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FIELD SERVICE REGULATIONS

PART I.

OPERATIONS.

1909.

(Reprinted, with Amendments, 1912.)



GENERAL STAFF, WAR OFFICE

ERRATUM.

Section 65, para. 11, line 7 :—Delete from “When approaching the.....” to end of paragraph and substitute:—

“When approaching the enemy unity of action becomes important; the force then usually moves on a narrow front and a single advanced guard covering the whole force and acting under the direct orders of the commander of the force may be required.”

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This Manual is issued by command of the Army Council. It deals with the General Principles which govern the leading in war of the Army. The training manuals of the various arms are based on these regulations, which, in case of any doubt arising, are the ruling authority.

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EWD Ward

WAR OFFICE,
29TH JULY, 1912.



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CHAPTER I.

THE FIGHTING TROOPS AND THEIR CHARACTERISTICS.

1. *Application of general principles to the leading of troops.*

1. The principles given in this manual have been evolved by experience as generally applicable to the leading of troops. They are to be regarded by all ranks as authoritative, for their violation, in the past, has often been followed by mishap, if not by disaster. They should be so thoroughly impressed on the mind of every commander that, whenever he has to come to a decision in the field, he instinctively gives them their full weight.

2. Success in war depends more on moral than on physical qualities. Skill cannot compensate for want of courage, energy, and determination; but even high moral qualities may not avail without careful preparation and skilful direction. The development of the necessary moral qualities is therefore the first of the objects to be attained; the next are organization and discipline, which enable those qualities to be controlled and used when required. A further essential is skill in applying the power which the attainment of these objects confers on the troops. The fundamental principles of war are neither very numerous nor in themselves very abstruse, but the application of them is difficult and

cannot be made subject to rules. The correct application of principles to circumstances is the outcome of sound military knowledge, built up by study and practice until it has become an instinct.

2. The characteristics of the various arms.

1. The fighting troops of the army are composed of cavalry, artillery, engineers, infantry, mounted infantry, and of cyclists. These arms are in certain proportions, which have been fixed as the result of experience. Each has its special characteristics and functions, and is dependent on the assistance of the others. **The full power of an army can be exerted only when all its parts act in close combination**, and this is not possible unless the members of each arm understand the characteristics of the other arms.

2. Infantry depends on artillery to enable it to obtain superiority of fire and to close with the enemy. Without mounted troops the other arms are hampered by ignorance of the enemy's movements, cannot move in security, and are unable to reap effectually the fruits of victory, while mounted troops are at a great disadvantage, unless accompanied by horse artillery, which assists them to combine shock action with fire. Artillery and engineers are only effective in conjunction with the other arms, and all their efforts must be directed towards assisting the latter to secure decisive success.

3. It is then essential, except perhaps in mountainous or forest country, that every force which takes the field against an organized enemy should be composed of all arms; that every detached force of infantry should be accompanied by a proportion of mounted men and, generally, of engineers and guns; that artillery and engineers should be attached to all large bodies of cavalry; and that the security of the artillery should always be provided for by the other arms.

3. Cavalry and other mounted troops.

1. Ability to move rapidly and to cover long distances in a comparatively short time gives cavalry power to obtain information and to combine attack and surprise to the best advantage.

The fact that it is armed with a long-range rifle has endowed it with great independence, and extended its sphere of action; for cavalry need no longer be stopped by difficulties which can only be overcome by the employment of rifle fire.

2. Mounted infantry act by fire. Yeomanry and mounted rifles other than mounted infantry act chiefly by fire but may, when they have received sufficient training, employ shock action in special emergencies. In these regulations the term Mounted Rifles is used to include mounted infantry, yeomanry, and other mounted rifles. Mounted rifles, when co-operating with cavalry, assist the latter to combine fire with shock action; when co-operating with other arms, their mobility enables a commander to transfer them rapidly from one portion of the field to another, and thus to turn to account opportunities which he would be unable otherwise to seize.

3. Cyclists are especially suited for employment in enclosed country, where roads are good and numerous. They can traverse longer distances and move more quickly than horsemen. Cyclists act by fire, and can develop more fire in proportion to their numbers than other mounted troops, as they do not require horse holders. They are largely dependent on the number and condition of the roads for the development of their special characteristics.

4. *Artillery.*

1. The function of the artillery is to assist the other arms in breaking down hostile opposition. The invisibility, which smokeless powder confers, has, however, modified the extent to which artillery can assist the other arms by preparatory action. Till the enemy either discloses his dispositions by his own movements, or is compelled to do so by the other arms, artillery must usually limit its action to preparing to support the latter as soon as occasion demands it.

2. Quick-firing guns confer on a commander the power to develop a destructive fire with great rapidity, but fire of this character cannot be continuous for more than brief periods without risk

of exhausting the available ammunition, and must be effectively controlled. Improved means of communication permit artillery commanders to exercise control over the fire of dispersed artillery, so that concentration of guns is no longer necessary to ensure control of fire.

3. The effective combination of the fire of all the various kinds of artillery available is necessary if that arm is to develop its full power. With this object, each nature of ordnance should be allotted its special rôle, which will differ according to its mobility, range, and shell power.

4. Horse artillery is the most mobile form of artillery. It is primarily intended for employment with the mounted troops, particularly to assist the cavalry attack by directing its fire against the opposing cavalry, but it can also be employed effectively to support the combined action of the other arms in battle.

5. Field artillery is less mobile than horse artillery, but has greater shell power. It includes guns and howitzers, and forms the bulk of the artillery with a force. Its duty is to assist the infantry in every way in establishing a superiority of fire over the enemy.

6. Howitzers, by reason of the steep angle of descent of their powerful projectiles, are specially adapted for the attack of shielded guns, or of an enemy behind cover, or in entrenchments. They are particularly adapted to supporting infantry in the later stages of an attack as, provided circumstances are favourable, they can continue firing until the infantry has almost reached the objective. They are provided with high explosive shells which are intended chiefly for use against such targets as buildings, head cover, parapets, and walls.

7. Mountain artillery is the weakest in shell power. It is peculiarly suited for operations in close, broken or hilly country. In level country it may be moved with comparatively little exposure, owing to the facility with which it can take advantage of cover. It can therefore often be made available for use in support of infantry at shorter range than either horse or field artillery.

8. Heavy artillery is the least mobile of all artillery used in the

field ; it can fire accurately at long ranges,* and has great shell power. Its principal duty is to engage shielded artillery with oblique fire, to enfilade targets which the lighter guns can only reach with frontal fire, to search distant localities in which supports or reserves are concealed, to destroy buildings or other protections occupied by the enemy, and in the final stage to support the assault by fire converging on the most important points.

9. Siege artillery brigades may be allotted to the field army for special duties in connection with fortress operations.

10. Garrison artillery companies are allotted to coast defences. Their armament is divided into *the guns of the fixed armament* and *of the movable armament*. The guns of the fixed armament are :—

- i. Heavy and medium guns, which are intended chiefly to encounter vessels larger than torpedo-boat destroyers.
- ii. High angle fire guns, intended by deck attack to prevent bombardment at ranges at which the side armour of ships is beyond the penetration of other heavy guns.

* For the purpose of the distinction of ranges the following definitions are given :—

Terms applied to ranges.	Rifle.	Field art.	Heavy batteries.
	yards.	yards.	yards.
Distant	2,800 to 2,000	6,500 to 5,000	10,000 to 6,500
Long	2,000 to 1,400	5,000 to 4,000	6,500 to 5,000
Effective	1,400 to 600	4,000 to 2,500	5,000 to 2,500
Close	600 and under	2,500 and under	2,500 and under.

The width of the area of ground struck by the bullets of an effective shrapnel is about 25 yards.

The limit of the forward spread of the bullets of shrapnel burst at effective range is about 200 yards.

The radius of the explosion of a high explosive shell is about 25 yards.

- iii. Light quick-firing guns, for use chiefly in case of torpedo-boat attack.

The guns of the movable armament are generally allotted for the defence of land fronts or for use in case of attempted landings, but they may also be used as auxiliary to the fixed armament.

11. It is also the function of the artillery to transport small-arm and artillery ammunition from the point where it is delivered by the lines of communication, to the points where it is required by the units of the field army.

5. *Engineers.**

1. Engineer field troops are allotted to a cavalry division, to assist the mounted troops in the passage of rivers (for which purpose they carry light collapsible boats), in the improvement of roads and other means of communication, and in the preparation and maintenance of watering arrangements. They will also be employed in placing localities in a state of defence, and in assisting the cavalry generally in interrupting the enemy's communications by the destruction of bridges, railways and telegraphs. To enable field troops to accompany cavalry, a portion of their tools and materials is carried on pack animals, whilst the remainder is carried in light vehicles.

2. Engineer field companies form part of a division; they are not so mobile as engineer field troops, but a proportion of the men of each section are mounted on bicycles to enable them to accompany mounted officers in engineer reconnaissances. Their duties include the construction of works of defence, the improve-

* In India a pioneer battalion forms part of the divisional troops. This battalion can be used, if required, to supplement the engineer field companies in the duties described in paragraph 2 of this Section, for all of which pioneers are trained and equipped. With expert assistance they can also be employed in the alignment of roads, platelaying, and the repairing and laying of light railways.

In battle, however, pioneers, being primarily fighting troops, will normally be used as such.

ment and, in some cases, construction of roadways and bridges and the preparation and maintenance of watering arrangements.

3. Although the other arms are responsible for the construction of their own works of defence, yet it is necessary that field engineers should be available to assist in this, and also to execute any special engineering work which may have to be undertaken, such as improving communications, destroying obstacles, and strengthening captured localities.

4. Bridging trains form part of the army troops.* They consist of a reserve of bridging material, which may be allotted by the commander of an army, where it is most needed. The *personnel* for the construction or repair of bridges is not included in the establishment of these trains; it must be provided from the field troops or field companies, assisted as may be necessary by other labour. (See Sec. 32.)

5. Fortress companies are provided for special duties in connection with siege operations, and railway companies for the maintenance, construction and working of railways.

6. *Infantry.*

1. Compared with cavalry and artillery the movements of infantry are slow, and the distance that it can cover in a day is limited; but on the other hand it is capable of moving over almost any ground. Its action is less affected by darkness, it finds cover and concealment more readily, and therefore moves under fire with less loss. It can employ either fire or shock action, as the occasion may demand, and engage the enemy either at a distance or hand to hand. It has the power of developing a rapid fire and of concentrating that fire in any direction, but the expenditure of ammunition, which rapid fire involves, makes it necessary that such fire should be used only when the occasion warrants. Fire control is essential, if the full power of infantry is to be exerted.

* See "War Establishments, Part I."

2. The essence of infantry tactics consists in breaking down the enemy's resistance by the weight and direction of its fire, and then completing his overthrow by assault. Although the enemy may not await the assault, infantry must be constantly animated with the desire to close with him. Troops under cover, unless enfiladed, can seldom be forced to retire by fire alone, and a decision by fire, even if possible, takes long to obtain. To drive an enemy from the field, assault, or the immediate threat of it, is almost always necessary.

7. *Machine guns.*

The machine gun possesses the power of delivering a volume of concentrated rifle fire which can be rapidly directed against any desired object. Rapid fire cannot be long sustained owing to the expenditure of ammunition involved, and it is therefore necessary that the movements and fire action of these weapons should be regulated so as to enable them to gain their effect by means of short bursts of rapid and accurate fire whenever a favourable opportunity arises. Surprise is an important factor in the employment of machine guns, which should be concealed, and whenever possible provided with cover from fire. Machine guns are organized in sections of two guns and are normally employed in pairs in support of the particular body to which they belong, but the guns of two or more units may, if required, be placed under the command of a specially selected officer and employed as a special reserve of fire in the hands of a brigade commander. Machine guns are best adapted for use at effective infantry ranges, but when good cover from view and fire exists they may be usefully employed at close infantry ranges.

Message
To ————— Date
Message
A B
How long time
2nd Coy
Halted at

CHAPTER II.

INTER-COMMUNICATION AND ORDERS.

8. Responsibility for maintaining communication.

1. The constant maintenance of communication between the various parts of an army is of urgent importance; it is on this to a great extent that the possibility of co-operation depends. The means of communication must, therefore, be carefully organized in each command.

2. All subordinate commanders are responsible for keeping their respective superiors, as well as neighbouring commanders, regularly informed of the progress of events and of important changes in the situation as they occur. It is the duty of all commanders who are provided with means of communication, to arrange for communication with, and between, their subordinates; but this does not absolve subordinates from the duty of seeing that they are provided with the necessary means, or from responsibility for improvising the best arrangements possible when the regular means of communication are, for any reason, not available.

3. Commanders of brigades and of larger formations, of detachments, and of any other body of troops when advisable, will establish a headquarters, where messages can be received and acted on even during their temporary absence, and will notify its position to all concerned (Sec. 104, 5). If a commander intends to leave the main body of his command for any length of time, he should detail an officer, who should be provided with the necessary staff, to act for him in his absence (Sec. 101, 3).

4. All ranks are responsible for doing everything in their power to keep the means of communication intact.

5. The elaborate means of communication provided under

modern conditions should not be used in such a manner as to cripple the initiative of subordinates by unnecessary interference.

9. *General rules regarding the preparation and despatch of orders, reports, and messages.*

1. Communications in the field take the form of orders, reports, and messages. They may be verbal or written, according to circumstances. The following general rules should be observed:—

- i. Orders issued by the higher commanders, reports, and messages will normally be prepared in writing. When orders, reports, or messages are, for any reason, issued verbally or sent by signal, they will be confirmed in writing whenever it is practicable to do so. In war, verbal messages are often incorrectly delivered or misunderstood, especially in the excitement of an engagement.
- ii. Orders, reports, and messages must be as concise as possible, consistent with clearness. They must be precise as regards time and place, the language should be simple and the handwriting easily legible. Clearness of expression and freedom from any possibility of misunderstanding is more important than literary form. Anything of an indefinite or conditional nature such as “dawn,” “dusk,” “if possible,” “if practicable,” “should,” “may,” is to be avoided.
- iii. The hour of 12 will be followed by “noon” or “midnight” written in words.
A night will be described thus: Night 29/30 Sept. ; or Night 30 Sept./1 Oct.
- iv. Names of places and persons will be written in block capitals, *e.g.*, LONDON or WELLINGTON. Names of places must be spelt exactly as given on the map in use. Great care is necessary to prevent possible misunderstanding resulting from the existence of two or more places of the same name. Abbreviations will only be used when there

can be no doubt as to their meaning. The writer of an order, report, or message is responsible that any abbreviations he may use are such as will be understood by the recipient (*see also* Sec. 15).

