

# NOTES FOR INSTRUCTION IN ANTI-GAS MEASURES.

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The whole object of instruction in anti-gas measures at home is to make every man acquainted with the conditions under which he will have to meet gas and protect himself, and to make him proficient in the use of his protective appliances.

The main causes of casualties in a gas attack are :—

- (1) The use of faulty helmets or respirators, resulting from bad inspection.
- (2) Delay in putting on helmet or respirator, resulting from insufficient training.
- (3) Inability of men to carry on their ordinary duties when wearing a helmet or respirator, resulting from insufficient practice.
- (4) Taking off helmets or respirators before the gas is sufficiently cleared, resulting from want of caution.

Drills are indicated in the following paragraphs, which, if carried out intelligently, will cut down casualties to a minimum.

It must be remembered that troops at the front are now supplied with a small box respirator and helmet. The helmet will be a reserve, to be adjusted very quickly, if the box respirator is hit or becomes defective during a gas attack.

## INTRODUCTORY.

Before any drill is carried out with anti-gas appliances, explanations will be given to all ranks of the method by which a gas attack is made, the conditions during the attack, and the necessary protective measures to be taken.

### I.—HELMET DRILL.

#### (1) INSPECTION OF HELMETS.

*Danger in a helmet arises chiefly from there being a hole, tear, crevice or channel through which air and gas can pass more easily than through the pores of the fabric.*

The helmet will be withdrawn from the container with the right hand, unfolded, and drawn over the left arm with the left hand inside it.

Inspect as follows :—

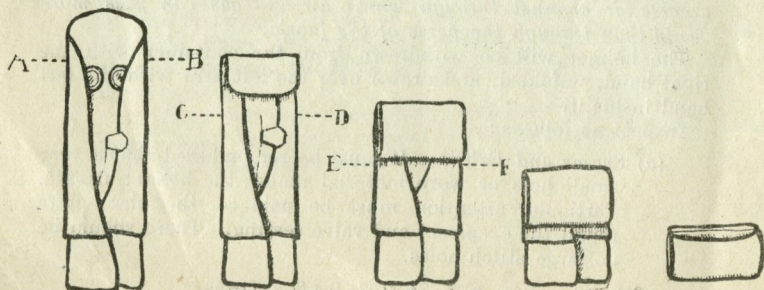
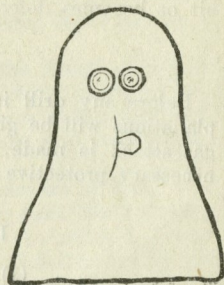
- (a) *Seams and Fabric.*—It must be remembered that a very small hole or worn material makes the helmet unsafe. Particular attention must be paid to the flannelette round the eyepieces and valve seating. There should be no large stitch holes.

- (b) *Eyepieces.*—These should be screwed up, tightly from the inside and should grip the flannelette all round the flange. Screw threads must not be crossed. The glasses must not be cracked or loose.
- (c) *Mouthpieces.*—These should be horizontal and the passage clear. The screw joining the mouthpiece to the valve should be screwed tight and should grip the flannelette all round.
- (d) *Valves.*—The secure attachment of the rubber valve to the metal tube should be tested by a moderate pull. Each man should test the valve of his helmet by breathing through it, holding the metal of the mouthpiece tightly between the lips. The valve should close when he tries to breathe in. In the event of the rubber becoming hard during the cold weather, it may be softened by breathing out through the valve for a minute at each inspection.
- (e) *Wetness.*—If the helmet, tested by breathing in it when completely adjusted without using the mouthpiece, flaps in and out markedly, it is too wet to allow the free passage of air and should be reported.

## (2) FOLDING OF HELMETS.

Every man must realise that on the correct folding of the helmet depends the efficiency of the valve and the quickness with which the helmet can be adjusted. A gaping valve would let in gas. The stages in the folding of helmets are shown in the following diagram :—

FIG. 1.





1. Place the top of helmet under chin with the eyepieces facing outwards. Arrange the valve horizontally, rubber to the left.

