l owledge for War

EVERY OFFICER'S HANDBOOK FOR THE FRONT

BY

CAPTAIN B. C. LAKE
King's Own Scottish Borderers
Supervising Officer 7th (Res.) Inf. Bde. Y.O.T.C.

Based on the
WAR OFFICE SYLLABUS OF TRAINING

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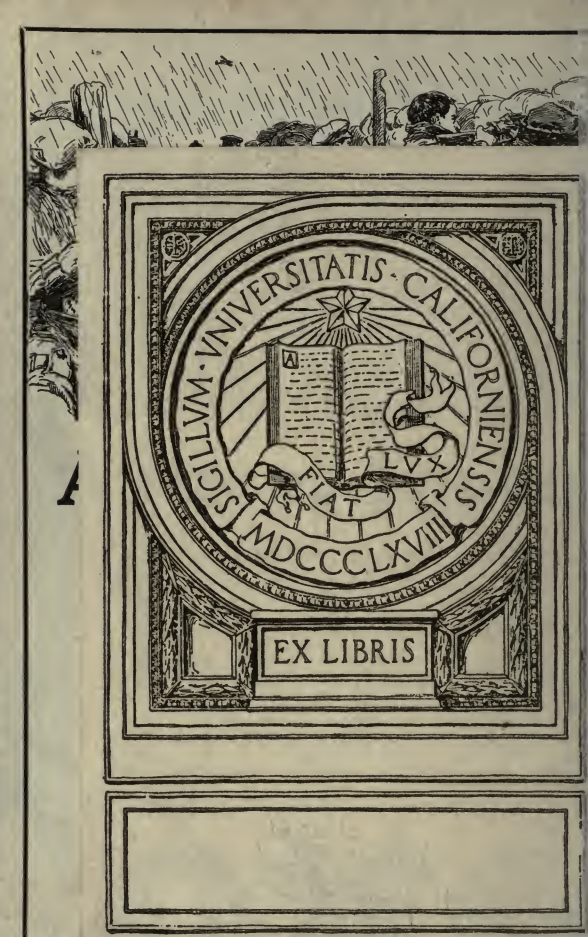

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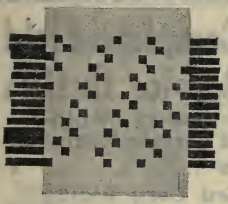

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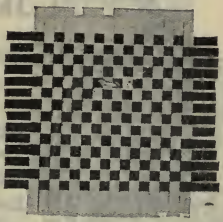

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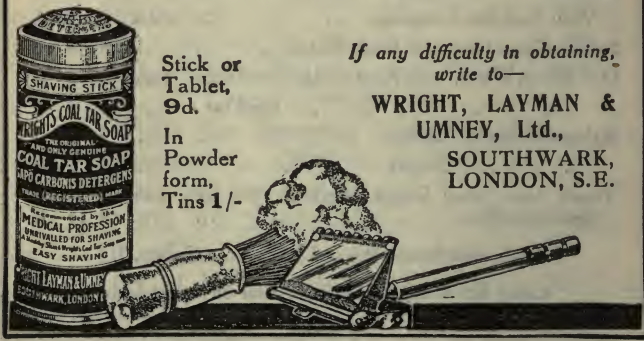

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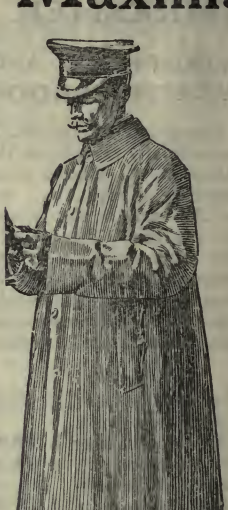

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[FOURTH EDITION]

1916

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Freedom.

"It is not to be thought of that the Flood
Of British freedom, which to the open Sea
Of the world's praise from dark antiquity
Hath flowed, 'with pomp of waters, unwithstood,'
Roused though it be full often to a mood
Which spurns the check of salutary bands,
That this most famous Stream in Bogs and Sands
Should perish; and to evil and to good
Be lost for ever. In our Halls is hung
Armoury of the invincible Knights of old:
We must be free or die, who speak the tongue
That Shakespeare spake; the faith and morals hold
Which Milton held.—In everything we are sprung
Of Earth's first blood, have titles manifold."

William Wordsworth, 1802.

Introduction.

I have been employed for some time past in the instruction and training of officers in what is known as a Young Officers' Company. During that time I felt the need of some small handbook covering the subjects expressly laid down in the War Office Syllabus for such training, upon which officers of the New Armies are examined and passed out before being considered fit for active service.

The Syllabus is necessarily long and, owing to the number of official books and to the length at which they deal with the selected subjects, most young officers find it difficult to cover the full course in the short time available. There is also a good deal in the Syllabus which cannot be found in the manuals.

In "Knowledge for War" references are given to the official manuals for everything in them touching the prescribed course. Since the manuals were written many new ideas and methods have been adopted, especially from the experience gained during the present war. These have been dealt with in pamphlets issued from time to time by the War Office. As few young officers have access to them, an attempt is made in the present volume to condense all that is necessary within convenient limits.

It must be clearly understood that "Knowledge for War" is in no way intended to replace the official text-books, but should be used in conjunction with them. A copy of the Syllabus, which has been closely adhered to, is printed in the beginning as a guide to the contents of the book.

For obvious reasons more than half the book is devoted to Trench Warfare. I feel that no apology is needed for devoting so much space to this important subject in all its aspects, even though it has meant the exclusion of chapters on open warfare.

The latest information on all subjects dealt with has been obtained and much of the first value has been given me by officers returning from the various fronts. Blank pages are interleaved for the use of those who may desire to add their own notes. I fully realize the shortcomings of the present edition, and should welcome suggestions from any competent source which might render any future edition more complete.

I have to acknowledge my indebtedness to the following officers for their valuable assistance :—

Major E. C. Norman, The Buffs; Major J. Burnett, D.S.O., Gordon Highlanders; Captain A. G. Paterson, K.O.S. Borderers; 2nd Lieut. R. G. Fonteyn, 16th Battn. Royal Fusiliers; 2nd Lieut. L. S. Beaufoy, 10th Battn. East Surrey Regt.; 2nd Lieut. K. Anns, 10th Battn. East Surrey Regt.; 2nd Lieut. M. R. K. Burge, 9th Battn. The Buffs; 2nd Lieut. A. W. Lloyd, 14th Battn. Royal Fusiliers.

I wish especially to thank 2nd Lieut. L. P. Figgis, 9th Battn. The Buffs, and 2nd Lieut. A. T. Eaves, 10th Battn. East Surrey Regt., for most of the illustrations in the book, as well as for their help with the chapters on Topography and Entrenchments; 2nd Lieut. E. H. Lownds for very much valuable assistance when the book was first begun; and, finally, 2nd Lieut. G. F. Jeanes, 9th Battn. The Buffs, without whose unremitting labours in the editing of the whole the book might never have been published.

B. C. L.

War Office Syllabus for the Training of Officers for the New Army.

LIST OF SUBJECTS WHICH A YOUNG OFFICER MUST KNOW OR HAVE SOME KNOWLEDGE OF BEFORE HE CAN BE SELECTED FOR SERVICE IN THE FIELD.

NOTE.—No officer is selected for active service unless he is physically fit and of an age to make it likely that he will be able to bear the strain of war.

If—*

" If you can keep your head when all about you
  Are losing theirs and blaming it on you ;
If you can trust yourself when all men doubt you,
  But make allowance for their doubting too ;
If you can wait and not be tired by waiting,
  Or being lied about, don't deal in lies,
Or being hated, don't give way to hating,
  And yet don't look too good, nor talk too wise :
If you can dream—and not make dreams your master
  If you can think—and not make thoughts your aim
If you can meet with Triumph and Disaster
  And treat those two impostors just the same ;
If you can bear to hear the truth you've spoken
  Twisted by knaves to make a trap for fools,
Or watch the things you gave your life to broken,
  And stoop and build 'em up with worn-out tools
If you can make one heap of all your winnings
  And risk it on one turn of pitch-and-toss,
And lose, and start again at your beginnings
  And never breathe a word about your loss ;
If you can force your heart and nerve and sinew
  To serve your turn long after they are gone,
And so hold on when there is nothing in you
  Except the Will which says to them : ' Hold on ! '
If you can talk with crowds and keep your virtue,
  Or walk with Kings—nor lose the common touch,
If neither foes nor loving friends can hurt you,
  If all men count with you, but none too much ;
If you can fill the unforgiving minute
  With sixty seconds' worth of distance run,
Yours is the Earth and everything that's in it,
  And—which is more—you'll be a Man, my son ! "

Rudyard Kipling.

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* Reprinted by kind permission of Mr. Rudyard Kipling.

Knowledge for War

Discipline.

Discipline forms the basis of soldiering, and without it an army is of very little use in the field. The Germans maintain discipline by fear alone. We, on the other hand, believe that a better standard can be obtained by kindness and firmness. The secret of success lies in every officer knowing the men he has to deal with.

Men must be treated justly and with absolute firmness ; never with familiarity.

An officer who puts his men's comfort before his own, and who sets a high standard of conduct by personal example, will have gone a long way towards gaining the respect of his men. Without this respect men will not show that confidence in an officer which will enable him to exact instant obedience to orders and to maintain the strictest discipline.

Drill.

Reference book, "Infantry Training," which should be read carefully and the details of every movement known.

Drill is important in producing discipline, cohesion and instant obedience to orders.

The objects of drill are twofold :—

(1) To be able to move men with the shortest delay in any given direction in any formation that is required.

(2) To accustom men to act at once on any given command.

Drill is the foundation of discipline.

Officers must be capable of instructing squads.

The standard to be aimed at is a good practical knowledge of squad drill, extended order drill and arm drill, and the ability to instruct and drill a squad, platoon and company.

Self-confidence and good words of command.

Every officer must have a good word of command, as good drill cannot be done without it. If an officer has a bad word of command, he should do communicating drill until it improves.

He must also have plenty of self-confidence. These two things are essentials, and should be fostered in every way.

Musketry.

THE SERVICE RIFLE.

Reference, Musketry Regulations, Part I, Chap. II.

THE MUSKETRY EXERCISES.

Reference, Musketry Regulations, Part I, Chap. IV.

THE CARE OF ARMS.

Reference, Musketry Regulations, Part I, Chap. II.

Care of rifle of vital importance.

A soldier whose rifle will not fire is practically useless, and he must, therefore, take as much care of his rifle as of himself. It is essential for an officer to teach his men how to do this, and to see that it is done properly.

A rifle will usually become unserviceable either through wear of the barrel, or through dirt in the action.

Wear of the barrel is caused by :—

Fair wear :—

(1) The heat of explosion.
(2) The friction of the bullet.
(3) Use of the gauze to remove fouling.

Unfair wear :—

(4) Undue use of the gauze.
(5) Improper use of the pull-through, causing cord-wear.
(6) Rust.
(7) Cuts, due to grit and dirt in the bore or on ammunition.

The *only* materials to be used for cleaning the rifle are :—

The pull-through.
Regulation flannelette (4 inches by 2 inches).
Russian petroleum.
Wire gauze (2½ inches by 1½ inches).
Boiling water.

Daily Cleaning.

EXTERIOR.—The whole to be wiped with a slightly oily rag, special attention being paid to the bayonet boss and standard, and to all recesses, *e.g.*, the V of the back-sight, the aperture sight and gas escapes.

INTERIOR.—Action to be slightly oiled, face of the bolt cleaned, barrel slightly oiled.

CLEANING BEFORE FIRING.—As above, but barrel to be pulled through and left dry; special care to be paid to the sights, gas escapes, all frictional parts and the magazine.

Fouling.

FOULING.—Three kinds of fouling of the barrel result from firing :—

(*a*) **Internal. Formation of rust removed by boiling water.**

Caused by harmful gases being driven into pores of the metal by the force of the explosion. It gives a peppered appearance to the barrel, and, if left, will cause rust. It can be removed by means of the gauze (oiled) or preferably by boiling water.

(*b*) **Superficial. Removed by pull-through and flannelette.**

Products of combustion deposited on the surface of the bore. This gives a dull, sooty appearance to the bore, and will cause rust.

It is easily removed, while still warm, by the use of the pull-through and "four by two."

(*c*) **Metallic. Rifle must be taken to armourer.**

Portions of the envelope of the bullet left on the bore. It appears as whitish streaks on the lands, and can be removed only by the armourer.

Whether the rifle has been fired or not, the use of boiling water is the best means of cleaning the barrel, and is carried out as follows :—

Remove all oil or artificial fouling with pull-through and "four by two."

Boiling water must not touch working parts or magazine.

Pour through, from breach to muzzle, from 5 to 6 pints of boiling water, **taking care that none enters the working parts or magazine.**

Drain and thoroughly dry with "four by two." When cool, oil the bore by means of pull-through and oily flannelette.

Important Rules for Preserving the Life and Service of the Rifle.

(1) **The barrel must not be left unoiled.**

(2) **The gauze used as little as possible, and never without first saturating it with oil.**

(3) Rifles must not be thrown or dropped about, nor must the butt be banged on the ground in arm drill.

(4) The magazine must be kept dry. Oil in the magazine causes dust and dirt to accumulate.

(5) **The rifle should be cleaned at least once a day, and in damp weather oftener.**

(6) When the bayonet boss becomes corroded just below the muzzle, this corrosion can be removed with a piece of hard wood.

(7) The pommel of the bayonet must be kept clear of dirt and grit.

(8) **The pull-through and oil bottle must be kept in the butt trap.**

(9) Special care must be taken to prevent dirt from getting in the barrel or working parts, or on the ammunition.

(10) **On no account must men be allowed to strip rifle bolts or exchange them. The strictest orders should be given to this effect.**

THE THEORY OF RIFLE FIRE.

Read carefully the whole of Musketry Regulations, Part I, Chap. III.

VISUAL TRAINING.

Reference, Musketry Regulations, Part I, Chap. V, Sects. 65 and 66.

THE INDICATION OF TARGETS.

Reference, Musketry Regulations, Part I, Chap. IV, Sect. 58.

Indicating targets.

A standard method must be adopted.

Knowledge of military terms necessary.

For this purpose, both leaders and men must have a good **military vocabulary,** or knowledge of the terms used in describing targets. Besides all general military terms this includes all ordinary shapes, colours or natural features in a landscape. This vocabulary may be conveniently divided into the following groups :—

(1) Topographical :—Valley, crest, spur, etc.
(2) Geometrical :—Round, square, conical, etc.
(3) Botanical :—Fir, poplar, bush, copse, stubble, plough, etc.
(4) Colours.
(5) Military :—Line, column, infantry, hangar, etc.

Methods of indicating targets.

(1) Direct method : when the target is conspicuous.

(2) Using a front and from that giving directions such as half-right, quarter-left, etc. Chiefly used in the attack.

Officers must train themselves to indicate targets as briefly as possible and in such a way that men will immediately recognise them.

(3) Giving description points, and, using in conjunction with them, the finger and clock method. Chiefly used in the defence.

The object to be attained is to get men to recognise the target in the shortest possible time. To this end, indications must be clear and concise, and all unnecessary words omitted. Often the indication must be given in portions, with pauses between, to enable men to pick out aach point mentioned.

The greater the number of men who recognise the target, the better the indication. **Descriptions must always be brief.**

THE JUDGING OF DISTANCE.

Reference, Musketry Regulations, Part I, Chap. V, Sects. 67-68.

Men should be trained in judging distance up to 800 yards, and leaders up to 1,400 yards.

Progressive system of training.

(1) Teaching familiar unit of measure, such as 100 yards. Men place themselves at what they consider 100 yards from some prominent object, and their distances are checked and corrected.

(2) Applying this unit to distinct objects, such as flags, at distances up to about 400 yards.

Size of men at known ranges.

(3) Comparing size of men in various positions, at known ranges up to 600 yards.

(4) Judging distance of men in various positions up to 800 yards, and comparing them with men stationed at known distances.

(5) Judging distance of natural features by calling up men in the vicinity, and correcting estimates.

(6) Judging distance of men and natural features, a time limit of 30 seconds being imposed.

Aids to judging distance and official tests will be found in Sects. 67 and 68, Chap. V, Part I, Musketry Regulations.

FIRE CONTROL.

Reference, Musketry Regulations, Part I, Chap. IV, Sects. 55-61.

The whole object of fire control is to obtain maximum effect with minimum expenditure of ammunition.

The normal **Fire Unit** is a **Section.** To make full use of fire it must be used :—

At the RIGHT time.
In the RIGHT volume.
At the RIGHT target.

Fire Unit commanders must be intelligent. They must :
UNDERSTAND quickly fire orders given by leader.
APPLY those orders to the situation.
USE their units at the right time and place.
CONSTANTLY OBSERVE the course of the fight.

The company or platoon commander gives general instructions only. He :—

Does not give details.
Decides time to open fire.
Decides whether to use distributed or concentrated fire.
Roughly indicates the target.
Regulates the supply of ammunition.

Fire unit commanders must give their fire orders as a COMMAND.

Men should be trained to act instinctively on the word of command.

FIRE COMMANDS should be given in the following order :—

1. Range.
2. Indication of target.
3. Number of rounds.
4. Kind of fire.

An easy way of remembering the order for instructions is by thinking of the word "**RINK.**"

Ammunition must be collected from casualties.

The Fire Unit commander must report when ammunition is running short. He must also see that no ammunition is wasted, and that ammunition is collected from the dead and wounded.

When to open fire.

(*a*) As late as possible.
(*b*) Rarely over 1,400 yards.

The kind of fire to employ.

Between 600 and 1,400 yards very carefully controlled collective fire.

At less than 600 yards only individual fire will be possible, as orders usually cannot be heard, and each man has his own individual target.

Ammunition must be harboured, especially in attack.

This is not so important in defence, as there is usually a reserve.

Long-range fire should only be used by efficient marksmen, or as covering fire.

Rapid fire should be used—

1. When urgently required to keep down enemy's fire, *e.g.*, from machine gun.
2. To cover retirement.
3. At an enemy retiring.
4. Against cavalry.
5. At a specially good target only appearing for a short time.
6. In the final preparation for an assault.
7. In surprise.

Fire discipline most essential.

Control of fire is so important that it should be constantly practised. No opportunity should be lost in checking bad fire discipline.

THE SUPPLY OF AMMUNITION IN THE FIELD.

The total number of rounds of ammunition **with field units** is 320 per rifle. This is carried as follows :—

On each soldier, 120 rounds.
Regimental Reserve, 100 rounds per rifle.
With Brigade Ammunition Column, 60 rounds.
With Divisional Ammunition Column, 40 rounds.

In addition to this, 50 rounds per rifle are carried with Ammunition Sub-Parks, and a further 50 with General Headquarters Parks. This does not take into account ammunition on the Lines of Communication. The total number of rounds per man, therefore, exclusive of the reserve on the Lines of Communication, is 420.

Before battle, each man to have 220 rounds.

Before going into battle each man's supply should be made up to 220 rounds. The Battalion Reserve (usually under the sergeant-major) when exhausted is replenished from the Brigade Reserve, which, in its turn, is replenished from the Brigade Ammunition Column, and so on.

All requisitions for ammunition must be made in writing.

There are two sorts of ammunition boxes : one containing 1,000 rounds, and the other 800 rounds.

This knowledge is most useful as **an officer requisitions for ammunition in boxes, not in numbers of rounds.**

It is often impossible to send back for ammunition, so that it is most important that all reserves going up should take extra ammunition with them.

NOTES.

Tactics and Field Warfare.

These subjects are dealt with at full length in Infantry Training and in Field Service Regulations, Part I, and the chapters on them require careful study.

The Field Service Pocket Book, 1914, is also most comprehensive, and officers should always carry it when doing field work. Brief notes on important points only are given here :—

TELLING OFF AND POSTING SENTRIES.

See Field Service Regulations, Part I, Sects. 81, 82, 85 ; Infantry Training, Sects. 151-153.

This is most important, as every officer will find that he has to post sentries as soon as he gets out to the Front.

The safety of the troops depends on the sentries, and the way in which sentries carry out their duties depends largely on the instructions given to them, and the way in which they are told off and posted.

Instructions must be clear and definite, and a sentry must also be told for how long he will be on duty, and at what hour he may expect to be relieved. A sentry must know :—

(1) The direction of the enemy.
(2) The position of the sentries on his right and left.
(3) The position of the neighbouring picquets, and any detached posts.
(4) The sector of ground he has to watch.
(5) How to deal with persons approaching his post.
(6) Whether any friendly patrols are out, and if they may be expected back through his part of the line.
(7) Names of villages, rivers, etc., and where neighbouring roads lead to.

Detached posts.

Infantry Training, Sect. 155; Field Service Regulations, Part I, Sect. 84.

Detached posts are quite distinct from picquets or sentry groups.

Picquets and sentry groups are joined up to their main bodies, for which they form a regular network of protection. Communication is always kept up between them.

Detached posts are, as the name implies, detached from the main body. They are only employed under exceptional circumstances—for example, to guard some spot where the enemy might collect preparatory to an attack; or which the enemy might occupy for purposes of observation. They are also used to guard exposed flanks.

Their strength cannot be laid down, and varies according to the duty to be performed. They may vary from a section to a platoon, but great care should be exercised that they are not too weak, as there is always great danger of their being cut off.

DUTIES OF THE COMMANDER OF AN OUTPOST COMPANY.

See Field Service Regulations, Part I, Sect. 80; Infantry Training, Sect. 150.

He should know:—

(1) The general situation.
(2) All that is known of the enemy.
(3) The intention of the commander who appoints him, in case of attack.
(4) The position of the force he is to cover.
(5) The limits of ground for which he is responsible.
(6) The hour at which he will be relieved.
(7) Where reports are to be sent.

He will issue his instructions from the above information, being careful to issue special instructions on the following points:—

(1) Any special arrangements to be made by night.
(2) Smoking, lighting fires, cooking.
(3) His own position, so that he may easily be found.

DUTIES OF A PICQUET COMMANDER.

See Field Service Regulations, Part I, Sect. 81 ; Infantry Training, Sect. 151.

A picquet commander should :—

(1) Read any orders to his picquet.
(2) Explain—
  (*a*) Direction of enemy.
  (*b*) Positions of picquets on right and left, also positions of supports.
  (*c*) Action to be taken in case of attack.
(3) Tell off picquet and post sentries
(4) See the group commanders know what is to be done with persons passing through the lines.
(5) Strengthen his trench or position, and make the necessary sanitary arrangements.
(6) Make rough charts.
(7) See that orders about taking off equipment and fixing bayonets are strictly adhered to.

PATROLS.

See Infantry Training, Sects. 156-157 ; Field Service Regulations, Part I, Sects. 87-89.

The duties of observation will be carried out principally by patrols.

As few patrols as possible, consistent with the keeping of proper observation, will be sent out, since—

(*a*) By day they are apt to give away the position.
(*b*) By night they are apt to be shot by the sentries when returning to the lines.

The strength of patrols should be from 3 to 8 men.

In the event of a patrol not returning when expected, another should be sent out. If a force is halted, the time of sending out and the route of patrols should be changed daily.

CONTROL OF MEN IN EXTENDED ORDER.

Reference Infantry Training, Sects. 90-96.

It has been pointed out how important is drill in close order for the development of discipline and cohesion, and for exacting instant and mechanical obedience to orders ; but close order drill is not used in battle formations.

When under fire it is necessary for men to advance with intervals between them in order to close with the enemy and deliver the final bayonet assault, without which decisive success cannot be attained.

Great attention should therefore be paid to extended order drill as laid down in Infantry Training. Any tendency towards slovenliness and inattention should immediately be checked. It will be found advisable to revert to close order drill from time to time as a corrective.

The following points should be noted :—

(1) When drilling in extended order an objective should always be named.
(2) **When the halt is given, men should at once face their objective and lie down.**
(3) The necessity of going down and getting up **quickly** should be insisted upon, as well as the importance of keeping heads down. **Caps must not be removed.**
(4) Practical instruction should be given in the use of ground for cover.
(5) Keeping step and dressing are unnecessary, but some sort of a line must be kept, otherwise fire will be masked.
(6) Commanders must be in the best position from which to control their sections.

During training a great deal of extended order should be practised at night. It will be found that control is much more difficult, as there is always a great danger of men losing touch and forming gaps in the line.

USE OF COVER.

The best instructor in the use of cover is the bullet.

Cover should fulfil the following conditions :—

(1) Afford a good field of view.
(2) Permit of free use of the rifle.
(3) Give concealment to the firer.
(4) Provide protection against fire.

Men should be constantly practised to take every advantage of folds in the ground and any other available cover from fire in order to lessen losses in the advance.

All must not attempt to crowd behind the same cover, particularly if it is a good aiming mark, as the enemy have probably got the range of it.

Cover from aircraft.

Cover from hostile aircraft can best be obtained by moving through woods or along hedgerows. Walking along a white metalled road should be avoided, and men should be taught to walk along each side of the road on the grass, or close to the hedges. On the approach of hostile aircraft men should at once be halted and ordered to lie down, as any movement of troops can at once be detected from an aeroplane, whilst troops at the halt are difficult to observe.

HASTY IMPROVEMENT OF GROUND.

Essentials.

Each firing point in the advance must be selected so that it gives a good field of fire from the first moment, and becomes safer and better with every stroke of the entrenching tool. Men should be allowed some latitude for choice of the best firing points.

Line of sight.

Keep the target in view when going down to prone position.

Orders.

Men wait for orders. There should be no entrenching so long as there is a possibility of closing with the enemy and using the bayonet.

Use of the entrenching tool or "grubber."

(1) Decide next firing point on ground ahead which is to be occupied should the order to advance be given.

(2) At present firing point men lie back about 2 feet to left rear of point from which they are to fire. Men must lie oblique to line of fire (see sketch on next page).

(3) Magazines must be fully charged and cartridge pouches fastened. Rifle full arm's length to the right, muzzle to the front, bolt upwards (important).

(4) Men get out the grubber. Tear up and collect any vegetation within arm's length, and heap it loosely as a screen an arm's length to the front.