- v. In naming units or formations from which a portion is excluded, the unit or formation will be named and the words "less" appended, *e.g.*, "10th Hussars less one squadron."
- vi. If a map is referred to, the one used must be specified unless this is already provided for in standing orders (*see* Sec. 12, 4). The position of places will, as a rule, be denoted either by the points of the compass, *e.g.*, "wood, 600 yards S.E. of TETSWORTH," or when no points of reference are available by actual compass bearings, *e.g.*, "hill 1,500 yards true bearing 272° from CHOBHAM Church," or by descriptions, *e.g.*, "cross roads $\frac{1}{2}$ mile S.W. of the second E in HASELEY," the letter indicated being underlined. A road is best indicated by the names of places on it, care being taken to name sufficient places to ensure that the road intended is followed. A position is best described from right to left looking in the direction of the enemy. The terms "right" and "left" are used in describing river banks, it being assumed that the writer is looking down stream. Except in the foregoing case, indefinite or ambiguous terms such as right, left, before, behind, beyond, front, rear, on this side of, &c., must not be used, unless it is made quite clear to what force they refer. If the term "right" (or "left") is applied to our own forces in retirement it is always to be understood that it refers to the original "right" (or "left") flank when facing the enemy.
- vii. When bearings are given they will invariably be true bearings, and this should be so stated. The variations of compasses will be checked before true bearings are converted into magnetic bearings or *vice versa*.

- viii. If the order, report, or message refers to troops reaching a place at a certain time, it is assumed that the head of the main body is meant, unless otherwise stated.
- ix. The writer, having finished his order, report, or message should read it through carefully at least once, and, if possible, get someone else to read it, in order to assure himself that it is clear, and, in the case of an order, that it is calculated to influence the recipient in the way only that it is intended.
- x. An order or report must be clearly signed, the rank of the sender, his appointment, and the force he is with, being stated.
- xi. A copy of all orders and messages sent will be kept by the sender, the copy and original being endorsed with the method and hour of issue or transmission, *e.g.*, "personally to general staff officers of 1st and 2nd divisions at 11.20 a.m." or "Wired to G.OsC. 2nd and 3rd cavalry brigades at 2.30 p.m."
- xii. The field message books (Army Books 153 and 155) and envelope (Army Form C 398) should be used when obtainable for field messages and reports.

2. An important principle, underlying the general rules given above, is that every precaution should be taken to assist the recipient of an order, report, or message in grasping his instructions with a minimum of trouble and delay.

3. The communication of orders, reports, and messages in the field is effected by means of staff or orderly officers, by the signal service (Sec. 17), the air service (Sec. 19), or by the postal service.* The branch of the staff or other authority who issues an order, message, or other communication is responsible for selecting the one of the above means of communication, which is to be used, for

* The postal service and the regulations for private or press traffic are dealt with in "Field Service Regulations. Part II."

notifying the degree of urgency and whether copies are to be sent by more than one route. The actual method of transmission to be employed by a particular service should be left to the responsible officer of that service. (See also Sec. 18, 2.) Important communications should be sent by more than one means and acknowledgment of receipt should be obtained. Communications of a secret nature should usually be in cipher if there is any danger of their falling into unauthorized hands, but the advisability of departing from this rule must be considered when there is urgent reason to avoid the loss of time caused by enciphering and deciphering. It is forbidden to encipher* one part of a message, leaving the remainder in clear, owing to the danger of the portion in clear affording a clue to the remainder and leading to the discovery of the cipher in use.

10. General arrangement of orders.

1. The orders of a commander usually take the form of—
 - i. Standing orders.
 - ii. Operation orders. *Clear Course Complete*
 - iii. Routine orders.
 - iv. Messages.

In addition to the above special orders such as "orders of the day"† will occasionally be necessary; and special instructions may be required, in the case of detached forces, instead of or in addition to operation orders.

2. Each class of order will be prepared and numbered separately, the heading of the order indicating the class to which it belongs.

When copies of orders are prepared and distributed, each copy

* For further instructions regarding the use of cipher see "Field Service Regulations, Part II."

† An order of the day is an order of a special nature, which cannot be classed conveniently in the ordinary series of standing, operation, or routine orders.

will be given a consecutive number, called the copy number, in addition to the number of the order. (Sec. 12, 4.)

3. Orders will be divided into numbered paragraphs, each dealing with a separate subject. Except in the case of orders written in note-books in the field, the subject of each paragraph should be briefly noted in the margin, to facilitate reference.

4. Explanations of the reasons for orders should rarely be given. When explanations are given it must be understood that, if the conditions change and the reasons for the order no longer hold good, the recipient of the order should act on his own judgment (*see* Sec. 12, 13).

11. *Standing orders.*

1. The object of standing orders is—

- i. To adapt existing regulations to local conditions.
- ii. To save frequent repetitions in operation and routine orders.

2. Unless carefully revised and kept up to date, standing orders may lead to misunderstanding. For this reason they should be confined to essentials, and added to as circumstances require.*

3. The authority issuing standing orders is responsible that any alteration in them is notified to the troops, and that they are communicated to troops newly entering the command.

4. Repetition of existing regulations is to be avoided.

5. At least six copies of standing orders should be issued to each squadron, battery, or company, and one to each officer.

12. *Operation orders.*

1. Operation orders deal with all strategical and tactical operations, such as marches, protection, occupation of quarters, reconnaissance, and battle. They include such information regard-

* For suggested headings for standing orders *see* "Field Service Pocket Book."

ing supply, transport, ammunition, medical, and other services of maintenance, as it is necessary to publish to the troops; but detailed orders for such services, which it is not necessary for the troops to know, should be issued only to those directly concerned.

2. An operation order should contain just what the recipient requires to know and nothing more. It should tell him nothing which he can and should arrange for himself. The general principle is that the object to be attained, with such information as affects its attainment, should be briefly but clearly stated; while the method of attaining the object should be left to the utmost extent possible to the recipient, with due regard to his personal characteristics. Operation orders, especially in the case of large forces, should not enter into details except when details are absolutely necessary. It is usually dangerous to prescribe to a subordinate at a distance anything that he should be better able to decide on the spot, with a fuller knowledge of local conditions, for any attempt to do so may cramp his initiative in dealing with unforeseen developments. The expression "will await further orders" should be very sparingly used for this reason. It is necessary to train subordinates not only to work intelligently and resolutely in accordance with brief and very general instructions, but also to take upon themselves, whenever it may be necessary, the responsibility of departing from, or of varying, the orders they may have received (*see* Sec. 12, 13).

3. In order to facilitate co-operation, the whole of the directions to each portion of a force taking part in a combined operation will usually be embodied in one operation order. When, for any reason, separate orders are issued, instead of a combined order, each separate order will include such information regarding other troops as the recipient might find it useful to know.

4. It is neither necessary nor desirable that definite rules should be laid down as to the form in which operation orders should be drafted. The object of an operation order is to bring about a course of action in accordance with the intentions of the com-

mander, suited to the situation, and with full co-operation between all arms and units. So long as this object is fulfilled, the form of the order is of little importance. At the same time, operation orders should be arranged in a logical sequence, in order that they may be clear and readily understood. With this in view, operation orders should usually be framed on the following system:—

The heading of the order will contain the class to which it belongs, followed by its number (Sec. 10), the name of the officer issuing the order, the force to which it refers, the number of the copy on the right-hand top corner, the date and place of issue on the right-hand side, and the map to which references are made on the left-hand side when this is not already specified in standing orders.

For example:—

Copy No. 1.

OPERATION ORDER No. 23,

by

Major-General X, Commanding 1st Division.

The King's Head,

Reference $\frac{1}{2}$ " Ordnance Map, No. 34.

Aldershot,

10.3.11.

The general situation should be given; this will include such information about the enemy and other bodies of one's own troops, as may affect the recipient of the order. If it is not desirable to mention the source of the information, the order should state the degree of credibility with which the issuer of the order regards it.

A brief summary of the intention of the officer issuing the order, as far as it is advisable to make it known.

After this should follow the necessary instructions for those to whom the order is issued. The actual arrangement of

these paragraphs must vary with circumstances, but it should be clear, logical, and in order of importance, so that the chief essentials are brought to mind first.*

Immediately above the signature should be stated the place to which reports are to be sent, and, when necessary, the position of the commander who issues the orders.

At the foot of the order, below the signature, should be noted the hour and mode of issue and the individuals to whom issued. In addition the number of the copy issued to each individual should be noted on the copy retained for filing.

5. The information given regarding the enemy and other bodies of one's own troops should be strictly limited to what the recipient, or recipients, of the order require to know to assist them in carrying out the tasks imposed on them.

6. The statement of the intentions of the commander must be framed with great care. **Only so much should be stated as it is really necessary for those to whom the order is issued to know, for the purpose in view.** It is seldom necessary or advisable to endeavour to look far ahead in stating intentions. In the case of the orders of subordinate commanders the intentions stated should be those of the authority actually issuing the order, arising out of those communicated to him by higher authority, which, normally, should not be "published for information." Alternative and conditional statements, depending on developments, are very apt to cause doubt and uncertainty and should be avoided. When considered desirable, in the interests of secrecy, intentions may be conveyed in a separate document.

7. In the body of the order instructions to fighting troops should usually come first as being most important. Orders for supply,

* Particular points that should be mentioned in operation orders dealing with marches, outposts, &c., are given in the chapters dealing with these operations.

transport,* ammunition, medical and other services should be limited as defined in para. 1 of this section, and should be framed after such consultation with the responsible officers of the administrative services as may be necessary. Any necessary instructions as regards the maintenance of communication should be given.

8. The detail of troops will usually be clear of the body of the order. When paper of sufficient width is available, it is convenient to give this detail in the margin. In the case of a marching troops should be detailed in their order in the column of march, but if a separate commander is appointed, he should be left to arrange his own order of march, in which case the troops placed under his command will be named in order of seniority of arms and units. In allotting the rôles to the various units the sequence for marches will usually be from front to rear, whilst in attack, defence, or outposts it will ordinarily be from right to left looking in the direction of the enemy.

9. If any portion of the force is to be detached for protective or other duties, the commander of the detachment will, if possible, be named in the order. In the case of a detachment made up of different units a rendezvous, where representatives of units will meet the commander, should be arranged.

10. The subordinate commanders will, in turn, frame their own orders on receipt of the superior's order, of which only so

* The transport of fighting units is divided into two portions, one of which, termed the *First line Transport*, always accompanies the unit. The other part is called the *Train*, and marches where ordered. This division of transport is detailed in "War Establishments." Administrative units, e.g., transport and supply units, field ambulances and cavalry field ambulances, are *not* allotted First line Transport.

The division of transport in India is detailed in "War Establishment, India," and the Indian Supplement to the Field Service Regulations.

† In orders for the movement of large bodies of troops, it is often convenient to show the detail of troops in their order in the columns of march, their starting points, hours of marching, route to be followed, destination, and place from which supplies are to be drawn, in a march table issued with the order.

much will be embodied as is necessary. Their orders should, however, be sufficiently full to enable those under them to appreciate the situation properly, and to understand how they may co-operate with others.

11. The distribution by a commander to his subordinates of copies of operation orders received by him from higher authority can seldom be justified. Exceptional cases may arise when this may be permissible in order to save time, but the officer who passes on a copy of an order must realize that he is responsible for making known any information contained in it.

12. During the course of operations it will often be necessary to supplement the orders already issued by further operation orders, which may take the form either of complete fresh orders, or separate orders issued to one or more units or commands. In the latter case, should the original orders be modified to any considerable extent, all other units or commands affected by the new order should be informed of its purport.

13. Notwithstanding the greatest care and skill in framing orders, unexpected local circumstances may render the precise execution of the orders given to a subordinate unsuitable or impracticable. Under such circumstances the following principles should guide an officer in deciding on his course of action :—

- i. A formal order should never be departed from, either in letter or spirit—(a) so long as the officer who issued it is present; (b) if the officer who issued the order is not present, provided that there is time to report to him and await a reply without losing an opportunity or endangering the command.
- ii. A departure from either the spirit or the letter of an order is justified if the subordinate who assumes the responsibility bases his decision on some fact which could not be known to the officer who issued the order, and if he is conscientiously satisfied that he is acting as his superior, if present, would order him to act.

- iii. If a subordinate, in the absence of a superior, neglects to depart from the letter of his orders, when such departure is clearly demanded by circumstances, and failure ensues, he will be held responsible for such failure.
- iv. Should a subordinate find it necessary to depart from an order, he should at once inform the issuer of it, and the commanders of any neighbouring units likely to be affected.

14. Orders for a possible retreat should always be thought out beforehand in case of need, but they should not be communicated to the troops before it becomes necessary to do so. They may be communicated beforehand, confidentially, to the higher commanders when considered advisable, but this should be rare.

15. In the case of detached forces, not under the immediate control of the commander who details them, general *instructions* for guidance are usually more appropriate than actual orders. Confidential statements of information and intentions, under such conditions, should be full.

13. *Issue of orders.*

1. Superior orders must be issued in sufficient time to enable subordinate commanders* in turn to frame and distribute their own orders. In the case of a scattered force this may take a considerable time.

2. Except in cases of urgency, orders will be issued through the usual official channel. If this is impossible, the officer who gives the order will inform the intermediate authority, and the recipient of the order will inform the same authority, of the action he is taking. For example, a divisional commander giving an officer commanding a battalion an order direct, will let the brigadier

* A subordinate commander is any commander other than the commander-in-chief, *e.g.*, the commander of a division, of a cavalry brigade, of an infantry brigade, of divisional artillery, of divisional engineers, &c.

know of the order. The officer commanding the battalion will also inform the brigadier of the action he is taking in accordance with the order of the divisional commander.

3. If detailed orders cannot be issued till late in the evening for early operations next day, great inconvenience will often be prevented by the issue of a preliminary order notifying the time of assembly or of starting. In order to avoid disturbing the rest of subordinates, it may sometimes be advisable, especially when the force is widely scattered, to confine the orders to sufficient instructions to enable the units to make any necessary preparations, and to issue the more detailed orders to commanders next morning. The preliminary order should state when and where the complete order will be issued.

4. Commanders must keep the heads of the administrative services and departments under them informed of so much of their intentions as it may be necessary for the latter to know, in order to carry out their work efficiently.

14. *Routine orders.*

1. Routine orders are of precisely the same nature in war as in peace. They deal with all matters not concerned with operations, such as discipline, interior economy, &c.

2. Routine orders will usually be issued daily at fixed hours, the earlier the better. At these hours commanders of divisions, brigades and units will ordinarily send an officer to the headquarters of their immediate superior. The officer will not only receive orders, but will also be prepared to give any information regarding the command to which he belongs, which the superior may require. Watches will be compared on this occasion.

When a force is stationary, the fixed hour for the issue of routine order should never be later than noon.

Routine orders not being of a confidential nature, the restrictions as to the distribution of copies of the orders of a superior (Sec. 12, 11) do not apply to them.

