arm to the right to the full extent, hand open, back of the hand uppermost, bring the right hand slowly on the butt, make a pause of slow time, then turn the head and eyes to the right and bring the elbow close to the side. Turn the head and eyes to the left and repeat above motions with the left hand, then turn the head and eyes to the front, and lower the head on the breast.

Attention.

Raise the head.

**Reverse—
Arms.**

Seize the rifle with the left hand at the small, bring the rifle under the left arm, at the same time seizing it with the right hand behind the body.

**Rest on your
Arms.—
Reversed.**

As above.

**Present—
Arms.—One.**

Raise the rifle with the right hand about six inches, at the same time seizing it with the left hand immediately in front of the trigger guard back of the hand towards the body.

Two. Seize the small of the butt with the right hand, back of the hand to the front.

Three. Lower the butt towards the body and come to the Present.

Note.—For complete *Funeral Exercise* see "Ceremonial."

34.—*Guards. Sentries.*

Guards, including reliefs, rounds and patrols, will march with sloped arms and bayonets fixed, (those belonging to Rifle Regiments with *Trailed Arms*). In wet weather, arms will be carried at the *Secure*. Bayonets will not be fixed when arms are carried at the *Secure or Trail*.

Sentries are to walk with their arms at the *Slope*, except those of Rifle Regiments, who will carry their arms at the *Trail*.

Further instructions concerning guards and sentries are given in "Ceremonial."

35.—*Paying Compliments with Arms.*

When a soldier, other than a rifleman, carrying a rifle, passes or addresses an officer he will do so at the *Slope*, and will salute by carrying the right hand smartly to the small of the butt, forearm horizontal, back of the hand to the front, fingers extended, saluting at the same number of paces before reaching the officer, and cutting the hand away, as directed when saluting without arms, "Infantry Training," S. 21, Note 3. A rifleman when passing an officer will do so at the *Shoulder*; when addressing an officer he will do so at the *Order*. In passing an officer the soldier will always turn his head towards him in the same manner as when unarmed.

MUSKETRY EXERCISES.

The foundation of rifle shooting is skill at short ranges, to obtain which the man must in addition to possessing a knowledge of his rifle, be accurate in aiming, and have overcome the difficulties of pressing the trigger without disturbing the aim; due regard must also be paid to proficiency in handling the rifle in the various firing positions.

AIMING INSTRUCTION.

36.—*Stages of Instruction.*

Aiming will be taught as follows:—

Object of Sights. Sec. 21, M.R. Part I, 1909 (reprint 1912).

Adjustment of Sights; for elevation.

Proper use of the sights in aiming.

Aiming with accuracy from a rest.

Desmonstration of results of inaccuracy of aim.

Aim combined with trigger pressure.

Use of windgauge; section 30; M.R. Part I, 1909, (reprint 1912).

Aiming off for movement. Sec. 44, M.R. Part I, 1909, (reprint 1912).

Aiming at figures and ground from a rest.

Setting of windgauge and fine adjustment as ordered.

Judging deflection allowance for wind and movement.

Aiming up and down.

Rapid adjustment of sights.

Aiming and snapping without rests; Target-Index—Practice Rods to be employed.

Fire discipline exercise.

Although the above headings are given with a view to progressive steps, it is immaterial whether the instruction is given in this order, but further training should be deferred until the eye is shown to be accurate in aiming. Particular attention must be given to trigger pressure; and declaring the point of aim on discharge. This instruction may be conveniently given indoors in which Sub-Target-Guns and Target-Index-Practice Rods should be employed.

Aiming and firing instruction should be carried out simultaneously, together with such explanations of elementary theory as will ensure the instruction being intelligently understood, short lectures and questions being included during periods of rest.

37.—Adjustment of Sights.

Screw Elevating Sight.—To adjust in yards, turn the screw until the top of the slide is brought even with the line opposite the required distance.

For Minutes of elevation.—Turn the rifle until the scale on the right side of the sight can be seen, move the elevating screw until the index line on the slide is opposite the elevation required.