(5) They lie on left side of body. Use pick or blade according to hardness of the ground. Hack a loose furrow 1½ feet to right as far as possible forward and backward (see sketch, p. 23).

(6) Hold grubber by handle close to its head, thumb pointing towards small end of handle. Use blade as scoop or hoe. Scoop loose earth out of furrow and heap it up close in front of LEFT EYE and SHOULDER.

They then hack loose another strip of earth along NEAR side of original furrow, so that the grubber strikes into earth probably softer than the crust, which can thus be undercut and wrenched up from below. Continue to scrape away towards parapet. Hack off crust until furrow is about 1 foot 6 inches wide. Any available lumps of earth must be used to build up the near edge of the parapet as steeply as possible.

(7) Each new lot of loose earth to thicken parapet must be put in direct line between head of man and point from which most accurate fire seems to come. Then extend right-handed, completing a horseshoe shape. Part over which the man is to fire must be kept 6 inches lower than remainder and of bullet-proof thickness if possible (see sketch).

(8) Then deepen 6 inches in front, 12 inches rear end, and make parapet 6 inches high and bullet-proof.

(9) Vegetation may be scattered to conceal earth thrown up. Men must be ready to lay down grubber and resume firing at any stage of the work. **In advancing men must not leave the grubber behind.**

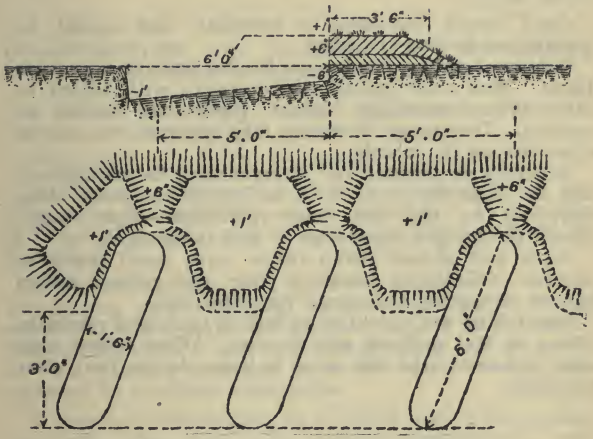
THE COMPANY IN ATTACK AND DEFENCE.

This is very fully dealt with in Chaps. X and XI, Infantry Training, and "Fighting in Close Country, Woods and Villages" is dealt with in Chap. XIII.

Both in Attack and Defence it is of the utmost importance for an officer to keep his men in hand.

If he knows his men and his N.C.Os. thoroughly, control should not be difficult. **It is an officer's duty to lead,** and he will only be able to get his men on by his own personal courage and example.

Cover Lying Down.



HASTY ENTRENCHMENT, USING GRUBBER.

EARLY STAGES of ENTRENCHMENT by RIFLEMAN LYING PRONE in the OPEN using GRUBBER. If under SHRAPNEL FIRE, all efforts should be directed to making a DEEP HOLE, and not a SHALLOW TRENCH.

PROTECTION AT REST AND ON THE MOVE.

Advance, Rear, and Flank Guards.

Field Service Regulations, Part I, Chap. V, covers the subjects completely, and should be carefully read through.

Outposts are also dealt with in Field Service Regulations, Part I, Chap. V, and Infantry Training, Sects. 147-157. Every officer should have the contents of these chapters at his finger tips.

MARCH DISCIPLINE.

Reference, Field Service Regulations, Part I, Sects. 24-33.

Good march discipline is essential, and should be insisted on **during training.**

Continual sipping from water-bottles tends to aggravate thirst. Men must practise self-restraint with regard to this. When marching "easy," pipes only should be smoked. Discourage in every way possible the use of cigarettes on the march.

Accuracy of distance and interval must be maintained, and the flank kept well in to the side of the road. Men marching on the left flank (Continent—right flank) should be changed every hour to give them relief.

Each unit should detail officer with small party of selected N.C.Os. to march in rear and enforce orders against straggling, falling out for water, etc.

Men falling out sick stay on left of road, and report to officer of first medical unit passing. When halted men must fall out to the side so as to leave the roadway clear for traffic.

COMPOSITION OF A BRIGADE, BATTERY, SQUADRON AND BATTALION.

A brigade of infantry consists of 4 battalions under a brigadier. Total strength, roughly 4,000.

A battalion of infantry consists of 4 companies.

A company consists of 4 platoons, numbered 1 to 16, throughout the battalion, and is commanded by a major or mounted captain with a captain on foot as second in command.

A platoon consists of 4 sections, numbered 1 to 16, throughout each company, and is commanded by a subaltern, with a platoon sergeant as second in command. When a subaltern is not available his place will be taken by the platoon sergeant, who will *not*, however, be replaced by a section commander.

A section is commanded by a N.C.O. and is the normal fire unit. The post is a definite appointment, and transfers should be as infrequent as possible.

A regular battery of Royal Horse or Royal Field Artillery has 6 guns and the following establishment :—

1 Major in command.
1 Captain and 3 subaltern officers.
About 190 other ranks.
About 170 horses.

A brigade of Royal Field Artillery consists of 3 batteries and an ammunition column under a lieutenant-colonel. Its strength is about 23 officers, 770 men, and 750 horses with 18 guns.

A squadron of Cavalry consists of 6 officers and roughly 150 men under a major.

NOTES.

Topography.

This wide and important subject is subdivided for convenience under headings in accordance with the new Syllabus.

USE OF THE COMPASS.

An officer should know his compass thoroughly, whatever type he uses. Out at the Front compasses are being used among other purposes—

(*a*) For making plans of our own trenches.
(*b*) For fixing the position of our own line accurately on the map, with reference to one or two prominent points in the country.
(*c*) For locating exactly the position of the enemy searchlights, snipers, machine-gun emplacements, etc., from our own trenches.
(*d*) For bringing working parties and bodies of troops in and out of billets by night, and up to reserve trenches without getting lost.

The various influences which affect compass work are as follow :—

(1) Dip.

This is the tendency of the north-seeking end of the compass needle to point downwards. At the Equator the needle would be perfectly horizontal, but as the compass is taken towards the North Magnetic Pole, the North end is attracted downwards more and more until in England the "dip," as it is called, is theoretically 70°. At the Magnetic Pole the needle, if not corrected, would be vertical (90°) instead of horizontal as at the Equator. Before proceeding to the Eastern Fronts compasses should be corrected for **Dip,** otherwise the instruments may be useless. The correction is made in the Service Compass by adjusting the amount of sealing wax placed underneath the South end of the needle.

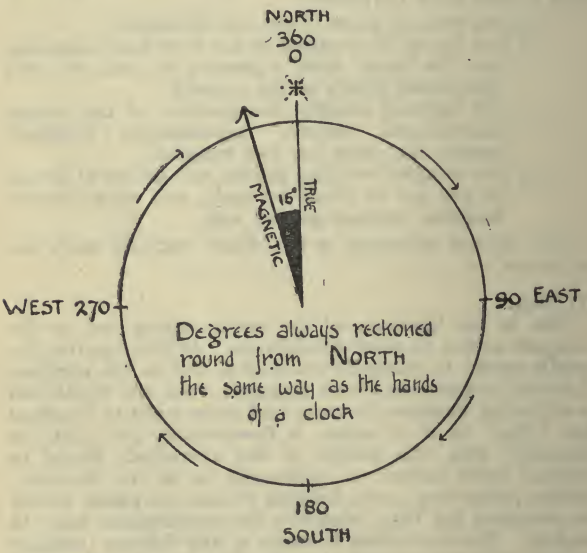
(2) Magnetic variation.

The angle, measured in degrees and minutes, through which the compass needle is deflected from the true or geographical north by the Magnetic North Pole. This angle varies every year for almost every place on the earth's surface. Variation for Shoreham in 1915 : 15° 8′ West. In Flanders, less—about 14° West.

It is most important to understand how true bearings are converted into magnetic, and vice versa.

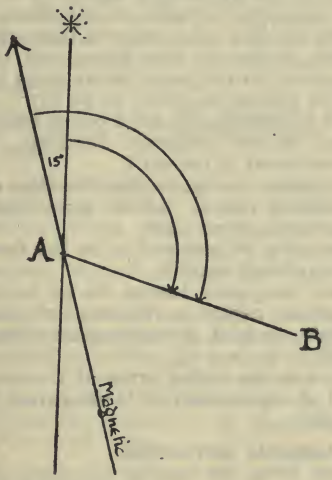
The following diagram has proved most helpful, and should be borne in mind in all questions dealing with bearings and degrees.

FIG. I.



It is sometimes useful to be able to explain concisely what is meant by a "bearing." A bearing is a **direction** expressed as a **definite angle.** The **magnetic bearing** of B from A is the angle which the line joining B to A makes with the magnetic meridian (compass needle) passing through A.

FIG. II.



The **true bearing** of B from A is the angle which the line BA makes with the true meridian (true North and South line) passing through A.

Degrees are always reckoned round from North through East, South and West, back to North again (see Fig. 1).

Where the compass needle is pointing **West** of the true North (magnetic variation, West) :—

ADD the degrees of variation to convert true bearings into magnetic or compass readings.

SUBTRACT the degrees of variation to obtain true bearings from compass readings.

Where the magnetic variation is EAST, the procedure is reversed.

Remember that any bearings given in Operation orders are always true bearings.

The following examples are given as tests. (Answers will be found in the appendix, p. 43) :—

(*a*) The magnetic variation is 17° West.
A bearing of 213° appears in Operation Orders.
What change in this figure will the company officer have to make before using his compass ?

(*b*) A true bearing is stated to be 127°.
With a compass the same object reads 120°.
What is the magnetic variation, if the first statement is correct ?

(*c*) A compass reading on the Pole Star gives 13°.
A bearing on a church spire with the same compass gives 330°.
What may be assumed to be the true bearing of the church spire ?

(*d*) Three compasses known to be accurate give a certain object as bearing 90°. A new compass, on trial, gives the same object as bearing 88°
What is the initial error of the new compass ? (For explanation of " initial error," see para. 4 below.)

(3) Local magnetic attraction.

A deviation from the normal direction of the needle caused by masses of iron ore beneath the earth's surface, or very locally by telegraph wires, iron railings, railway lines, etc. Mistakes have often arisen through officers placing compasses on wooden gates and posts which contain iron bolts and fastenings.

(4) Initial error of the Compass.

Present through the fault of the maker. This may be due to bad adjustment of the needle and pivot pin, or to inaccuracy in the finish of the compass card and the " Lubbers Line " (directing mark just by the hinge). The amount of error must be found when working in conjunction with other compasses, and allowed for.

Methods of finding the true North and the exact variation of your own compass for any place :—

(*a*) By setting an Ordnance Survey map from two points easily identified in the country, and then centring the compass over the true north line on the map, and noting the variation.

(*b*) By taking a bearing on the pole star when the latter is on the true North Meridian, *i.e.*, when it is vertically above or below the "Zeta" of "Ursa Major" (star last but one in the tail of the "Great Bear," perhaps more familiarly recognised as the handle of "The Plough").

(*c*) By finding when the sun is exactly at its zenith. Best done by the method known as "Equal Altitudes."

The best **approximate** way of finding true north without a compass is by the "watch method," pointing the hour hand at the Sun, and bisecting the angle between the hour hand and 12 o'clock to give a line running true South (Reference, Manual of Map Reading, Chap. VIII, para. 36).

It is essential to know how to take a bearing accurately with a prismatic compass or the ordinary service pattern, and how to march on a compass bearing at night, making use of the stars, if visible, and remembering that it is only safe to march on a particular star for 20 minutes. During that time the movement of the star will not be more than 5° to one's flank.

The Service Protractor.

No notes on the compass would be complete without a reference to the Service Protractor, by which the bearings taken with the compass can be plotted on paper. Every officer should be familiar with the different scales on this most useful instrument, and should be able to plot bearings accurately. Remember always to construct first a magnetic meridian through the station from which the bearing is to be drawn, and to place the instrument on the East side of that meridian if the bearing is between 0° and 180° and on the West side if the bearing is between 180° and 360° (Reference, Manual of Map Reading, p. 34, Fig. 7).

A simple practice in the use of the Service Protractor and in accuracy in the plotting of bearings (all the scales given can be found on the instrument) :—

(1) Start in the middle of the paper (foolscap), about 3 inches from bottom edge.

(2) Put in a true North "point" running parallel to the long edge of the paper in the top right-hand corner.

(3) Label the starting point **X**, and draw a true North meridian through it.

From **X** draw a bearing of 323°, and measure along it 6·5 kilometres, on the Scale :—1 centimetre : 1 kilometre. Label the end of this distance **A**.

From **A** (after constructing a true North meridian) draw a bearing of 284°, length 14,400 yards. Scale 1 : 250,000 to **B**.

From **B** draw a bearing of 87°, length 7·15 kilometres. Scale 1 : 100,000 to **C**.

From **C** draw a bearing of 309°, length 1,860 yards. Scale 1 : 63,360 to **D**.

From **D** draw a bearing of 40°, length 2,720 yards. Scale 2 inches to 1 mile to **E**.

From **E** draw a bearing of 145°, length 2,460 yards. Scale 2½ inches to 1 mile to **F**.

From **F** draw a bearing of 213°, length 4½ miles. Scale 1 inch to 1·58 miles to **Y**.

(4) Measure carefully by the diagonal scale and write down the exact distance in inches between **X** (starting point) and **Y** (finishing point).

What is the bearing of Y from X? (For answer, see appendix, p. 43).

MAP READING.

Map reading can best be learnt by **map drawing,** and this is a study which requires in some degree the twin qualities of **accuracy** and **neatness.** Both of these may be developed by **every** officer, no matter how poor his initial efforts, provided that he recognises the value of constant practice, and is willing to spend half-an-hour now and then in drawing conventional signs and in copying diagrams and maps.

(1) Conventional signs.

The exercise given below will help towards some knowledge of the chief symbols in use, and will also be good practice in the qualities mentioned above. Most important of all it will facilitate the reading of Ordnance Survey maps.

A simple practice in conventional signs.

Construct a drawing to the scale of 1 inch to 1 mile, according to the following description :—

A road runs due EAST **from** FARNHAM **to** GUILDFORD. First-class ; metalled. Length, 10 miles. Straight. **Hedged** on both sides for first 5 miles. **Unfenced** for last 5 miles.

The following topographical features are to be included in the drawing (for the proper conventional signs to use, see the plate facing p. 17, Manual of Map Reading and Field Sketching) :—

At **1 mile.**—Road crosses a stream running due South. Spot level—212 feet above sea.

At **1½ miles.**—Road crosses railway, double track, running in a cutting S.W. to WINCHESTER, N.E. to WOKING.

At **2 miles.**—Windmill, ½ mile due SOUTH of road. Church, with **square tower,** 1½ miles due NORTH of road.

Between 2 and 3 miles.—Road rises 260 feet to spot level of 472, and runs along the top of a **narrow** ridge for 5 level miles. Show this by means of contour lines having a vertical interval of 50′.

At **4 miles.**—Village of HAMPTON. Telegraph office. Chapel—**no tower or spire.**

At **6 miles.—Thick coniferous** wood, about 1 mile square. Nearest side, 1 mile **South** of road.

At **7 miles.**—Small oblong wood of **deciduous** trees, **sparsely grouped.** Long side of oblong parallel to road and ½ mile NORTH of it.

At **9 miles.**—Letter-box. Footpath leads S.E. to COMPTON.

Between 8 and 10 miles.—Road drops 300 feet in a **uniform** slope.

At **10 miles.**—Road crosses River WEY, running NORTH.

N.B.—In sketching a road it is generally most convenient to start at the bottom of the paper in the middle.

The directions given above for this drawing are not complete. Commonsense is left to deal with bridges and viaducts if necessary, and also with the problem of how the contours should be fitted in to comply with the description.

Printing should receive the greatest care.

Reference, Manual, Chap. IV, para. 14.

A solution of this exercise will be found on p. 44.

(2) **Scales.**

As a mathematical expression a scale is

$$\frac{\text{distance on map,}}{\text{distance on ground,}}$$

This is shown in three ways :—

(*a*) Statement in words (" Six inches to one mile ").

(*b*) Representative fraction (" R.F. $\frac{1}{100,000}$ ").

(*c*) Line divided into parts.

In all problems involving representative fractions it is only necessary to remember one figure, the number of inches in one mile, 63,360.

It will at once be seen that a scale of 1 inch to a mile has a R.F. of $\frac{1}{63,360}$, and that a map with R.F. $\frac{1}{80,000}$ gives $\frac{80,000}{63,360}$, or 1·26 miles to the inch, and $\frac{63,360}{80,000}$, or ·79 inch to the mile.

To find the R.F. for any scale on a map or sketch, make up a fraction as in the following example :—

$$\frac{5}{1000 \times 36}$$

which means expressed in words:—

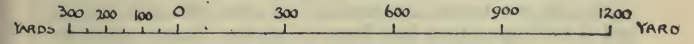
$$\frac{\text{The total length of the scale in inches.}}{\text{The total number of yards represented by the scale} \times \text{The number of inches in one yard.}}$$

Reduced to simplest form this is $\frac{1}{7,200}$

On a sketch the scale is usually made between 4 inches and 6 inches long.

Notice (see Fig. 3) the proper method of constructing a scale in **primary** and **secondary** divisions with the zero at the end of the first **primary** division from the left.

FIG. III.



Scale :—5 inches to 1 mile (reduced).

$$\text{R.F.} \frac{1}{12,672}$$

When asked to construct a scale it may be of assistance to put to oneself these three questions :—

(*a*) In what proportion has the scale to be drawn (given as a R.F. or statement in words) ?

(*b*) What units have to be shown ? Yards, miles, furlongs ?

(*c*) What number of these units must be taken in order to give a line between 4 inches and 6 inches long ?

After determining (*c*), which should be a round number, work out the exact length of the scale for the number of units you have chosen in accordance with this fraction :—

$$\frac{\text{No. of units chosen} \times \text{No. of inches in one unit.}}{\text{Denominator of the R.F.}}$$

The result, always in two places of decimals, is the required length of scale in inches. This length is then divided up and numbered in the manner illustrated above.

(3) Contours and slopes.

The easiest way to understand contours is to think of them as the plans of successive new shore-lines, were the sea to rise just the height in feet indicated on each contour line.

It is important to be able to pick out on the map **convex, concave** and **uniform** slopes (Reference, " Manual of Map Reading," Chap. V, Plate 4).

Where the contours on the map are close together at the top of a hill, and widen out at the bottom, the slope will be **concave.** Where they are wide apart at the top, and closer together at the bottom, the slope will be **convex.**

One should be able to pick out at once features such as spurs, knolls, cols, re-entrants, etc., and to indicate the probable direction of crest lines and water-sheds from the contours.

(4) Terms and definitions.

An officer should understand all the technical terms and definitions given in Chap. II of the Manual of Map Reading. These are **very important.**

With a map he should be able to make use of this information :—

(*a*) For discussing the slopes and gradients of any particular road or railway.

(*b*) For describing the nature of waterways, fall of rivers, and hence their suitability for navigation.

(*c*) For describing verbally or on paper a given area, including :—

The general nature of the country.
Hill features and commanding positions.
Dead ground and all available cover.
Communications by rail, road or water.
Billeting accommodation.

(*d*) For constructing sections along any road or railway or across country to show heights and slopes at a glance.

(*e*) For settling the visibility or otherwise of one point from another.

Practical map-reading of this kind is invaluable at the front.

(5) Finding Position.

The methods of setting a map and finding one's position on it cannot be better put than in the Manual, paras. 41 and 42, and every officer should master what is there laid down.

(6) A note on Continental Maps.

Reference, Manual of Map Reading, Appendix V.

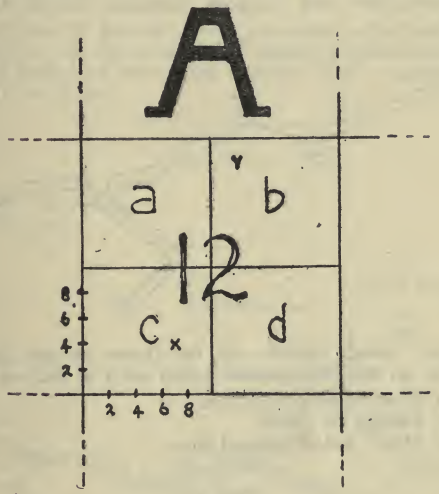
(*a*) Contours are usually in **metres** and not in **feet.** In some French maps the contours are not numbered. It is then necessary to calculate their value from spot levels on the hills or in the valleys.

(*b*) The R.F. is usually some simple multiple of thousands, such as $\frac{1}{80,000}$, $\frac{1}{250,000}$. One must be able

to convert these figures rapidly into English terms of miles to the inch, or inches to the mile. (See the Note on Scales given above.)

(*c*) Many of the maps now in use at the Front are squared. An officer should be able to describe quickly by the square method his own position with absolute accuracy. Fig. 4 shows exactly how this should be done.

FIG. IV.



The above is a small square coming within one of the larger areas A, B. C, etc. It is subdivided as shown. Each quarter (a, b, c, d) is treated on the decimal system, starting from the S.W. corner, and giving first the figure along the south side, and then that along the west side.

Thus the position of X would be :— A 12 c 7·4

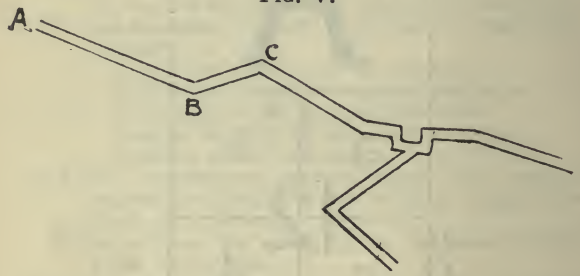
and of Y :— A 12 b 2·8

DRAWING A SKETCH OF ONE'S OWN AND ADJOINING TRENCHES.

As this work will have to be done without exposing oneself, the idea of surveying the trenches by triangulation is at once excluded.

Probably the best method is to make a **Compass Traverse** of the trenches, starting at one end of the company lines, and taking a bearing down the trench to the first bend, B (see Fig. 5), and pacing the distance. At B a new bearing to C would be taken, and the traverse continued until the fire trenches were complete. The communication and support trenches should then be added.

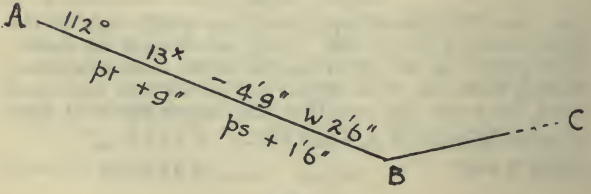
FIG. V.



A very rough sketch can be drawn as one proceeds (see Fig. 6), and information noted on it as follows :—

(*a*) Bearing of the section.
(*b*) Length in yards.
(*c*) Depth below ground level.

FIG. VI.



(*d*) Width in feet.

(*e*) Height of parapet above ground level.

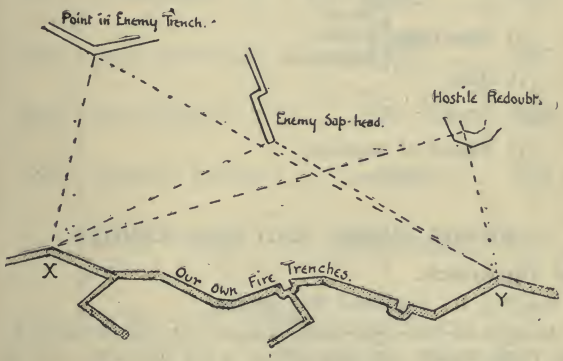
(*f*) Height of parados above ground level.

A fair copy can afterwards be plotted with the protractor on another page, and sections across the trench or through the dug-outs drawn to illustrate the construction.

It is possible to make quite accurate sketches in this manner so long as care is taken with the bearings and the pacing.

It may also be possible to fix accurately the position of the enemy's line by intersecting bearings taken from two separate points of your own trench. Fig. 7 shows how this may be done.

FIG. VII.



The distance X—Y, or the **base,** would be measured from the scale appearing on the sketch of your own Fire Trenches, which should be completed first by a COMPASS TRAVERSE.

Compass bearings can be taken quite well through a periscope. The outside limit of error should be not more than 5°.

There are two conditions, however, attaching to this :—

(*a*) That the periscope should be upright, not inclined to one side or the other, and firmly fixed.

(*b*) That the mirrors should be perfectly adjusted in the same vertical and horizontal plane.

The following details should appear on every sketch :—

(1) Heading or title.

(2) Scale, including { Statement in words. / R.F. / Line divided into parts.

(3) North point { Magnetic / True } and amount of the variation.

(4) Signature { Name. / Rank. / Regiment.

(5) Date.

(6) Time.

(7) Nature of weather.

RANGE CARDS AND KEY RANGES.

(*a*) For Attack.

See Fig. 8. Specimen Key Range.

Ranges in the right-hand column are taken first by the range-finder, and the figures in the left-hand column arrived at by subtracting the range of each object to be passed from the range of the first objective, ***i.e.***, the enemy's position.

FIG. VIII.

RANGE CARD [Key Range] for an attack on Enemy's position at MAXTON from a point on WHINLESS DOWN ½" west of "H" in HILL FARM. Ref. 1" O.S. Sheet 63.

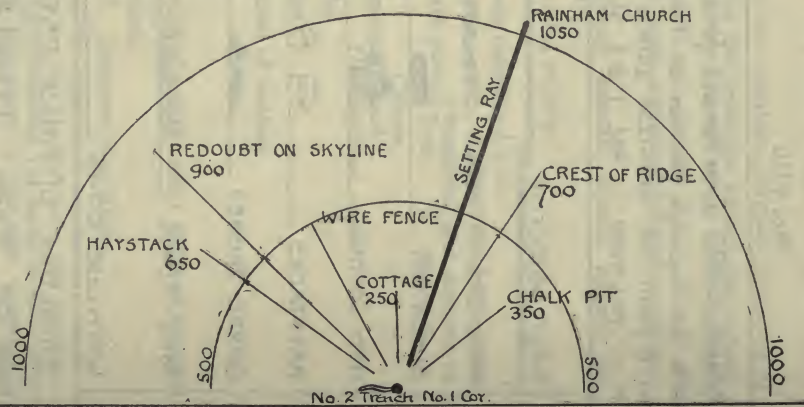
0	FIRST OBJECTIVE	950
150	WHITE GATE IN HEDGE	800
350	BLACK HUT	600
500	RED COTTAGE	450
550	HAYSTACKS	400
650	GORSE BUSHES	300
700	WIRE FENCE	250
950	WHINLESS DOWN	0

Direction of Attack E.S.E.