15. Messages.

1. Messages intended for the headquarters of units and formations will be addressed by the title of the unit or formation in an abbreviated form, *e.g.*, First Army, First Div, Seventh Inf Bde, Second FA Bde. The abbreviation HQ will only be used in addressing general headquarters. (*See* also Sec. 9, 1, iv.) The title of the unit will be followed, if necessary, by the place to which the message is to be sent.

In the case of administrative commanders, or their representatives, the following abbreviated addresses will be used :—

Administrative commander.	Abbreviated address.
Inspector-General of Communications	Communications.
Director of Army Signals	Signals.
„ Supplies... ..	Supplies.
„ Ordnance Services	Ordnance.
„ Transport	Transport.
„ Railways	Railways.
„ Works	Works.
„ Remounts	Remounts.
„ Veterinary Services	Vet.
„ Medical Services	Medical.
„ Postal Services... ..	Postal.
Deputy Judge Advocate-General	Advocate.
Principal Chaplain	Chaplain.
Provost Marshal	Provost.

2. After the address the number of the sender's message will be given, followed by the day of the month.

If the message is in reply to, or has reference to, a message from the addressee, the number of that message will then be quoted. The text of the message will come next. The message will end with the abbreviated title of the sender's unit or appoint-

ment, as in para. 1 above, followed by the place and time of despatch.

3. When the message is complete it will be signed by the sender as directed in Sec. 9, 1, x, in the right-hand bottom corner. If the message is despatched by signal this signature is not transmitted, but is the authority for despatch.

4. Messages will be written, whenever possible, on Army Form C 2121,* which is provided with spaces for the particulars prescribed in the foregoing paragraphs.

5. If a signal message is to be delivered to more than one addressee, it facilitates despatch if separate copies for each addressee are handed in to the signal office.

6. When the sender desires to inform different addressees that the message has been circulated, he will add this information at the end of the text of the message, thus :—

“addressed First Div, repeated Fourth Cav Bde, Second Div, Communications.”

When information has been sent to another unit, the message will contain, at the end of the text—“(unit) informed.”

7. In signal messages important numbers should be written in words. The use of Roman numerals in signal messages is forbidden. Complicated phrases are to be avoided. The letters AAA should be used for a full stop; the word “stop” should not be used to indicate punctuation as it may affect the sense of the message. Signal messages must be as short as possible consistent with clearness.

When letter ciphers or important words such as “not” are used they should be written in block letters, letter ciphers being arranged in groups of five letters.

* A supply of these forms is provided in A.B. 155.

16. Reports.*

1. In reporting on an enemy, accuracy as regards times, places, the position, approximate strength, branch of the service, formation, and direction of march, &c., of the troops reported on, is of the first importance.

2. A verbal report should be given without hurry or excitement, otherwise both hearer and speaker are liable to become confused.

Reports from strategical reconnoitring detachments should usually be in writing; those from tactical reconnoitring patrols should be in writing when time permits, but in urgent cases they may be verbal (Secs. 91 and 92).

3. It is more important that the information contained in a report should be relevant and accurate, and should arrive in time to be of use, than that the report should be long or elaborate. This applies to written reports, to verbal reports and to sketches.

4. Common sense and a moderate capacity for sifting evidence should prevent inaccurate or misleading information being sent.

5. In furnishing information, a distinction must be clearly drawn between what is certain, and what is presumed or inferred. The source of information should be given, and the reasons for surmises.

6. Negative information and the repetition or confirmation of information already sent are of importance. For a commander to know positively that the enemy was not or was still in a certain locality at a certain time may be of great value. It is often advisable that fixed times should be laid down for rendering reports containing information of this nature.

7. A plan or panorama sketch is a useful adjunct to a report, and it is often possible and convenient to dispense with the report and to convey all essential information on the plan or panorama. Clearness and relevancy are required, not artistic effect. Ranges in yards to conspicuous points should as far as possible be indicated on such sketches.

* For suggestions as to details for reports see "Field Service Pocket Book."

A plan sketch should be drawn roughly to scale, the scale being indicated both by drawing and in words. In countries which have been surveyed plan sketches will normally take the form of enlargements of existing small scale maps, such additional information as is relevant being shown on the enlargement.

Important points, *e.g.*, width of a road or stream, whether a railway is single or double, &c., should be described in words or figures.

The true north should always be indicated.

A table of conventional signs used in military sketches is given in the "Manual of Map Reading and Field Sketching."

The place from which such a panorama sketch is executed, and the direction in which the sketcher is looking, should be clearly indicated.

17. *Means of communication and principles of employment of the army signal service.*

1. The army signal service receives its orders from the general staff. In a friendly country all signal work in the theatre of operations is subject to the requirements of the military situation. The existing civil *personnel* will usually carry on the work subject to military control. When necessary, telegraph and telephone lines and offices will be taken over by the army signal service.

In a hostile country the technical *personnel* will be provided from military sources, and all existing telegraph and telephone lines, stores, and material will come under the charge of the army signal service.

2. The means of communication available with the signal units of the expeditionary force and their normal duties are given in Appendix I.

In addition to these means of communication, units have an establishment of intercommunication *personnel* allotted to them in war establishments. This *personnel* does not form part of the army signal service and is directly under the commander of the unit to which it belongs. Commanders of units will, however, co-operate

at all times with the army signal service and render it such assistance as may be possible in the execution of its intercommunication duties. In addition to arranging for intercommunication within their units, they will provide such visual signalling stations, &c., as may be necessary to complete the intercommunication between themselves and their superior commanders or neighbouring units.

3. No signal unit exists solely for the formation to which it is allotted, and at times it may be necessary for the whole or part of a signal unit to be withdrawn for employment elsewhere. In this event it is the duty of the commander from whose command the unit or detachment has been withdrawn to make the best arrangements possible for intercommunication within his command with the *personnel* remaining at his disposal.

4. An effective system of intercommunication depends on careful co-ordination and economical employment of the several means of intercommunication available, and effective arrangements to this end can be made only when the signal officer in charge of signal communications at a headquarters is given the earliest possible information as to projected operations or movements decided upon.

While keeping in close touch with the general staff, an officer in charge of signal communications at a headquarters must be prepared at all times to act on his own initiative in organizing the necessary signal communications.

The general staff at the headquarters of armies, divisions, &c., will keep the staffs of subordinate commands informed as to the arrangements to be made for communication with and between them. It is the duty of the subordinate commanders to render assistance in giving effect to the arrangements.

5. Means of communication should be kept in reserve as long as possible to meet any unexpected requirements. In addition, where cable telegraph or telephone lines are employed, suitable opportunities should be taken to replace cable lines by others following shorter routes and to recover the old lines for further use. When visual signalling or despatch riding is employed subordinate

commanders will provide the signalling stations or despatch riders at their end of the line, intermediate (transmitting) stations or relay points being found as ordered by the superior commander.

18. *Signal traffic.*

1. No communication is to be sent by signal or orderly, when transmission by post would serve the purpose.

2. The following is the order of precedence in which messages are to be sent :—

- i. Urgent service messages affecting the working of the line.
- ii. Messages O.H.M.S. marked "Priority."
- iii. Service messages connected with the working of the line.
- iv. Messages O.H.M.S. not marked "Priority."

Should extraordinary pressure arise, the responsible signal officer will report the fact to the general staff, who will take such steps as may be necessary to ensure that messages are sent in the order of their relative urgency. In the absence of instructions from the general staff, the Director of Army Signals, or his representative, will use his judgment in this matter.

3. No one but the commander on the spot, or an officer expressly authorized by him, is to frank a message "Priority." Authority to frank a message thus will be sparingly delegated, and the number of "Priority" messages must be kept at a minimum. A list of officers authorized to frank messages "Priority" will be prepared by the general staff at general headquarters, in consultation with the adjutant-general's and quartermaster-general's branches, and will be published in standing orders. In specially urgent cases officers may send "Priority" messages, but the sender, if unauthorized to employ this method, is held responsible that the urgency is sufficient to warrant such action.

Messages, other than the "Priority" messages, referred to in para. 2 of this section, must be franked by the signature of one of the following officers :—

- i. A commander.
- ii. An officer of the staff.
- iii. The head or representative of an administrative service or department.
- iv. An officer holding a special appointment.

4. Careful arrangements must be made at signal stations for the safe custody of copies of operation orders and other communications of a secret or confidential nature. No persons other than those on duty should be allowed within hearing distance of signal instruments, without written permission from the commander on the spot or from the Director of Army Signals or his representative.

It is for the sender to keep a copy of his message, should one be required.

5. Operators are not to be interfered with in the performance of their duties, and are not to be called upon to perform other duties except in emergencies.

Breaches of discipline on the part of signalling subordinates should not be investigated without reference to the officer in charge.

6. On the establishment of a signal station the officer or man in charge will at once inform the senior commander or general staff officer in the vicinity. Similarly, a report will be made when communication is interrupted or delayed.

7. Commanders in districts through which telegraph and telephone lines pass are responsible for their protection and the prevention of "tapping." The ease with which telegraphs, &c., can be destroyed, requires that they should be permanently guarded by mounted patrols, or by the inhabitants, when there is a danger of their destruction. In a hostile country each locality in the neighbourhood of a telegraph or telephone line should, if necessary, be made responsible, under heavy penalties, for the preservation of a particular section of the line.

8. Telegraph and telephone officials are responsible for bringing

to the notice of commanders any particular points in the line which require special protection.

9. Every interruption of a telegraph or telephone line caused by troops should be reported by them to the nearest signal station, the place, time, and description of interruption being specified.

19. *The air service.*

1. Aeroplanes, airships, and kites provide special facilities for observation and the rapid communication of information (*see* Sec. 95).

2. Signal balloons can be used with advantage to put up simple signals for definite movements, *e.g.*, for a combined attack. The advantage of such visual signals is that they are visible to the troops simultaneously over large areas.

20. *Orderlies.*

1. Orderlies are complementary to communication by signal, a certain establishment of orderlies being permanently allotted to the signal service (*see* Appendix I). They may be mounted on animals, motor cars, motor cycles, or bicycles, or be on foot. The general staff is responsible that they are distributed as required for purposes of communication.

The administrative services and departments provide themselves with orderlies from their own *personnel*, or by the enrolment of civilians. Should suitable civilians not be available, orderlies for permanent offices and signal stations on the lines of communication or in garrisons, will be detailed from military sources by the adjutant-general's staff.

2. The bearer of a verbal order or message should repeat it to the issuer and understand its purport; whilst the person to whom the order or message is delivered should commit it to writing, and request the bearer to sign it, if it is of any importance.

3. The bearer of a written order or message should know its

purport, in case he loses the despatch or has to destroy it. It is sometimes advisable to give a messenger two messages, one real, the other false, the real one being concealed on his person.

4. The bearer of a message on approaching the addressee will call out "message for" and the name of the addressee in a loud tone, will then deliver his message and will see that he obtains a receipt. It is the duty of all to assist him in finding the addressee.

5. A messenger will always be given a receipt for his message. The envelope, if there is one, will serve as such. The recipient must note the hour and date of receipt on it, sign it, and return it to the bearer.

The messenger is not to be detained longer than is necessary.

6. Orderlies bringing messages from advanced bodies of troops should carry them open. Commanders of troops, whom such orderlies may pass on their way to the addressee, are authorized to read the message, which they should initial. In carrying this out it is highly important that such orderlies are not detained a moment longer than can be avoided.

7. The sender will instruct the messenger as to his rate of speed, the route he is to take, and where he is to report himself on his return. The speed is to be marked on the envelope.

8. Commanders will assist in forwarding messages by all means in their power, supplying a new messenger, if necessary, or replacing tired horses by fresh ones.

21. *Relays.*

1. If messages have frequently to be carried between any two points, which are a considerable distance apart, relay posts, consisting generally of a few mounted men, cyclists, motor cyclists, or motor cars, will be organized on the route by the general staff. One man of the post will always be ready to carry on a message. When motor vehicles are employed a supply of petrol should be arranged along the route.

2. The position of a post will be clearly marked by day and by

night. A register of the messages forwarded will be kept at each post, the date, hour of receipt, speed enjoined, and name of messenger being noted in each case. If the inhabitants are hostile, a guard may be necessary for the post.

3. The commander who establishes a line of relay posts must clearly lay down when and by whom they may be withdrawn, and must also appoint a commander for the whole line.

CHAPTER III. -

MOVEMENTS BY LAND AND SEA.

22. The strategical concentration.

1. The process by which an army is brought into the theatre of operations is called the strategical concentration. This is effected by sea, by rail, by water or by road, or by a combination of these means. In the case of operations conducted outside Great Britain, the concentration must be begun by sea, whilst it may be necessary to complete it either by rail, water or road.

2. The conditions which influence the choice of points of disembarkation vary greatly with the hostility or friendliness of the country in which a landing is contemplated. In the former case the first objective will usually be the capture of a suitable harbour to serve as a base of operations, and it will, as a rule, be necessary to undertake a combined naval and military operation, and to land a force on the open beach in order to seize the port from the land side. In the case of a landing in a friendly country, the choice of the ports of disembarkation will be influenced by the plan of operations, the nature of the harbour, the amount of wharfage, and the facilities of road and rail communication towards the zone of operations.

3. When a landing is unlikely to be opposed, the order in which units are moved to the area of concentration may depend on the class of ships or of rolling stock available, as well as on the strategical and tactical requirements. The strategical concentration must be completed without interruption from the enemy, and a suitable force to ensure this must be despatched first. This will usually consist of a large proportion of cavalry, but the

preparation of ships to carry large numbers of horses takes time, and in cases of urgency the first infantry brigades mobilized should be embarked with the divisional cavalry of their divisions. These should be followed by the cavalry units; the remainder of the infantry and the artillery being sent forward next. In choosing the area of concentration, it is important that the composition and duties of the force which is to cover it should be considered.

4. If a large force is to be moved a comparatively short distance, it is quicker to complete the concentration by road,* but as the distance increases it becomes more expeditious to use railway transport. In any case the movement into the area of concentration should be so made that it can be carried through without a check.

5. From the point at which detrainment takes place, units may have to march to the area of concentration. The points of detrainment should therefore be so arranged that the lines of march of the various units do not cross one another. Although marching may cause delay, it prepares men and horses for the harder work which follows. These marches should be comparatively short, to accustom the reservists to their equipment.

6. Units should usually be moved at once from the point of detrainment into the area of concentration to make room for fresh troops arriving. While this first movement into the area of concentration is in progress it may not be possible to send forward the various brigades and divisions complete in all respects on account of the difficulty of obtaining rolling stock to suit the various arms in the order in which they are required. During this period all available roads should be used so as to take the utmost advantage of the resources of the country for the purpose of billeting and subsistence. In locating troops a commander will have to consider the necessity for protection, facilities for subsistence, and the subsequent plan of operations. In the area of concentration the various brigades and divisions will be re-formed, and all arrange-

* See "Railway Manual (War)," 1911, Sec. 7, 11.

ments made to enable the force to move forward with the least possible delay.