Mark I Sutherland Sight.—Release the clamp screw; to adjust in yards, move the slide forward until the top is even with the line giving the required elevation, engage the clamp.

To use the Vernier scale.—Each mark on the leaf is equal to ten minutes of elevation and, used in conjunction with those on the slide, minutes of angle are obtained. Move the slide until the zero mark is even with the required line on the leaf, engage the clamp.

Example.—If sixty-three minutes of elevation is required move the zero mark even with sixty, then with the sight clamped, turn the screw until the third line on the slide above the zero line is brought up to the next line on the leaf.

Mark II Sutherland Sight.—To adjust in yards, release the clutch and move the slide until the index mark is even with the line giving the required elevation.

Note.—On the right of the opening in the slide there are two index marks, the upper one to give elevation when using the 'U' sight, the lower mark when using the peep. To adjust in minutes, move the slide until the zero line is even with the elevation required. As the lines on the leaf are equal to five minutes of elevation fine adjustment may be obtained as follows:

Example.—If 67 minutes are required—move the slide until 65 minutes are obtained, then turn the screw until the second line above the zero on the slide is brought up to the next line on the leaf.

.22 Cadet rifle each mark on the left side of the sight is equal to twenty-five yards; to adjust the sight, turn the screw until the elevation required is even with the top of the sight chamber.

38.—*Accuracy in Aiming.*

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

2. The aiming mark in the earlier stages will be a target placed at a convenient distance so as to be easily seen, but when the habit of accuracy has been acquired service targets should be used and care will be taken that there is no falling off in accuracy owing to the shape and comparative invisibility of these targets.

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

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

- i. The backsight must be kept upright.
- ii. The left or right eye, according to the shoulder from which the man shoots, must be closed.
- iii. Aim must be taken by aligning the sights on the centre of the lowest part of the mark, the top of the foresight being in the centre of, and in line with, the shoulders of the 'U' or 'V' of the backsight.
- iv. When using the aperture sight, the eye should be close to the aperture (about one inch), the top of the foresight brought in line with the centre of the lowest part of the mark.

Note.—It should be explained to recruits, that, the nearer he eye is to the aperture the greater will be the field of view.

4. When these principles have been mastered, the instructor will loosen the sling, adjust the sights for any given range, and aim from the rest at the target, taking care that uniformity is observed in the distance of the eye from the backsight. It will be convenient to use sand bag aiming rests to steady the recruits during this practice. Having aimed, he will call on each individual to observe the correct method of aligning the sights on the mark. Each recruit will then act similarly when the instructor will verify the aim, point out errors, and explain how they would have affected the accuracy of the shot, and how they are to be avoided. He should occasionally call on a man to point out any errors which may have been made by his comrades.

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

39.—*Common faults in Aiming.*

The most common faults in aiming with open sights are:—

- i. Taking too much or too little foresight into the 'U' or 'V' of the backsight.

It should be explained that a fine or half sight will cause the bullet to strike with Mark VI. ammunition about 5 inches and 3 inches lower respectively, and, with Mark VII., 7 inches and 4 inches lower respectively per 100 yards of range, than when the correct sight is taken.

The following method will be found useful to guide a recruit in taking the correct amount of foresight:—Lay the edge of a piece of paper on the upper edge of the backsight cap.* A piece of cardboard laid on the cap and held in place by an elastic band will answer the same purpose.

*See diagram (M.R. page 86.)

- ii. Inaccurate centering of the foresight in the notch of the backsight.

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

- iii. Fixing the eyes on the foresight, and not on the object.

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

- iv. Inclining the backsight to one side.

In this case the bullet will strike low, and to the side on which the sights are inclined. The resulting error will be considerable at long ranges.

40.—*Triangle of error.*

I. To test proficiency in aiming and to demonstrate the errors which will arise from inaccuracy, the following method of recording a "triangle of error" will be employed.