5th March 1915 10.0 am L.P. Figgis Lt. 9th Buffs

FIG. IX.

RANGE CARD FOR THE DEFENCE. - Taken from the East end of No 2 PIQUET Trench, No 1 Outpost Coy.



Looking NE. from a point 440 yards NORTH of the "G" in "WEST-HOUGHAM. Ref. 1" inch O.S. Sheet 63. 10·3·15 10·45 A.M. L.P. Figgis 2/Lt 9th Buffs.

(*b*) **For Defence.**

See Fig. 9. Specimen Range Card.

Note that the range-taker's position is carefully described. Note also the thick setting ray, which enables the relieving fire unit commander to set the card, and pick up his objects at once.

(*c*) **For the Artillery.**

A panorama sketch of the enemy's position and the country behind his lines is made as accurately as possible by the method described in Chap. XV of the Manual, or by any recognised method. The ranges to various points on the sketch are taken from a large-scale Ordnance Survey or by the range-finder.

See Plates 19, 19A, at the end of the Manual of Map Reading.

APPENDIX.

Magnetic Variation Tests (p. 30).

(*a*) 230°, by adding the magnetic variation of 17° West.

(*b*) 7° East.

(*c*) 317°.

(*d*) 2° East.

Practice in the use of Protractor (p. 32).

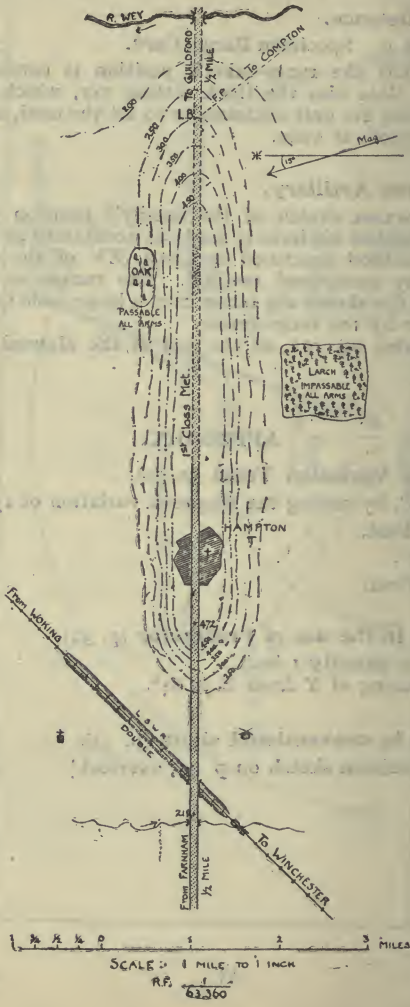
X—Y is **exactly** 1 inch.
The bearing of Y from X is 64°.

Practice in conventional signs (p. 33).

(See specimen sketch on p. 44, overleaf.)

FIG. X.

SKETCH OF THE FARNHAM—GUILDFORD ROAD (see p. 33).



NOTES.

NOTES.

Trench Warfare.

ORGANISATION OF DEFENSIVE LINE.

The following summary will give a good general idea of the means taken to prepare a defensive front in trench warfare :—

(1) Obstacles—generally barbed wire—in front of first line trench, concealed if possible from artillery observation.

(2) Listening posts, look-out posts, machine guns.

(3) Fire trenches, recessed and traversed or "S" and "T" type.

(4) Communication trenches to the rear, linking up the whole system.

(5) Shelters and dug-outs. These should be immediately behind the first line fire trenches, with easy communication to them.

(6) Support trenches—traversed—from 25 to 100 yards in rear of fire trenches.

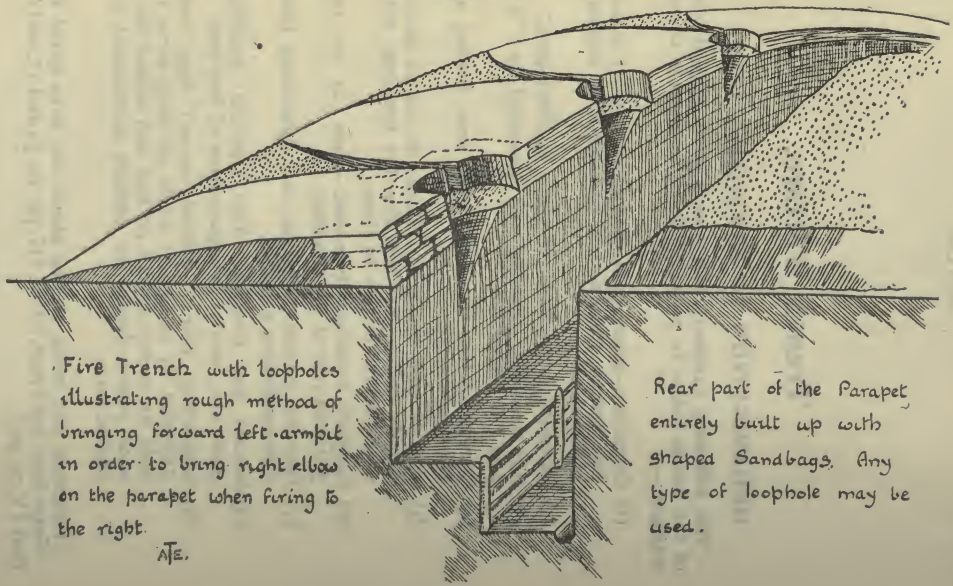
(7) Dressing stations, kitchen, etc., branching from communication trenches.

(8) Second line trenches. Fire trenches, machine guns, etc., similar to organisation of first line.

(9) Supporting points, behind second line, well defended by parties of 20 to 40 men, serve to hold up enemy assault on first and second line; such points should be entirely surrounded by barbed wire.

(Diagrams and notes on the above are to be found in "Notes from the Front," Part III, pp. 50, 54 and 55, and in Part IV, p. 40.)

SKETCH I.


Fire Trench with loopholes illustrating rough method of bringing forward left armpit in order to bring right elbow on the parapet when firing to the right.
A.J.E.
Rear part of the Parapet entirely built up with shaped Sandbags. Any type of loophole may be used.

FIELD ENTRENCHMENTS.

Common Types of Trenches and Dug-Outs.

Fire Trenches (general notes).

Fire trenches must be prepared at the best firing points. They should be as narrow as possible at first. Subsequently they may be widened and deepened, leaving a firing step, which must be revetted.

The height over which an average man can fire is 4 feet 6 inches, but a man can fire comfortably enough over five-sixths of his own height. To make firing positions as convenient as possible, the simple expedient shown in Sketch I may well be adopted if trenches are occupied for any length of time (see also section headed "Loopholes").

The bays of a fire trench should be 12 feet to 15 feet long. Longer lengths than 18 feet invite heavy casualties in cases of enfilading and of the burst of high explosives in the trench.

Men must be able to get quickly out of the trenches to repel possible attacks with the bayonet. Steps, strengthened with brick or stout wood, may be used (*vide* Sketch II), but care must be taken not to weaken the parapet overmuch.

2. Drainage.

Drainage must be provided, making due allowance for the kind of soil. Where bricks are available a good dry bottom may be constructed in the trench. Deep holes called sump pits must be dug to drain off water from trench gullies.

3. Traversed Fire Trenches.

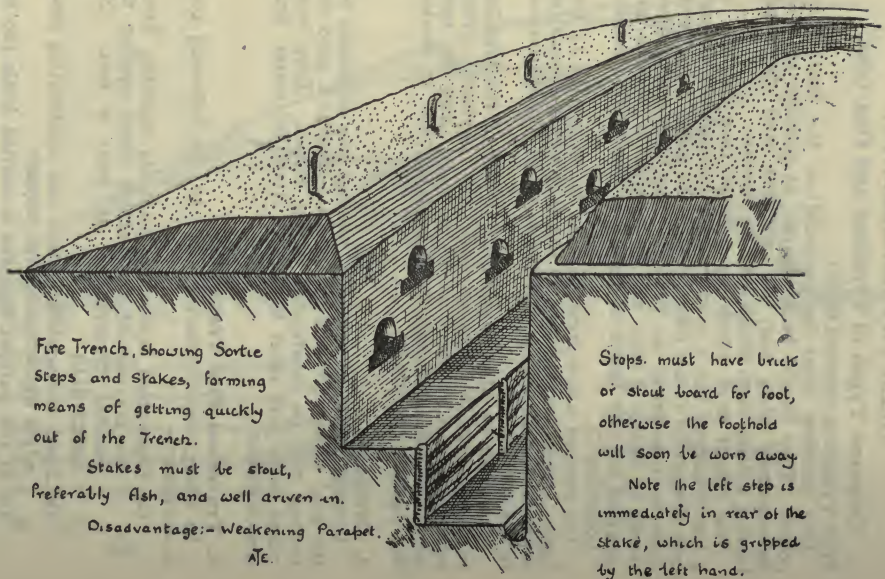
In siting, regard must be had to the following considerations :—

(*a*) Unrevetted walls will gradually crumble, hence the traverse of the parapet must overlap the parados traverse by at least 2 feet. (See Sketch III.)

(*b*) Need of rounding corners and obliterating sharp edges which hinder free passage.

(*c*) If the parapet traverse is carried back too far, communication is unnecessarily prolonged, and the work of excavation increased.

SKETCH II.



Fire Trench, showing Sortie Steps and Stakes, forming means of getting quickly out of the Trench.

Stakes must be stout, preferably Ash, and well driven in.

Disadvantage:- Weakening Parapet.

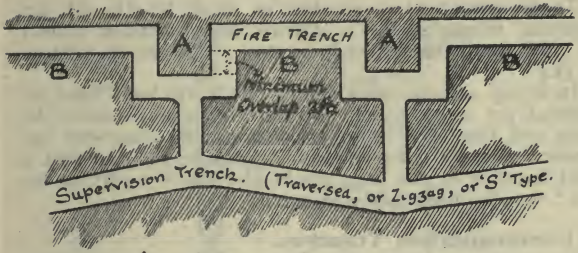
A.J.E.

Steps must have brick or stout board for foot, otherwise the foothold will soon be worn away.

Note the left step is immediately in rear of the stake, which is gripped by the left hand.

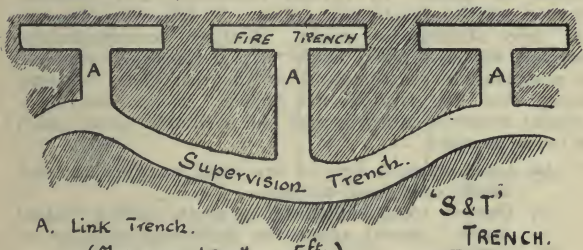
SKETCH III.

TRAVERSED and RECESSED TRENCH



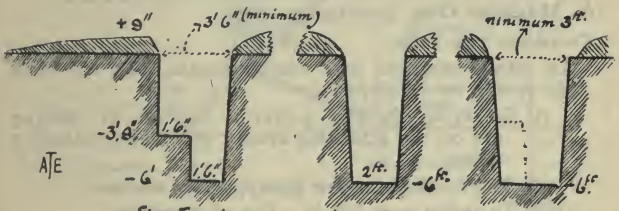
A Parapet Traverse.

B. Parados Traverse.



'S&T' TRENCH.

A. Link Trench.
(Minimum Length = 5ft.)



N.B. In every case, the minimum width is given.

4. " S " and " T " Trenches.

These consist of a number of short lengths of fire trenches connected to a lateral communication trench of " S " design immediately in rear. (See middle sketch, p. 51.)

In siting, subsequent widening of the fire bays must be allowed for when laying out the distances between the bays and the " S " or supervision trench, otherwise the amount of earth between them may be so reduced that a shell bursting in the bays would also destroy part of the " S " trench immediately in rear.

5. Communication Trenches.

As the name implies, these provide communication between firing line and supports and reserves. When in straight lengths, zig-zagged, provision for passing traffic should be made. In curved communication trenches dilation at the bends will serve. At intervals, steps in the side should be made. Straight communication trenches are now being made with a loopholed traverse or machine-gun emplacement at the rear ends, to repel enemy who may gain the fire trench. In constructing a straight communication trench the following points must be borne in mind :—

(*a*) Long straight lengths are most conspicuous and easily seen from aircraft.

(*b*) Danger from enfilading is great, and a " shell burst " would effect the maximum number of casualties.

6. Machine Gun Emplacements.

Choosing the Site.

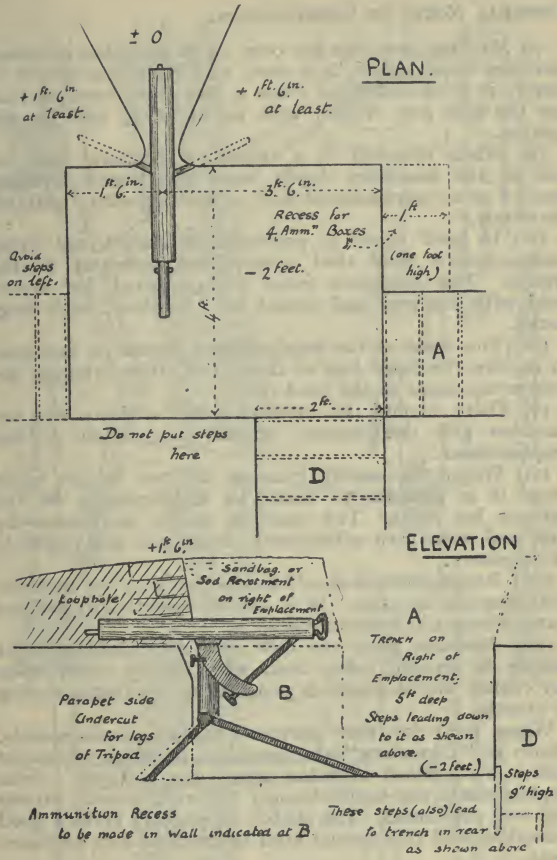
In siting machine gun emplacements, the following ideas should be developed :—

(i) To bring to bear powerful enfilade or oblique fire on the attacking enemy at effective infantry range.

(ii) To give flanking fire to supporting works.

(iii) To sweep gaps left in a line of obstacles.

The two great aims should be (*a*) to surprise the attacking enemy, and (*b*) to conceal the emplacement and give effective shelter to the machine gun detachment.



MACHINE GUN EMPLACEMENT.

General Notes on Construction.

(i) Machine guns can fire over 15 to 30 inches of cover, but the usual height is 2 feet, and with this height of cover, it is necessary to allow 4 feet from front to rear for the gun and tripod, with an extra 2½ feet for the gunner.

(ii) When required in a trench, a platform may be left at the necessary depth when the trench is being made; or an emplacement may be built up with "suitable materials."

(iii) If head cover is provided, it should not differ conspicuously from that constructed elsewhere in the trench. The loopholes must be regulated by actual trial with the gun and should be "blinded" with large sacks.

(iv) The front of the emplacement should be undercut to receive the front legs of the tripod, thus bringing the gunner up closer to the head cover.

(v) There should be splinter-proof shelters for the machine gun detachment, within easy reach of the emplacement.

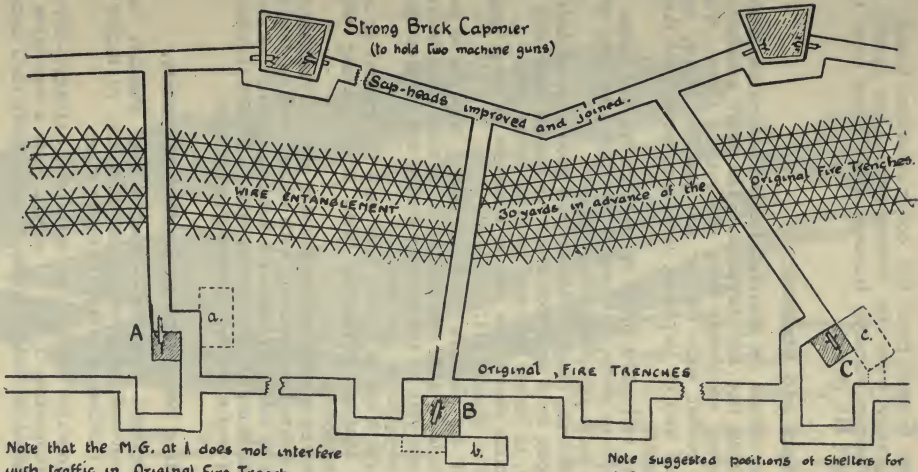
(vi) Where the enemy trenches are 200 to 300 yards away it is possible to make an emplacement on the parapet by night. The position should be chosen by day, and even then subsequent alterations will probably be necessary.

(vii) Emplacements should be sited so that one machine gun supports another. It is almost essential to prepare many alternative emplacements.

(viii) Machine guns are now used to defend straight lengths of trench, being used with deadly effect upon any enemy who succeeds in penetrating the trench during an attack.

When used for this purpose, special emplacements, known as "caponiers," are necessary, in which a parapet shelter is combined with the actual emplacement. Such emplacements are built strongly of brick, having strong roof well supported. The sketch on page 55 gives a good general idea of this special kind of machine gun emplacement.

Another type of machine gun emplacement is shown on page 53. Further examples are illustrated in the Manual of Field Engineering, Plate 15.



A/E MACHINE GUNS IN STRAIGHT TRENCHES.

7. Latrines.

Latrines branch from the communication trench as a rule, usually from the eastern side. Care should be taken to secure suitable drainage (*vide* Notes from the Front, Part III, p. 22).

8. Dug-outs and Shelters.

Shelters should be provided for the protection of men in the firing line and supports. The most satisfactory dug-outs are excavated from the surface down. They may be roofed with timber and hurdles, straw, turf, corrugated iron or tarpaulin, with a splinter-proof thickness of earth.

A layer of broken brick or large stones will cause an early burst to shells, but should be lightly covered with earth to elude aeroplane observation.

The following diagram illustrates a good type of shelter, 12 feet long by 6 or 8 feet wide. A banquette should be provided, 18 inches high and 18 to 24 inches wide

A suitable shelter for use in a narrow or deep trench is shown in Sketch VII.

Timber for shelters must be strong enough to bear considerable weight, and should be so used that destruction of one part of the support should not involve much damage to adjacent positions.

Supports must be driven hard into the ground or rest on sole plates, preventing them from sinking when heavily loaded.

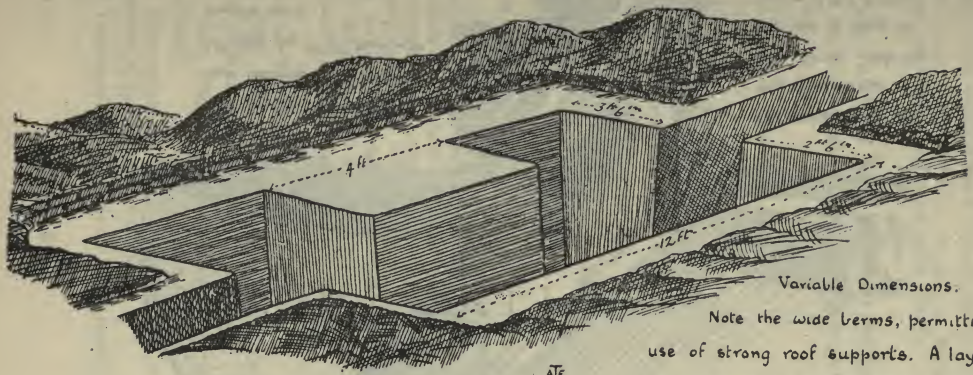
The roofing which rests on the side of the trench should be given a firm level bearing, with a good overlap, to allow a margin of safety in case of a weakening wall. A stout pole or substantial board under ends of rafters distributes weight of roof more evenly over a larger area.

9. Effective resistance of Roofing Materials.

(*a*) SHRAPNEL BULLETS.—Stout planks suitably supported, covered with corrugated iron and 12 inches of earth or 3 inches of shingle (1-inch gauge).

(*b*) ORDINARY FIELD GUNS OF 3-INCH CALIBRE.—Strong timber supporting 4 feet of earth, with a top layer of heavy stones or broken bricks to cause early shell burst.

SKETCH VI.



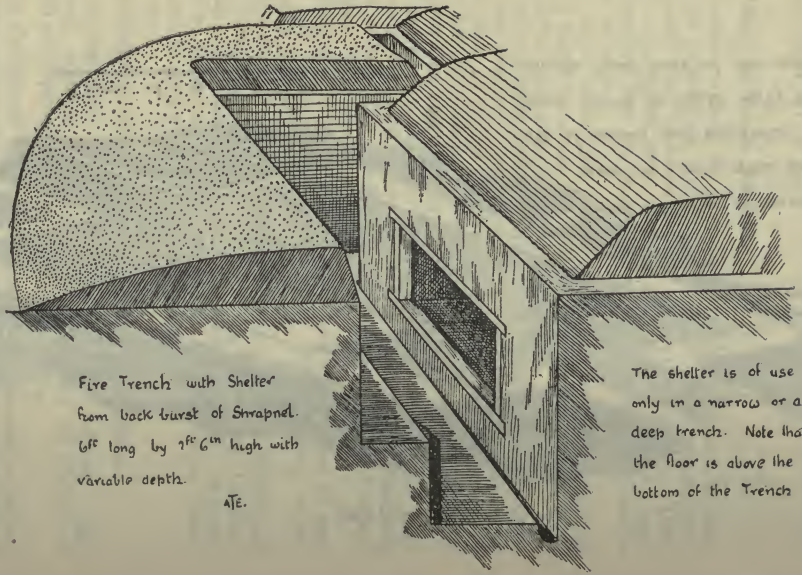
TYPE of Men's SHELTER.

NOTE.

Variable Dimensions.

Note the wide berms, permitting the use of strong roof supports. A layer of large stones to cause early shell burst should form part of the roofing

Sketch VII.



Fire Trench with Shelter from back burst of Shrapnel. 6ft long by 7ft 6in high with variable depth.

ATE.

The shelter is of use only in a narrow or a deep trench. Note that the floor is above the bottom of the Trench

(*c*) FIELD HOWITZERS (of less than 6-inch calibre).—12-inch logs, supporting 8 feet of earth.

(*d*) "JACK JOHNSONS."—20 feet of earth or 10 feet of cement concrete, reinforced with steel.

10. Penetration of Rifle Bullet at 200 yards.

The following useful table should be kept for reference :—

Steel plate	$\frac{3}{8}$ inch.
Shingle	6 inches.
Brickwork, cement and mortar ..	9 ,,
Brickwork, lime and mortar	14 ,,
Sandbags	24 ,,
Sand, loose	30 ,,
Hard wood (oak, etc.)	38 ,,
Unrammed earth	40 to 60 ,,
Soft wood (fir)	58 ,,
Clay	60 ,,
Dry turf	80 ,,

11. Loopholes.

Reference, Manual of Field Engineering, Chap. IV, Sect. 31.

Loopholes are made wherever headcover is provided, but when the enemy trenches are close, there is considerable danger in using them. Collective firing, of course, takes place over the parapet. Unless in exceptional cases loopholes should face half-right or half-left (*vide* Notes from the Front, Part IV, pp. 42 and 43). Box loopholes may be placed in this manner.

(1) DISADVANTAGES OF LOOPHOLES.

(*a*) Difficulty of concealing firing points. Loopholes give snipers an easy mark.

(*b*) They lessen number of rifles that can be used at a given point.

(*c*) The necessary head cover makes it more difficult to get out of the trench quickly.

(*d*) Damaged head cover often spoils a good firing point.

(2) Types of Loophole.

(*a*) Narrowest point of the opening nearest the marksman. This type is most difficult to conceal, much of the parapet thickness is cut away, and, if of hard material, tends to deflect bullets into the observer's face.

(*b*) Narrowest part in front. Easiest to conceal, but gives very small firing frontage. It is the best type where headcover is of great resisting power and consequently thin.

(*c*) Narrowest point midway between front and rear. A compromise between the first two types.

(3) General Remarks on the Construction of Loopholes.

(*a*) Angle of splay usually 60 degrees. The thicker the parapet the smaller must be the angle of splay.

(*b*) A marksman holds his rifle in a line connecting right shoulder, eye and object. Hence most of the body lies naturally to the left of the rifle. The loophole should thus be made to his right, with a niche in the wall of the parapet from his hip to his armpit, to bring the left shoulder well forward. It will be found that this permits the right elbow to be placed on the edge of the parapet (*vide* Diagram I on page 48).

(*c*) Box loopholes, with screens or blindage, may be used, but should be placed by a skilled marksman. The great disadvantage is that the enemy notes these parapet alterations. Steel loophole plates are now issued suitable for use with any type of loophole. As the Germans sometimes use a steel bullet with great penetrating power, it is advisable when using steel plates to place two of them together.

(*d*) With every precaution it is difficult to conceal a loophole. A good plan is to deceive the enemy by using painted sandbags, and preparing plenty of dummy loopholes.

(*e*) The minimum width of loopholes should be 2½ inches. If narrower it is impossible to obtain the use of both eyes to judge distance correctly.

(*f*) The parapet should be so sloped that there is the maximum grazing fire when a rifle is fired as it lies on the parapet.

(*g*) Ensure that the bullet will not strike the parapet, although the sights are clear. (Look through the barrel with the bolt removed.)

12. Look-out and Listening Posts.

General Notes on Use and Construction.

(1) Look-out posts and listening posts should be placed in advance of the firing line trenches and must be fully protected from reverse fire. Should a crater formed by explosion of enemy mine, or an enemy trench be occupied, listening galleries should be run out to protect it as soon as possible.