23. The forward movement from the area of concentration.

1. No precise rules can be laid down for the degree of readiness for action with which a force should advance. Readiness for instant action demands that the force should march on all available roads, within the limits of the front on which it is intended to fight. But a large force which marches in this manner loses to a great extent its power to manœuvre, for whilst it can move directly to its front or rear, it cannot easily change direction. It is therefore often advisable to defer the formation of a fighting front as long as it is possible to do so with safety.

2. When the number of roads available is limited, movement in depth and on a narrow front is often unavoidable. Such an arrangement has the disadvantages that deployment cannot be carried out rapidly and that the difficulties of maintenance are increased if more than one division is required to march on the same road. In these circumstances if the conditions are such that readiness for action is of less importance than convenience of maintenance, the latter may often be facilitated by marching in groups at convenient distances.

3. If a number of roads is available a judicious distribution of a force for marching purposes enables troops to be deployed rapidly into line of battle, and, at the same time, facilitates maintenance. In making this distribution the organization of the force must be considered, so that divisions and brigades are not broken up, except when this is absolutely unavoidable.

4. When the force is not in contact with the enemy and there is no probability of such contact, tactical considerations are of less importance in arranging marches than the comfort of the troops. The force may then move on a considerably wider front than it would occupy in battle, or if the number of roads is limited it may march in groups on such as are available. Every possible pre-

caution must be taken to preserve the fighting strength of the force by careful arrangement of the marches, and by seeing that the troops are adequately housed and fed. It is not necessary, in these circumstances, to concentrate before or after a march; to do so would be to sacrifice marching power. Arrangements should be made for the billeting of the various commands in the neighbourhood of the spot in which they may be on the completion of a day's march, and for resuming the march the next day from such points. By this means each unit will be able to carry out a full day's march, and the resources of the country in regard to subsistence and billeting utilized to the utmost.

MARCHES.

24. *General rules.*

1. Good marching depends largely on the attention paid to **march discipline**, under which head is included everything that affects the efficiency of man and horse during the march.

2. No compliments are to be paid during a march on service.

3. Space must be left on the right flank of a column (or as in Sec. 25, 2), both when marching and when halted, for the passage of officers and of orderlies. Mounted officers, motor cars, and orderlies should avoid passing and re-passing infantry more than is absolutely necessary, and if it is necessary to do so should take advantage of halts for the purpose.

4. An officer, when available, will march in rear of each squadron, battery, company, or other unit, to see that no man quits the ranks without permission, that the sections, files, vehicles and animals keep properly closed up, and that the column does not unduly open out.

5. No trumpet or bugle call is allowed on the march, the column being directed by signal. A system of rapid communication will be established throughout every column.

Where roads cross one another or bifurcate, the general staff will

arrange for orderlies to be placed to guide troops in the required direction, or the road not to be used may be blocked by some pre-arranged sign such as branches of trees, lines of stones, &c.

6. When there is much traffic which is liable to cause a block at any particular point, the general staff should arrange for an officer to regulate it.

25. *March formations and distances.*

1. On unenclosed ground it may sometimes be advisable to march on a broader front than the normal march formation.* One march formation should not be changed for another, unless the new formation can be maintained for a considerable distance.

2. In dusty and hot weather the column may with advantage be opened out on each side of the road, the centre of the road being kept clear. It may even be advisable to increase the distances and intervals between men, but this will only be done by order of the commander of the column.

3. To prevent minor checks in a column being felt throughout its length, the following distances will be maintained :—

In rear of an infantry company	...	...	...	6 yards.
„ „ battalion, squadron, battery, or other unit not specified here	...	...	...	10 „
„ „ cavalry regiment or brigade R.A.	...	...	...	20 „
„ „ cavalry or infantry brigade	...	...	...	30 „
„ „ a division	...	...	...	100 „

4. When marching by night (Sec. 132, 8), and, by day, when an engagement is imminent, these distances may, by order of the commander of the column, be reduced, or even omitted altogether.

* The normal march formations on a road are—

For cavalry and mounted rifles	...	...	Column of sections or of half sections, i.e., 4 men or 2 men abreast.
„ artillery	...	...	Column of route, i.e., guns and wagons in single file.
„ infantry	...	...	Column of fours.

5. Staff officers must have, ready for reference, tables* showing the length of the body of troops with which they deal in column of route, time taken to pass a given point and to deploy, camping space required, &c.

26. *Pace.*

1. The rate of marching throughout a column should be uniform. The officer who sets the pace at the head of the column should bear in mind that an irregular pace tends to produce alternate checking and hurrying, which is most exhausting to the troops, especially to those in rear of the column.

2. If mounted troops are marching independently, the quicker the march is completed within certain limits the better. The pace should be regulated to suit the ground, the men will walk and lead frequently, particularly when ascending or descending steep hills.

3. If distances are lost on the march, stepping out, doubling, or trotting to regain them is forbidden, except by order of the commander of the unit. Infantry will be ordered to quicken its pace only if a defile is to be passed rapidly or some definite object is to be gained.

* It may be taken that all troops, mounted or dismounted, move to the starting point at the rate of 100 yards per minute, and that the following approximate space is occupied in column of route:—

Cavalry or mounted rifles in sections ... 1 yard per horse in the ranks.

 " " " half sections 2 yards " "
 Infantry in fours 1 yard per 2 men "

Each 1 or 2 horse gun or vehicle takes 10 yards.

 " 4 " " " 15 "

 " 6 " " " 20 "

 " light tractor takes 5 yards.

 " lorry takes 6 yards.

 " 2 mule or pony vehicle takes 7 yards.

 " pack animal takes 4 yards.

 " camel takes 5 yards.

4. The length of an average march under normal conditions for a large column of all arms is fifteen miles a day, with a rest at least once a week ; small commands of seasoned troops can cover twenty-five miles a day under favourable conditions.

5. Infantry should rarely be called upon to exceed the regulation rate of marching ;* such efforts usually fail in their object by exhausting the men. A forced march depends rather on the number of hours during which the troops are marching without long halts, than on the pace of marching. If troops are called

* The average rate of marching for a large body of troops composed of all arms is $2\frac{1}{2}$ miles per hour including short halts. Rates of movement for small bodies of troops in the field are approximately as follows :—

Arm.	Yards per minute.	Minutes required to traverse 1 mile.	Miles per hour, including short halts.
INFANTRY—			
Usual pace	100	18	3
MOUNTED TROOPS—			
Walk	117	15	$3\frac{1}{2}$
Trot	235	8	7
Gallop	440	—	—
Trot and walk	—	—	5

The following are the approximate rates of movement of Indian transport on a level road in single file :—

Pack mules or ponies	...	...	...	250	pass a given point in 10 minutes.
Camels	...	...	...	100	" " "
Pack bullocks	...	...	...	160	" " "
Army transport carts (mules or ponies)	...	...	...	100	" " "
Army transport carts (bullocks)	...	...	...	60	" " "

Two mules, ponies, or bullocks to each cart. On rough, uneven, or hilly roads the above numbers should be halved.

upon to make a special effort, they should be made to understand that it is for a specific object.

Forced marching should be resorted to only when the expenditure of fighting power thereby entailed is justified by the object to be gained.

27. *Order of march.*

1. When there is no possibility of meeting an enemy, the order of march of the main body will depend chiefly upon the comfort of the troops. The comfort of the troops depends to a great extent upon convenience of supply, which is facilitated by preserving as long as possible the normal organization of units during the march.

2. When within reach of the enemy the order of march must be decided in accordance with the military situation. Units will then usually march in the order in which they would come into action, but artillery must be preceded by sufficient infantry to afford it protection. As a rule, the divisional artillery will follow the leading brigade of the main body of its division.

Artillery brigade and mounted brigade ammunition columns usually march in rear of the fighting troops of their own division or brigade, but it may be advisable to place one, or a portion of one, brigade ammunition column further forward in the order of march.

The position of air, signal, and bridging units in the column of march must depend on the requirements of the situation. The bridging train, if there is no chance of its being wanted for some time, may be one or more days' march in rear. In fixing its position the importance of keeping the roads in rear of the fighting troops clear must be considered.

Spare and led horses will march in rear of the first line transport of the units to which they belong.

Those portions of the engineer field companies, which are not with the advanced guard, will be accompanied by such technical vehicles only as are immediately required, and will usually march near the head of their own division. The remainder of their

vehicles will be with such of the brigade ammunition columns as are marching in rear of the fighting troops.

Field ambulances* follow their own divisions unless otherwise ordered, and will usually march in rear of the brigade ammunition columns.

28. *Trains and supply columns.*

1. Horsed transport called "trains" is allotted to the cavalry division, to divisions, to mounted brigades, and to army troops for the carriage of the baggage, stores and supplies necessary for their subsistence. This transport mobilizes with the fighting troops and accompanies them to the area of concentration, where it is withdrawn and organized under the Director of Transport or his representative.

In the case of Royal Engineer units, trains are allotted for the transport of supplies only. The baggage of these units is carried in their technical vehicles.

The trains so formed are designated cavalry trains, divisional trains, army troops train, and mounted brigade trains.

They are organized in companies, which are subdivided into a baggage section and a supply section.

Commanders of units other than Army Service Corps detail one man per vehicle for escort and loading duties to accompany the transport, the party from each unit being under a non-commissioned officer or the oldest soldier. These parties should be changed as little as possible.

* A field ambulance with its transport and equipment is divided into three sections, A, B, and C, each containing a bearer sub-division and a tent sub-division. When an engagement is imminent, a field ambulance or as many sections or parts of sections as may be necessary may be allotted to brigades and march with them. A section of a field ambulance or a part of a section, according to the size of the detachment, is normally sufficient for the service of a small temporary detachment such as an advanced guard. A cavalry field ambulance is similarly organized, but is more mobile, and is divided into two sections, A and B. A cavalry field ambulance may be allotted to a cavalry brigade, and its light ambulance wagons to detached regiments or smaller bodies of mounted troops.

2. Generally speaking, when there is no likelihood of a collision with the enemy, the smaller the distance that intervenes between the baggage sections of trains and the main body the better, as this transport is required as soon as the troops reach their destination. When there is a possibility that the enemy may be met, all other considerations must give way to the requirements of the military situation, and transport must not follow the main body so closely as to hamper its movements or those of neighbouring formations.

3. The transport of each brigade or of divisional troops marches in the same order within its train unit as the brigade, &c., which it serves.

4. The general system of forwarding supplies is described in detail in "Field Service Regulations," Part II. The supply sections of the trains are refilled by the supply columns (mechanical transport) which are lines of communication units. These supply columns proceed from rail head to rendezvous, which are normally fixed for the various divisions or other formations by general or army headquarters, though the power to fix rendezvous may be delegated to divisional commanders.

The divisional and other commanders are responsible that the columns containing supplies for their commands are met at their rendezvous and conducted to refilling points, which are normally fixed by them. At these refilling points the supplies are transferred to the supply sections of the train.

5. When contact with the enemy is possible, the probable movements of the fighting troops must be considered in fixing the position of rendezvous and of refilling points, which should be arranged so as not to interfere with such movements. If the military situation makes it advisable, the position of refilling points as well as the rendezvous may be fixed by general or army headquarters.

6. If the supply sections of the trains have been refilled before the baggage sections march, both sections may march together; occasions will arise, however, when it is necessary to fix the

position of refilling points some distance in rear of the fighting troops, and in these circumstances the supply sections may have to march separately.

29. *Divisional ammunition columns.*

Divisional ammunition columns form part of the divisional artillery, and are therefore under the immediate orders of the divisional artillery commanders. Their position on the line of march is regulated by divisional headquarters in ordinary circumstances, but it may, if necessary, be fixed by army or general headquarters. Normally they will march three or four miles in rear of their divisions.

30. *Starting point.*

1. A point, termed the starting point, which the head of the main body is to pass at a certain time, is fixed in operation orders. If troops are not all quartered together, it may be necessary for the commander to fix more than one starting point, so as to enable subordinate commands to take their places in the column of march punctually without unnecessary fatigue to the troops, and without crossing the line of march of other commands. In the absence of such orders subordinate commands must arrange their own movements to the starting point. When commands are broken up for administration and discipline in quarters, the responsibility for the arrangements for the resumption of a march by the troops quartered in an area must be defined (*see* Sec. 47).

2. In fixing the starting point, care must be taken that each unit reaches it by moving forward in the direction of the march.

3. Should the march begin in the dark, the starting point will usually be marked by signalling lamps, or by fires, the method of marking it being mentioned in the operation orders. If a force, which is scattered in quarters, is required to pass a common starting point in the dark, it will often be advisable to post a chain of men, at distances of about 20 yards, between the assembly

grounds of brigades, &c., and the starting point, arrangements being made for collecting these men when they are no longer required.

4. During the movement to the starting point, troops with their first line transport have precedence on the road of all other transport, which should remain parked on its own ground till the fighting troops are clear, being then moved direct into its place in the column.

31. Halts.

1. On the HALT being signalled, everyone, when the force is not in contact with the enemy, will at once halt and fall out on the left side of the road. The signal for the halt will be given from the head of the main body. Commanders of protective troops will exercise their discretion as to halting at once, or moving forward to occupy a position which may be of more tactical advantage. The responsibility for protection during halts remains with the troops which have been protecting the march until they are relieved.

On the ADVANCE being signalled, troops will at once fall in and resume the march.

2. A short halt will be ordered soon after the column has started, in the case of both mounted and dismounted troops, subsequent halts being arranged at regular intervals at the discretion of the commander of the column, who should let commanders of units know how often they may expect halts and their duration. The notification of these arrangements is a matter of routine which should usually be arranged for in standing orders.

3. Halts are of most use when equipment can be removed to ease the men, teams unhooked, and horses unsaddled.

4. During hot weather, on long marches, or when the march is begun at a very early hour, arrangements should be made for watering animals during the march. If a long halt is contemplated, a staff officer accompanied by an engineer and a medical officer, with sufficient police and orderlies, should be sent forward

to select halting grounds near good water. He should arrange for the methodical distribution of the water supply, and take measures for its protection until the main body arrives.

32. *Military bridges, fords, drifts. &c.**

1. The responsibility for the construction of a bridge should be defined at the time when it is ordered to be built, and suitable provision for its safety and maintenance be made.

2. If a military bridge is to be passed, a river forded, or defile passed, a general staff officer or an officer detailed by the general staff will be posted on the approach to give commanders of units instructions on special points that are to be observed in crossing.

3. To see that distances are not unduly opened out, to prevent unnecessary delays, and to make such arrangements as may be necessary to prevent troops in rear being checked, an officer from each unit will remain on the near side of the bridge, drift, &c., until the whole of the unit has passed it.

4. When crossing a military bridge, infantry must break step. Files or sections must not be closed up.

5. If it be absolutely necessary to halt on a pontoon bridge, the wheels of guns and wagons must be halted as nearly as possible midway between two boats.