The rifle will be placed on an aiming rest, and directed at a sheet of blank white paper, affixed to any convenient object at a distance of about 10 yards from the rifle; a second aiming rest should be used to steady the recruit in aiming. A marker will stand at one side of the target with a small rod bearing an aiming disc of metal or cardboard, painted white, about $1\frac{1}{2}$ inches in diameter; on this is a black bull's-eye, $\frac{1}{2}$ -inch in diameter, in the

centre of which is pierced a hole just large enough to admit the point of a pencil. The disc will be held on the paper, the instructor will align the sights on it, as laid down in section 38 Para. iii, and its position will be marked with a pencil.

Each man in succession will be called up and ordered to look along the sights, but without touching the rifle, and when he has satisfied himself as to the correctness of the aim, the disc will be removed. It will then be replaced on the paper and moved at his direction until the lower edge of the bull's-eye is brought into the line of sight, when its position will be marked. The operation will be repeated three times, and the points thus fixed will be joined in such a way as to form a triangle. The position of the points in relation to the instructor's aim* will expose any constant error in aiming. Their position in regard to one another will show any inconsistency.

2. If the triangle is formed so that its greatest side lies vertically on the paper, it proves that the soldier's principal fault is inconsistency in respect of the amount of foresight taken up into the line of sight; if horizontally, that his principal error is inaccurate centering of the foresight.

When any one of the sides of the triangle exceeds one-third of an inch, or if the centre of the triangle is more than one-third of an inch from the instructor's aim, the recruit will be noted for further instruction.***

*If the recruit's aim is below that of the instructor, it shows that he has taken too full a sight; if above, that his sighting has been too fine; if to the right that the foresight was on the left of a perpendicular drawn through the centre of the notch; if to the left, vice versa.

**See diagram page 89 M.R.

41.—*Aiming off for Wind.*

1. The use of the windgauge will be explained, but it is not to be regarded as the normal means of making allowance for wind under service conditions. The instructor, having explained that a variation of one division on the windgauge scale is equivalent to 5 inches on the target per 100 yards of range, will tell the soldier how many feet of deflection allowance would be required for the wind which is blowing, and then direct him to set his sights for the range, adjust the windgauge, and aim from an aiming rest.

2. To adjust the windgauge (screw elevating sight). Turn the screw until the centre line is even with the mark on the scale required. Each mark on the scale is equal to five minutes; to obtain less, use the scale on the plate in conjunction with the scale on the sight as a vernier.

Mark I. and Mark II. Sutherland sight.—Each click of the windgauge screw is equal to one minute of deflection.

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

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

5. The recruit should be accustomed to make deflection allowance with reference to the breadth of the target, the full length figure target being rather less than 2 feet wide. Such

practices should be limited to 600 yards, but in addition there must be practice in aiming off at all ranges according to orders, the allowance being indicated if possible by reference to the breadth of the target, or intervals in a formation, or by selection of an auxiliary aiming point. If this is not possible, it must be expressed in feet or yards.

6. In such exercises it is necessary to employ a fatigue man at the target to indicate the correct point of aim with a marking disc after each aim taken by the recruit. The amount of allowance made will be observed by the instructor from the aiming rest.

42.—*Aiming off for movement.*

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

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

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

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

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

5. In aiming at an object moving directly or obliquely towards or away from the firer, allowance for elevation must usually be made by aiming lower or higher.

43.—Aiming at the ground, and marking down an enemy.

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

44.—Aiming up and down.

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

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

45.—Rapid adjustment of sights.

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

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

3. When there is time, the sights will be adjusted for every alteration in the range, and aim will be taken at the lowest part of the mark, but, frequent small changes of sighting lead, as a rule, to loss of fire effect, and may be avoided by aiming up or down. (Section 44.)

FIRING INSTRUCTIONS.

46.—Instructors.

1. Instructors will teach by force of example rather than by word of mouth, and be careful to refrain from any form of comment which may discourage young soldiers. Words of command are seldom required except in collective firing instruction, all motions of firing being performed independently, and each man being required to use his own judgment as much as possible. Faults must not, however, be overlooked or allowed to become formed habits; the essential points of the firing positions are to be insisted upon from the beginning, as the foundation of fire discipline.