Unless the ground is very favourable, it will be found difficult to provide for observation over-ground. But where there are natural features, such as banks, mounds, hedge rows, ruins, etc., it is possible to make provision for the listener to look out—even by day.

Where a loophole is used for this purpose, the type having the narrowest end outwards should be used.

(2) Passage to the look-out or listening post may be by narrow trench or by a gallery. If a narrow trench is used it should be concealed. No excavated earth should be visible, and if the trench can be made to run along a hedgerow or some other natural feature, its presence may remain unnoticed.

Where a gallery is made, the walls and roof must be suitably shored by casings or other supports.

(3) The listener should not carry any accoutrement, as the creaking made by it when he is in a cramped position has been mistaken by his comrades for mining.

(4) Listening should be conducted at specified times, or on some pre-arranged signal, and for a definite period. During this period, all within the listening area—including the trenches—must remain absolutely motionless.

(5) Where a mine has been fired, the gallery used for it may still be serviceable to within a few yards of the crater. On the other hand, the gallery used by the enemy to fire a mine may also be serviceable to him. Thus, on taking over a crater formed by the explosion of an enemy mine, it is better first to occupy the rear part of it to prevent surprise.

(6) Infantry manning a trench can assist listening by digging a small pit 6 feet deep below the trench and running out a bore hole 20 feet. This can be done in six or eight hours.

Sketch VIII.

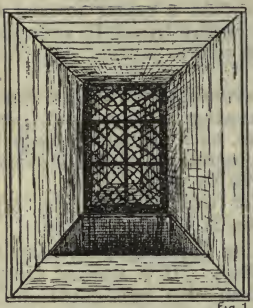


Fig. 1

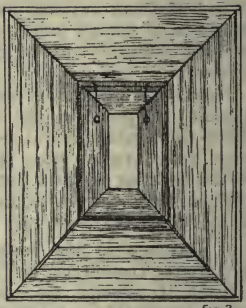
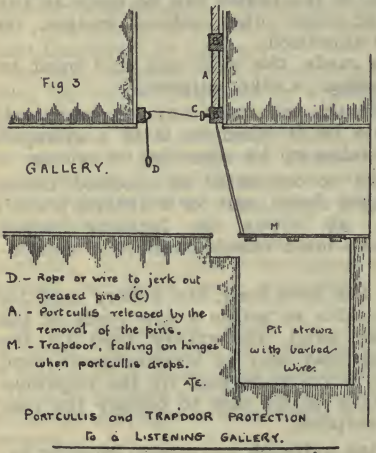
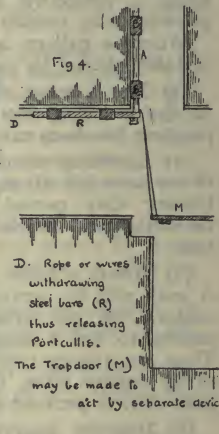


Fig 2.





Portcullis and Trapdoor Protection to a Listening Gallery.

(7) The enemy is always listening for indications of the direction and position of the gallery heads. Work must, therefore, be carried on with a minimum of noise.

Shouting down the shafts of galleries is forbidden, and if the enemy is heard a report should at once be made to the officer in charge

(8) There should be a depôt of arms and grenades near the entrance to a gallery in case men on duty are attacked either below or above ground.

(9) Listening galleries should never be left without a sentry.

(10) Where the country is very flat, and the trenches a good distance apart, the listening post may be left open at the top for observation; but the construction of communication passages must be given very careful consideration.

Method of Guarding a Listening Post Gallery.

The accompanying diagram (Sketch VIII) describes a method of dealing with the enemy if they succeed in gaining ingress to a listening post, and attempt to approach the trenches by means of the communicating gallery.

There is a portcullis, made with a strong heavy frame and barbed wire, which may be let down by the man holding the listening post, when he retreats. A trap-door may also be arranged in the floor, acting with, or independently of, the portcullis mechanism.

The enemy in pursuit should either fall into a pit, the bottom of which is strewn with barbed wire, or else be brought to a halt by the obstacle, thus forming an easy target for a sentry stationed at the trench end of the gallery, with a rifle.

Fig. 1 shows the portcullis down and trapdoor open, viewed from the enemy end of the gallery.

Fig. 2 indicates the appearance of the gallery at normal times. The apparatus can be made less conspicuous by making the shoring boards less regular than the diagram indicates. Figs. 3 and 4 indicate two methods of working the apparatus.

Fig. 3. The portcullis (A) slides through four blocks (B), two on each side as shown. The portcullis is held up by two pins (cast-iron or steel, and greased) (C).

The trapdoor is attached to the bottom of the portcullis by strong pliable wires, or by two stiff bars—strong enough to support a man's weight.

When the rope or wire (D) is pulled, the pins come out, the portcullis drops, and with it also the trapdoor.

Fig. 4 shows a slightly different method. The ropes (D) may be pulled by the sentry at the end of the gallery, thus causing two steel bars (R) to release the portcullis.

WORKING PARTIES AND THE ALLOTMENT OF TASKS.

Organisation of Working Parties.

Care must be taken in arranging preliminary details. A working party table should be made, giving details of men, tasks, tools, etc. The various points to note may be found in Manual of Field Engineering, Chap. III, pp. 20-23, and an example of a working party table, on p. 20 of the same Manual.

Reliefs.

The total time occupied in digging trenches is divided into periods called "Reliefs" usually of 4 hours, as shorter periods than this mean much wasted time in handing over work and tools.

Distribution of Tasks.

The usual extension is to two full paces (6 feet). Where there is little probability of attack, the following method may be adopted :—

(*a*) Halt party four paces in rear of the left flank of the general line of trenches required.

(*b*) Form single rank ; wheel round to alignment, and indicate individual tasks.

(*c*) Equipment to be removed and placed four paces in rear of task. Men lie down until ordered to commence work.

(*d*) Men must be trained in :—

(1) Driving in picks at left end of task with handle at 90 degrees to general line.

(2) Laying spade along alignment of task.

(3) Spitlocking tasks.

(*e*) Where attack is possible rifles must be placed within easy reach.

" S " and " T " Trenches.

When commencement is made with the " S " trench, extend to two (full) paces. Alignment must be adjusted by officer and N.C.Os. to include the best firing points or any existing cover. Men place tools and then spitlock tasks, as indicated above. The " S " trench may be used as a fire trench at first. Subsequently it should be deepened and the " T " trench heads pushed forward.

Traversed Fire Trenches.

(*a*) The following is a method for extending men to dig by night a traversed and recessed fire trench which is not already traced :—

(1) Covering party to guard against sudden attack.
(2) Remainder—extension to two paces.
(3) " By fours, number " (officer or N.C.Os. then adjust alignment).
(4) " Numbers 1 and 4 two paces step back—March." (These become traverse men.)
(5) " Numbers 2 and 4 drive in picks." (Halfway between themselves and left-hand neighbours, and in line with their toes.)
(6) " Front rank, mark out tasks." (Numbers 2 and 3 commence from the pick between them and mark out 7½ feet each way—2½ pickhandles' distance.)
(7) " Rear rank, mark out tasks." (Commencing from pick between Numbers 1 and 4, traverse is spitlocked to end of each recess.)

After any necessary correction by officer, men commence work.

(*b*) The diagrams on pages 66 and 67 illustrate completely a similar method—fire bays, 15 to 18 feet ; traverses 5 to 6 feet. By this method of " numbering by sixes " all men get equal tasks.

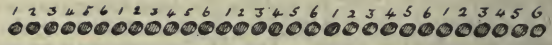
One very important point for the officer in charge to remember is to give every essential detail to his men before the extension.

This should render unnecessary the giving of orders once the men are extended, and prevent any possible confusion.

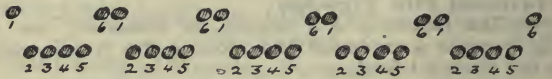
Some slight readjustment of the work will probably be necessary—as, for example, the widening of traverses—before men are given definite orders to begin work.

DIAGRAM A.

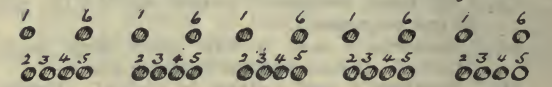
"By Sixes—Number!"



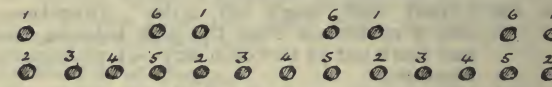
"Nos. 1 and 6—Two paces step back—March!"



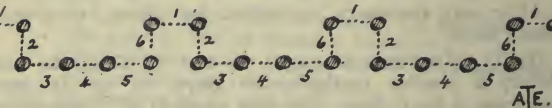
"Nos. 1 and 6—Cover off Nos. 2 and 5."



"Party—To two paces—Extend!"



"Mark out—Tasks!"

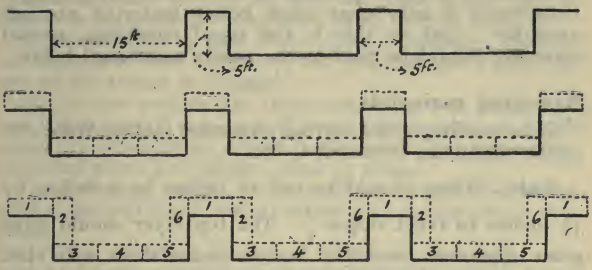


(1) Before extending the party Nos. 1 and 6 must be told to keep covering off Nos. 2 and 5 respectively, when those Nos. move during extension.

(2) Tasks are spitlocked in direction, 6—5—4—3—2—1—6, etc.

(3) It is better to let Nos. 3, 4, and 5 mark the fire bay, and No. 1 the back of the traverse, before allowing 2 and 6 to mark out their tasks. (*Vide* diagram B.)

DIAGRAM B.



THREE STAGES IN SPITLOCKING TASKS.

The above diagram shows how the width (2 ft.) is marked when trenches are first dug. It also demonstrates that the men get equal tasks. If trenches are to be occupied for any length of time they will, of course, be widened and deepened as opportunity allows.

REPAIR AND REVETTING OF TRENCHES.

Repairs.

Owing to the effect of bombardment and weather and also to the wear and tear of occupation, trenches need constant repair. It is the duty of troops occupying trenches to keep them in repair, and any damage must be attended to immediately. Most repairs can best be done with sandbags, but gabions, hurdles, brushwood, barrels filled with earth, etc., are also used. Sandbags and gabions are of great use in constructing extra traverses in a fire trench.

Revetting is absolutely necessary for all trenches which are to stand for any length of time. The walls of trenches should be revetted whenever possible, the advantages being :—

(1) They are less liable to collapse.
(2) They need less attention subsequently.
(3) Rifles, equipment, etc., can be kept clean more easily.

Revetting requires practice to be carried out properly. Brushwood is only used when better materials are not available; and as this is the usual condition, special attention should be paid to the points mentioned below.

Revetting materials.

Sods, sandbags, wire netting, expanded metals, Willesden paper or canvas, brushwood, etc.

Sods.—These should be cut 18 inches by 9 inches by $4\frac{1}{2}$ inches to revet slopes $\frac{3}{1}$. The top layer should have grass uppermost, and it is best to picket them with cleft pickets. Round pickets tend to split the sods. Unless absolutely necessary, sods should not be laid when wet, as they will shrink in dry weather.

Sandbags.—Sandbags revet slopes $\frac{4}{1}$. They should be placed at right angles to the slope of the wall (*vide* Diagram 4, Plate 2, Manual of Field Engineering). They must be laid in headers and stretchers, breaking joint, and the seams and chokes turned inward.

Canvas.—Long strips about 3 feet wide form useful revetment material. Stout pickets should be set 1 to $1\frac{1}{2}$ feet apart, and anchored as in hurdle and brushwood revetment.

Canvas should be stretched between these and laced with wire to the top and bottom of every fourth picket.

It is useful to remember that 200 sand bags or 450 sods are required for every 100 superficial feet.

Brushwood Revetting. Points to note.

(1) Allow 6 inches on both sides of your trench for the revetting, or 1 foot altogether.

(2) Before starting, see that the trench face is flat, and fill in any holes with clay sods and small brushwood.

(3) Revetting poles or posts should be about 2 inches in diameter; must be straight and pointed at one end, and sawed off square at the top to avoid splitting when being driven in, and about 1 foot longer than the depth of trench.

(4) Drive in posts 1 to 2 feet apart, leaving room for brushwood, and arrange so that the post on one side of trench is opposite space between posts on the other.

(5) Brushwood is best about ¾ inch diameter, clear of leaves, and is built up behind the revetting posts until the top of the trench is reached.

(6) Anchor pickets are then driven in, well back, and are "staggered" (*i.e.*, not driven in in a line), to avoid danger of establishing a split in the soil. The tops of the revetting posts are tightly wired to these.

(7) Revetting posts are driven in at all re-entering angles, but only near and at either side of any corner in a trench.

(8) The revetting posts of steps or banquette are anchored to the bottom of posts next above.

OBSTACLES AND ENTANGLEMENTS.

Reference, Manual of Field Engineering, Chap. VI; Military Engineering, Part I, Sect. 2.

The purpose of obstacles is to obtain control of the enemy in respect to direction and speed during his attack, and to deflect enemy troops into areas favourable to their destruction by the defenders (*vide* Manual oi Field Engineering, p. 35).

Summary of aims.

(1) **To break up** the unity of action, and cohesion of the attack.

(2) **To deflect** parties thus isolated fnto the best swept fields of fire.

(3) **To arrest** them under close fire of the defences.

Conditions an Obstacle should fulfil.

It should be :—

(1) Close to the defenders' position; not more than 80 yards away at most.
(2) Sheltered or screened from enemy artillery.
(3) Give no cover to the enemy.
(4) Be so placed as to surprise the enemy.
(5) Not interfere with the counter attack.
(6) Constructed with consent of C.O. of that section of the defences.
(7) Have occasional gaps, which may be mined.

Types of Obstacles.

Abatis, low wire entanglement, high wire entanglement, barricades, mines or fougasses, crow's feet, inundations, etc. (See various diagrams in text.)

Wire plays an important part in most of the obstacles now being used on all fronts. It may be used in the following ways :—

(1) As a trip wire—stretched just above ground, or fastened in loose coils to short pickets. Flares and alarm guns may be used in connection with the former.

(2) A simple fence—to cause delay and confusion to the enemy at night.

(3) As a concealed obstacle in fords and standing crops or long grass.

(4) As an adjunct to tree and brushwood entanglement.

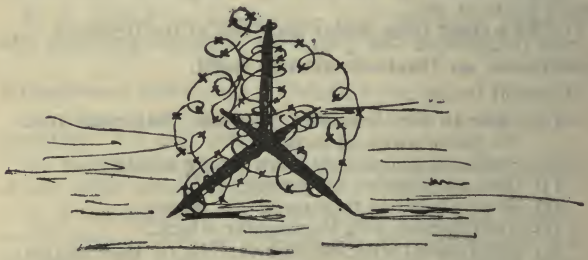
(5) As a wire entanglement solely.

Wire entanglement is the best of all obstacles for the following reasons :—

(1) Easily and quickly made.

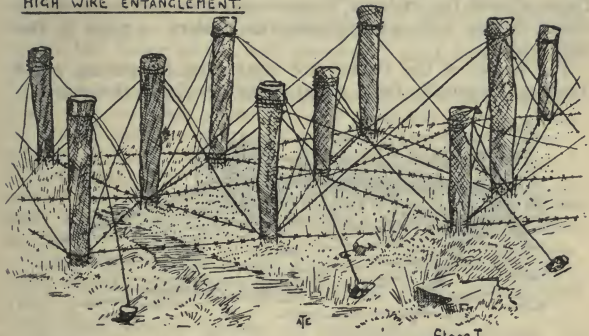
(2) It is difficult to destroy.

(3) It offers no obstruction to fire and view of the defences.



CROWSFOOT.

HIGH WIRE ENTANGLEMENT.



Stage I.

WIRE ENTANGLEMENT

Showing method of linking posts - head to foot, and foot to head. Such wire may be barbed - or plain wire, then festooned with barbed wire. Note arrangement of barbed ground wires. The posts should not be quite so regular as shewn: Planks with long protruding nails and crowsfeet may be used in conjunction with the High Wire Entanglement. Bind Wires where they cross.

Festoons of Barbed Wire - Broken glass bottles, fishhooks, &c.

Stage II

Low wire Entanglement.

Stout stakes (2 feet 6 inches long, 1½ to 2 inches diameter) are driven into the ground at 6 feet intervals. There should be, at least, three rows, arranged so that the stakes in one row are opposite the centres of gaps in the next row.

The heads of the stakes are connected by strong wires crossing diagonally from 12 to 18 inches above the ground.

"KNIFE-REST" ENTANGLEMENT.

Made in the Trenches and pushed into Position at Night.

High wire Entanglement.

(1) To be effective the wire obstacle should prevent the enemy from crawling through it, at or near the ground level. It should be screened from enemy artillery observation.

(2) Under present conditions the work is often of a hasty character, and it is therefore best to limit the first stage to just so many strands as will form a nucleus to the whole entanglement, in order that the required area may be covered by obstacle before serious interruption occurs.

(3) The obstacle is best constructed in two zones with a small space between. The pickets should be from 5 to 8 feet long, and average 5 inches in diameter. They should be placed at irregular intervals and with varying heights, in order to make more difficult the passage over them by means of hurdles and planks. The outer pickets should be very firmly driven and stayed, to prevent the enemy dragging the obstacle away. Large nails should be driven into the tops of the posts, with half their length projecting.

(4) The posts are first joined diagonally—head to foot and foot to head—with wire, which is wound round each post and secured by staples. Each centre post should be stayed by four wires. There should be a trip wire 9 inches from the ground, running continuously round the outer posts, and another 1 foot from the top of the middle posts.

Barbed wire should be hung in festoons between the posts—on no fixed pattern—and fastened to the posts. It should also be fastened to the other wire where it crosses by short lengths of wire specially cut beforehand. If available, add dangling fishhooks. Slack wires are more hindrance when cut than taut wires. **Tight wires help enemy advance by giving support to hurdles, etc.**

The ground on the enemy side and within the entanglement should be strewn with broken glass and tangled wire.

(5) The whole system of entanglement should be under fire from special firing points, and should be widest where the fire of the defenders is least effective at night.

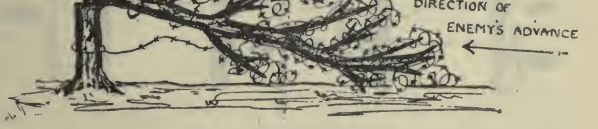
There should be one sentry, at least, to each 50 yards of entanglement. **It should be constantly borne in mind that wires must not be taut.**

Abatis.

Formed of trees, cut down, and laid side by side as close as possible, with their branches towards the enemy.

(1) Abatis should be in a hollow, screened from view, as this makes the obstacle more formidable

(2) The butts of trees should be firmly secured by burying them in the earth, or by laying logs of timber across several butts.



TREE ENTANGLEMENT.

(Note Pointed Branches and Festoons of Wire.)

(3) Wire and barbed wire should be interlaced between the boughs, which should be sharpened to points on the enemy side. Some of the lower branches may be pegged to the ground to ensure the maximum resistance.

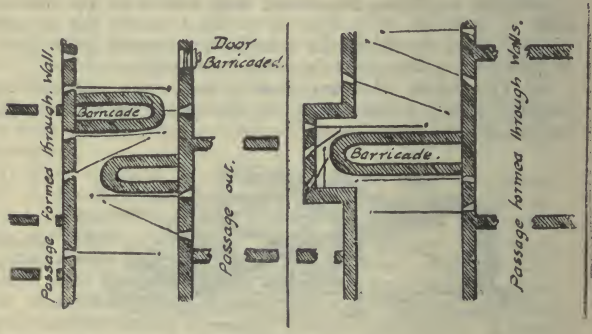
Barricades.

These are used for the defence of streets, roads, bridges, etc. They may be made of any available materials, which may include furniture, vehicles either overturned or with wheels removed, carts filled with earth, railings, bales of goods, etc.

Where trees grow along the roadside fell them across it, and entangle them if necessary.

Passages are required through barricades to allow out-posts to advance or retreat, but these passages viewed from the front must not appear as openings. Hence make the barricade in two parts, one overlapping the other (see diagram below).

Sometimes there is a gap in a row of houses, or a sharp bend in the road, so that the barricade can be made in one part, and a passage round one end left for traffic.



BARRICADES.

Inundations.

Inundations may be formed by damming streams at convenient points, particularly in valleys or by damming up the arches of bridges. In the latter case care must be taken not to endanger the stability of the bridge.

The ditches of field works form a good obstacle when flooded. A disused trench in front of a breastwork which is in use may be filled with water, and, with barbed wire thrown into it, will prove an effective obstacle.

Fougasses.

These are used in connection with obstacles, and are really land mines loaded with stones, bricks, etc.

An excavation is made, in conical shape, with an axis inclined at about 40° to the enemy horizon. A box of powder is placed in a recess at bottom, and in the box is placed a wooden platform or shield 3 to 4 inches thick, over which stones are piled.

The fuse is placed in a groove cut at the back of the excavation. The line of least resistance must be so arranged that, by placing the excavated earth on the back edge of the fougasse, the powder will act in the direction of the axis and not vertically.

A fougasse charged with 80 lbs. of powder may be constructed in this manner to throw 5 tons of bricks and stones over a surface about 160 yards long by 120 yards wide.

Explosives and Bombs.

Reference, Manual of Military Engineering, Chap. XIV. **This is most important, and should be very carefully read.**

Explosives.

Relative strength of explosives: Gunpowder, 5; cordite, 8; dynamite, 9; guncotton, 10; gelignite, 10; gelatine dynamite, 11; blasting gelatine, 12.

Guncotton

is obtainable in two forms: (1) Dry; (2) Wet.

Dry guncotton, although utilised in making bombs, is mostly used to explode wet guncotton. For this purpose it is made up in 1-oz. conical shaped pieces called primers, which are perforated in the centre for a detonator. These primers are packed in metal cylinders, each containing 10 threaded on a tape. Each case contains six cylinders. In this state, although not as powerful, dry guncotton is much more dangerous to handle than wet, being susceptible to both shock and friction.

Wet guncotton is guncotton which has absorbed 30 per cent. of its weight of water. It is made in 15-oz. slabs, 6 inches by 3 inches by 1⅛ inches, and is supplied packed in tinfoil, airtight boxes, containing 16 slabs each. Each slab is perforated in the centre for a primer.

Guncotton, whether wet or dry, like other high explosives, can be exploded by one detonator, **so long as the charges or slabs are in direct contact with each other.**

Dynamites include the following compounds:—

(1) Dynamite; (2) Gelignite; (3) Gelatine dynamite; (4) Blasting gelatine.

All these explosives are now being used. Their advantages over guncotton are that, being soft and plastic, they can be used in bombs, where it would be impossible to use guncotton slabs or primers, on account of size and shape. Dynamite and its compounds freeze very easily (42° Fahr.), becoming hard and brittle. When in this state they are very dangerous, and should be thawed before use. **This, however, should only be attempted by a competent person.** Wooden implements should **always** be used for cutting or piercing holes for de-

tonators in any of these explosives. Care should be taken to protect these explosives from damp, as when wet they become highly dangerous. Dynamite explosives are usually supplied in parchment cartridges, weighing 2 ozs., and are packed in boxes of 5 or 50 lbs.

Lyddite and Picric Acid.

Both are very high explosives, used mostly in shells. They are easily melted, and in this form used in shell filling. They are very safe and difficult to detonate.

Ammonal

A new explosive made from ammonium nitrate, aluminium and charcoal. It is now used a great deal in bombs. It is absolutely safe to handle, not being sensitive to shock or even bullets. It does **not** freeze, and can only be exploded by means of a detonator. It is supplied in powder form in 8-oz. greased paper cartridges, and is usually packed in watertight metal cases, as it absorbs moisture, and should be dry when used.

Cordite

Is made in strands, and is the explosive used in our small arms ammunition. Guncotton, nitro-glycerine and mineral gelatine are used in its manufacture.

Detonators.

See para. 103, p. 89, Manual of Field Engineering.

Fuzes.

See paras. 104-106, p. 89, Manual of Field Engineering.

Bickford's Detonating Fuze.

This fuze consists of a small lead tube filled with Tri-Nitro-Toluene (T.N.T.), a by-product of coal, and burns at the rate of 6,560 yards per second. It has to be set off with a detonator, which in its turn should be set off with a short length of safety fuze. It is used to explode a number of charges simultaneously. Being a detonating fuse in itself, it need only be wrapped round the charge in order to explode it. (See "Notes from the Front," Part III, p. 62.)

BOMBS.

There are three kinds of bombs, viz. :—

(1) Percussion ; (2) Ignition ; (3) Mechanical.

It has not been possible to describe every bomb in use under these three headings, but those typical and most used have been selected for description.

PERCUSSION BOMBS.

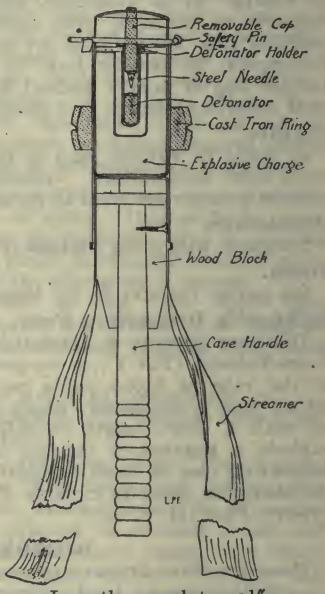
(1) Hand grenade No. 1, formerly known as R.L. percussion bomb.

(2) Hand grenade No. 2, formerly known as Mexican hand grenade, Hale's pattern.

(3) Rifle grenade No. 3, formerly known as Hale's Rifle Grenade.

Hand Grenade No. 1 consists of a brass case screwed on to a block of wood, to which is fixed a small cane handle. About half way up the case, outside it, is a cast iron ring serrated into 16 parts. The upper end is covered by a movable cap, with a striker pin in the centre. On the cap are the words "Remove," "Travel" and "Fire" in duplicate. These are marked in red, and can be made to correspond with red pointers painted on case.