6. If a bridge sways so as to become very unsteady, the column must be halted till the swaying ceases.

7. All horses should be dismounted when crossing a pontoon bridge and be led across, except those ridden by drivers, who should remain mounted. The pace is never to be faster than a walk: Drivers who have crossed the bridge are not to increase their pace for some distance after crossing.

* For further instructions regarding the passage of rivers, &c., see "Manual of Field Engineering."

8. The following depths are fordable :—

By infantry, 3 feet ; by cavalry, 4 feet ; by artillery, 2 feet 4 inches.

Fords with gravelly bottoms are best ; those with sandy bottoms are bad, as the sand gets stirred up, and the depth of water thus increases. Fords should be clearly marked by long pickets driven into the river bed above and below the ford, their heads being connected by a strong rope. It is well to mark the pickets in order that any rise of the water may be at once evident.

Rivers which are not fordable straight across may be found passable in a slanting direction between two bends.

33. *Rules for horse and pack transport on the march.*

1. Strict march discipline is quite as necessary with transport as with troops. Opening out must be constantly checked, and lost distances corrected as opportunity occurs. All transport, both when marching and when halted, must leave sufficient space on the right flank for the free passage of officers and orderlies. Pack animals should not be loaded until shortly before they are required to move off. Animals must on no account be allowed to drink when passing fords unless an organized halt has been arranged for this purpose, nor should drivers be allowed to halt without special permission.

2. With mixed transport, *e.g.*, carts, camels, mules, &c., if the situation admits of the column opening out, the fastest class of transport should start first ; this course is, however, dangerous if the convoy is liable to be attacked, in which case no opening out should be permitted. Over-driving slow moving animals such as camels, to make them keep up with fast moving animals such as mules, is especially to be guarded against. In each class of transport the slowest-moving team or animal should lead.

3. All non-commissioned officers and men not belonging to the escort or to the transport *personnel*, who for any reason may accompany the transport, will march together by units and will be

at the disposal of the commander of the escort or in his absence of the senior transport officer. All followers and non-combatants will be allotted a definite position, and must not be allowed to leave it.

4. When pack mules or camels are used, each driver must lead his own animals (usually three in number). The practice of tying animals in long strings is prohibited. On rough hill tracks mules go best if they are not tied together. In open country road space can be much economised by moving transport on a broad front, so long as recurring defiles do not entail frequent changes of front. It is especially convenient to clear a camping ground by moving off on a broad front. Ground scouts are often essential to a baggage-column.

5. No one other than the driver is to ride on any cart, wagon, or transport animal without a written order from a transport officer.

6. Some empty wagons or spare animals should be in rear of the column to replace casualties. The proportion of spare transport animals normally allowed is supplied to relieve sick and broken-down transport and is not to be used to carry excess baggage.

7. Broken-down wagons, disabled animals, or thrown loads must at once be removed from the roadway, so that the transport in rear may not be checked.

8. A short halt should be made after the first half-hour's marching, and others at intervals according to the nature and state of the roads. Halts are of most value when teams can be unhooked.

9. Transport arriving close to a village, bridge or other defile at the end of a march should usually be encamped on the further side. It is easier to pass such places whilst still in march formation than to do so, possibly in the dark, at the beginning of the next day's march. Local or tactical considerations may, however, affect this question.

10. Loading pack transport requires careful arrangement owing to the large number of men required. Under favourable circumstances four men can load 60 mules in an hour, if the loads are

roped beforehand and laid out balanced in pairs so that the animals can walk between them to be loaded. Camels take perhaps four times as long to load. If therefore the animals are not to be loaded by the troops before starting (para. 1), a very strong baggage guard (experience has shown that 80 men per battalion is not excessive) must be left. The loading of pack supply columns is even more difficult to arrange, and it is often necessary to attach several days' supplies and its transport to each unit, so as to provide the necessary labour for loading.

11. Although in a mountainous country transport can, as a rule, move only in single file, advantage should be taken of the numerous checks that occur, to shorten the transport column by forming up as many animals as possible on every piece of flat ground by the side of the road. The necessity for this should be impressed on all ranks of the transport and baggage guard, as if it is thoroughly and systematically carried out, the rear-guard will be closer up to the main body, and the force as a whole more compact.

MOVEMENTS BY RAIL.*

34. *General rules.*

1. Railway transport officers, who may be recognized by a badge marked "R.T.O." worn on the left arm, form the channel of communication between the troops and the railway service.

2. Trains are divided into troop trains and freight trains. The latter contain only animals and stores.

3. Each unit or formed body of troops should be despatched as complete as the supply of rolling stock permits. Guns or vehicles should be in the same trains as the teams, and horses should not be separated from the men who ride or drive them.

* Instructions as to the administration and organization of railway transport are contained in "Field Service Regulations, Part II," and in the "Railway Manual (War)."

The mixing of units in the same train is always to be avoided, provided train accommodation is not thereby sacrificed.

4. When large bodies of troops are moved by rail, staff officers with representatives of units and administrative services usually precede the troops, or travel in the first troop train, with a view to making arrangements at the destination of the force before the troops arrive.

5. The following points should be observed in drawing up orders for the despatch of troops by rail :—

- i. Date, place of entraining, destination, and railway route to be followed.
- ii. Time of departure of the trains, hour at which troops are to reach the entraining place, and if necessary, the road they are to use.
- iii. Arrangements for feeding troops and watering animals *en route*.
- iv. Places of assembly near entraining and detraining stations.

6. Troops are not to occupy railway buildings or use the water supply without authority from a railway transport officer. They are on no account to appropriate to their own use or interfere with railway property. Even damaged material may be required for the repair of the line.

35. *Duties of a commander of a troop train.*

1. An officer must be sent ahead to the place of entraining to ascertain from the railway transport officer the nature of the preliminary arrangements, which this officer communicates to the commander before the troops reach the station.

2. A guard must be detailed for every troop train to take charge of prisoners, treasure, &c., and to find sentries, as required, at entraining and detraining stations, and at stations *en route*.

3. A commander of a troop train should have with him, or should send by the officer referred to in para. 1 of this section, a copy of the order authorizing the move and a field state of the

troops entraining. The order for the move will be retained by the commander.

4. He is responsible that the regulations of the railway service and any special instructions on railway matters which he may receive from the railway transport officer are observed. Except when necessary because of actual or threatened attack by the enemy, he is not to interfere in the working of the railway service. If attack is anticipated, an officer should ride on the engine to inform the driver when it is desirable for tactical reasons to stop the train.

5. If animals and vehicles accompany the troops, the commander arranges for forage, and obtains lashings, &c., from the railway service with which to secure the vehicles on the railway trucks.

6. At stations *en route* he decides, after consulting the railway transport officer, whether the troops may leave their carriages. If they are to do so, he first takes precautions for preserving order and safeguarding places which are prohibited to the troops.

7. At the place of detraining, he ascertains the arrangements for detraining and moving off before the troops leave the carriages, and takes measures to ensure order in and around the station.

36. *General rules for entraining or detraining.*

1. The operations of entraining and of detraining must be carried out systematically, each separate step being conducted under the orders of the commander. Quietness and rapidity are essential.

2. The entrainment or detrainment of horses (including officers' chargers), guns, wagons, and stores, should be conducted simultaneously. Animals, vehicles, and *matériel* should be loaded up before the entrainment of the men is commenced.

3. For short journeys horses should usually remain saddled and harnessed. For journeys over six hours in length, horses should be unsaddled or unharnessed, and the saddlery or harness packed in vans, unless an attack is anticipated.

37. *Entraining and detraining personnel.*

1. Previous to entrainment, the men are to be told off into sections corresponding to the capacity of the compartments provided. Once entrained, no man is to leave his carriage without the permission of an officer.

2. Formed bodies of troops are not to remain at an entraining or detraining station, or on the approaches to it, a moment longer than is necessary. Feeding, bridling, or saddling up must be carried out elsewhere. On detraining, troops will march clear of the station at once.

38. *Entraining and detraining horses.*

1. At the entraining station, after stirrups have been crossed, girths slackened, and traces secured, or saddlery and harness removed, the horses are led on to the platform in single file, a quiet horse leading in each case, each alternate horse being placed at an opposite end of the truck. The closer horses are packed, the quieter they travel. Their heads should, as a rule, be left free. Restive horses should be backed, or dragged in by a surcingle, rope, or blanket placed round the hind-quarters.

2. The entrainment should be so arranged that the horses' heads face away from the other lines of rail.

3. To prevent delay at places where horses are to be fed, nose-bags should be refilled *en route*. Hay or straw should be loaded up separately for fear of fire.

4. After detraining, riding horses are led at once to the place of assembly, draught horses being taken to their guns or wagons, which are then to be taken to the place of assembly.

39. *Entraining and detraining guns, wagons, and stores.*

1. Guns should be entrained fully equipped, and wagons with their loads in them. They must be arranged compactly on the trucks, and it should be possible to quickly unload them from either side.

2. Vehicles must be securely fastened on the trucks to prevent movement during transit.

3. Material for emergency ramps, which is provided by the railway service, must be loaded so that it is immediately available.

4. If inflammable stores are carried in open trucks, risk of fire must be guarded against. They should be placed at the rear of a train.

40. *Defence of railways.*

1. The protection of a railway and of working parties on it rests with the commander of line of communication defences concerned. In this matter the responsibility of the railway service is confined to bringing to the notice of the commander such points on a railway as specially require protection.

2. When armoured trains are utilized, they and their garrisons form part of the troops allotted to the defence of the railway. Commanders of armoured trains should work in co-operation with the railway service so that railway traffic may be interrupted as little as possible.

Detailed orders as to their movements should not be issued to commanders of armoured trains. The object to be attained should be stated, and the method of operation be left to the commander.

3. Armoured trains are unsuited for reconnaissance independently of or ahead of other troops. When used to reconnoitre, the security of the line in rear of the train should be provided for.

4. Armoured trains should not be exposed to artillery fire. Against rifle fire the train should usually be divided, the guns with one armoured truck as escort being stationed out of rifle range, while the remainder of the train engages the enemy at close quarters with rifle and machine-gun fire.

5. With the above limitations armoured trains are a valuable means of providing for the security of a line of railway. They may be employed to connect detached posts and to patrol sections of the line, which are liable to attack at irregular intervals.

MOVEMENTS BY SEA.

41. *General principles.*

1. Oversea operations may be undertaken with a view to—

- i. The establishment of a base for military operations either against the enemy's field armies or against a coast fortress.
- ii. The establishment of a flying naval base.
- iii. Raids against shipping, communications, &c.

2. Combined naval and military operations may be either offensive, when the navy assists the army in the capture of a fortress or locality near the sea, or when the navy secures and arranges the landing of a force in hostile territory; or defensive, when, for example, the navy secures the flanks of a position taken up by the army on an isthmus.

3. The success of oversea expeditions demands as a first postulate the command of the sea. In making use of this term it is not considered desirable to lay down any precise definition as to when this condition may be considered to have been obtained. It is sufficient to state that the naval situation will be such that the navy is willing to recommend the despatch of an expedition, and that such a decision on their part does not necessarily imply that the maritime communications would be absolutely secure against any interruption whatever.

4. The most important function of the navy in connection with a combined operation is the preservation of command of the sea, and whether it is preferable that the principal naval force shall be actually in company with the convoy or be disposed elsewhere is a matter for the decision of the navy, having in view the general strategical situation afloat.

5. No standard can be laid down for the strength of the naval escort to the transports. The only essential is that the escort shall

consist of sufficient ships to control the transports while in transit, and to provide the necessary boats and *personnel* for the conduct of the disembarkation.

42. *Division of duties between Navy and Army.*

1. The navy is responsible for the provision, despatch and control of the sea transport of an army and for its security while at sea. The navy also maintains the communications of the army by sea.

2. The entire operations of landing and embarking troops, animals, guns, regimental stores and baggage and stores (cargo), whether alongside wharves or piers (either government or mercantile), or to and from a beach, will be controlled by the navy, who will provide the boats, lighters, and tugs, and any labour required in connection with these operations. All other necessary labour will be found by the army, except when circumstances render it desirable that the navy should provide some or all of the labour. The ultimate decision on this point will rest with the naval authorities.

3. The navy will be responsible for the berthing of all ships, lighters, tugs, and boats, but the convenience of the army must be considered, as far as practicable, in the positions allotted. In landings and embarkations the navy will have full control of the entire beach up to high-water mark, and of such further portions of the beach and of such piers and wharves as may be necessary to enable them to control the work of embarkation and disembarkation. Within these limits the military officers will carry out all instructions issued by the naval commander, but beyond them the responsibility for the safety and transportation of men, animals, guns, vehicles, and stores on shore will rest with the army.

Should circumstances prevent the provision of the full naval *personnel* contemplated under the distribution of responsibility indicated above, the army will undertake such duties as the

respective naval and military commanders may allot to it, with the exception of control of movements when afloat.

4. While the foregoing are the general rules regarding the division of duties between the navy and army, it is to be understood that each service is working for a common object, and will render the other all the assistance that lies in its power. The complicated duties of embarking and landing troops and stores can only be carried out successfully so long as perfect harmony and co-operation exist between the naval and military authorities, and the staff duties devolving on both services have been carefully organized and adjusted.

43. *Embarkations and disembarkations.**

1. The embarkation and despatch of oversea expeditions will in some respects be the same whether the intended landing is to be effected on a friendly or a hostile shore, but in the former case, as the troops would probably disembark at a suitably equipped port, the provision of horse-boats and other special landing appliances may be unnecessary.

2. The process of embarking troops will generally be similar to that of entraining, except that special arrangements will be necessary for the shipping and stowing of animals, vehicles, and stores.

3. The order of embarkation of an army and its distribution on board ship will be governed by its tactical application on landing, and the order in which its component parts will be required on shore (Sec. 22). The probable sequence of disembarkation should therefore be determined beforehand. Provided space is not unduly sacrificed, units will be embarked complete with their animals and *matériel*, but

* Definitions of naval terms and orders with which the army should be familiar when employed on combined naval and military operations are contained in Appendix II. Tonnage tables and notes on the methods of slinging animals, guns, and vehicles are contained in the "Field Service Pocket Book," 1911.

if special rapidity of disembarkation is important, mounted troops should be divided up by squadrons, batteries, &c., amongst the transports instead of being conveyed in a few separate vessels; otherwise mounted troops should be accommodated by themselves in cattle ships.

4. Gun and small-arm ammunition and explosives will be taken on board and stowed in the magazine, and the guns, wagons, &c., will then be prepared for embarkation. All small gear will be collected, tied together, labelled, and stowed away. Vehicles of all arms of the service need not, as a rule, be taken to pieces, but will be hoisted in loaded and without being dismantled.

The height to which military vehicles should be loaded will in no case exceed 8 feet 6 inches from the ground. Poles of wagons should be lashed to them.