2. In the early part of training, squads will not as a rule, consist of more than seven men, who will be assembled around the instructor in a semi-circle. The instructor will explain the

uses of the different firing positions and illustrate them to the squad. Recruits will practise the motions separately until able to combine them, and assume each position rapidly and without constraint.

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

4. The instructor should stand about 5 paces from the recruit and to his right front while correcting his faults.

47.—*Firing rest.**

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

48.—*Trigger pressing.*

1. Before he is permitted to practice snapping, the recruit will be given several lessons in the correct method of pressing the trigger. The rifle will be rested on sand bags or in an aiming rest, and the recruit will be seated with his elbows rested on a table or other support. The instructor will first take steps to ensure that the recruit can move his trigger finger independently of the remainder of the hand and arm.

*For description of rest see Part II, Musketry Regulations.

2. The instructor will explain, for the Long Ross Mark II. and Mark III. (i) that, as the trigger has a double pull-off, two distinct pressures are necessary to fire the rifle (the strength of the first pull is 3 to 4 lbs.; that of the second, 5 to 6 lbs.). The first pull should be taken when the rifle has been brought into the position for aiming; the second, when the sights are aligned on the mark. (N.B.—The Short Ross and Cadet Rifles have single pull-off). (ii) That the direction of the pull-off is diagonally across the small of the butt. (iii) That the first joint of the forefinger should be placed around the trigger; and (iv) that in order not to disturb the aim breathing must be restrained when pressing the trigger.

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

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

5. From time to time the instructor will test the aim and steadiness of each recruit with an aim corrector, and, if necessary, further lessons in trigger pressing will be given. Practice with the sub-target rifle machine, target index practice rod, or with miniature cartridge may advantageously be given, to develop steadiness until range practice is begun.

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

7. Daily practice in snapping is required by trained soldiers as well as recruits. Progress should be tested by grouping practice on the 30 yards', the miniature cartridge range, or with a sub-target rifle machine.

49.—*Firing Standing.*

1. The standing position will as a rule be used on service to fire from breastworks, high walls, and cover, such as long grass or standing corn, or to take a snap shot, when advancing, so that the pace of the advance is not materially checked.

2. It is a convenient position for elementary instruction, but when recruits have acquired facility in handling the rifle, they will be practised for the most part in the prone position in the open, and occasionally in the kneeling position, or lying behind cover.

3. *To Load.*—Turn half right and carry the left foot to the left and slightly forward so that the body is equally balanced on both feet. Bring the rifle to the right side just above the hip (above the pouch, if worn), with the muzzle pointing upwards, small of the butt just in front of the hip, grasping the stock with the left hand at the point of balance, disengage the safety catch. Seize the bolt with the right hand and draw it back to its full extent; place a cartridge in front of the bolt (Mark III, beneath retainer springs), force the bolt sharply home, engage the safety catch, seize the rifle with the right hand in front of the left, bring the left foot back to the right and return to the Order.

To engage the safety catch.

Long Rifle.—Turn the safety catch over to the front as far as it will go.

Short Rifle.—Force the safety catch to the left

Ross .22.—Force the safety catch to the right.

To disengage the safety catch.

Reverse the above operation in all cases.

To engage the cut-off.

Mark III.—With the right thumb, turn the cut-off down as far as it will go.

Short Rifle.—With the right thumb, press the cut-off down and forward.

To disengage the cut-off.

Reverse the above operation.

Points to emphasise in the loading position—standing.

- i. Body erect and well balanced.
- ii. Left elbow close to the body.
- iii. Firm grip with left hand at point of balance.
- iv. Muzzle pointing upwards.

- v. Butt well forward.
- vi. Fingers clear of the trigger.
- vii. Eyes on the mark.

4. *To Unload (whether magazine is charged or otherwise).*—Come to the loading position, disengage the cut-off, move the bolt quickly backward and forward until the magazine and chamber are empty, press the trigger, engage the safety catch, lower the backsight, if raised, and Order Arms.

To Unload the .22 Cadet Rifle when cocked.—Press back the locking lever just in front of the trigger guard, close the breech, press the trigger, engage the safety catch, and Order Arms.