To prepare bomb, turn cap so that pointer is at "Remove." Take off cap, insert detonator in hole and turn it to the left until the spring on the flange is released and comes into position under the pin. Replace cap and turn to "Travel," which is a safety position. When the bomb is to be thrown, turn cap to "Fire"; then remove safety pin. This bomb explodes on impact, and to assure its falling on the head streamers are attached. Care should be taken that streamers do not get entangled. The bomb should be thrown WELL up into the air. Special detonators are supplied with these bombs.



Length complete 12½".
Length of Handle 5".

HAND GRENADE, NO. 1.

Hand Grenade No. 2 is similar to the above, except that a special detonator is screwed in from the head, and that the striker pin, in this case, is at the bottom. The detonator having been inserted the bomb is ready for throwing as soon as the safety pin has been drawn.

Rifle Grenade No. 3, more commonly known as Hale's Rifle Grenade, consists of a serrated steel case filled with T.N.T. and a composite explosive. At the bottom of the case is a brass ring fitted with wind vanes, which keeps in place two small steel retaining plugs, securing the striker.

In order to prepare this grenade for firing, the steel rod attached must be put down the bore of the rifle. The safety pin is then withdrawn, the collar pulled down and the wind vane given a slight turn.

The rifle is then loaded with a special cartridge, containing 43 strands of cordite. When charging the rifle the bolt must be well pushed home.

When the rifle is fired, the explosion of the cartridge speeds the grenade on its way and the air passing through wind vanes causes the ring mentioned above to unscrew and the two retaining plugs to fall out. The striker is now free, and when the grenade reaches its destination and comes into contact with the ground the shock compresses the creep spring and the needle of the striker is forced into the detonator. This explodes the grenade.

Special screw-in detonators are supplied with this grenade, as well as with Hand Grenade No. 2. Care should be taken not to mix these two detonators, as the Rifle Grenade detonator is slightly longer, and if fixed in the wrong grenade will cause premature explosion.

IGNITION BOMBS.

The following bombs come under this heading :—

Hand grenade No. 6, formerly known as R.L. grenade light friction pattern.

Hand grenade No. 7, formerly known as R.L. grenade, heavy friction pattern.

Hand grenade No. 8, formerly known as double cylinder light pattern grenade.

Hand grenade No. 9, formerly known as double cylinder heavy pattern grenade.

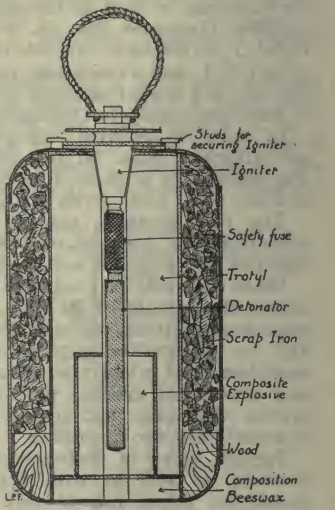
Battye hand grenade.

Pitcher hand grenade.

Oval hand grenade.

Ball hand grenade.

Hand Grenades Nos. 6 and 7.—These bombs consist of metal cases filled with T.N.T. and a composite explosive, and are exactly alike, except that No. 7 contains shrapnel bullets or scrap iron, while No. 6 contains only explosive. At the top of each case is a place to fix the friction igniter, which is supplied separately. When these bombs are to be used detonator, fuze and igniter are put in and firmly fixed. Before throwing, the becket on head of igniter should be pulled smartly off. No. 7 grenade weighs 1 lb. 13 ozs., and is supplied in cases of 40, with haversacks and four tins of igniters. No. 6 grenade weighs 1 lb.



Section

Dimensions of cylinder 4″ × 2¼″.

HAND GRENADE, NO. 7. (Heavy).

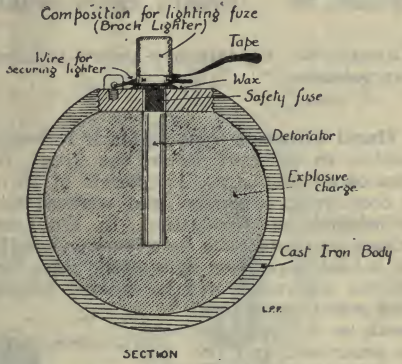
Hand Grenades Nos. 8 and 9 are similar to the above, except that the fuze is lit by a Nobel patent lighter. Grenade No. 8 weighs 1 lb. 6 ozs., and No. 9, 2 lbs.

The **Battye Grenade** consists of a grooved cast iron cylinder filled with explosive. The top is closed by a wooden plug pierced centrally for insertion of detonator and fuze. The fuze is lighted by means of a Nobel patent lighter. Weight, 1 lb. 2 ozs.

The **Pitcher Hand Grenade** is very similar to the Battye grenade. It differs in being slightly heavier, and having a different patent lighter. This lighter is somewhat complicated, and special instruction should be given before this grenade is used.

The **Oval Hand Grenade** consists of an egg-shaped cast iron receptacle filled with ammonal. One end has a steel plug and the other a flanged brass plug bored centrally, to which a hollow copper tube is fixed to take detonator. The grenade is set off by a Brock fuze and lighter. Weight, 1 lb. 2 ozs.

The **Ball Hand Grenade** consists of a cast iron sphere 3 inches in diameter, filled with ammonal and closed by a screwed steel plug, which has attached to it a copper tube to take detonator into centre of grenade. It is lighted by fuze and detonator or Brock lighter. Weight, 1 lb. 11½ ozs.



SECTION

Diameter of Grenade 3".

BALL HAND GRENADE.

Impromptu Ignition Bombs. Which can be made on the spot if materials handy. Jam tin bombs.—This bomb is made out of a jam tin filled with shrapnel bullets or scrap iron, powdered glass and grass. It is exploded by two 1-oz. primers, 2 ozs. gelignite, blastene or ammonal. These explosives are detonated by a No. 6 or 7 detonator, to which is attached a 5-seconds fuze. When the bomb is to be thrown the fuze is lighted. Time can be regulated by length of fuze.

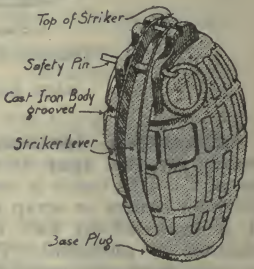
Hair brush bomb.—This bomb consists of a 15-oz. slab of wet guncotton, around which is placed some scrap iron, the whole being wrapped up in sacking or flannel. In the centre of guncotton is placed a 1-oz. primer. The whole is then wired on to a piece of wood cut out in the shape of a lady's hairbrush, a hole being left in centre of back to permit insertion of detonator and fuze. It is set off in the same manner as the jam tin bomb mentioned above.

MECHANICAL BOMBS.

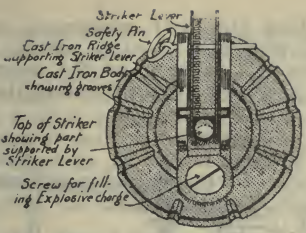
Hand grenade No. 5, formerly known as Mills' hand grenade.

Hand Grenade No. 12, formerly known as hairbrush or box pattern grenade.

Mills' Hand Grenade No. 5, Mark I, weighs about 1½ lbs., and is in constant use at the Front, being the best known of all grenades. It consists of an oval cast iron case containing explosive, and serrated to provide numerous missiles on detonation. In the centre is a spring striking pin, kept back by a lever or handle, which, in its turn, is held in position by a safety pin. Detonators and percussion caps connected by a short length of fuze are supplied with these bombs. When bomb is to be used, bottom is unscrewed and the combined detonator and percussion cap is inserted in the space provided for it, the percussion cap being placed in the boring under the striking pin. When this is done bottom is screwed on again as tightly as possible, using the special spanner provided for this in each box. Before throwing, the safety pin is removed and the bomb held with the lever in the palm of the



HAND GRENADE, NO. 5 (MILLS).

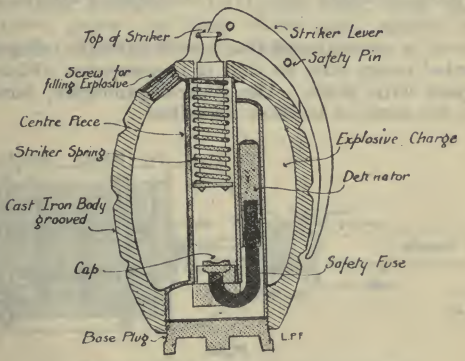


Plan—looking down on to the top of the Grenade.

HAND GRENADE, NO. 5 (MILLS).

hand. When the bomb is actually thrown the lever or handle is released ; this releases the spring, which forces striker pin on to percussion cap, ignites fuze, sets off detonator, and finally explodes bomb.

Hand Grenade No. 12 consists of a tin box filled with



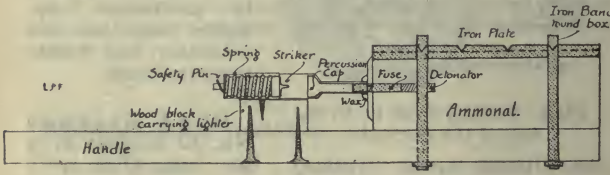
Section.

Dimensions of Grenade $4'' \times 2\frac{3}{5}''$.

HAND GRENADE, NO. 5 (MILLS).

ammonal. A grooved cast iron plate forms the front side. At one end of the box there is a copper tube to take detonator into centre of bomb. The box is tied on by means of bands to a piece of wood similar in shape to a lady's hairbrush. On the handle there is a small tube

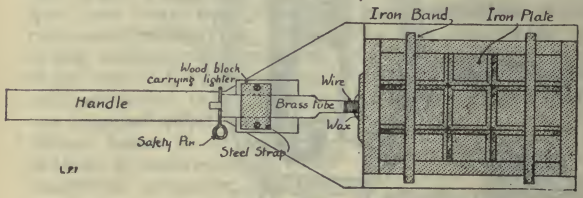
containing a spring striking pin, held compressed by the safety pin; and a percussion cap, to which is attached fuze and detonator. As soon as the safety pin is removed the spring is released and the fuze is lighted by the percussion cap.



SECTION

HAND GRENADE, NO. 12. Hairbrush Pattern.

It must be remembered that new bombs are being made and tested every day, so that it is somewhat difficult to keep pace with them. The general principles, however, remain the same as in those described.



PLAN

Dimensions :—Total Length 13½″.
Grip 6″.
Box 3″ × 5″ × 2″.

HAND GRENADE, NO. 12. Hairbrush Pattern.

Lighters.

(1) Nobel lighter.
(2) Brock lighter.

The **Nobel Lighter** consists of two cardboard tubes, one fitting over the other. Inside the top end of the

outer tube there is a layer of friction composition. Fixed to the top end of the inner tube is a forked brass friction head, which is held in position by a safety pin, passing through both tubes. Inside the other end of inner tube is a small copper band, into which fuze is fitted. At the joint of the two tubes there is a narrow tape band with loose end. To light fuze, first pull off tape and safety pin, then press down outer tube and turn slightly. This lighter has a 5-seconds fuze attached.

The **Brock Lighter** consists of a matchhead and fuze combined. The head consists of a small cardboard cup filled with friction composition and covered with waterproof paper. With this type of lighter an armlet, covered with match composition, is worn by the man on the left forearm. To ignite fuze, first pull off waterproof paper and then strike head against armlet (brassard). Time of fuze, 5 seconds.

NOTES.

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NOTES.

Bayonet Fighting Lessons

(New Syllabus.)

Bayonet fighting is as important as anything the soldier has to learn. Officers should, therefore, know the full details of every movement. The new syllabus is given herewith.

Lesson I.—THE POINT.

Formation Commands.

"In two ranks—fall in!"

The squad will fall in and stand at ease, with bayonets fixed and scabbards on.

"Attention!"

"By twos—number!"

"For bayonet fighting—Move!"

On the command "Move!" the rear rank will turn about; odd numbers of the front rank and even numbers of the rear rank will move six paces to the front and rear respectively and turn about. The whole will then take one side pace to the right without further word of command. (This will bring the odd and even numbers of each rank facing each other and opposite, thus giving each man an opponent to "point" at in the following practices):—

Practice 1.—Preliminary Work

(*a*) "On guard!" (For detail, see Infantry Training, pp. 224-225.)

N.B.—In the New Syllabus the position of the right foot is altered: it now points forward instead of at right angles to the line of advance.

"Rest!"

"Long point—Point!"

Points will be made at named parts of the body, and the positions maintained until the command "On guard!" is given.

(*b*) Judging the time point and return to the "On guard!" position on the command "Point!"

(*c*) Point obliquely at man on right or left. Point advancing **right** foot.

(*d*) "At the kidneys—Point!"

Ranks will be turned about alternately and position of kidneys shown for bayoneting enemy in flight.

SPECIAL NOTE.—Emphasis should be laid on vigorous withdrawal, followed by a smart return to the "On guard" position.

Practice 2.—Pointing without word of Command at Changing Targets.

(*a*) In this practice ranks 2 and 4 "Ground arms" and place their hands in various positions on the body. Ranks 1 and 3 then point at hands. The procedure is afterwards reversed, so that all have similar practice.

(*b*) In the same way ranks 2 and 4 hold sticks with balls of paper tied firmly to the end, while ranks 1 and 3 point at the paper in varying positions. Reverse procedure, so that ranks 2 and 4 have similar practice. (Any rough straight stick can be used which is about 4 feet long.)

Practice 3.—Pointing at Discs on Sacks placed in Trenches, on Gallows, or on the Ground.

FORMATION.—The squad is drawn up in two ranks facing sacks, and the front rank takes the first practice. On the command "At the sacks—Cover!" the rear rank stand fast; the front rank extend and double to their sacks, each man coming to the "On guard" position about two paces in front of his sack.

(*a*) "At No. 1 (2, 3, 4 or 5) disc—Point!"
"Withdraw!" (old style).

On withdrawal the front rank without further word of command pass to rear of sacks, turn to a flank and march back to their original "Close order" position. At the same time the rear rank extend and double to the sacks to take their turn at this practice.

(*b*) Squad repeat the complete movement, judging the time.

(*c*) Repeat, starting at 5 paces from the sacks and using withdrawal **new style.** (The left hand is slipped up to the **nose cap,** and the bayonet withdrawn vigorously.) Following this an immediate return is made to the "On guard" position by a forward threatening movement to the side of the sack. Procedure is then as in (*a*), the rank at the sacks passing on, the remainder taking up position 5 paces from the sacks.

(*d*) Repeat at 10 paces from sacks.

(*e*) Repeat at sacks placed on the ground and in trenches.

A Quickening Exercise.

Order the squad to double at the "High port." (The rifle is held as in the "Port arms," but carried well above the head.)

Commands :—

"At the high port—Double!"
"Charge!"

On the command "Charge!" the rifle is brought down to the "On guard" position.

Lesson II.—THE PARRY.

Practice 1.

(*a*) The various parries, right, left, high, low, etc., carried out at the word of command. (For details, see Infantry Training, Appendix I, p. 226.)

(*b*) Parries and points combined.

Practice 2.

(*a*) The squad will work in pairs, as in Lesson I, Practice 2, and will parry light sticks. Each parry will be followed by a point, the instructor giving the place to point at.

(*b*) The squad will parry sticks and point without word of command.

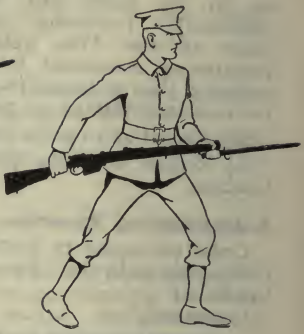
(*c*) The squad will parry from all positions in and out of trenches, and return "On guard."

The instructor can test individual skill by taking each man out in turn, and "pointing" at him with a long stick, ordering the man to parry each point.

DIAGRAM I.

The Short Point.—1.

DIAGRAM II.

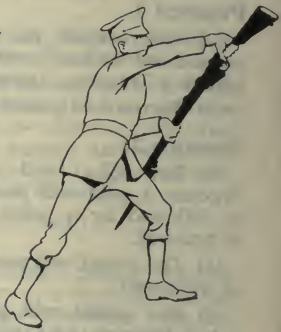


The Short Point.—2.

DIAGRAM III.

The Short Point —3.

DIAGRAM VI.



Use of Butt at Close quarters.

Lesson III.—THE SHORT POINT.

Practice 1.

(*a*) Take squad to sacks and explain the "Short point."

From the position "On guard" slip the left hand up to the **nose cap.** (See Diagram I.)

Draw back the rifle to the fullest extent of the right arm. (See Diagram II.)

Then make a vigorous point (see Diagram III) at the target indicated.

Withdraw, relax the grip of the left hand and come to the "On guard" position again by pushing the rifle smartly forward until the left hand is in its original position just above the back-sight.

(*b*) Squad "Open ranks" and practice the "Short point" with and without advancing the right foot.

Take squad to sacks and repeat Practice 3 in Lesson I, using the "Short point" only.

Practice 2.

The long and short point combined to be delivered at named discs on sacks. Afterwards deliver combined points at one sack on the ground and at another on the gallows.

The combination of "points" should be varied, the "Long point" being used first, and then the "Short point."

Special Note.—In pointing there are two common faults, which must be eradicated :—

(i) Pausing to take aim when the order "Point!" is given.

(ii) Drawing back the rifle before delivering the point.

Lesson IV.—THE JAB.

Practice 1.

(*a*) Explain the "jab" by numbers :—

(i) From the first position of the "Short point" (see Diagram I) slip the right hand up to the left (see Diagram IV, in which the movement is seen taking place).

(ii) Make a vigorous upward thrust (see Diagram V), which should be aimed at an opponent's throat.

(*b*) Squad "Open ranks" and practise the "jab," judging the time

(*c*) Procedure as in Lesson I, Practice 3, the squad facing the sacks and delivering the "jab," withdrawing and passing on.

Practice 2.

(*a*) Combined "short point" and "jab" at two named discs on sacks.

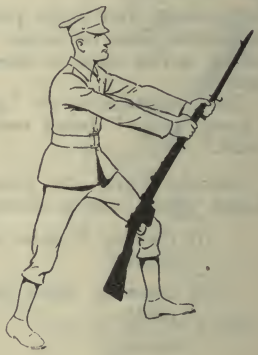
(*b*) Squad repeat at 5 paces.

(*c*) Repeat at 10 paces.

DIAGRAM IV.

The Jab.—1.

DIAGRAM V.



The Jab.—2.

Lesson V.—THE FINAL ASSAULT.

(*a*) The use of the rifle butt at close quarters. (See Diagram VI, which is self-explanatory.) The butt can be used with effect against an opponent's jaw or in the region of the heart.

(*b*) The various methods of tripping.

(*c*) The use of the knee.

(*d*) The use of the trigger-guard, etc.

In the final lessons any amount of variety may be brought into the bayonet fighting exercises by the instructor, both as to the position of sacks, and particularly as to making combined movements. In the first stages of training a firm grip and proper handling of arms should be insisted upon; then the greatest attention should be paid to "**direction**" when pointing and parrying.

Until recruits have thoroughly mastered these essentials quickness should not be insisted upon. As confidence comes after continuous practice, **quickness** and **vigour** will be the main points to follow up.

On the completion of the above lessons, recruits should be trained in the **Final Assault,** which consists of a combination of all the above lessons carried out during a charge on a series of trenches and gallows.

NOTES.

Grenadier Organisation.

Every infantry soldier must receive instructions in grenade throwing. Some men do not possess the temperament or the qualifications necessary to make efficient grenadiers, and for this reason in every platoon there should be a **nucleus** of 1 N.C.O. and 8 men with a higher degree of training and efficiency as bomb throwers than the remainder. These men are available either to work with the platoon or to provide a reserve of grenadiers for any special object. Only the very best men in each platoon should be chosen, as physique, courage and steadiness in emergencies are the qualities which count. Men fond of outdoor games are the easiest to train. The responsibility for training rests with battalion and company commanders.

TRAINING.

The first step is to overcome men's natural fear of the grenade itself by explaining how it is used, the method of lighting, and **the time taken for the fuze to burn.** Fuzes of the length used should be lighted and the men told to count while the fuzes burn out. Dummy grenades with fuzes attached can then be introduced and the men taught to light them, observing carefully at the same time how long it takes for the fuzes to burn down to the grenade.

The second step is to develop accuracy of throwing. Normally the grenade should be bowled overhand ; it is rarely possible to bowl it underhand. For short distances it can be lobbed from the shoulder by an action similar to " putting the weight." Stick grenades can be thrown for short distances like a dart. In the trenches, grenades should not be thrown like a cricket ball, as there is a danger of exploding them by knocking the hand against the back of the trench.

Men should be taught to throw standing, kneeling and prone. It should be impressed upon them from the beginning that if a grenade with a time fuze, is dropped in the act of throwing, there is ample time to pick it up and throw it out of the trench before it explodes, and that this must always be done immediately.

CAPTURE OF TRENCHES AND FORMATION OF GRENADIER STORMING PARTIES.

In taking a line of trenches, it is essential to remember that the attack will take place on a relatively small front, by a large number of men, and therefore when the trenches are finally reached there will be great overcrowding in them. To extend along them as quickly as possible is of paramount importance; otherwise the casualties in these crowded areas will be exceedingly heavy. This important work is usually the duty of the grenadier party, which, in the attack, should be in the rear of the front line of infantry. In exceptional cases they may be employed in advance of, or with, the assaulting lines. By creeping forward within throwing distance of enemy trenches they can cover bayonet assault with a shower of grenades. Immediately on reaching the trenches the grenadier-party should start bombing those still occupied by the enemy, so that they may be cleared, and the crowded troops be able to extend along them.

Formation of Grenadier Storming Parties.

Objective.—To gain possession of as much as possible of enemy's trench. In a narrow trench the only portion of an attacking party coming into contact with the enemy is the head.

Communication.—Communication throughout length of grenadier party is difficult with men extended in single file. System is required which will enable supplies of bombs to be passed up and casualties replaced automatically.

Replenishment of Grenades.

(*a*) Three grenades per man to be issued in bulk to each unit detailed to open attack.

(*b*) Small depôts should be established at frequent intervals along the trenches from which the attack starts.

(*c*) Other depôts must be established in the support and assembly trenches, and a central brigade depôt still further in the rear.

Adequate bomb-proof cover must be provided for all grenade depôts.

Knowledge of Duties.—Every man must be perfectly clear before starting as to his position and duties.

When it is necessary to clear a length of trench, the following organisation is usually adopted :—

First Grenadier Party or Group.

Two bayonet men (to protect grenade throwers).
First grenadier .. .. } Working
First carrier (also acts as lighter, if necessary) } together.
Second grenadier } Following up and keeping touch in
Second carrier } single file with intervals.
Group leader (N.C.O,).
Two bayonet men (to protect the group leader and the rear of the party).

Second Grenadier Party.

Formation as above. The head of party must be in touch with rear of first party.

Officer Commanding (in rear of second party).

Engineers (advance party of 3, with the officer commanding).

Third Grenadier Party
Fourth Grenadier Party } Formation as above.

Second in Command (in touch with rear of fourth party).

Machine-gun detachment (if available or considered desirable).

Barricading party (6 to 8 engineers with tools and sandbags).

Carriers of reserve grenades.

Reserve bayonet men, protecting rear of party.

In every formation the number of men detailed must allow for casualties.

Special points. Method of Advance.

Rapidity of movement is essential. Crawling and stalking gives the waiting enemy an advantage.

The leading bayonet men move along the trench, from corner to corner, in a succession of rushes, followed by first grenadier and carrier. Grenadiers throw as directed by bayonet men. The duty of the leading bayonet men is to protect the grenadiers at all costs.

The second grenadier and second carrier follow leader, keeping one corner behind. If the first grenadier is put out of action the carrier takes his place till next grenadier comes up.

Each party is to be regarded as reserve to the party in front. Each party must carry coloured flags (or some substitute agreed upon) to mark its position in captured trenches. On reaching objective, flags should be placed in such a position as to be easily seen by supporting troops. The code of colours must be changed for each attack.

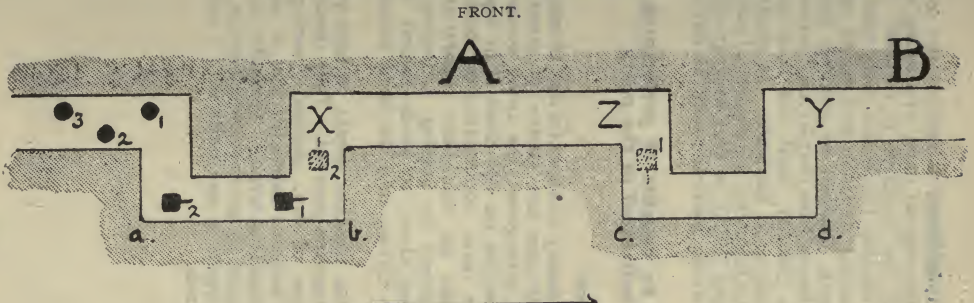
As more bombs are required they must be passed up from the rear, and replaced from the established depôts already mentioned. (Continued on p. 102.)

Method of Clearing Trenches. (See diagram p. 101).

Grenadier or thrower first puts a bomb at X in A Fire Trench,
then a second bomb at Y in B Fire Trench,
then a third bomb at Z in A Fire Trench.

As soon as third bomb has exploded, the leading bayonet man rushes into A Fire Trench, and takes up his second position in traverse c—d. The second bayonet man also takes up a new position in traverse a—b. If trench is cleared, leading bayonet man passes back word "All clear," which is passed on to grenadier party by second bayonet man. The second bayonet man then joins up with the first, and grenadier party move round quickly into cleared Fire Trench A. As soon as first bomb is thrown from this fire trench, bayonet men take up positions similar to those previously held in traverse a—b. This procedure is continued from traverse to traverse until the trench is cleared.

Method of Clearing Trenches.



(For explanation see opposite page.)

When a communication trench is reached the second party works along it, the original party proceeding along the main trench until the objective is reached. If a second party is not available the leader must send the second bayonet man, second grenadier and second carrier to work down the trench, followed by sandbag men, to erect a barricade, and riflemen from the platoon if necessary.