5. The process of disembarking troops at a friendly port will be carried out in a similar manner to embarkations and be regulated by the naval and military commanders respectively as required.

44. *Duties on board ship.*

The interior economy and duties of troops on board ship are similar in war and in peace and will be governed by the "King's Regulations" on the subject.

CHAPTER IV.

QUARTERS.

45. *General principles and rules.*

1. Quarters take the form of Billets, Close Billets, Bivouacs, and Camps.

Billets are the usual form of quarters in civilized countries, when not in immediate proximity to the enemy. They allow of proper rest, and give shelter from the weather, but usually cause dispersion of the troops. This disadvantage may be partially overcome by resorting to Close Billets, when as many men as possible sleep in houses, the remainder bivouacking.

Bivouacs give concentration and readiness, but are trying to the health of men and horses, and should only be resorted to when tactical considerations make it imperative to do so.

Camps admit of concentration, and are more healthy than bivouacs, but will only be used on service by troops engaged on field operations under exceptional circumstances. Huts may replace tents if a force is likely to remain halted a long time, as for instance in a siege or blockade.

2. In the presence of an enemy, tactical considerations, *e.g.*, favourable ground for deployment in the event of attack, concealment, facilities for protection, and economy in outposts, are of the first importance. Under these circumstances, the time which it will take to get the troops under arms, and in position to meet the enemy, determines the form of quarters to be adopted. Thus it will often be possible to billet the main body of an army, its covering force being placed partly in close billets and partly in

bivouac. When not in proximity to the enemy, the health and comfort of the troops are the first considerations.

3. If an engagement is anticipated, the larger units should be distributed in the order from front to rear in which they will come into action, provided that when liable to attack infantry is placed in the more exposed positions; cavalry and other mounted troops in the less exposed. Artillery, train, ammunition columns, and medical units should always be covered by the other arms.

4. The following rules will be observed in distributing troops:—

- i. Depôts should be near good roads.
- ii. Dismounted units should be nearest the water supply.
- iii. Staffs and hospitals have the first claim on buildings.
- iv. When shelter is limited, cavalry and then other mounted troops have precedence of dismounted troops.
- v. Hospitals should be given a quiet spot and the most sanitary position.
- vi. Staff and telegraph offices should adjoin each other, if possible, and should be clearly marked.*
- vii. Officers must be close to their men.

5. If a force is halted for a single night only, dismounted troops should not be quartered at a greater distance than from 1 to 2 miles from their line of march next day.

46. *Hygiene and sanitation in quarters.*†

1. Every officer is responsible that all orders affecting the health of an army are rigidly carried out by the troops under his command. Neglect of sanitary precautions inevitably results in great loss of life and efficiency.

2. Men must get as much rest as possible. If an early start is contemplated, no man should stir till ordered to turn out.

* For distinguishing flags and lamps, see "Field Service Pocket Book."

† For special sanitary measures in billets, see Sec. 53, and in camps and bivouacs, Sec. 60.

Preliminary arrangements for breakfast should be seen to overnight.

3. As the health of a force depends largely on the purity of the water provided, everything possible must be done to ensure an ample supply of pure drinking water. For this purpose a certain number of specially trained N.C.Os and men of the Royal Army Medical Corps are attached to each unit. Men must be prevented from drinking water that is not pure and must be trained to economize the contents of their water-bottles. Water is best rendered safe for drinking purposes by being boiled, or by the use of sterilizing filters, which must be kept clean, as otherwise they become dangerous. (See "Manual of Field Engineering.")

The filter usually provided for field service is the filter water tank which will sterilize about 200 gallons in an hour. The water must always be cleared first, or the filter may become clogged.

4. Whenever filters, sterilizers, or other means of purifying water are available, two men per company or corresponding unit should be specially detailed for the purpose of providing pure water. Vessels or tanks in which drinking water is stored are to be carefully covered, to keep out dust, &c., and they should be raised off the ground and provided with taps. A dirty tank or water-bottle may easily be a source of danger to health. The necessity of frequently cleaning them out or scouring them with boiling water or chemicals provided for the purpose must be borne in mind. Water tanks and water-bottles must be frequently inspected by a medical officer.

5. Milk (other than sterilized or condensed) should be boiled before use.

ADMINISTRATION AND DISCIPLINE.

47. Duties of the commander of a brigade area.

1. The area allotted for quarters to each cavalry or infantry brigade, to the divisional troops of a division, and to any improvised organization approximately equal to a brigade, will normally

form a command, termed a *brigade area*, for purposes of discipline and administration in quarters.

If, however, brigades or similar organizations have to be broken up, or a force is much scattered, it may be more convenient to fix areas, the limits of which do not coincide with the limits of the quarters occupied by brigades and similar organizations. In this case commanders, who will perform the duties here laid down for the commander of a brigade area, will be appointed by the authority who defines the area.

2. A commander of a brigade area is responsible for all internal arrangements in his area. He allots areas to his units; fixes the alarm post for his command; takes steps to have extra communications opened out, if they are required; in billets, takes precautions against fire or a rising of the inhabitants; and settles police and sanitary measures.

3. In choosing alarm posts and wagon parks, care must be taken that main communications shall not be blocked, in the event of troops having to turn out suddenly, possibly in the dark. Alarm posts should be so situated that the ground to be defended in case of attack can be quickly reached from them. The alarm post for artillery is its gun park.

4. The commander will take steps to ensure that the direction of all principal roads and the position of all important points in his area, *e.g.*, brigade staff office, post office, &c., are clearly indicated by means of improvised sign boards, or by flags or lamps (Sec. 45, 4, footnote).

5. In each brigade area a place for a market will, if necessary, be selected and a tariff of prices arranged in conjunction with commanders of other areas. All persons coming into the area to sell articles of any kind must be confined to this place.

48. *General arrangements on the arrival of the troops.*

1. Before the troops are dismissed, all necessary defensive precautions must be taken, guards mounted, police posts established, and water, fuel, and forage parties detailed. The arrangements of

the brigade area, the boundaries of the unit's area, and other matters of a similar nature will also be explained to the men.

2. Units, on their arrival, should be halted on their alarm posts. Everyone must be made clearly to understand what he has to do in case of alarm, and should know the names of all prominent features of ground near the area, and where the roads in the immediate neighbourhood lead to. Names should be invented for such features if none exist.

3. No troops, other than orderlies and parties for water, wood, forage, &c., under proper control, are to quit their areas until leave has been given by the commander of the brigade area.

4. Each commander of a unit will, without delay, send an orderly who knows the position of the unit's headquarters to report himself at the brigade office.

5. If a state of *constant readiness* is ordered, troops will remain unaccoutred and will sleep with their arms handy, and it may even be necessary that horses should be kept always saddled and harnessed. In billets, lights must in this case be kept burning in houses, stables, and streets; and doors must be kept open.

49. *Discipline.*

1. The daily duties mount, as a rule, immediately a new halting place is reached. When a force remains halted for some time, and in standing camps, the hour for duties to mount will be notified in orders. A field officer of the day, with a medical officer and a quartermaster to assist him, will be appointed in each brigade area; and in each regiment, brigade of artillery, battalion, or similar unit, an officer of the day will be detailed. In each squadron, battery, and company, an orderly non-commissioned officer will be appointed.

2. A staff officer, or representative, is always to be present at the staff office of an area. A brigade adjutant of the day will be appointed to act for the staff officer of the area in his absence.

3. The field officer of the day is responsible that the orders of

the commander of the brigade area for the preservation of good order, the sanitation and the internal defence of the district are observed. Regimental officers of the day report to him.

4. Regimental officers of the day, and orderly non-commissioned officers, fulfil similar duties as far as their own areas are concerned.

5. Inlying piquets are mounted under the orders of the commander of the brigade area, when required for internal security, or they may be ordered by the commander who appoints the commander of the outposts to act as a reserve to the outposts. In the latter case the piquet stands to arms one hour before sunrise (Sec. 80). Should the inlying piquet be required to leave an area its commander should at once notify the fact to the field officer of the day, with a view to a fresh inlying piquet being mounted.

6. The "Alarm" will be sounded only by order of the commander of a brigade area or of superior military authority, unless an actual attack is impending, when it may be sounded on the responsibility of any officer or of the commander of a guard.

7. On the "Alarm" sounding, troops fully armed and equipped fall in by squadrons and companies on the alarm post of their unit, draught animals are to be at once harnessed in and pack animals saddled up, and an officer from each unit is to be sent for orders to the brigade office.

BILLETS.

50. *General principles.*

1. In the case of large bodies of troops (*e.g.*, two or more divisions), when tactical considerations admit, and roads are available, the divisions should be billeted on parallel lines, each being distributed on a narrow front, and in depth. This arrangement admits of each division being closed up on the front more readily than when divisions are billeted in echelon, and is economical of time and labour when a force is marching from day to day

(Sec. 23). For if the rear of a division, marching on one road, can be quartered close to the route to be followed, at a distance from the head of the division approximately equal to the length of the whole in column of route, it can resume its march without check. If a division marching from day to day is concentrated at the end of each day's march, it is necessary for the rear to wait until the head of the column has covered a distance about equal to the length of the column, before it can begin its march. This delay impairs the marching power of the whole.

2. In allotting areas, units should be kept together as far as possible under their own commanders, but in order to make full use of stabling it may be necessary to mix the arms.

3. On the line of march, the utmost possible use should be made of buildings on or near the roads by which the force is marching.

51. *Allotment of billets.**

1. Whenever possible, billets will be allotted in advance. Billeting areas may be allotted to armies or divisions, in the first instance on a basis of population. But the capacity of areas varies greatly with their character; *e.g.*, whether urban or rural, agricultural or industrial, rich or poor, and with the season of the year. Data as to the capacity of an area should therefore be collected beforehand, if circumstances permit. In the absence of such data it may be taken that ordinary billets with subsistence can be provided by an area for a force about equal to twice its total population for one week. Billets without subsistence can be provided at the rate of about 10 men per inhabitant in rich agricultural districts, and at the rate of about 5 to 6 men per inhabitant in town or industrial districts. No data can be given for close billets, in which men for whom no shelter can be provided must bivouac. In the case of large units (divisions), billeting parties

* For data as to accommodation in billets, see "Field Service Pocket Book."

will be sent ahead for the purpose of making arrangements with the local authorities. These parties will be in charge of an officer of the quartermaster-general's staff, and will include representatives of the brigades and divisional troops. They should move with the protective cavalry if possible. Regimental billeting parties (*see* 3 below) should march with the advanced guard.

2. As soon as the distribution of troops has been decided, brigade billeting areas will be allotted by the quartermaster-general's branch of the staff, and commanders of these areas will in their turn distribute the accommodation among units. In such circumstances billeting demands, together with any special orders to be observed by the inhabitants, should be issued by commanders of brigade areas to representatives of units, who will proceed with billeting parties to the localities apportioned to them, so far as tactical considerations admit, and take over their areas, when they will, in turn, send back to meet and guide their units to their billets.

3. A regimental billeting party should, if possible, consist of an officer or non-commissioned officer, and one rank and file per company, &c., for each unit concerned. Before starting for his allotted area, each officer (or non-commissioned officer) should receive a statement showing the number of officers, men, and horses for whom accommodation (and food if this is to be demanded) is required, and, if possible, the topography of the locality should be explained.

4. On arrival in the locality to be occupied, the officer, or non-commissioned officer, in charge of the party will proceed direct to the mayor,* chief officer of police, or other official holding an equivalent position, to whom the billeting demand will be handed, together with any instructions to be observed by the inhabitants. The mayor or other official will at the same time

* When a town is divided into two or more brigade areas, the senior officer of the billeting parties of each brigade area will hand in the billeting demands for his area, and will distribute the accommodation allotted amongst his units.

be notified of the hour at which the troops may be expected, and will be requested to supply information as to the existence of any infectious disease, to designate the house or locality affected, and to notify any special precautions to be taken in respect of water supply, sanitation, fire, &c.

5. If time permits, a billeting order (A.F. F 788, *see* Appendix III) will be prepared by the local authority for presentation by the billeting party to each inhabitant on whom men and horses are to be quartered. This order will show the number of men and horses to be received, and whether food and forage is or is not to be supplied.

6. On receipt of the billeting orders, the officer (or non-commissioned officer) in charge of the billeting party will issue them in proper proportion to the representative of each company, who will be given instructions regarding the posting of warnings outside infected buildings, special arrangements for watering, &c., and the place to meet the officer (or non-commissioned officer) when the billets have been inspected. The men of the party will then proceed to the houses and stables allotted to their respective formations, will inspect and mark the billets, and will hand the billeting orders to occupiers.

They will mark clearly with chalk on the door the names of officers, the number of men and of horses the building is to hold, and the command, *e.g.*, squadron, battery, or company, to which it is allotted, official abbreviations being used. The marks must be removed before marching off.

7. In the meantime the officer (or non-commissioned officer) will select and mark the position of the regimental headquarters, guard room, alarm post, sick inspection room, gun and transport parks, etc., and will ascertain the most suitable lines for communicating with neighbouring units, and the best roads into and out of the billeting area. This completed, he will if possible prepare for the information of the regimental commander a sketch showing the allotment of billets to the unit, and giving details regarding roads and communications.

8. On reassembling his men, he will notify them of the positions of the headquarters, guard, etc., and a proportion will be despatched to convey this information to companies, and to guide them to their billets.

When time is not available for the above procedure the troops will be halted outside their billeting areas. Meanwhile a party from each brigade area will proceed to the mayor or other official, to whom a billeting demand will be presented and whose co-operation in the allotment of billets will be requested. The local authority will then take steps to notify to the inhabitants that troops will be billeted on them and will promulgate any military orders to be observed. At the same time the billeting party will roughly allot the accommodation, areas being assigned to the larger units, and these in their turn allotting certain streets or groups of houses to their units.

9. In allotting billets, regard will be had both to the comfort of the men and the interests of the inhabitants. Billets may have to be readjusted after the troops have settled into them.

The following points should be observed in addition to those given in Sec. 45, 4 :—

- i. Staff offices should be on main communication, and easily found.
- ii. Mounted men must be near their horses, guns, and wagons ; and staff officers near their offices.
- iii. Both sides of a street should be allotted to the same unit to prevent confusion in case of alarm.
- iv. Roads and communications must never be blocked. Guns and vehicles must, if necessary, be parked outside towns and villages. If parked on the sides of roads, the first and last guns or vehicles should be marked with a light.

52. General rules in billets.

1. Officers will visit the billets of their men and their horses' stables at irregular intervals, at least once by day and once by night.

2. If necessary, the inhabitants should be disarmed and forbidden to leave their houses after a certain hour; the streets should be patrolled to see that this order is obeyed. It may be necessary to take hostages for their good behaviour. Inhabitants who have leave to be out after dark should carry lights.