2. Fold forward the left side under the rubber valve; fold forward the right side.

3. Fold down top of helmet over the eyepiece along line AB.

4. Fold down again over valve along line CD.

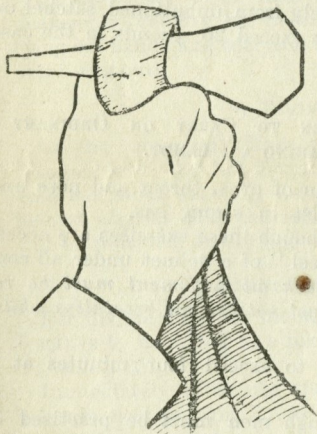
5. Fold down again along line EF.

6. Complete the folding. *The helmet should be folded flat, not rolled up.*

7. Replace in waterproof container with flap (shown in Fig. 1) upwards and outwards ready to be seized with the right hand.

### (3) PRELIMINARY BREATHING EXERCISES.

FIG. 2.



Grasp the front edge of the helmet skirt with both hands and roll up the fabric so that the breathing tube and valve are both exposed. The roll of fabric serves as a handle. (See Fig. 2.)

Practise breathing in and out through the mouth. No special attention need be paid to nose breathing.

Grasp the end of the mouthpiece firmly but lightly between the teeth. To breathe in, draw back the lips as far as possible, keeping them at the same time wide apart, and inhale. To breathe out, close the lips round the mouthpiece and blow out through the tube.

### (4) ADJUSTMENT OF HELMETS.

These drills will be carried out in single rank, and after the earlier stages, in full marching order without rifles, with and without greatcoats, and by night as well as by day.

(a) On the command "Gas," the breath will be held and the helmet will be snatched out of the container, which is held in the left hand, by seizing the flap at the back with the thumb and fingers of the right hand. It will be drawn over the head by both hands and gripped with the left hand tightly round the neck beneath the chin. During the earlier stages each man as he completes this motion will take one pace forward and the instructor will examine men to see that their grip is tight enough to prevent the entry of gas.



This is the "Position of Safety," and men may now breathe. Men will be timed against each other and against a watch until they can obtain it in at most six seconds from the unbuttoned satchel.

(b) On the command "Complete Adjustment," the left hand continues to grip the helmet under the chin, and the right hand will be used for tucking in the skirt of the helmet on the right side from front to back. Then the right hand will grip the helmet under the chin, and when the grip is secure the left hand is released to tuck in the left side from back to front. Special care should be taken to push the skirt of the helmet right down at the back of the neck. The mouthpiece will be placed in the mouth by the left hand, and the front skirt of the helmet pushed down inside the tunic, the tunic buttoned and the collar turned up. Men may then turn and examine one another's adjustment.

*Secure tucking in of the helmet skirt under the tunic should on no account be sacrificed to speed.*

Time to adjust helmet completely from unbuttoned satchel on the command "Gas" should not exceed 20 seconds in the case of a fully-trained man.

#### (5) DRILLS TO ACCUSTOM MEN TO CARRY ON ORDINARY DUTIES WHEN WEARING A HELMET.

Men will be warned of irritation of eyes, throat and nose and stuffy feeling inside helmet whilst in strong gas.

It must be remembered that although these exercises are necessary to accustom men to the "feel" of a helmet under all conditions, yet *in an actual gas attack all movement must be reduced to a minimum and men must not become breathless whilst wearing a helmet.*

(a) *Marching.*—Doubling (not to exceed four minutes at a time).

(b) *Bayonet Exercises.*—Although men must be practised in the use of the bayonet, they should not carry out the final assault in helmets.

(c) *Musketry: Preliminary.*—Men should be tested in rapid loading and aiming while wearing helmets. *Miniature range.* One practice should consist of a grouping test. Practice with the revolver whilst wearing gas helmets should be carried out. *General Musketry Course on open range.* (Part IV of General Musketry Course Practice in Gas Helmets.) The detail will occupy 300 yards' service trench, officer i/c firing point orders:—

- (1) "Detail. Gas alert."
- (2) "Fix Bayonets. Load."
- (3) "Prepare to advance."
- (4) "Advance." (Signal.)

On occupation of the 200 yards trench, officer i/c sounds gas alarm (gong or bell signal). Helmets will be



correctly adjusted in 20 seconds, when the targets will go up for 60 seconds, during which time 10 rounds are to be expended. Officer i/c will inspect adjustment of helmets after the firing ceases.

(5) "Take off helmets."