If head of party is checked, what has been gained must be held by throwing up a barricade. In all attacks grenadier parties must be supported by a party of sandbag men under an experienced N.C.O., so that while grenadiers keep enemy at bay, a strong barricade may be put up as quickly as possible.

Every man must be capable of performing the duties of any other individual in the party.

Grenadiers in Defence.

Although the main infantry defence of a line of trenches is by rifle and machine-gun fire, parties of grenadiers should be distributed throughout the front system of trenches. The best position for the them is in support trenches, close to the main communication trenches, whence they can make an immediate counter-attack should the enemy succeed in gaining a footing. A "bombing trench," dug about 20 yards behind, from which grenades can be thrown into the front trench, is an advantage.

Grenades stored in the trenches should be kept ready fuzed and with the detonators inserted. They should be distributed in a number of dry, enclosed, bomb-proof depôts established at frequent intervals, and a supply should be kept in the bombing trench. Grenades should be kept in tin-lined boxes to prevent deterioration. A good type of grenade depôt is one built in a T-shaped trench off the main trench.

NOTES.

Gas Warfare.

The use of poisonous and asphyxiating gases—first adopted by the Germans—has become an accepted fact in the present war. Every officer should, therefore, be well acquainted with the various ways in which gas is used in the attack, as well as with the measures to be taken to counteract its effect in the defence.

The Attack.

Two methods are employed in the attack :—

(1) Emanation.

(2) Shells and grenades.

(1) Emanation.—This method of disseminating gas can only be used in a favourable wind. Its object is to create a poisonous or irritant atmosphere, and this is done either by means of gas forced through tubes in the direction of the enemy, or by means of liquified gas stored in cylinders under high pressure. The cylinders are protected by sandbags against enemy fire.

To be successful, the following conditions are required :—

(1) Wind about 5 miles an hour.

(2) No rain.

(3) Surprise.

(4) A gas must be used which is heavier than air and will not be held back by the enemy's protective measures.

If the wind is too strong it is obvious that any gas employed will be carried too quickly over enemy trenches so that it cannot settle in them in any effective degree. If the wind is too light gas will be carried up into the air by local eddies or may be blown back. It is impossible to fix a definite hour for gas attacks, as everything depends upon the wind. If an hour has been fixed and the wind veers round the attack must be postponed.

Arsenic and phosphorus compounds are used in the tube method, and their presence can be detected at once by the smell of garlic. Should such gases, by accident, or change of wind, get into our own trenches, chloride of lime scattered freely about will disperse them.

The gases used in liquified form from cylinders are chlorine, mixtures of chlorine and bromine, phosgene gas, sulphuretted hydrogen and others. If successful in surprising the enemy their trenches should be quickly emptied. If the element of surprise is not there and time is given for defensive measures to be taken, the effect is lost. In the assault following the gas attack men should always wear smoke helmets for at least 30 minutes after gas dissemination has ceased. It must always be borne in mind that enemy machine gunners may be better protected against gas than men in firing bays. The assaulting party must have the strictest orders **not** to remove smoke helmets until the officer in charge has given the command.

(2) **Shell and Grenade method.**—In this method of dissemination, as the name indicates, shells or bombs are used containing liquid gas or a substance which gives off irritant fumes.

In trench warfare a wide range of substitutes is possible in place of the ordinary gases used. Lacrimatory shells causing water to run from the eyes are also used. Such shells contain bromacetone or chloracetone.

The grenades used weigh about 1 lb., and are similar in appearance to the ordinary jam tin grenade. They are prepared for firing in the same way, and their effect in a trench will last from 20 to 30 minutes. A number of them should be concentrated on one area to produce as large a volume of gas as possible. These grenades can be thrown either by hand or trench engine (catapult, etc.).

The Defence.

As in other branches of the military art, the best means of learning the defence, is to have a thorough knowledge of the attack. Thus, the direction of the wind must always be noted, and, if favourable for an enemy attack, special observers must be placed to give warning. **Surprise must be guarded against in every possible way.**

Smoke Helmets.

Each man is now served out with two helmets, made of a double thickness of wool or flannelette saturated with chemicals which absorb gas. They are also fitted with a tube valve through which to breathe out, and with goggles or windows to see through. These helmets must not be removed from the waterproof cases in which they are supplied, except for actual use in a gas attack. When a helmet has been once used in an attack it should be withdrawn and replaced by a new one. The new helmet provides complete protection against any gas likely to be used in a mist attack, and against suffocating or paralysing gases.

IMPORTANT.—Men must be practised in putting on smoke helmets quickly and effectively, but in practice dummy helmets only must be used. Below is given a copy of the official instructions issued with each helmet :—

DIRECTIONS FOR USE AND CARE OF TUBE HELMETS.

Description.

These helmets are the same as the smoke helmet already issued, except that stronger chemicals are added and a tube valve provided through which to breathe out. The tube valve makes helmet cooler and saves the chemicals from being affected by breath.

N.B.—Wearer cannot breathe IN through the tube valve, this is intended for breathing OUT only.

Directions for use.

Remove paper wrap from mouthpiece of tube valve. Remove **Service Cap.** Pull helmet over head. Adjust so that goggles are opposite eyes. Tuck in skirt of helmet under coat collar and button coat so as to close in skirt of helmet. Hold the tube lightly in lips or teeth like stem of pipe, so as to be able to breathe in past it and out through it.

Breathe in through mouth and nose, using the air inside the helmet. Breathe out through tube only.

Directions for care of Tube Helmet.

(1) Do not remove the helmet from its waterproof case except to use for protection against gas.

(2) Never use your tube helmet for practice or drill. Special helmets are kept in each company for instruction only.

Should the goggles become misty during use they can be cleared by rubbing them gently against the forehead.

When lacrimatory gases are used goggles affording mechanical protection may be used, as these gases are not likely to irritate the lungs, though they sometimes produce sickness.

Respirators.

Although the smoke helmet has superseded the respirator, yet it is always advisable to have respirators handy should helmets be torn or injured. They take up little room and may save valuable lives.

The best respirator is made of cotton waste and black veiling. Cotton wool respirators are dangerous and must not be used.

Improvised methods.

If a soldier does not possess one of the official pattern respirators, the following protective measures will be found useful :—

(1) Wet and wring out any woollen article, such as a stocking, muffler or cap comforter, so as to form a thick pad large enough to cover the nose and mouth, and press firmly over both.

(2) Place in a scarf, stocking or handkerchief, a pad of about three handfuls of earth, preferably damp, and tie it firmly over the mouth and nose.

(3) A wet cap comforter pulled down over the eyes and veil respirator will be found useful as additional protection, especially against certain gases other than chlorine or when the gas is too strong for the ordinary respirator.

(4) A cap comforter, wetted with water and soda solution or tea, folded into eight folds and firmly held or tied over the nose.

(5) A sock folded fourfold similarly wetted and held or tied.

If the sock or comforter has been soaked in soda solution it will still act efficiently when dry, though, if possible, it should be moist. The spare tapes from puttees may be used for tying on the sock or cap comforter.

(6) Any loose fabric, such as a sock, sandbag, woollen scarf or comforter, soaked in urine, then wrung out sufficiently to allow of free breathing and tied tightly over the nose and mouth.

In the absence of any other cloths, the flannel waistbands issued for winter use could be used for this purpose.

Knapsack Sprayers.

Knapsack sprayers are issued for use to clear gases out of the trenches after the cloud has blown over. A man with the sprayer on his back (and wearing his smoke helmet) slowly traverses the trench working the spray. If this is not done the heavy poisonous gas may linger in the trench for days and be a source of great danger.

If supports or reinforcements enter a trench charged with gas, they should be preceded by a man using the sprayer.

Sprayers are charged with sodium thiosulphate—more commonly known as "hypo"—6 lbs. being dissolved in a bucket of water and a handful of ordinary washing soda added.

Garden syringes and buckets may be used if sprayers are not available, but these are not so effective. Sprayers should be charged before they are taken up to the trenches, and should be kept ready for immediate use.

Every officer defending a trench against an enemy gas attack should endeavour to collect information whenever possible, to be sent to Headquarters through the usual channels. Particularly valuable is the capture of apparatus used by the enemy either for disseminating gas or for protection against it. If a shell attack is made, unexploded shells or portions of them should be sent through to Headquarters at once. The time of day, duration of attack, colour, taste or smell of gas used, effect on the eyes, breathing, and all other symptoms should be noted. New gases may be used at any time, and speedy information greatly forwards the adoption of preventive measures.

NOTES.

In the Trenches.

GENERAL NOTES.

1. Preparatory to Entering.

(*a*) Check periscopes, wire-cutters, glasses, water-carriers, stretchers, field-dressings, emergency rations, smoke helmets, rifle accessories, identity discs, sandbags, ammunition.

(*b*) See water-bottles filled.

(*c*) Each officer to have one orderly.

(*d*) Magazines to be charged and bayonets fixed and unfixed beforehand, to ensure proper working.

2. Taking over Trenches.

(*a*) Ascertain position of officers' dug-outs.

(*b*) Arrange telephones, see and check stores and tools, carefully note reserve ammunition.

(*c*) Obtain rough sketch of front and number of traverses to be manned.

(*d*) **See that wire entanglements in front of trenches are absolutely intact.**

(*e*) Arrange for water and find out position of latrines.

3. On Arrival.

Post sentries, arrange visiting rounds, check and explain gas alarms, arrange for ammunition.

4. Routine.

Each sentry to have periscope, and to be on watch for one hour only. **Whole company to stand to arms at dusk and one hour before dawn.** Bombs to be kept under cover. All men to know position of latrines and water supply.

Each platoon to have its own ammunition reserve, and all men to know where this is.

NOTE.—It is of the greatest importance that every detail of portion of trench taken over should be known, and also adjoining trenches as far as they affect the trench held.

Platoon commanders should make it their duty at the earliest possible moment to make sure that their wire entanglements are absolutely intact.

Accurate sketches of trench should be made—periscope, prismatic compass, and ruled notebook required. Usual scale, ¼ inch to 10 yards. Position of hostile trenches to be inserted.

As hurdle work and brushwood rots, it is not to be used for revetting when other materials are available.

Rifles should be inspected twice daily. If available, paraffin and petrol should be kept handy, in addition to rifle oil, to free magazines and bolts from mud.

Loopholes should be inspected at dusk.

Drains should be watched, and every effort made to keep trenches dry.

When enemy bomb guns are active, watchers should be told off to give notice of coming of bombs.

Respirator and gas helmets parade; twice daily.

Wire; Inspected every night, and damage repaired under cover of darkness.

Obstacles to be prepared so that our troops can pass through them to attack. (Further reference to "Obstacles" will be found under special heading on pp. 69-74, and in account of "Defended French Village," p. 117.)

IMPORTANT NOTE.—Every precaution possible should be taken to guard against flank attacks, in the event of the line on either side being forced back.

Fire trenches should contain as few men as possible. Work should be done at night, the men resting by day. Provide plenty of communication trenches and see that men pass only in one direction along them.

ATTACK AND DEFENCE.

General principles of Attack.

(*a*) Objective to be chosen with a view to artillery co-operation.

(*b*) Fullest possible information to be obtained with regard to that part of the enemy's position to be attacked.

(*c*) Arrangements must be made for suitable distribution of artillery fire over various enemy defences, batteries, etc.

(*d*) Infantry must be protected from counter-attack by artillery, until ground gained can be consolidated.

(*e*) Action of artillery and infantry must be simultaneous.

(*f*) Fullest co-operation between infantry and engineers. Constant rehearsals of projected attack essential.

(*g*) Final orders not given till artillery reports everything in readiness. Incessant fire with rifle and machine guns from trenches while attack is in progress.

Abridged Orders for recent Successful Attack.

These should be carefully studied and followed out by means of the plan on p. 114, as together they give an excellent idea of the way in which orders for the attack are issued.

(1) Attack will be made on enemy's position north of X.

(2) Objective: trenches marked D, E, B, M, facing our trenches 5, 6, 7, 8, 9.

(3) Attacking troops: 6 infantry battalions, 2 companies of engineers.

(4) Distribution:—

Left column: 2 infantry battalions, ½ company engineers.

Right column: 2 infantry battalions ½ company engineers.

Reserve: 2 infantry battalions and 1 company engineers.

(5) Direction: left column will seize trenches D and E, drive out defenders, occupy communication trenches. Two previously detailed detachments will face west and east respectively, and the latter will enfilade B with machine-gun fire.

Diagram Illustrating a Recent Successful Attack (see p. 113).

When left column has reached trenches, right will debouch by trenches 8 and 9, and advance against trenches M and W. At the same time left column will attack trench D. If attack succeeds, force will endeavour to push on East by trenches S, T, V, Y, Z. It will then be possible to take R and Q in front and flank, and perhaps capture them. Engineers in captured trenches will search for mines and cut fuses. Infantry will immediately begin to put captured trenches in state of defence. Covering parties will hold communication trenches.

(6) Machine guns of left column will follow supports of attacking column, and take up positions in trench E to hold front. One machine gun will enfilade trench B, while the machine-gun section will also follow supports and occupy trenches M and S, so as to fire on B, R, Q.

(7) Infantry attacks will be covered by :—

(*a*) Detachments ordered to face outwards when trenches are reached.

(*b*) Fire from trenches 1, 2, 3, 4.

(*c*) Fire from trench 9, if not masked, and from trenches on Hill 180.

(*d*) Naval and mountain guns on Hill 180, and by field batteries.

(8) An assault will be made in each battalion by 3 companies simultaneously—companies in 4 columns, 1 platoon to each column. Platoons will advance by sections with party of engineers between each 2 sections. Engineers with each platoon; entrenching tools and sandbags to be carried in belts. Each man to carry one sandbag. Six men of leading section will carry hurdle for getting over wire, and each column will carry two light gangways for crossing our own trenches.

(9) Assembly of columns. Companies will be drawn up before assault in communication trenches.

(10) Preparation.—Field artillery will engage any hostile battery opening fire. Naval and mountain guns will engage enemy's machine guns. Trench mortars will bombard trenches. Fortress

machine guns will make breaches in entanglements where visible. When required effect has been produced, artillery will lengthen range. At pre-arranged signal infantry will push forward.

(11) Assault.—Must be carried out with energy and rapidity, and defence rapidly formed to meet counter-attack.

(12) Reserve battalions will be in ravine West of Hill 180 during attack; 1 battalion to be held in readiness to move to places of assembly, other to remain under cover.

(13) If columns are forced to retire they will fall back on troops occupying trenches.

(14) Engineer stores will be placed close to communication trenches, and near trenches 6 and 8.

(15) Ammunition.—Each man carries 200 rounds. Reserve of 300,000 rounds formed behind trenches in ravine West of Hill 180.

(16) Troops in trenches will:—

(*a*) Cover flank of attack, especially those in 1, 2, 3, 4.

(*b*) Trenches 10-18 will cover their front so long as fire is not masked by the attack.

(*c*) Trenches 20-26 will engage bodies debouching from valley North-East of Hill 180, or from the ravines to the north, and will also maintain heavy fire on enemy's trenches.

(For direction of trenches 20-26 see map.)

Detailed orders will be given to trench commanders to ensure distribution of fire. Special observers will be put in trenches 25 and 26.

Result of the Attack.

Trenches were captured; troops in D forced to give ground, but were reinforced and re-occupied trench. No counter-attack was made. On following day remaining trenches were occupied.

Lessons from this and other actual attacks

(1) Carefully thought out plan essential.

(2) Effect of well-directed artillery fire very great.

(3) Some guns should be brought to close range.

(4) Capture of trenches often less difficult than retention.

(5) Enemy's entanglements difficult problem. If blown up prior to attack enemy is put on guard. Machine guns sometimes successful in demolition.
(6) Attacking troops should carry bombs, as they have frequently been driven out owing to lack of them.
(7) Every detail prepared with regard to support of troops in captured trenches.
(8) Digging communication trench often advisable immediately on capture.
(9) Every officer and man should know exactly what he is to do.

General principles of Defence.

(1) If situation permits, points d'appui (points of resistance) should be substituted for continuous trenches. These must be well flanked and protected by obstacles. Machine guns must be protected and well-hidden. Also placed to fire in several directions.

(2) Troops responsible for defence of positions should have shelter in rear.

(3) Trenches should have support trenches 100-200 yards in rear, made in sections to limit retirement of party momentarily compelled to evacuate trenches, and to give time for local reserves to come up to counter-attack.

(4) Close co-operation between infantry and artillery is an essential factor.

(5) Protection of second line must not be neglected.

(6) Various improvements in positions should be undertaken as early and as energetically as possible. If trenches are lost, counter-attacks must be organised without a moment's delay.

Village Defence.

The following was the actual scheme employed for the defence of a French village, and exemplifies the thoroughness with which defences must be organised.

The village was about 700 yards in rear of the front line, and had three keeps surrounded with wire entanglements and independent of each other, but with an elaborate system of communication trenches. Water and four days' rations were stored in each keep, and wells dug. Keeps each held about 1 company. Communication trenches were about 6 feet deep, used as far as possible

as fire trenches, and well traversed. Firing platforms were revetted with brushwood, and shelters made all over the village. In addition to keeps, a series of lines existed in rear of front line, intercommunicating and provided with barbed wire. A small wood on one point of the front was defended by a network of low wire entanglements, and a line of high wire netting.

Every officer had to know all about his section and its communications with right and left. Telephone wires were laid low down in communication trenches, fastened a few inches from ground with wooden pickets.

Machine guns were placed so as to flank salients. A 65 mm. field gun was placed in front line to sweep village, and an observation station placed in a tree. The observer wore a green mask, and green sheet.

Great use was made of brushwood and undergrowth to revet steps of firing platform.

All work was carried out by regimental officers and men without help from engineers, who were fully employed in mining. The garrison of the village and the front line trenches in the vicinity was about 1 battalion, but the fire trenches were sufficient for 3 battalions.

Sniping.

Each company has specially selected men told off as snipers.

Strict discipline is essential. They are on duty all day, but have nights in bed. Each pair is told off to a definite post, or given a roving commission.

Snipers must be expert in :—

(*a*) Building of loopholes of all kinds by day and night, which should be placed low in parapet, be screened and placed for enfilade fire.

(*b*) Use of telescopic sights, periscopes, etc.

(*c*) Selection of good sniping positions for use in front of or behind fire trenches.

(*d*) Judging distance.

(*e*) Quickness of aiming and trigger pressing.

(*f*) Laying of fixed rifles for night firing and in fixing and laying of rifle batteries.

Reports on work done by snipers will be rendered each evening to the Officer Commanding Company.

DUTIES OF A PLATOON COMMANDER AT THE FRONT.

General Notes.

The selection and training of section commanders is of the highest importance. A commander must assure himself that he has the confidence of the men.

A platoon commander should know his men and all about them. A book with names arranged in section should be kept up to date.

He should know how to inspect a platoon on section system.

He should know his drill, and be capable of moving the platoon into any position.

He should know how to organise a task allotted to him, such as telling-off a working party, placing a line of sentries, arranging posts and reliefs, and occupying a line of trenches.

He should be able to assume responsibility for all trench stores, bombs, periscopes, etc., handed over to him.

He should know the geography of his battalion trenches, the position of company and battalion headquarters, and keep trained guides at hand who can find their way to all important points by day or night.

Going into the Trenches.

Platoons generally enter by not more than two sections at a time, thus minimising danger from shell fire and delay at entrance to communication trench.

Before leaving billets platoon commanders should explain fully to sergeants and section commanders the extent of trench to be taken over, and the steps to be taken in case they are caught by shelling or rapid fire going up to the trenches. Arrangements should be made that if casualties occur among leaders relief will proceed as arranged.

In the Firing Line.

On relieving fire trenches men should make no noise, and rifles must be carried so that they do not show over the parapet. This is necessary even if enemy trenches are at a distance, as there is always the possibility of a listening or observation post being quite near.

Each man should pair off with one of the party occupying the trench, and find out from him any points which may be useful.

The commander should consult the officer or N.C.O. in charge of outgoing party, and obtain the fullest possible information with regard to the position.

Particular points on which information should be obtained from the outgoing officer ;—

(*a*) Behaviour of enemy during period preceding relief, and any point in their line requiring special information, *e.g.*, enemy may have cut wire as though preparing to attack.

(*b*) Machine-gun emplacement may be suspected at some particular point.

(*c*) Anything ascertained by patrols about ground between firing lines, thus avoiding unnecessary reconnaissance.

(*d*) Any standing arrangements for patrols at night, including point at which wire can best be passed, ground to be patrolled, or place where they can lie under cover.

(*e*) Any parts of trench from which it is not safe to fire. Such positions are apt to occur in winding trenches, and are not always recognisable in the dark.

(*f*) Special features of trench, recent improvements, work not completed, dangerous points (on which machine guns are trained at night), useful loopholes for observation.

(*g*) Places from which wood and water can be safely obtained.

(*h*) Amount of ammunition, number of picks, shovels and empty sandbags in that section of the line.

Information on these points cannot always be given properly by word of mouth. **Written** notes and plans should, therefore, be handed over to a platoon commander taking over for the first time.

In the meantime the incoming party should fix bayonets and all go temporarily on sentry at posts taken over. Occasional shots must be fired, so that the enemy's suspicions may not be roused. The outgoing party then

starts back and when clear the relieving party should be numbered off and sentries posted. By day the number of sentries varies, but should not be less than one in six. The platoon sergeant is responsible for changing sentries, who should not be on duty for more than one hour at a time.

Every man is required to see that he has a good firing position for all directions. Section commanders must satisfy themselves that men have done this, and report. When these arrangements are completed word must be quietly passed down for men not on sentry to stand clear. **The whole line " Stands to " during the hour before dawn.**

After dark, unless the moon is bright, rifles should be left in firing position on the parapet. All men not on sentry should keep rifles with bayonets fixed, in the trench.

It is sometimes convenient to make narrow vertical slots in the side of trench with shallow scoop for butts, in which rifles can stand. Rifles can thus be kept clean and ready to fire, and are out of the way in a narrow trench.

POINTS IN WORK OF PLATOON COMMANDER AFTER SECTION HAS BEEN TAKEN OVER.

Observation.

Continuous survey of enemy's line through disguised steel loopholes should be made if the trenches are being held for any lengthy period. Such loopholes should be set facing sideways. Sites may be chosen by day and inserted and disguised at night. They should not be too low in parapet, unless well protected at look-out hole. A sandbag should be split to hang over the back of each loophole, and the number burnt on each curtain for reference, and also to prevent loopholes being obscured during repairs to parapet. Two steel loopholes about 3 yards apart enable a man with levelled rifle to wait at one while another with field glasses watches for target through the other.

Men with a natural gift for observation should be put into relays of 3 or 4 to each loophole, and required to keep continuous observation of an allotted section of

enemy trenches. Very valuable information can be gained by this method.

An observer watching persistently through glasses in complete security should make himself so familiar with the look of opposite trenches, as to be able to observe any alteration in the enemy's wire entanglements or notice immediately if a new sap has been run out from the enemy trenches under cover of night. He should watch points suspected of being machine-gun emplacements. This particularly applies to night observation, when shots fired can be detected by flashes Observers should be told what marks (cockades, piping, etc.) to look for on men exposing themselves. Any observations should be at once reported to the officer or N.C.O. in charge of the platoon.

Upkeep and Improvement of Trenches.

Widening of trenches should be strictly forbidden. Some amount of daily repair is generally necessary.

A platoon commander should make frequent examination of trench and at least once daily go round with platoon sergeant and section commanders, when any work necessary can be decided upon. Section commanders should be made responsible for carrying it out.

Before handing over a trench a platoon commander should make a rigorous inspection to see that it is clean, and that latrines are left in a satisfactory state. Cleaning a trench includes the removal of all old tins, paper, scraps of food, etc., which should be burnt in the latrines. Empty cartridges should also be cleared out, as they get embedded in trench floor, and hinder subsequent digging.

Sentries.

If the enemy is close, sentries should be supplied with small periscopes to fix on sticks and bayonets.

Magazines should be kept as full as possible.

Sentries are not allowed to look over the parapet by day, but by night they must keep a continuous look out.

Shots should be fired, even when no lights are showing, on the chance of catching hostile patrols or working parties.

Sentries should not reply to burst of rapid fire on right and left, unless they have a definite target to aim at.

Watches.

Arrangements are usually made for commanders of two or three neighbouring platoons to divide the night between 10 p.m. and time for "Standing to" between them.

The platoon commander on duty in each watch should patrol the line constantly, and satisfy himself that the proper number of sentries are on duty and keeping a sufficient look out. Also that they have proper fire positions. In each platoon the sergeant and section commanders keep watch similarly in turns during the night, and are responsible for the relief of sentries. They also visit sentries every hour.

Inspection of Rifles and Care of Rifles in Trenches.

Rifles should be inspected every morning in the trenches by the platoon commander, and at other times during the day by the sergeant or section commanders. It should be impressed on men that ammunition must be kept clean, or rifles are apt to jamb

Care of Rifles in Trenches.

Principal defects :

(*a*) Mud in bolt, owing to rifle being rested on wet parapet, or dropped on wet ground.

REMEDY.—Cover bolt when not in use with canvas cover or with old sock.

(*b*) Muddy ammunition resulting in mud in chamber.

REMEDY.—Prohibit placing of ammunition on ground and provide proper boxes for it.

(*c*) Mud in muzzle resulting from rifles being pushed into sides of trenches.

REMEDY.—Careful and frequent inspection. Rifles must be clean before firing.

(*d*) Sticking of cartridges owing to dirt in chamber and magazine.

(*e*) Rust in lock and insufficient oiling.

REMEDY.—Bolt and magazine must be tested daily. Cartridges never to be kept in chamber.

IMPORTANT NOTE.—Equipment must never be removed in the presence of the enemy.

PATROLS.

Patrolling both by day and night is of the greatest importance.

Each unit in the front line sends out several small patrols who are frequently able to obtain valuable information, and at the same time counter the enemy's efforts in this direction.

Patrols generally consist of a selected officer and 4 to 6 selected N.C.Os. and men according to the objective. If this should be, say, the investigation of a crater, formed by a recent mine explosion, the officer, accompanied by a N.C.O., would make the actual reconnaissance, covered by the remainder of the patrol.