3. From the moment the advanced billeting parties enter a village or farm, precautions must be taken to prevent the inhabitants conveying information to the enemy. The local telephone system must be at once controlled. All ranks should be warned against talking on military matters in the presence of inhabitants, against leaving letters or papers about, and of the importance of taking every possible precaution against any leakage of information.

4. Military tribunals should be established to deal with any infractions by the inhabitants of the orders issued concerning them, and with any offences committed against the troops.

All houses where liquor is obtainable must be placed under control.

5. In every house occupied by the troops at least one man must be specially detailed to guard the arms. Arms are not to be piled or left outside.

6. As a precaution against fire, and also to prevent signalling to the enemy by means of lights, directions should be issued controlling the use of fires and lights, both by the troops and by the inhabitants. It may sometimes be necessary to establish special fire piquets.

7. When the enemy is within striking distance, the villages in the front line should be prepared for defence against surprise, and a portion of the troops in them kept in a state of constant readiness (Sec. 48) so that the defences may be rapidly occupied.

8. As troops in billets are usually dispersed over a wide area, an alarm signal should be arranged for use in the event of the troops being required to turn out suddenly.

9. Cover is all that officers and men have a right to expect in billets on active service, unless the inhabitants also provide subsistence. If either bed or furniture is supplied, it is a matter of

civility on the part of the owner and must be received as a favour and not as a right.

10. Staff officers must, immediately on arrival, communicate their addresses to the headquarters office of the district in which they are billeted.

53. *Sanitation in billets.*

The local authorities should usually be required to take such sanitary measures as may be needed, but it may be advisable to give them assistance, particularly in close billets, in which the construction of additional latrines, watering and washing places will often be necessary. Billeting parties should invariably ascertain the source of the local water supply, the measures which may be necessary to guard it from pollution, the sanitary system of the place, and should make enquiries as to the existence of infectious diseases. Sentries should be posted at the first opportunity over houses where infection exists, and over any other houses in which it is not desirable to quarter men. When the same billets are to be used by successive bodies of troops, it is of the utmost importance that they should be left scrupulously clean. In such cases arrangements should be made to supervise and, if necessary, assist the local authorities in this work after the departure of the troops.

54. *Close billets.*

In close billets as many men and animals as possible are billeted, and the remainder bivouac.

Close billets are adopted when a greater state of readiness is required than is possible in ordinary billets. For this reason, tactical considerations invariably have precedence over considerations of comfort in close billets, and arms and units should never be mixed.

In allotting close billets, every form of shelter should be fully utilized. It should be remembered that a bad billet is preferable to the best bivouac. Close billets will, normally, be used for short

periods only, and it is not therefore necessary to consider the interests of the inhabitants to the same extent as in ordinary billets. Where close billets have to be occupied for any length of time, as in the case of sieges, it is advisable to remove the inhabitants, and accommodate them outside the immediate zone of operations.

In other respects the instructions for billets apply to close billets.

CAMPS AND BIVOUACS.

55. General principles.

1. The site for a camp or bivouac should be dry, and on grass if possible. Steep slopes must be avoided, but gentle slopes facilitate drainage. Large woods with undergrowth, low meadows, the bottoms of narrow valleys, and newly turned soil are apt to be unhealthy. Clay is usually damp. Ravines and water-courses are dangerous sites, as a sudden fall of rain may convert them into large streams. Sites of old camping grounds should, if possible, be avoided.

2. A good water supply is essential, but considerations of safety may necessitate a camp, or bivouac, being placed at some distance from it. Other points to be considered are the facilities which a site offers for obtaining shelter, fuel, forage, and straw.

56. Arrangements at the end of a march.

1. A staff officer, usually accompanied by some mounted police, will be sent forward to select, in conjunction with an engineer and a medical officer, and with due regard to tactical considerations, water supply, &c., the ground where the force is to pass the night. He will make all necessary arrangements for the reception of the troops on their arrival.

2. When the column arrives within two or three miles of its destination, staff officers of brigades, &c., accompanied by representatives of their units, will ride ahead, receive instructions con-

cerning arrangements for the night, lead their units on arrival direct to the ground allotted to them, and explain the arrangements to commanders of units. The commanders of the train and of the rear guard will report personally to the commander of the column as soon as they have reached their destination.

3. Each unit is to make arrangements to have its train guided to its destination. Animals on arrival should be relieved of their loads and girths loosened as soon as practicable.

4. When ground is allotted, each commander must be informed of any localities or depôts outside his own area on which he may draw for water, fuel, forage, straw, and other supplies. If grazing is necessary, grazing grounds will be allotted and arrangements made for their protection by the authority allotting them.

5. It must also be made clear to each commander which roads he is at liberty to use, and what special defensive, police, or sanitary measures he is to take.

The place to which dead animals are to be dragged, and how they are to be disposed of, must also be described.

6. Where bodies of troops are camped or bivouacked close together, the general position of the latrines and kitchens of each area will be settled by superior authority, in consultation with the senior medical officer; that is to say, it will be decided whether they are to be in front, at the rear, or on the flank of an area.

7. Special care is necessary to prevent troops from the various areas crossing one another in proceeding to ground which they may have to defend in case of attack.

57. Watering arrangements.

1. The military police, or in their absence the first troops to arrive at a halting ground, will mount sentries on all water likely to be required for use, with such orders as will prevent any form of pollution. These sentries will not be withdrawn until permanent water guards are detailed.

2. The water supply will always be selected in conjunction with
(R 10204)

the sanitary or other medical officer, who will satisfy himself as to its fitness for use.

3. If water is obtained from a stream, horses will be watered below the place where troops obtain their drinking water, but above bathing and washing places. Patrolling by mounted men will often be necessary for some distance above the spot where the drinking water is drawn.

4. The water supply will usually be marked with flags by the advanced party of engineers (Sec. 66, 3):—

White for drinking water.

Blue for watering places for animals.

Red for washing or bathing places.

5. If running water is not available, a rough barbed wire fence, or some other form of fencing, should be placed round the water supply, to keep out animals, which should in this case be watered by bucket or nosebag. Washing should be allowed only at some distance from the water supply, empty biscuit tins, or other receptacles, being used to draw water for this purpose.

Similar precautions are often necessary with running water, if other bodies of troops are halted lower down the stream.

6. If many animals have to be watered and the frontage is small, hours for watering and the route to and from watering places will be laid down for each unit. Three to five minutes may be taken as the average time for watering an animal.

An officer will invariably accompany watering parties of more than 20 animals.

7. A daily average of 1 gallon per man is sufficient for drinking and cooking purposes. A horse, bullock, or mule drinks about $1\frac{1}{2}$ gallons at a time. In standing camps, an average allowance of 5 gallons should be given for a man, and 10 gallons for a horse.

58. *Picketing.*

1. Horses should be picketed in lines facing away from the prevailing wind if possible.

2. A horse, when picketed, requires a frontage of about 5 feet and a distance of 4 yards. When horses are fresh from stables, it may be necessary at first to increase the frontage.

3. A gangway of 5 yards will be maintained between two horse lines, and between a horse line and the nearest building, wall, &c., or the pegs of the nearest tent.

4. Saddlery and harness will as a rule be placed in the gangways in rear of the heel pegs : forage at the rear ends of the horse lines.

5. Head ropes will be fastened at such a length as to be just slack when the horse is standing naturally.

6. If horses are unaccustomed to picketing, the men should be kept as much as possible among them.

59. *Parking guns and vehicles.*

1. In parking vehicles, the following distances should be kept clear in front of guns or vehicles, which should be parked with the units to which they belong :—

Heavy gun (8 horses)	...	...	...	16 yards.
6-horse gun or wagon	...	...	...	12 "
4-horse vehicle	...	...	...	8 "
1 or 2-horse vehicle	...	...	...	5 "

Mechanical transport vehicles will require special arrangements.

2. A minimum interval of 1 yard should be left between guns or transport vehicles.

If space admits, guns should be parked at half interval (10 yards).]

60. *Sanitation in camp and bivouac.*

1. The method of constructing latrines is described in the "Manual of Field Engineering."

Where natives are employed, special latrines for them are necessary.

The supervision of latrines is absolutely necessary in order to

ensure excreta being at once covered up. Disease may be easily spread if latrines are not carefully attended to.

2. Urine may spread infection. Men are on no account to urinate elsewhere than in the latrine trenches, or in urinals or pits set apart for the purpose. Receptacles, such as empty biscuit tins, should be placed at convenient spots close to the tents at night, to be used as urinals, to prevent pollution of the ground.

3. Latrines, urinals, refuse pits, cattle lines, &c., must be situated at least 100 yards from, and when practicable to leeward of, the water supply and kitchens. They must never be placed in or near gullies which, when it rains, discharge into the water supply, nor in any situation the drainage or filtration from which may possibly reach, and so pollute, the water supply.

4. The contents of latrine trenches should be covered with a couple of inches of dry earth daily. The use of kerosine oil and lime will assist in keeping flies away.

61. *General rules in camps.**

1. The shape and the size of a camp or bivouac will, subject to the following general rules, be determined by the ground.

2. In brigade and larger encampments, one main centre and one main cross street will run the entire length and depth of the camp.

Units should not be cramped for space more than is absolutely necessary. On the other hand, the dimensions of a camp or bivouac must not be increased unduly, as a straggling camp entails extra fatigue duties and delay in circulating orders.

3. The usual interval between units is 10 yards. Between squadrons of the same regiment, and between the component fractions of an artillery brigade, the interval may be reduced to 1 yard; and between the companies of a battalion to 3 yards.

* For details as to tents, sizes of camping grounds, &c., see "Field Service Pocket Book."

4. A trench should be dug immediately under the curtain of a tent and the excavated earth banked on the outer edge of the trench. The curtain should then be pegged to the inner slope of the trench, the canvas thus draining into it. Surface drains should be constructed to prevent rain-water lodging in the trenches. Half-an-hour's work on the first wet day, when the natural run of the water can be seen, will do more to keep the camp healthy than a day's work in dry weather.

5. Tent flies are to be looped up the first thing every morning, in wet weather on the leeward side only. In a standing camp, tents will be struck periodically, and the ground underneath well swept and left exposed for some hours at least, the tents being eventually replaced on their former sites. Tents should never be pitched for occupation in the intervals.

6. Tent doors should generally face away from the prevailing wind; in mounted units they should face the horse lines.

7. A light is never to be left burning in an unoccupied tent.

8. If rain or heavy dew is likely, tent ropes must be slackened.

9. If a camp is pitched in or near long dry grass or heather, special precautions must be taken against fire.

10. No mounted officer or man riding or driving inside the camp is to go out of a walk except when on duty, and with special orders as to pace.

62. *General rules in bivouacs.*

1. Mounted men bivouac in the gangways in front of their horses.

2. By day, infantry pile or ground arms on the alarm post, articles of equipment being laid by the arms. By night, men will invariably rest with their arms and equipment by them. In some cases men must sleep fully equipped (Sec. 87).

63. *Standing camps and rest camps.*

1. When laying out a standing camp, tents, at the required intervals and distances, should be dressed both from the front

and flank ; main and cross streets should be maintained for the purposes of communication.

2. A system of surface drainage should be constructed.

3. Care should be taken to prevent the pollution by latrines or refuse pits of ground within 100 yards of the encampment, or any possible extension of it. An improvised pail system of removal should be established if possible.

4. Incinerators for burning dead animals, refuse, &c., should be constructed. Horse and cattle lines should be cleaned regularly, dung removed, and special precautions taken to prevent ground in the neighbourhood of kitchens and washing places becoming fouled. Flies are a constant source of disease, and great care is necessary to prevent them from breeding in dirt and refuse, and from coming in contact with food.

5. Notice boards should be put up showing the position of offices, depôts, hospital, veterinary hospital, watering places, latrines, urinals, refuse pits, &c., and a plan of the camp should be on view at the commandant's office. All parties, on arrival, should have the arrangements, including those for defence when necessary, and the rules of the camp fully explained to them.

6. Camping grounds should be definitely allocated for mounted troops, dismounted troops, and convoys, respectively. Infantry camping grounds should not be used by mounted troops.

7. The arrival at, and departure from, a rest camp or post on a line of communication, of any body of troops, will be reported by its commander to the commandant of the camp or post.

Detached officers will write their names in a book provided for the purpose, stating the duration of their stay and the duty on which they are travelling.

CHAPTER V.

PROTECTION.

64. *General principles.*

1. Every commander is responsible for the protection of his command against surprise. A force can only be regarded as secure from surprise when protection is furnished in every direction from which attack is possible.

2. The strength, composition, and disposition of forces detailed for protective duty must depend on circumstances, such as the nature of the country, the proximity, strength, and characteristics of the enemy; also on whether the duty is to be carried out in clear weather, or in fog or darkness. The objects to be attained are, firstly, to obtain timely warning of any threatened attack, and, secondly, to ensure to the force protected sufficient time to prepare to meet the attack. Subject to the attainment of these objects no greater force than is really necessary should be employed on this harassing duty.

3. The commander of a body of protective troops, whether large or small, and wherever situated, must keep his command in such readiness for action as the circumstances require.

4. In the absence of special orders, a protective detachment is responsible that connection with the force protected is maintained, but the commander of the force covered is not relieved of responsibility for taking such steps as may be necessary to ensure that connection is maintained. The special measures to be taken to maintain connection in savage warfare are explained in Secs. 144—147.

5. In the event of attack, a protective detachment must at all risks and at any sacrifice gain time for the body which it protects to prepare to meet the attack.

6. An enterprising enemy, especially if he be strong in mounted

troops, may find opportunities of evading or breaking through a protective screen and of attacking the columns in rear. The existence of such a screen cannot, therefore, be considered as affording absolute protection, and it does not absolve the commanders of forces, moving or halted in rear of it, from responsibility for providing such local protection of their commands as the situation may render advisable.

7. At the end of a march, the troops that have covered the march remain responsible for the protection of the main body while at rest, unless and until other arrangements are made by the commander of the force; and, *vice versa*, when the march recommences, outposts must not be withdrawn till the troops detailed for the protection of the march are in position.

8. In the following pages, the protection of a force of all arms is chiefly considered. The principles laid down are of general application, and hold good for mounted troops or infantry, acting independently of the other arms.

GENERAL PROTECTIVE DUTIES.

65. *Employment of mounted troops.**

1. The protection of a force, which marches from day to day, makes heavy demands upon the mobility of the troops engaged upon it, consequently mounted troops are especially fitted for this service. The duties of mounted troops, which include, amongst others, the service of protection, may be considered conveniently under three heads, viz. :—

- i. Divisional duties.
- ii. General protective duties.
- iii. Special missions.

2. The mounted troops allotted to divisional duties usually form a permanent part of the division to which they belong. They are

* The employment of mounted troops in battle is considered in Chapter VII

known as "divisional mounted troops." Their duties in connection with protection are detailed in the sections which follow.