(d) *Specialists*.—Bombers, especially, must practise in gas helmets. Telephone operators must practise sending and receiving messages when wearing helmets. Lewis and machine-gun teams must practise rapid loading and aiming and clearing jams with helmets on. Artillery should practise gun laying and sighting and fuze-setting with helmets on. R.A.M.C. should practise stretcher drill with helmets on and, if possible, moving casualties into gas-proof dug-outs.

(e) *Passing Orders*.—Officers and N.C.Os. will be trained specially in giving orders when wearing helmets.

(f) *Casualties*.—One man in four will be a casualty and endeavour to remove his helmet, the other three restraining him, tying his hands and carrying him to a place of safety (i.e., a gas-proof dug-out).

(6) TAKING OFF HELMETS.

On the command "Take off Helmets," the throat grip will be resumed with the left hand, the top tunic buttons undone, and men will smell carefully for gas by raising the front skirt of the helmet slightly with the left hand. If no gas is smelt helmets will be removed slowly and cautiously.

(7) DISINFECTION OF MOUTHPIECES.

For disinfecting the mouthpiece a tablespoonful of cresol (or lysol) is to be added to a pint of water (making approximately a 2% solution).

Immediately after use the mouthpiece of the helmet should be immersed in this liquid for half a minute and afterwards shaken to remove excess.

(8) ALERT POSITION.

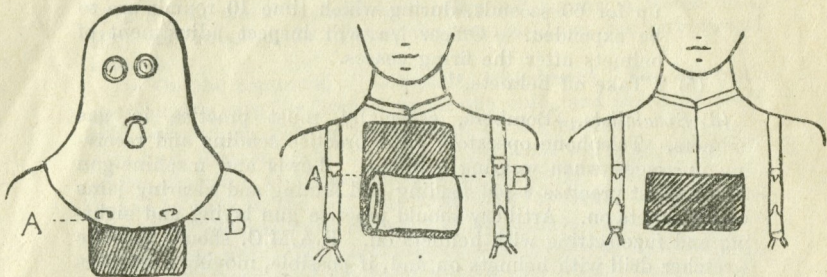
(a) Put the helmet on in the usual way. Apply the front edge of the helmet skirt to the opened container along the line AB (Fig. 3) Pin the front edge of the helmet and the opened container to the shirt with two safety pins in such a manner that the helmet may be readily pulled on and off the head without removing the pins, the container hanging loose below it.

(b) Leaving the safety pins in position, remove the helmet and fold it to the usual width, keeping the valve horizontal and flat. Now fold up the helmet and lay it against the container, cover with the container flap so that it lies in front of the helmet, and button up the tunic with the exception of the two top buttons.

(c) On the gas alarm sounding, open the tunic and lean forward so that the helmet falls, pull it over the head, and adjust in the



FIG. 3.



usual manner. The container hangs suspended by the pins and is ready for use if required.

#### (9) CHANGING HELMETS.

Unfold the fresh helmet, grasp the skirt with both hands, and bending the left leg draw the helmet over the knee, goggles turned inwards, until it lies supported on the upper leg. Separate the back and front layers of the fabric with the left thumb, grasping the upper layer of fabric with the fingers. Hold the breath and unbutton the two top buttons of the tunic. Grasp the top of the injured helmet with the right hand, snatch off and throw to one side. Immediately pass the thumb of the right hand into the new helmet alongside the thumb of the left hand already there, seizing the skirt with the fingers; pull the helmet over the head to "position of safety," and proceed as usual to final adjustment. It is advisable not to breathe until any gas shut in the helmet during the adjustment has been absorbed. Smooth the helmet close to the face with the right hand and commence breathing.

This exercise should be practised both by night and by day.

Drill to teach changing from the small box respirator to the tube helmets. (See Practice "H.")

#### (10) STANDARD TESTS OF TRAINING.

From "Gas Alarm" to "Position of Safety"—6 seconds.

From "Position of Safety" to "Complete Adjustment"—14 seconds.

Doubling in helmet—4 minutes.

Wearing helmet—1 hour continuously.

Pass through gas successfully.

Specialists will be tested in their special duties while wearing helmets.

A certificate will be entered in the pay book when a man has passed the above standard tests. The letters P.T.G. will be entered and the company commander will initial the entry.

#### II.—DRILLS WITH SMALL BOX RESPIRATORS.

Practice "A."—Adjustment of the box respirator in the "alert" position.