Bombs are frequently carried for both offensive and defensive action.

These patrols frequently carry out small operations, such as capturing prisoners, bombing an enemy listening post, etc.

Every man in the section of firing line concerned must be warned that a patrol is going out, and may return by his post. **It is not sufficient to warn the sentry on duty at the time a patrol goes out, as men cannot all be trusted to pass on instructions to their reliefs. Word should be quietly taken down the line by N.C.Os. in person, and never passed from man to man.** At the same time instructions should be given about firing. Ceasing fire altogether while the patrol is out is undesirable, as it rouses the enemy's suspicions. **A few of the most trustworthy men should, therefore, fire high at intervals.** No lights are to be sent up while the patrol is out.

If the patrol is to be stationary near the trench, it is sometimes desirable to establish communication by means of a string.

Where patrols have to lie out in trying conditions, special dug-outs should be reserved for them on their return.

Saving of Ammunition and Equipment.

Dirty ammunition and equipment, which is apt to accumulate where a system of trenches has been held for a long time, should always be picked up and cleaned, or,

if too dirty, returned to the company quartermaster-sergeant. Rifles in a similar condition should also be returned to him.

Latrines.

Section commanders are responsible for finding out latrines nearest their sections on coming into the trench, and their men must know where they are. Latrines in use should be plainly marked, and a record of their existence left when they are no longer in use and covered up.

Latrines are usually dug in rear of the fire trench and branching from a communication trench.

Latrines should be handed over clean, *i.e.*, those parts used by men of outgoing platoon should be filled in. If this is not done the main trench becomes in a filthy state. The free use of chloride of lime is an absolute daily necessity.

Frostbite and Chilled Feet.

CAUSE :—

(*a*) Prolonged standing in cold water or liquid mud.

(*b*) Tight boots and putties, which interfere with the circulation.

PRECAUTIONS :—

(*a*) Before going into trenches the feet and legs to be washed and dried; then rubbed with whale oil or anti-freeze mixture (now an issue), and dry socks put on. A second pair of dry socks to be carried.

(*b*) Boots and socks to be taken off from time to time when in the trenches, and the feet washed and dried and rubbed again with fat.

(*c*) Hot water not to be used, nor feet held near a fire.

(*d*) Men must wear gum boots served out, only in the trenches. On no account must they be allowed to wear them when in billets or in localities a considerable distance behind the trenches.

SOME OF THE MANY QUESTIONS A PLATOON COMMANDER SHOULD ASK HIMSELF ON TAKING OVER A TRENCH, AND AT INTERVALS AFTERWARDS.

(1) I am here for two purposes—to do as much damage as possible to the enemy and to hold my part of the line at all costs. Am I doing everything possible to ensure my being able to do this?

(2) Do I worry the enemy as much as I might do, and are the sniper-scopes, rifle grenades, catapults and patrols at my disposal organised in the best way to effect this purpose.

(3) Am I doing all I can to make my part of the line as strong as possible?

(4) Should the enemy succeed in getting into any part of my line, can I at once bring up a section with bombers for immediate counter-attack?

(5) Do I connect up properly with the platoons on my right and left? Do I know the position of the nearest support, and the positions of all machine guns in my vicinity, as also their lines of fire?

(6) Does every man know his firing position and can he fire from it, over the parapet, at the foot of our wire?

(7) Do I do my best to prevent men exposing themselves needlessly? Have I ascertained and warned all my men of the places in my part of the line, including communication trenches, which are exposed to the action of hostile snipers?

(8) Are my sentries in the right places? Are they properly posted by N.C.Os.? Have they received proper instructions? Is one man ever on duty for more than one hour at a time? Are the sentries visited at frequent intervals?

(9) Have I always got a man ready to take messages to Company Headquarters? Do I realise that I should at once report any information I may obtain about the enemy, and that such information may be of the greatest use to the divisional and higher commanders?

(10) Do all my men know their duties in case of attack—bombers especially? If the enemy succeeds in breaking

into my line at any point, how can I best arrange for counter-attacking him?

(11) Are there any suitable places in my part of the line which snipers can use? Have I pointed out to section commanders the portions of the enemy's trench which each one is responsible for keeping under fire, and where the enemy's loopholes are?

(12) Do I thoroughly understand the best method of relief, and do my men come up into the trenches in absolute silence?

(13) Do my men know their way about the trenches, and the various routes to company and battalion headquarters?

(14) Am I acquainted with the arrangements for giving information to the artillery and for asking, if necessary, for their immediate support? Do I know where the nearest telephone is situated?

(15) Am I doing my utmost to collect information about the enemy, his defences, his activities and movements, and especially about his patrols at night? What points in my front particularly require patrolling?

(16) Where are my listening patrols, and are they properly detailed?

(17) Which is the best way to get through my parapet in order to go towards the enemy?

(18) Do I know the orders regarding the use of S.O.S., "gas" and Zeppelin messages, and do I know exactly what messages to send? (See under "Signalling" for form of these messages.)

(19) Are the arrangements in case of gas attack complete and known to all ranks? Is the gong in position, and does the sentry know the orders as to sounding it?

(20) Have my men always got their smoke and tube helmets on their person, and are they in good order? Do they know how to put them on, and how to use the tube helmet?

(21) Are my parapets and traverses bullet-proof everywhere?

(22) Is my wire strong enough, and am I doing all I can to prevent my parapets and dug-outs from falling in?

(23) Am I doing all I can to drain my trenches ?

(24) Am I ready to do all repairs to my parapets, dug-outs and wire without calling for R.E. assistance, unless it is absolutely necessary ?

(25) Have my men got weather-proof places to sleep in ?

(26) Are the trenches as clean and as sanitary as they might be ? Are live rounds and empty cases properly collected ? Have I made all possible arrangements for the collection of all refuse, and do all my men thoroughly understand that it is not to be thrown out in front of the parapets or into the sump pits, but into the proper receptacles ?

(27) Where are my small arm ammunition and bomb stores ? Are they under cover from the weather ?

(28) Are all my rifles and ammunition clean and in good order ? Have all my men got rifle covers ? Are the magazines kept charged ?

(29) Am I doing all I can to prevent my men getting "trench feet" ? Do they take their boots off and rub their feet for at least a quarter of an hour every day, and is this done as a parade ? Have my men greased their feet, and have they got a spare pair of dry socks to put on ? Do my men wear gum boots when it is not necessary ? Have I made all possible arrangements for drying socks ?

(30) Are the orders as to wearing equipment carried out ?

(31) Are my men using as firewood notice boards or wood from the defences, or from the R.E. or trench stores ?

(32) Are my men drinking water from any but authorised sources ?

(33) Do I know the name of every N.C.O. and man in my platoon, and do they know mine ?

(34) Do I ensure that my men get sufficient sleep ?

(35) Have I sufficient periscopes, and are they in good order ?

(36) Do I personally supervise the rum issue ?

(37) **I am here for two purposes—to do as much damage as possible to the enemy and to hold my part of the line at all costs. Am I doing everything possible to ensure my being able to do this ?**

Carry On.*

When the ammunition's low, carry on.
When a volunteer must go, carry on.
When you feel that you must rest
Or you'll have to journey west,
Stop your grousing, do your best, carry on

When the parapet goes " phut," carry on.
When the telephone is cut, carry on.
When the " wind up " seems to spread,
Let the others lose their head,
Have a cigarette instead ; carry on.

* From " Soliloquies of a Subaltern," by Eric Thirkell Cooper (Burns & Oates, 1s. net).

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Billeting.

General.

Billeting parties usually consist of 1 officer from each battalion, an interpreter, 4 N.C.Os. (1 from each company), and the 4 company quartermaster-sergeants.

When possible, billeting parties march in a formed body at the head of their brigades, in readiness to move forward.

Infantry as a general rule is billeted in villages, and mounted troops in surrounding farms, where stabling and suitable provision can be obtained for horses.

Billeting areas must be selected by brigade billeting officers before arrival of troops, to allow roads to be cleared.

Halting places should be selected for brigade, battalions and companies to halt while details of billets are being worked out.

Approaching billeting areas transport must not block roads by halting in middle of villages.

When billeting one village in France or Flanders the officer detailed for the work, accompanied by an interpreter, proceeds to the house of the Maire, who supplies list of billets.

Precautions.

No one is allowed outside the billeting area without a pass, and sentries must be posted at all exits. Headquarters of battalions must be in a central position and known to all ranks.

To prevent information being given to the enemy, inhabitants of billeting areas should not be allowed to leave. Men should be warned against giving information.

Officers must satisfy themselves that all N.C.O.s and all men know where the point of assembly is in case of alarm.

Officers must be billeted near their men, and companies kept together. Large buildings are preferable to small ones, as supervision, control and food supply are easier. Arrangements must be made beforehand in case of fire, artillery attacks, hostile aeroplanes, etc. Looting must be most sternly repressed.

Food.

Food supply is in the hands of the A.S.C. Quartermasters are responsible for obtaining the necessary supplies. If it is necessary to take food, fuel, etc., authorisation must be obtained from the brigade requisitioning officer.

Sanitation in Billets.

(1) Troops must not use the latrines of the inhabitants. Pits must be dug in suitable places, which must be notified to all.

(2) Refuse must be burnt, but care taken that smoke does not disclose the position.

(3) When troops relieve one another, outgoing units must leave billets scrupulously clean.

(4) Arrangements for drinking-water must be made known to all. All drinking-water to be treated with chloride of lime, or boiled.

Sentries.

Very careful orders based on the foregoing information should be issued to sentries, who should be posted immediately billets are taken over.

NOTES.

Machine Guns.

HOW TO FIRE A MACHINE GUN IN CASE OF EMERGENCY.

It is difficult to obtain even the most elementary knowledge of machine guns from books. Officers should lose no opportunity of getting into touch with a machine-gun officer and learn by actual experience how to load, fire and rectify simple stoppages.

1. Lewis Automatic ·303-inch Machine Gun.

To LOAD.—Put a full magazine on the magazine post with the cocking handle forward.

Pull back cocking handle to its fullest extent; put up tangent sight if it is necessary to lay on the target.

To FIRE.—Press the trigger and the gun will continue to fire so long as pressure on the trigger is maintained. It will only stop :—

(*a*) When the magazine is empty.
(*b*) When a stoppage is set up.

To REMEDY :—

(*a*) Take off empty magazine and put on a full one. Reload, relay and fire.
(*b*) Cocking handle stops in one of three positions. To remedy this, one must have a thorough knowledge of "Remedying of Stoppages."

To Disable Gun.

(*a*) Fire a rifle bullet through the radiator or body.
(*b*) Remove magazine, pinion casing (complete), piston rod and rack, and smash gun against tripod.

2. Vickers' Automatic ·303-inch Machine Gun.

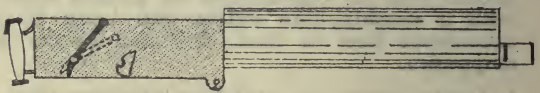
To LOAD.—Pass brass tag of belt through feed block (right to left), pull back crank handle, and pull belt to the left. Release handle and belt. Now repeat this

POSITION OF CRANK HANDLE IN COMMON STOPPAGES.

I

Force of Explosion not strong enough.
- Too strong Fusee Spring.
- Excessive Friction or Grit.
- Deteriorated Ammunition.
- Worn Barrel.

II

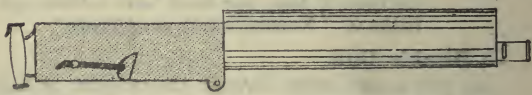


Cartridge unable to get into Breech.
- Bulged Case.
- Separated Case.

III

Extractor unable to Rise. Defect in Feed-Block.
- Slight Fault in Feed.
- Damaged Extractor Grooves.
- Thick-rimmed Cartridge.
- Bad Fault in Feed.
- Broken Gib or Gib-Spring.

IV



Misfire.
Anything Broken in the Lock.

N B.—In No. II Stoppage the crank handle is sometimes as low as shown in the dotted position. Distinguish carefully between this and No. III.

process and the gun is loaded. Vertical adjustment for sighting is obtained by moving elevating wheel on quadrant of tripod. Horizontal adjustment is obtained by tapping the rear cross piece. The clamping handle is in front of the cross band of the tripod.

To FIRE.—Raise safety catch with first or second finger—the safety catch is a strip of steel just under the thumbpiece or double button—and press the thumbpiece. The gun will now fire until pressure is released, or until a stoppage occurs.

Stoppages.

There are four common stoppages, distinguishable by the position of the crank handle. (See diagram.)

Remedies.

(1) Pull crank handle back, and pull belt to left; let go crank handle.

(2) Open rear cover, take out lock, and remove bent cartridge from face of lock; reload.

(3) Hit crank handle down. If it will not go, lift it a little, pull belt and hit it again.

(4) Raise crank handle, pull belt and let go crank. If not effective, then put in the spare lock, but unload first (crank handle pulled back twice)

To Disable Gun.

(*a*) Remove lock and fuzee spring.

(*b*) Fire a rifle bullet through the breech casing.

NOTES.

Interior Economy and Military Law.

Abbreviations ;—

M.L. Manual of Military Law.
R.P. Rules of Procedure.
K.R. King's Regulations.
R.W. Royal Warrants.
A.A. Army Act.

1. POWERS OF AN OFFICER COMMANDING COMPANY (K.R. 499, 501, 485.)

A company commander can award the following punishments :—

(1) Up to 7 days C.B.

(2) Fines for drunkenness.

(3) Forfeiture of pay (under R.W. for absence without leave).

(4) Extra guard and picquets. These punishments should not be awarded except for offences committed on those duties. In the case of N.C.Os. he may admonish and reprimand (but not severely reprimand) N.C.Os. below the rank of sergeant.

For Powers of a Commanding Officer, see K.R. 493-499.

2. FORFEITURE OF PAY. (R.W. pp. 977-9 ; A.A., Sect. 138.)

Six consecutive hours' absence, whether all in one day or partly in one day and partly in another, constitutes one day's pay.

Twelve consecutive hours' absence, provided it is partly in one day and partly in another, constitutes two days' pay.

These are the minimum periods of absence for which the amount of pay mentioned is forfeited.

It is important to remember that the number of days' pay which a man forfeits will in no case exceed the number of calendar days during the whole or portion of which he was absent.

Examples.

Private A, absent from 9 a.m., May 13, till 3.5 p.m. same date, forfeits 1 day's pay.

Private B, absent from 12.5 a.m., May 13, till 11.55 p.m. same date, only forfeits 1 day's pay.

Private C, absent from 11.45 p.m. on Monday till 12.15 a.m. on Wednesday, forfeits 3 days' pay.

A man may also forfeit a day's pay when by reason of his absence he is prevented from performing some military duty which was thrown on some other person. Under these circumstances a day for the purpose of forfeiture of pay is any period or part, however short, of an ordinary calendar day.

3. FINES FOR DRUNKENNESS. (K.R. 512 ; A.A., Sect. 19.)

For the first case, no fine.

For the second case, *2s. 6d.*

For the third and every subsequent case, *5s.* ; but if the third or subsequent offence occurs within six months of the preceding offence, *7s. 6d.* ; and if within three months, *10s.* The time during which a soldier is absent from duty by reason of imprisonment, detention or absence without leave, is not to be reckoned towards freedom from extra fine.

4. HOW TO MAKE A SUMMARY OF EVIDENCE. (M.L., p. 30, Sects. 26-30 ; R.P. 4, c, d and e.)

If a commanding officer after hearing a charge against a soldier is of opinion that the case is a serious one, and cannot be dealt with summarily, or that the evidence is conflicting and complicated, he may adjourn the case to have the evidence taken down in writing. The evidence,

when taken down, is termed a "Summary of Evidence," and the procedure for doing the same is as follows :—

An officer is appointed to take down in writing the evidence of the witnesses in the presence of the accused, and the accused has the right to cross-examine the witnesses. The questions and answers are recorded, and after the evidence has been read over, together with the questions and answers, it is signed by the witness giving it. The points to be remembered are :—

(1) That the evidence is not taken on oath.

(2) That the evidence must be taken in the presence of accused, who has the right to cross-examine each witness.

(3) That the evidence of each witness, together with the questions and answers, is signed by the witness giving the evidence.

(4) Should the accused decline to cross-examine the witnesses, this fact must be stated.

(5) At the conclusion of a summary of evidence, the following must be stated : That Rules of Procedure 4 (c, d and e) have been complied with.

A specimen Summary of Evidence is given on the following page.

Usual Form of Summary.

SUMMARY OF EVIDENCE FOR THE TRIAL OF No. —, Pte. X, 1st Battalion, Blankshire Regiment.

First Witness .. .. No. —, Sergeant J. Wye, 1st Battalion, Blankshire Regiment, states :—

At — on January 1, 1913, I was orderly sergeant of D Company, and I warned the accused, No. —, Private X, 1st Battalion, Blankshire Regiment, for picquet.

Question by accused .. Did you warn me personally ?

Answer .. .. .. Yes.

Question by accused .. How far was I standing from you ?

Answer .. .. .. About 40 yards.

Signed by Witness.

The Witness withdraws.

Second Witness .. No. —, Corporal A. Z., 1st Battalion, Blankshire Regiment, states :—

At — on January 1, 1913, at 6 p.m. I paraded the regimental picquet, and the accused, No. —, Private X, was absent.

Signed by Witness.

The accused declines to cross-examine the witness, and the witness withdraws.

The accused reserves his defence.

Rules of Procedure 4 (c, d and e), complied with.

Taken down by me at — in the presence of the accused, January 2, 1913.

Signature (of Officer taking Summary).
Rank,
Regt.

5. DEFINITIONS AND DIFFERENCES BETWEEN VARIOUS CRIMES THAT MAY COME BEFORE AN OFFICER COMMANDING A COMPANY, BEFORE BEING TAKEN TO THE COMMANDING OFFICER. (M.L., Chaps. III and IV ; A.A., Sects. 4-41 ; K.R., 483-493.)

It will be noticed that the above heading deals with a very big subject, and it is only proposed to give brief notes which can be amplified by reference to "King's Regulations" and the "Manual of Military Law."

A company officer when investigating a case will, before he decides to send it to the commanding officer for disposal, satisfy himself that the offence is an offence as defined by the Army Act. For instance, there are many offences which require careful investigation. Some of the commoner crimes which may come before an officer commanding a company are given below, together with the various points which must be noted and carefully considered.

(1) The difference between mutiny and insubordination.

(2) Violence to a superior officer when in the execution of his office. There are three points which have to be proved in this charge :—

(*a*) That the accused did offer violence.

(*b*) That this violence was directed to his superior officer.

(*c*) And that the superior officer was in the execution of his office.

(3) Disobeying a lawful command. . . . It must be proved that the command was lawful.

(4) The difference between desertion and absence without leave. The essence of the charge of desertion is that the accused does not intend to return, and therefore the time during which a man is absent has little or no bearing on the case.

For the rest every officer must look up for himself the references given at the head of this paragraph.

6. PROCEDURE WHEN A SOLDIER IS BROUGHT UP ON A CRIME. (M.L., Chap. IV.)

Every charge, whether against a N.C.O. or man, will be investigated in the first instance by the company commander at his company orderly room, which is to be held at such an hour as will allow of a soldier reserved for disposal by the commanding officer being ready to go before him at the appointed hour.

Offences of all N.C.Os. and men confined in the guard-room, and N.C.Os. and men reserved for disposal by the commanding officer, will be entered in the guard report and on the charge sheet A.F. (B. 252).

Offences of N.C.Os. and men **not** confined in the guard-room will be entered on A.F. B 281, and will be dealt with by company commander, if he considers the cases can be dealt with by him. Should he wish to send the case to the commanding officer for disposal, he will send a charge on A.F. B 252 for entry in the guard report before the hour fixed for the disposal of soldiers in arrest by the commanding officer.

A company commander who has reserved a case for the award of the commanding officer will always attend with the company conduct book when the soldier is brought before the commanding officer.

NOTE.—A N.C.O. or man brought up before his company commander or commanding officer must be deprived of his cap or any article that can be used as a missile, and must be accompanied by an escort.

7. PROCEDURE WHEN A MAN REPORTS SICK.

A soldier going sick reports to the company orderly sergeant, who notes his name, rank and number on a sick report A.F. B 256, which is prepared in duplicate.

Except in urgent cases a soldier can only see the medical officer in the Medical Inspection Room at a time notified in battalion orders. All the sick of the battalion parade together under the battalion orderly sergeant.

Asks for an Advance of Pay.

Should a soldier require an advance of pay, he should parade before his company officer at the pay table and

state his reasons for asking for same, and the officer commanding company decides whether he will grant it or otherwise.

Should a soldier come up for an advance of pay to an officer (not his officer commanding company), it should not be granted except at the officer's own risk, as the soldier may be already in debt.

Extension of Leave.

If the officer commanding company is away, extension of leave should not be given without making the fullest inquiries from the company to which the applicant belongs.

Passes at Unauthorised Times.

A soldier should put in his pass on A.F. B 295 to the Company Orderly Room for perusal of officer commanding company.

Should a pass be brought to an officer when the officer commanding company is away, it should not be granted except under very special circumstances, and then only when full inquiries have been made of the company to which the soldier belongs.

8. DUTIES OF THE ORDERLY OFFICER.

The officer of the day, or orderly officer, will be notified daily in battalion orders.

(1) He is on duty from reveillé to reveillé, and must not leave barracks or camp during his tour of duty.

(2) He attends all parades, including the battalion orderly room.

(3) He attends the issue of rations.

(4) He visits the men's breakfasts and dinners.

(5) He visits the cookhouses, latrines and ablution rooms, and regimental institutes.

(6) He turns out the guard or guards once by day and once by night. (A guard must not be turned out by night till after 11 p.m.)

(7) He visits the accused in the guard detention room and cells.

(8) He is present at tattoo, and collects the absentee reports from the regimental sergeant-major.

(9) At 10.15 p.m. (unless otherwise ordered) he sees lights out in the men's quarters.

An orderly officer report should be handed in to the adjutant before the hour appointed for the Commanding Officer's orderly room, and any matter which he has found incorrect during his tour of duty should be noted on the report, together with the names of the absentees handed to him at tattoo.

He should also note the time at which he turned out guard by day and night.

It must be remembered that the duties enumerated above are only the ordinary duties which must be performed by the orderly officer, but there are many others he is called upon to perform, according to the station in which he is quartered, and according to the orders of his commanding officer.

NOTE.—In most cases there will be a captain of the day or week on duty, as well as the subaltern orderly officer of the day.

In this case the orderly officer should report himself to the captain of the day or week, who will give him instructions as to what time he will turn out the guard by day and night. One hour must elapse between the times that the guard is turned out by the captain and orderly officer.

8. DUTIES OF THE ORDERLY SERGEANT.

(*a*) **The duties of a company orderly sergeant** are as follow :—

(1) Call roll at reveillé, noting absentees.

(2) Ascertaining from the commander of the guard names of absentees and the hour of returning.

(3) To see that all duties for the day are properly warned.

(4) To enter all the names of men reporting sick on the morning sick report.

(5) To attend all parades, reporting the correctness or otherwise of his company.

(6) To attend the Commanding Officer's orderly room.

(7) To attend for details daily, and record all duties to be found by his company.
(8) To call the roll at tattoo and to enter the names of all absentees on the absentee report.
(9) To attend staff parade (tattoo) and report state of company or otherwise.

(*b*) **The duties of a battalion orderly sergeant** are as follow :—

He takes over his duties at reveillé, and is relieved at Reveillé the following morning.
(1) He parades all regimental fatigues.
(2) Accompanies orderly officer to men's mess room at breakfast and dinner times.
(3) He parades the sick.
(4) He accompanies orderly officer round to inspect kitchens, institutes, washhouses and latrines, etc.
(5) He attends all parades.
(6) Attends Commanding Officer's orderly room.
(7) Attends staff parade (tattoo) and collects reports, and reports correctness or otherwise of his duty.
(8) He accompanies orderly officer round barracks at 10.15 p.m. to see all lights out.
(9) In case of alarm reports to orderly officer.
(10) He must not leave barracks during his tour of duty.

The duties of a platoon sergeant are as follow. He is responsible to the platoon commander :—

(1) For the discipline of the platoon.
(2) That the platoon's kit, equipment and arms are complete and in good order.
(3) That the section commanders are efficient and know their duties.
(4) He keeps a correct roll and all particulars of the platoon.
(5) He sees that the section commanders keep their section rolls up to date.
(6) He generally assists the platoon commander in the training of the platoon.
(7) In the trenches the platoon sergeant assists the platoon commander in keeping trenches clean and in good repair. He supervises the issue of rations to the section commanders. He will also check

the issue of all trench stores in the charge of his platoon, and see that they are correctly returned before being handed over to the relieving platoon.

NOTE.—The platoon sergeant acts in the same relation to the platoon as the company sergeant-major and the company quartermaster-sergeant do to a company, and he should be prepared at any time to take over command of the platoon in the event of the commander becoming a casualty.

9. HOW A SOLDIER IS PAID ON ACTIVE SERVICE.

The captain will obtain such funds as he requires from the field cashier. He will keep an account in duplicate on A.F. N 1531.

On the last day of every month (unless otherwise arranged in consultation with the paymaster in chief) the account will be balanced, and the original forwarded forthwith, accompanied by supporting vouchers to the A.G. at the base, the carbon copy being retained for reference. The account should be a simple record of actual cash transactions, but care must be taken to bring to account all sums received, from whatever source.

Proper forms should be used whenever possible, but an informal account, if unavoidable owing to the conditions of active service, will be accepted, provided that all essential information is given.

If the captain finds it necessary to open a public banking account, he should report the fact forthwith to the paymaster-in-chief. From the date of embarkation inclusive issues of pay of all soldiers on active service abroad will be recorded in the soldier's pay book (Army Book 64) and on acquittance rolls (A.F. N 1513, specimen of which is reproduced herewith).

Issues of cash to the soldier, which will not be made more often than is absolutely necessary, nor beyond the amount actually due to the soldier on the day of issue, will be based on the net rate of pay shown in the man's pay book (Army Book 64).