5. *To charge the magazine.*—Bring the rifle to the loading position, disengage the cut-off, disengage the safety catch, open the breech, press down the lifter fingerpiece, pour five cartridges into the magazine, move lifter fingerpiece until they drop into position, (Mark III, force each cartridge well into the magazine under the retainer springs), close the breech, engage the safety catch.

6. *With a charger.*—Come to the loading position, raise the cut-off, disengage the safety catch, draw back the bolt to the full extent, place a charger in the guides, then place the thumb of the right hand on the top cartridge with fingers extended down the right side of the rifle, the first joint gripping the magazine, and with a continuous pressure of the thumb force all the cartridges into the magazine, force the bolt sharply home, engage the safety catch.

7. *To adjust the backsight.*—(Screw Elevating sight.)—Hold the rifle in such a position so that the sight can be easily seen and with the forefinger and thumb of the right hand turn the

screw until the top of the slide is even with the line opposite the elevation required.

8. *Other Sights.*—Move the slide with the forefinger and thumb of the right hand until the necessary elevation has been obtained.

9. *To aim and fire.*—Load, and direct the eyes on the mark. Then bring the rifle into the hollow of the right shoulder, press it in with the left hand, grasp the small firmly with the thumb and three fingers of the right hand, place the forefinger around the lower part of the trigger. (Long Ross Rifle, exert sufficient pressure to take the first pull); the backsight to be upright, left elbow well under the rifle, right elbow a little lower than, and well to the front of, the right shoulder; as the rifle touches the shoulder bring the cheek down on the butt, keeping the face well back from the right hand and cocking-piece, close the left eye, align the sights on the mark, restrain the breathing, and press the trigger. After a pause bring the rifle to the loading position and repeat the practice, or apply the safety catch and Order Arms.

- 10. Points to emphasise when firing-standing.
 - 1. Body well balanced.
 - 2. Left elbow well under the rifle.
 - 3. Good bed for the butt.
 - 4. Firm grip with both hands.
 - 5. Eye well back from cocking-piece.
 - 6. Sights perfectly upright.

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

11. During this exercise the instructor will explain to the recruits that uniformly accurate shooting cannot be obtained unless the butt rests firmly in the hollow of the shoulder, and that the eye must be in a proper position so that the sights may be clearly defined, and that the less strained the position of the head and neck, the less the effect of recoil.

12. The firer should always declare the direction of his aim at the moment of discharge before removing the rifle from the shoulder.

50. *Firing prone.*

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

2. i. *To lie down.*—Turn half right, bring the rifle to the right side as when standing. Place the right hand on the ground and lie down on the stomach obliquely to the line of fire, with the legs separated, left shoulder well forward, left arm extended to the front, and rifle resting on the ground in a convenient position, muzzle pointing to the front.

ii. *To load.*—As when standing.

iii. *To Unload.*—As when standing.

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

v. *To aim and fire.*—Proceed as when standing.

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

4. *Points to emphasise in the Prone Position.*

1. Body oblique to line of fire.

2. Legs separated.

3. Heels on the ground.

4. Good bed for butt.

5. Firm grip with both hands.

6. Eye well back from cocking-piece.

7. Sights perfectly upright.

8. Elbows closed slightly inwards.

51.—*Firing in other positions.*

The recruit will also be instructed to fire:—

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

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

The soldier may kneel on either or on both knees. In the former case the body may be supported on the heel or not, as desired; the left knee will be in advance of the left heel, and the left elbow rest on or over the left knee; the left leg, hand, and arm, and the right shoulder, should be in the same vertical plane.

Points to emphasise when firing-kneeling.

1. No undue exposure.
2. Body well balanced.
3. Left elbow well under rifle.
4. Good bed for butt.
5. Firm grip with both hands.
6. Eye well back from cocking-piece.
7. Sights upright.

Note.—During target practice, whether on the miniature or service range, instructors will be held responsible that all precautions are taken to avoid accidents. Rifles and pouches should be inspected before the men leave the firing point, and all unexpended ammunition collected.

For Instruction in Theory, Uses of Fire, Etc., see M.R. 1909 (reprint 1912.)