On the command "Gas Alert," hang the box respirator round the neck with the press buttons next the body. With the right hand seize the satchel by the leather tab, with the left hand seize the sling by the brass button and clip this into the leather tab. Undo the press buttons closing the satchel, tuck in the slack of the sling into the left-hand compartment, so that it lies under the mask.

The length of whiplcord will then be withdrawn from the right-hand compartment, passed through the ring on the right of the satchel, and carried round the waist to the ring on the left, where it is fastened. The press button closing the satchel will be left undone, but the flap will be put in position to keep the respirator from wet.

*Practice "B."*—Drill by numbers to obtain correct adjustment of the small box respirator.

NOTE.—This drill is to be carried out alternately with one "judging the time," *i.e.*, as quick adjustment as possible. It is the most important, and complete adjustment must be obtained by all ranks in *six seconds*.

Adjust the respirator in the alert position, with satchel covered but not buttoned.

1. On the command "One" press down both thumbs between the satchel and the body and open the satchel flap. Immediately seize the mask with the right hand, the metal breathing tube just outside the mask being in the palm of the hand and the thumb and first finger grasping the wire frame of the nose-clip.

2. On the command "Two" bring the mask smartly out of the satchel and hold it in both hands with all the fingers outside round the binding, and the two thumbs inside, pointing inwards and upwards under the elastic. At the same time *throw the chin well forward* ready to enter the mask opposite the nose-clip.

3. On the command "Three" bring the mask forward, digging the chin into it, and with the same motion bring the elastic bands back over the crown of the head to the full extent of the retaining tape, using the thumbs.

4. On the command "Four" seize the metal breathing tube outside the mask, thumb on the right, fingers on the left—all pointing towards the face. Push the rubber mouthpiece well into the mouth and pull it forward until the rim of the mouthpiece lies between the teeth and the lips and the two rubber grips are held by the teeth.

5. On the command "Five" adjust the nose-clip to the nose, using the thumb and first three fingers of the right hand. Come smartly to attention.

*Practice "C."*—Drill to teach cleaning of eyepieces.

On the command "Clean Eyepieces" the right eyepiece will be gripped between the thumb and first finger of the left hand. The first finger of the right hand will then be pushed gently into the flap of the mask behind the right eyepiece, which will be cleaned with a gentle circular motion.

The left eyepiece will be cleaned in a similar way.



*Practice "D."*—Drill to teach method of giving orders.

It is first explained to a squad that the nose-clip must not be removed to talk, and that before each sentence is spoken a long breath must be taken and the mouthpiece removed sideways from the mouth by turning the metal tube outside the mask to one side. After speaking, the mouthpiece is replaced.

The squad should then be numbered off, extended to four paces, and orders passed along the line.

Officers and N.C.Os. will receive care in Practice "D."

*Practice "E."*—Drill to teach method of clearing mask from gas which may have leaked in and is affecting the eyes.

Press the mask close to the face, forcing out foul air round the sides, and then fill again with air from the lungs by blowing out round the mouthpiece.

*Practice "F."*—Drill to teach method of testing whether trench or dug-out is free from gas.

With the right hand open the face piece away from the right cheek, then loosen the nose-clip on the nose and smell gently (do not take a breath). If gas is smelt, the nose-clip and mask are replaced. Then as in drill "E."

*Practice "G."*—Ordinary infantry drill will be carried out while wearing the mask. This will include doubling for at least 200 yards at a time. Marching order will be worn. Musketry and bombing instruction and training of specialists (including artillery, machine gunners, signallers, R.A.M.C.), will also be carried out.

*Practice "H."*—Drill to teach changing from the small box respirator to the tube helmet.

On the command "Change" hold the breath, knock off the steel helmet with the right hand, pull off the mask by inserting the fingers of the left hand under the mask at the chin, and then get on the tube helmet. When the chin grip is obtained commence breathing again.

Protection must be obtained in *ten seconds* or less.

NOTE.—(a) If after wearing for a long time the pressure of the nose-clip becomes unbearable, it may be relieved for a few moments by taking off the pressure without removing clip.

(b) *Removing Masks.*—It must be seen that when masks are removed this is done without strain on the facepiece or elastic. On the command "Take off Masks," insert the fingers of the left hand under the mask at the chin, bend the head forward. at the same time removing the mask with an *upward* motion of the left hand.

(c) After all drill the mouthpiece must be disinfected, the mask *wiped dry*, folded correctly, and put away in such a way that the rubber valve is not bent.