No cash issues will be made in respect of any terminal claims, such as gratuities, nor for any local or temporary emoluments, unless under the instructions of the paymaster concerned.

Army Form N 1513.

ACQUITTANCE ROLL (ALL ARMS).

No.....

——————{Squadron / Battery / Company}of the——————

Place.....

Regl. No.	Rank and Name	Cash Payment. £	s.	Receipt of Soldier.
	Total .. £			Total in words :— .....Pounds. .....Shillings.

Signature of the Officer making the Payments.....

Date of Payment.....19 .

Officer commanding.....Coy.

.....Regt.

An officer making a cash payment to a soldier will :—

(1) Personally enter the amount in the pay book.

(2) Attest the entry by his signature in full.

(3) Enter on an acquittance roll the man's number, rank and name, and the amount of the cash payment.

(4) Obtain the man's receipt on the roll.

(5) Give the acquittance roll a serial number, and total, sign and date it.

(6) Enter the total, serial number and date of the acquittance roll in the monthly account, A.F. N 1531.

(7) Forward the acquittance roll on the day of payment to the A.G. at the base, retaining a carbon copy (including a reproduction of the man's signature) for reference.

(Duties (3), (4), (5), (6) and (7) are usually attended to by the Company Quartermaster-Sergeant, but the officer in charge is responsible for seeing that they are done correctly.)

HOW A SOLDIER IS PAID AT HOME.

The captain will obtain imprests from the cashier of the command in which his unit is quartered, by weekly indent on A.F. N 1487, through the adjutant, out of which he will pay his men, and account for the same in a simple cash account of receipts and issues, which will be kept on the last page of the pay and mess book (A.F. N 1504).

From the last Friday in the month until the last day of the month the captain is not to requisition for cash.

Any cash required to meet the casual payments during that period should be included in the requisition for cash to pay the company on the last Friday in the month, and shown separately on the requisition.

Friday will be the universal pay day.

The pay and mess book (A.F. N 1504) is the captain's record of all transactions with his men.

Pay and mess books will be compiled for exact weeks only, ending on Friday, and will be for periods of four or five weeks, according to the number of Fridays occurring during the month. The cash payments to the men of the company will be regulated by the captain, who will be responsible for seeing that over issues are not made.

The total cash payments made to the men on each pay day will be certified by two witnesses, as well as by the officer paying the men. The pay sergeant should not be one of the witnesses.

Casual payments will be supported by the men's receipts.

Stoppages and regimental bills will be entered in the column provided for that purpose.

Any stoppage by a court-martial or by order of the officer commanding, on account of sums not due to the public, will only be recorded against a soldier as they are recovered. The sums so recovered will be charged against the soldier in the pay and mess book, under the head of regimental bills.

A similar course will be pursued in regard to fines awarded in a civil court, which have been paid on behalf of a soldier by the company commander at his own risk.

Cash payments to detachments not attached for pay to other units will be made on the detachment pay sheet A.F. N 1510, which will be certified by the paying officer, and by two witnesses, or, when no officer is present, will be signed by the men to whom the payments are made. At the end of each account period the total pay issued to each soldier or detachment will be carried into the pay and mess book as a casual payment, and the detachment pay sheet will be annexed to the pay and mess book in support of the entry.

Pay due to soldiers on furlough will be remitted by means of money order, and not by cheque.

10. REGIMENTAL ORDERS, PART I AND PART II, AS FAR AS AFFECTS THE PAY OF THE MEN OF THE COMPANY.

The daily orders of a unit are divided into two parts, as follows :—

Part I deals with training, parades and matters which do not affect a soldier's pay, service or documents.

Part II, which are prepared on A.F. O 1810, with matters which affect a soldier's pay, service or documents. Thus all promotions or reductions, all forfeitures of pay for absence, fines for drunkenness, and awards of detention or imprisonment are dealt with in Part II.

A copy of Part II orders is furnished daily to the Regimental Paymaster. The appearance of a man's name in Part II orders is the authority for the officer commanding company to deduct or increase a man's pay, as the case may be. A note giving the number of Part II order should be made in the pay list, A.F. N 1504. in the column of remarks against the man's name.

11. PROCEDURE FOR ISSUE OF A NEW KIT.

On joining, each recruit will receive a complete outfit of clothing and necessaries, which will be entered on A.F. H 1181, and in peace times subsequent issues will be made on payment on A.F. H 1179. After 12 months' service a quarterly allowance of 35*s.* is made to each man for the purpose of paying for any clothing, etc., he may require.

During the present war all clothing is being issued on A.F. H 1181 under three headings :—

(1) Recruits on first joining.

(2) Ordinary replacements, *i.e.*, to replace those articles which are considered unfit for further wear.

(3) To replace articles lost or destroyed by the man's neglect, payment for same to be charged against the man in the pay and mess book.

12. WHAT TO DO IN CASE OF A MILITARY DISTURBANCE OUTSIDE BARRACKS.

In case of a military disturbance outside barracks, an officer off duty should immediately send for the garrison police, and if none are available send for a picquet to the nearest barracks, acquainting the regiment for what purpose it is required.

It must be clearly understood that the above does not apply to troops called out to quell a riot in aid of the civil power. For instructions in these circumstances, see King's Regulations, para. 955-975.

13. WHEN ON LEAVE, HOW TO DEAL WITH MEN ASKING FOR PASSES AND ADVANCE OF PAY.

Passes.

An officer when on leave should not grant passes or extension of leave to soldiers. If he knows the full circumstances for which an extension of leave is required, he may tell the soldier to give his name as a reference when he returns to his battalion, to prove that his case was genuine.

Advances of Pay.

An officer when on leave should not make advances of pay to soldiers, except at his own risk. Officers at the present time are frequently being asked for advances of pay at London railway stations, as the soldier states he has lost the return half of his ticket, and cannot get back to rejoin his unit. In these circumstances the soldier should be referred to the Railway Staff Officer, who can issue him a warrant, the amount of which will be charged up through the soldier's account.

14. COMPLIMENTS TO BE PAID TO SENIOR OFFICERS. (K.R., 1783-4-5-6-7 and 1789.)

Very careful attention must be paid by young officers to this subject as they are apt to be slack over saluting and returning salutes. This does not tend towards good discipline.

The rules to be observed are :—

(1) Officers or soldiers passing troops with uncased colours will salute the Colours and the commanding officer (if senior).

(2) Officers and soldiers will salute the body when passing a military funeral.

(3) Armed parties in paying compliments on the march will be called to Attention. Infantry will slope, and rifle battalions will trail arms, and the command "Eyes—Right (or Left)" will be given. Compliments on the march will be paid:

(*a*) When passing guards.

(*b*) When passing other armed parties.

(*c*) When companies march off to company parades, after a battalion parade, it is customary to salute the commanding officer or his representative by giving "Eyes—Right (or Left)."

(4) An officer commanding an armed party passing a guard or paying or returning a compliment will draw his sword if he is wearing one, before giving the necessary commands.

When in command of an unarmed party he will return the salute with the right hand as he gives the command "Eyes—Right (or Left)."

(5) All officers will salute their seniors before addressing them on duty on parade.

When in uniform they will salute with the right hand in exactly the same way as laid down for soldiers.

Officers, except when their swords are drawn, will return the salutes of junior officers or soldiers.

A salute made to two or more officers will be returned by the senior only.

(6) Officers will salute those officers of the Royal Navy when in uniform who would be saluted by naval officers of corresponding rank.

15. RESTRICTIONS OF AN OFFICER ON THE SICK LIST AND HOW TO REPORT SICK.

(1) An officer on the sick list is not allowed to leave barracks.

(2) An officer on the sick list is not allowed to use the mess.

An officer unable to attend any parade owing to sickness will at once inform the adjutant, and report to the medical officer as soon as possible.

HOW TO WRITE AN OFFICIAL LETTER.

Official Letters.

Below is given a specimen letter in the form used for all official correspondence. It should be carefully noted that all official correspondence **must go through the adjutant to the commanding officer;** through the brigade office to the division; then to the command; and eventually to the War Office. It must be written on foolscap, and have a quarter-sheet margin.

Form for Official Letters.

From :—
2nd Lieut. A. N. Other,
30th Battn., The Blankshire Regt.

To :—
The Adjutant,
30th Battn., The Blankshire Regt.
ALDERSHOT,
August 20, 1915.

Sir,

I have the honour to request that you will lay before the Commanding Officer this my application for leave from September 12, 1915, to September 22, 1915, with a view to his forwarding and recommending it.

My reasons for applying for this leave are as follows :—

In civil life I am a farmer, and I left my farm on the outbreak of the war to be looked after by a bailiff, who has neglected his duties. Unless I can go home and put things straight, it will involve a large financial loss.

I have had no special leave since I joined the Army on September 2, 1914.

My address on leave will be as per margin.

I have the honour to be,
Sir,
Your obedient Servant,
A. N. Other, 2nd Lt.,
30th Battn., The Blankshire Regt.

The Hen Farm,
Cockington,
Crowshire.

Letters between Officers.

For official correspondence between two officers that will not have to be forwarded, a memorandum (A.F. C 348) may be used. The usual form is :—

From :—
2nd Lieut. A. N. Other,
1st Blankshire Regt.

To :—
O. C., " D " Company,
1st Blankshire Regt.

Place. Date.

Can you please let me have a fatigue party to move some chairs into the recreation hut for the lecture this evening ?

A. N. Other, 2nd Lieut.,
1st Blankshire Regt.

Field Messages.

The following form is used for all field messages and field reports :—

To Red Force.

29/9/15.
Ref. 6" Artillery Squared Map,
Shoreham Area.

No. 1.

Enemy's advance guard strength about 1 company reached cross roads B 17 d 4·5 at 10 a.m. 29th AAA.

From Scouts 1st Blankshire Regt.
B 23 d 2·8.
10.15 A.M.

(Sd.) A. N. OTHER, 2/Lt.,
O.i/c Scouts,
1st Blankshire Regt.

Sent at 10.15 a.m. by cyclist orderly.

Points to remember.

Number your messages.
Give a reference to the map used.
Start with "To," so that if the conveyer of the message is killed or wounded, it can be seen at once for whom the message is intended, and forwarded.
Put names of places in block capitals.
Put your own position and the time the message is sent.
How it is sent.
Above all WRITE DISTINCTLY.

Personal Correspondence.

A subaltern writing to any officer below the rank of major, starts :—

"Dear Jones," (or whatever the name is).

A subaltern writing to a major, starts :—

"Dear Major," and finishes "Yours," or "Yours sincerely"; **never** "Yours truly," or "Yours respectfully."

In a semi-official letter to a mess president, he begins :—

"Dear Mess President."

On Service.

When a N.C.O. or man is killed on service, the officer to whose platoon the man belongs should make it his duty to write to the parents or nearest relatives informing them of any details concerning his death, and, if possible, to send them anything that was found on him. This is not much trouble to the officer, and is always greatly appreciated.

17. WHAT AN OFFICER SHOULD DO WHEN SICK ON LEAVE. (K.R., 1294.)

When an officer is prevented by ill-health from rejoining his unit on the expiration of leave, he will at once report by official letter to his Commanding Officer through his adjutant, enclosing a medical certificate (if possible, from an officer of the R.A.M.C.), giving the following particulars :—

(1) Nature of disease or injury.
(2) Date of origin.
(3) Essential facts of causation and history of origin.
(4) Present condition.

The medical officer will state the period which will elapse before the officer is able to perform his military duties again.

18. HOW TO KEEP A TRENCH STORE BOOK, etc.

See under " Duties of a Platoon Commander."

19. HOW TO TAKE OVER A PLATOON FROM ANOTHER OFFICER.

See under " Duties of a Platoon Commander."

20. POWERS OF AN OFFICER WHEN ON DETACHMENT. (K.R., 457.)

An officer on detachment, if not of field rank, has the powers of a commanding officer of a unit, as restricted by paragraph 493, King's Regulations. **The commanding officer of the unit,** or the officer commanding garrison or station where the detachment is sent, having regard to the rank and experience of the officer commanding detachment, may restrict him from the exercise of any or all the disciplinary powers of a commanding officer. For these powers, see King's Regulations, para. 493. Nevertheless, occasion might arise for the maintenance of discipline that an officer commanding detachment under the rank of field officer should act to the full extent of a officer commanding unit, as mentioned above (King's Regulations, para. 493), notwithstanding any restrictive order. Should the necessity occur he must immediately report the matter to the superior authority by whom the restrictive order was made (see King's Regulations, para. 457).

NOTES

NOTES.

Physical Training.

The object to be attained in the training of a soldier is to make him physically and mentally fitter than his opponent. The course of physical training now adopted exercises and develops systematically all the muscles in the body, without putting any to undue strain.

Every officer should be able to put a squad through the exercises, and to do this should learn the words of command and the order in which the exercises may be carried out to the best advantage.

When troops are relieved in the trenches and go into billets, the following exercises—which take up 30 minutes each day—will be found most useful to keep them fit :—

Abbreviations used.

H.f. = Hips firm.
A.b. = Arms bend.
F. full o. = Feef full open.
F. sidew. pl. = Foot sideways place.
F. astr., A. upw. str. = Feet astride, Arms upward stretch.
N.r. = Neck rest.
K.r. = Knee raise.
F. cl. = Feet close.
Tr. = Trunk.
L.A. = Left arm.
R.A. = Right arm.

(*a*) **Introductory Exercises.**

(1) H.f., F. full o.—Heels raising and full knees bending (four times).

(2) (*a*) Head bending backward (twice) ;
(*b*) Head turning (twice in each direction).

(3) A.b.—Arms stretching forward, sideways and upward (three times).

(4) A.b., F. sidew. pl.—Trunk turning (twice in each direction).

(5) H.f., F. full o.—Foot placing outward (three times each foot).

(*b*) **General Exercises.**

(1) F. astr., A. upw. str.—Trunk bending backward (three times).

F. astr., A. upw. str.—Trunk bending forward and downward (twice).

H.f.—Heels raising and knees bending (three times).

(2) (*a*) H.f.—Leg raising forward, sideways and backward (twice each).

(*b*) H.f., K.r.—Leg stretching forward (twice each leg).

(3) (*a*) F. cl., L.A. upw., R.A. downw. str.—Trunk bending sideways (twice to each side) ; or

(*b*) A.b., F. full o., outw. lunge.—One arm upward, one arm downward stretch (three times).

(4) On the hands.—Arms bend (three times) and add later with leg raising (twice with each leg).

(5) A.b., F. sidew. pl., Tr. forw. b.—Arms stretching sideways (three times).

(6) Quick march
Double march
Marching on toes
Slow march.

H.f.—With knee raising quick march (one each time).
H.f.—With knee raising double march.
H.f.—On alternate feet, hop.
H.f.—On one foot, hop.
(Two each time.)

(7) Upward jumping, with arms raising sideways.
Upward jumping, with turning.
Upward jumping, with arms swinging upward.
(Two each time.)
Forward jumping.
With three paces forward off one foot, jump.
With turning, with three paces forward off one foot, jump.
(Two each time).

(*c*) **Final Exercises.**

(1) H.f —Foot placing sideways (twice each foot).

(2) H.f., F.cl.—Trunk turning (twice in each direction).

(3) Arms raising forward, upward, sideways and downward (until the action of the heart and lungs is eased).

If shorter periods than 30 minutes only can be spared for a course of exercises, either of the two following may be used with advantage :—

Morning Table (5 minutes).

(1) Arms raising sideways and upward (eight times).
(2) H.f.—Heels raising and knees bending (four times).
(3) (*a*) Head bending backward (three times).
(*b*) Head turning (twice in each direction).
(4) H.f., Tr. forw. b.—Trunk rolling (four times to left over to right, then four times to right over to left).
(5) Arms stretching forward, upward, sideways and downward (three times).
(6) H.f., K.r.—Leg stretching backward (three times each leg).
(7) H.f., F. astr., Tr. turn.—Trunk turning quickly from the left to the right, and vice versa (four times).
(8) Lying, N.r.—Legs raising (four times). If necessary, with bent knee.
(9) F. astr., A. upw. str.—Trunk bending forward and downward (four times, making one movement of the two motions).
(10) H.f., F. full o.—Heels raising and full knees bending (three times).
(11) Arms raising forward, upward, sideways and downward (until action of heart and lungs is eased).

Morning Table (10 minutes).

(1) Arms raising sideways and upward (eight times).
(2) H.f.—Heels raising and knees bending (four times).
(3) (*a*) Head bending backward (three times).
(*b*) Head bending sideways (twice to each side).
(4) Arms stretching forward, upward, sideways and downward (three times.)
(5) H.f., F. astr., Tr. forw. b.—Trunk rolling (four times to left over to right, then four times to right over to left).
(6) H.f., F. full o.—Outward lunging (three times in each direction).
(7) H.f., K.r.—Leg stretching backward (three times each leg).
(8) A.b., F. astr.—Trunk bending sideways (three times in each direction).
(9) Lying N.r. Legs raising (four times).

(10) F. astr., A. upw. str.—Trunk bending forward and downward (four times, making one movement of the two motions).

(11) On the hands.—Arms bending (three or four times).

(12) H.f., F. astr., Tr. half to left (and right) turn.—

(*a*) Trunk bending backward (twice).

(*b*) Trunk bending forward (twice).

(13) H.f., F. full o.—Heels raising and full knees bending (three times).

(14) Head turning (twice in each direction).

(15) Arms raising forward, upward, sideways and downward (until action of heart and lungs is eased).

Signalling.

In using the Field Telephone the preliminaries and method of sending and receiving verbal messages are as follow :—

Sender.	Receiver.
(1) Call up distant section with buzzer.	(1) Answer in same manner.
(2) When answered, say. "Message for —— (name unit).	(2) Get ready and say "Go on."
(3) Dictate message slowly, a few words at a time.	(3) Write down as dictated, repeating each word when it is written down.
(4) Spell out names of places, and all words in capitals.	(4) Write down and repeat spelling.
(5) To send figures (*e.g.*, 10066) : "Figures — one double o double 6—ten thousand and sixty-six."	(5) Write down and repeat.
(6) At end of message, say "Message ends."	(6) Repeat whole message.
(7) When it is correctly repeated, say "Correct." Then "Good-bye."	(7) "Good-bye."

To Mend Broken Line.

Strip the insulation for 3 inches from points, 1 inch from the ends of the cable. Tie the two ends in a reef knot. Cover the joint completely with rubber tubing or insulating ribbon. If none is available, rest the joint securely on a stone or other non-conductor (to avoid leakage of the current). Be sure the contact is good —*i.e.*, that there is no dirt in the joint—and that the knot is drawn tight.

Message Forms.

(1) The message consists of Preamble (Code time, etc., for the use of signallers and filled in by them if required), ADDRESS TO, separated by BREAK SIGN from TEXT, in turn similarly separated from ADDRESS FROM. The "Address to," and "Address from," are always written in black letters.

(2) A.F. C 2123, for receiving a message in duplicate. This differs from A.F. C. 2121 in being pink, and has no "Z" space.

(3) For the duplicate, carbon paper is put to the top of "Service Instructions." The copy is for delivery, the other for reference.

Special Messages.

There are certain messages which every officer should keep already written on cards, in a convenient pocket, so that when necessary to send them no time need be wasted in writing or in giving instructions. All that is necessary is merely to hand the card to the signaller, who will understand that the message must be got through at once at all costs.

The S.O.S. Message.

This consists of the letters S.O.S. and is sent only according to the special instructions given to every officer.

The message should be followed by the number of the trench and the name, rank and regiment of the sender.

The Zeppelin and Gas Messages.

The form for these two important messages is given below :—

(*a*) "Zeppelin passed over (here put number of trench and state also the time and the direction in which the airship was heading)."

(Signed) 2nd Lieut.,
1st Blankshire Regt.

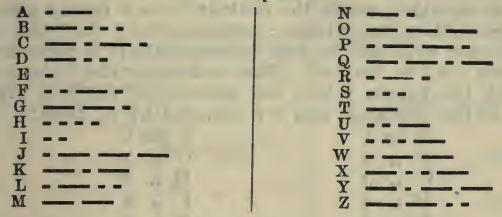
(*b*) "Gas seen opposite (number of trench)."

(Signed) 2nd Lieut.,
1st Blankshire Regt.

These three special messages should be legibly written on separate cards and be kept actually on the person so that they can be handed in without an instant's delay when the time comes to use them.

SIGNALLING CODES.

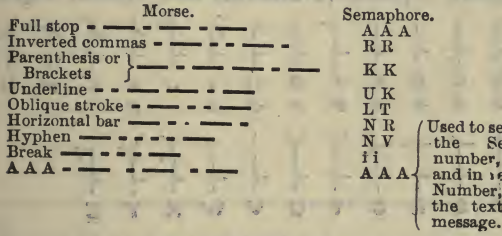
Morse Alphabet.



Numerals.

*Long Numerals.**

Special Signals.



Certain of the numerals have the same symbols as some of the letters of the alphabet. In order to distinguish between these, before signalling a numeral or group of numerals, the signal FI (figures intended) will be sent. For the same reason, on the conclusion of the numerals

* Long numerals are used when working with the Royal Navy and in telegraphy.

and before resuming letters, the signal FF (figures finished) will be sent.

When signalling words the context is, as a rule, a guide that the letters have been correctly read; but this is not the case with figures, and consequently it is necessary that they may be verified. This is done by the "check," in which the figures 1 to 9 are denoted by the first nine letters of the alphabet, and 0 is denoted by K, thus :—

A for 1	F for 6
B ,, 2	G ,, 7
C ,, 3	H ,, 8
D ,, 4	I ,, 9
E ,, 5	K ,, 0

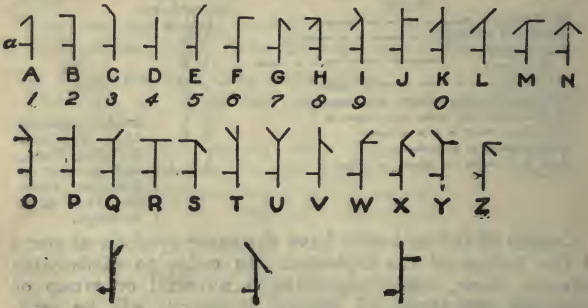
On receiving a group of numerals the corresponding letters are signalled back.

For example, 1 is checked by A.

12	,,	,,	AB.
123	,,	,,	ABC.
4210	,,	,,	DBAK.

In signalling (except when using the Semaphore system) each word or group is acknowledged before sending the next; with certain exceptions (as in the case of the numerals) the "general answer," *i.e.*, one dash, is employed for this purpose.

Semaphore Alphabet, Numerals and Special Signs.



NUMERAL SIGN. (Figures follow.) ANNUL. ALPHABETICAL SIGN. (Letters follow.)

The small arm at *a* is called the "Indicator," and shows the side from which the Alphabet or signs commence.

SPECIMEN OF OFFICIAL FORM USED.

"A" Form. Army Form C. 212

Messages and Signals. No. of Message.....

Prefix.....Code.....m.	Words / Charge		
Office of Origin and Service Instructions.		*This message is on a/c of:*	Recd. at.....m.
.....	Sent	..... *Service.*	Date .....
.....	At.....m.		From.....
.....	To.....	.....	
.....	By.....	(Signature of "Franking Officer.")	By.....

TO

Sender's number	Day of month	In reply to number.	AAA

From			
Place			
Time			

The above may be forwarded as now corrected. (Z)

..... *Censor.*

..... Signature of Addressor or person authorised to telegraph in his name

* This line should be erased if not required.

NOTES

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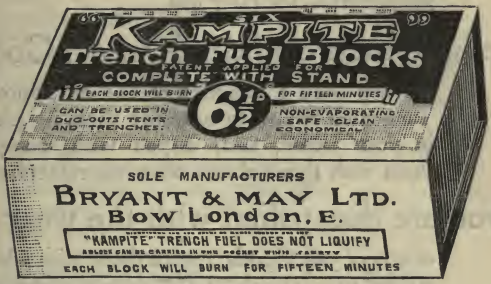

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Wire cutters.
Map case (waterproof).

In Pack and Haversack.

Burberry (fleece lined).
Waterproof sheet.
One change of boots.
Socks.
Washing and shaving things.
Towel.
Electric torch and refills. (Put refills in valise.)
Writing materials.
Matches.
Candles.
Pipe lighter.
Tommy's cooker, with refills.
Knife, fork and spoon (combined).
Iron ration.
Clasp knife.

Valise (waterproof).

One change of khaki.
Two changes of underclothing.
Flea bag.
One suit of pyjamas.
One pair of canvas shoes.
Cap comforter.
Woollen waistcoat.
Large lined waterproof gloves.
Corkscrew } if not on knife.
Tin opener }
Holdall.
Pocket medicine case.
Sam Browne belt.

Trench boots (waders) are now issued, so that it is no longer necessary to take them out.

The Soldier.*

'If I should die, think only this of me :
That there's some corner of a foreign field
That is for ever England. There shall be
In that rich earth a richer dust concealed ;
A dust whom England bore, shaped, made aware,
Gave, once, her flowers to love, her ways to roam,
A body of England's, breathing English air,
Washed by the rivers, blest by suns of home.

And think, this heart, all evil shed away,
A pulse in the eternal mind, no less
Gives somewhere back the thoughts by England given ;
Her sights and sounds ; dreams happy as her day ;
And laughter, learnt of friends ; and gentleness,
In hearts at peace, under an English heaven."

Rupert Brooke.

* Reprinted from "1914 and other Poems," by Rupert Brooke (Sidgwick & Jackson, 2*s.* 6*d.* net), by kind permission of the publishers.

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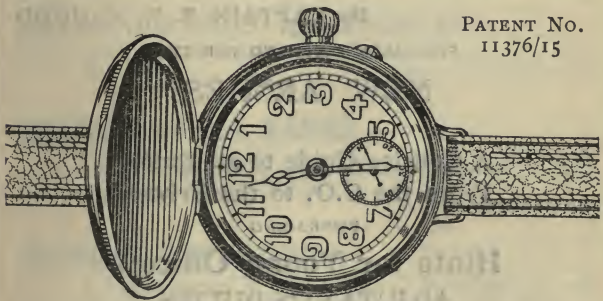

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