3. As a general principle it is not possible for one body of troops to carry out efficiently both general protective duties and a special mission at the same time. Consequently a different body of troops should usually be detailed for each of these duties. This separation is not, however, to be regarded as a permanent arrangement, the principle governing the distribution of mounted troops being that the commander-in-chief must group his units according to requirements, varying the grouping from time to time as the situation may demand.

4. Mounted troops, made temporarily independent of the remainder of a force, in order that they may carry out a special mission, are designated, while so employed, "the independent cavalry" (Sec. 91), those employed on general protective duties being known for the time being as "the protective mounted troops."

Although thus temporarily detailed for different duties these bodies must ever be ready to co-operate with each other when this can be done with advantage and with due regard to the particular mission of each. As the situation develops it may become advisable to alter the original grouping at any time by reinforcing the independent cavalry from the protective mounted troops or *vice versa*.

5. In distributing the mounted troops as may be required, from time to time, it is to be noted that fully trained cavalry are especially suitable for employment on special independent missions while not less capable than other mounted troops of carrying out protective duties. Either cavalry or other mounted troops, or both together, may be detailed for either work, however, as the situation may demand.

6. The principles governing the execution of special missions by troops detailed therefore are dealt with in Secs. 90 and 91.

7. When the opposing forces are at a distance the duties of the protective mounted troops are :—

- i. To afford the commander of the force it may be covering timely information regarding the enemy's movements and the front which he is covering.
- ii. To furnish information regarding tactical features, resources, and roads of the country in advance of the main body.
- iii. To oppose hostile enterprises and prevent the enemy obtaining information regarding the movements of the columns in rear.

The protective mounted troops may also be employed to seize and hold positions in front of the slower moving infantry and deny their occupation to the enemy until the main body arrives.

8. These functions of the protective mounted troops will entail principally defensive action, and will necessitate extension over a considerable front, but the commander must dispose his force in sufficient depth to enable it, with the assistance of the advance guards of the columns in rear, to check any attempt to break through and surprise the main body.

9. When the opposing forces are within striking distance of each other, it becomes the duty of the cavalry to clear up the tactical situation. This will usually involve offensive action and be the work of the protective mounted troops, assisted by the independent cavalry if available and by other advanced troops as the general situation permits. **The protective mounted troops best assure the safety of the force they cover by keeping the enemy continuously under observation when contact with him has once been gained (Sec. 92).**

10. When it is desired to cover the movement of a number of columns by something stronger than a protective screen of mounted troops, the latter may be reinforced by other arms, the whole forming a general advanced guard under one command, its composition and duties being determined by the authority who orders its formation.

11. It may be advisable to form a general advanced guard at any time or for any special purpose. Usually when at a distance from the enemy a force is divided into a number of columns for convenience of maintenance (Sec. 23). It is then generally convenient for each column to furnish such protection as may be required in addition to any that may be provided by the protective mounted troops. When approaching the enemy unity of action becomes important, the force moves on a narrow front, and a single advanced guard is then usually preferable for the protection of the larger units (divisions, &c.). This single advanced guard may take the form either of a general advanced guard or of a tactical advanced guard (Sec. 66) charged with the protection of all the columns in rear.

12. The protection of columns marching in rear of a general advanced guard is governed by the principle stated in Sec. 64, 6, above.

LOCAL PROTECTION.

THE TACTICAL ADVANCED GUARD.

66. *Composition and strength of an advanced guard to a force advancing.*

1. The strength of a tactical advanced guard will depend upon the situation and upon the nature of the general protective screen which may be provided in front of it (Sec. 65). The strength of the tactical advanced guard of a force which is marching independently or is covered by mounted troops only may vary from a fourth to an eighth of the whole force, but should be sufficient to enable the advanced guard to carry out its duties (Sec. 68).

2. An advanced guard is divided into a van guard and a main guard. As it has to reconnoitre and fight, it will usually be composed of all arms. The proportion of each arm will depend chiefly on the character of the country. In an open country, the

proportion of mounted troops and guns may be much greater than in a close or mountainous country.

3. The special duty of the van guard is reconnaissance. It will, therefore, generally be composed of the advanced guard mounted troops, with or without a body of infantry as a support. By day, when the country is open and the advanced guard is strong in mounted troops, infantry will not as a rule form part of the van guard. Field artillery will seldom accompany it, but a party of engineers should usually be added.

The main guard comprises the troops of the advanced guard not allotted to the van guard.

67. *Advanced guard commander.*

1. The advanced guard commander, on taking over his duties, should be informed of what is known of the enemy, of the strength and composition of the advanced guard, and of the intentions of the commander. He should receive clear instructions as to engaging the enemy, if he is met in any force (Secs. 68 and 111).

2. On receipt of his instructions, the advanced guard commander will issue his orders. In these he will explain the general situation, the route to be followed, the composition of the van guard and main guard, the order of march, and the hour of starting.

3. He will take steps to ensure that connection is maintained between the different parts of the advanced guard, and also with the main body.

68. *Action of an advanced guard to a force advancing.*

1. The advanced guard must protect the main body from the moment the march of the latter begins. The advanced guard commander will therefore decide the hour at which the advanced guard will clear the starting point and the distance at which it will precede the main body. This distance will vary with the nature of the country and the tactical situation. It should be sufficient to enable the main body to deploy should the enemy be met in

force, and to admit of minor opposition being overcome without checking the main column.

2. It is most important that when an enemy is met the commander of the force should have information on which to base his plans and time to put them into execution when they are formed. The first troops to be met will be the enemy's advanced troops and until these have been driven back it is rarely possible to obtain detailed information as to the enemy's dispositions. It is the duty of advanced guards to assist the mounted troops, when necessary, in driving in the enemy's covering troops.

If the commander of the force has decided on offensive action the advanced guard commander should secure any tactical points which may assist the development of the attack of the main body. To effect this it is justifiable for him to deploy on a broader front than would be advisable for a force of the same size entering on a decisive action, for every moment brings the main body closer. Should the commander of the force wish to avoid being drawn into a decisive engagement, the advanced guard commander will use all means at his disposal, short of committing the main body, to delay and hamper the enemy and to discover his dispositions. If the advanced guard commander is in any doubt as to the intentions of the commander of the force, he must act on his own initiative, remembering that by driving in the enemy's advanced troops at once he will usually assist the commander of the force in coming to a decision and that this will rarely interfere with the latter's liberty of action, while hesitation and delay may do so by allowing the enemy to seize the initiative.

3. The van guard is responsible for protecting the main guard against surprise. In open country mounted patrols should seldom be less than four or five miles in front of the main body. In any case all ground within effective field artillery range must be searched. The advanced guard mounted troops should always keep in communication with the protective cavalry, and with columns moving on parallel roads. If constant connection between two columns is difficult to maintain, arrangements should

be made between them for communicating at stated places or intervals of time during the march.

69. *Advanced guard in a retreat.*

1. It is always advisable to have a small advanced guard to a retreating force. Its special duty is to clear away obstacles that would delay the march. But it should observe all precautions against surprise, and should be invariably accompanied by some mounted men for scouting purposes. A party of engineers should be attached for the removal of obstacles, or the preparation of bridges, &c., for demolition after the rear guard has passed.

2. Should it be possible for the enemy to intercept the head of the retreating column, a strong advanced guard of all arms will be required.

THE FLANK GUARD.

70. *General principles.*

1. If there is any possibility of a column on the march being attacked in flank, flank guards should be detailed. They will usually be furnished by the main body, but may sometimes be dropped by the advanced guard.

2. The strength, composition, and disposition of a flank guard and its distance from the main body are governed by the principles which apply to all protecting detachments. The flank guard may either move parallel to the main body, or take up a position on the threatened flank. A flank guard may be required to hold its own without support until the main body and transport have passed.

3. Should the main body change direction so that the march becomes a flank march (*i.e.*, a march across the enemy's front), it will generally be advisable to use the old advanced guard as a flank guard, and to form a new advanced guard from the main body.

THE REAR GUARD.

71. *Duties, composition, and strength of the rear guard to a retreating force.*

1. The first requirement of a defeated force is to be relieved from the pressure of pursuit. This is effected by detaching a portion of the force, the strength of which will depend on the situation, as a rear guard to impede the enemy's advance. The remainder of the force is thus enabled to move in comparative safety, and to recover order and *moral*.

2. A rear guard to a force retreating is essentially a fighting force of all arms. It should be strong in artillery and mounted troops. Artillery, by reason of its long range, is able to force the enemy to deploy at a distance, whilst mounted troops, on account of their mobility, can hold a position considerably longer than infantry, and prevent the flanks from being turned. A rear guard should be lightly equipped, and should usually be accompanied by a strong detachment of engineers provided with demolition equipment. The troops detailed for the rear guard will, as a rule, be those which have been least severely engaged.

3. The commander of a rear guard is appointed by the commander of the force to be protected. He should receive instructions as to what extent he is at liberty to break down bridges, burn villages, and destroy railways, with a view to impeding the enemy's progress.

4. When the pursuit is not close, the disposition of a rear guard on the line of march will resemble that of an advanced guard reversed; a *rear party*, usually composed of mounted men, having been formed, the remainder of the troops, when not engaged, generally move as a main guard, in the order in which they can most readily come into action.

72. Action of a rear guard to a retreating force.

1. The conduct of a rear guard, more perhaps than any other operation in war, depends for its success on the skill and energy of the commander.

2. A rear guard carries out its mission best by compelling the enemy's troops to halt and deploy for attack as frequently, and at as great a distance, as possible. It can usually effect this by taking up a succession of defensive positions which the enemy must attack or turn. When the enemy's dispositions are nearly complete, the rear guard moves off by successive retirements, each party as it falls back covering the retirement of the next by its fire. This action is repeated on the next favourable ground. All this consumes time, and time is what is most needed by a retreating force. A rear guard may also effectively check an enemy by attacking his advanced troops as they emerge from a defile or from difficult country.

3. In occupying rear guard positions it is important: (i.) to show as strong a front as possible to the enemy; (ii.) to make sure of good lines of retreat.

4. The manner of occupying a rear guard position differs from that of occupying a position meant to be resolutely defended, in that the greater part of the force should be in the fighting line from the outset, a proportionately small part being retained in reserve, and as great a display of force as possible being made.

5. Mounted troops should usually be employed wide on the flanks, so as to watch the country by which the enemy might advance, and to be able to forestall any attempt to pass between the rear guard and the main body.

6. The first consideration in selecting a position for the artillery is, that it shall be able to open fire on an enemy at long range, and thus compel his infantry to assume an extended formation at the greatest possible distance. The second is that it should be possible to withdraw without difficulty.

7. A point of great importance to the commander of a rear guard

is to judge accurately the proper time to retire. He must constantly bear in mind the difficulty of withdrawing infantry that has once become engaged. If he retires too soon he is only partly carrying out the work required from the rear guard ; on the other hand if he falls into the error of trying to dispute every inch of ground he may become seriously involved and run the risk of being cut off from the main body, or oblige the latter to halt and reinforce him.

8. When a rear guard halts to fight, every moment separates it further from the main body, whereas with a pursuing force every moment brings its reinforcements closer ; in regulating the distance of the main guard from the main body the chance of the enemy interposing between the two must be considered.

The distance, however, must be sufficient to prevent the main body being shelled by the enemy. This is especially important during the passage of a defile.

The commander of the main body should periodically keep the commander of the rear guard informed of his progress, and *vice versa*.

9. It is always advisable to send an officer to the rear to note the next favourable position for defence on the line of retreat. The lines of retirement from position to position should not converge.

The positions should be sufficiently far apart to induce the enemy, after seizing one, to re-form column of route before advancing against the next.

10. Before withdrawing from a position, arrangement should be made to cover the retirement of the portion of the rear guard which is still engaged, by the disposition of the troops that have already retired.

73. *Expedients for delaying an enemy's advance.*

1. With a view to delaying the enemy's advance, the following expedients may be resorted to :—

(B 10204)

- i. Narrow roads, &c., can be blocked by locking together several wagons and removing one or more of the wheels, or by felling trees across them.
 - ii. Fords may be rendered impassable by throwing in ploughs, harrows, &c.
 - iii. Boats may be removed to the side of the river further from the enemy and sunk or burnt.
 - iv. Villages, woods, heather, scrub, &c., if the circumstances demand it, may be set on fire by the rear party, so as to conceal the movements of the rear guard and impede the enemy's advance.
2. Skilfully laid ambushes will cause the enemy to move with caution in pursuit.

74. *Rear guard to a force advancing.*

1. If there is any chance of the rear of an advancing column being exposed to the enemy's attacks, the rear guard may be composed of all arms and must be sufficiently strong to meet all emergencies.

If it is to be employed only in collecting stragglers and keeping off marauders, it is usually composed of infantry, with sometimes a few mounted troops added for watching the flanks.

2. If the main body and the train march without any considerable distance between them, one rear guard will usually suffice for the whole: but if for any reason there is a considerable distance, the rear guard will follow the main body, and special arrangements will be made for the protection of the transport (*see* Sec. 157, 2).

PROTECTION WHEN AT REST.

OUTPOSTS.

75. *General principles and rules.*

1. Every body of troops when halted will be protected by outposts, in order that it may rest undisturbed.

2. If the enemy is close at hand and battle imminent, or if the battle ceases only at nightfall to be renewed next day, the whole of the troops must be in complete readiness for action. There may not even be room for outposts, and the troops will have to bivouac in their battle positions, protected only by patrols and sentries. In such cases, the firing line practically takes the place of the outposts.

3. It will often occur, under these conditions, that no orders can be issued as to measures of protection by superior authority; and, in any case, nothing can relieve the commanders of the advanced battalions and companies of the responsibility of securing themselves from surprise, and, unless circumstances forbid, of keeping touch with the enemy by means of patrols.

4. The duties of the outposts are:—

i. To provide protection against surprise.

ii. In case of attack, to gain time for the commander of the force to put his plan of action into execution.

5. If an enemy is so continuously watched that he can make no movement without being observed, surprise will be impossible. The first duty, therefore, of the outposts is **reconnaissance**.

6. Should the enemy attack, he must be delayed until the commander of the main body has had time to make the preparations necessary to enable him to carry out his plan of action, and the enemy's troops must be prevented from approaching within effective field artillery range of the ground on which the main body will deploy if attacked. The second duty therefore is **resistance**.

7. Outpost duty is most exhausting. Not a man or horse more than is absolutely needed should be employed.

8. **To see without being seen is one of the first principles of outpost duty.** All troops on outpost must, therefore, be carefully concealed.

9. No compliments will be paid and no bugle or trumpet call is to be sounded.

10. Detachments in close proximity to the enemy must be careful to avoid useless collisions. Attempts to carry off detached posts, sentries, &c., unless with some special object in view, are to be avoided, as they serve no good end, give rise to reprisals, and tend to disturb the main body.

11. All bodies of troops on outpost must observe the rules laid down for the sanitation of camps and bivouacs (Sec. 60). Latrines and refuse pits must be prepared. The extent of the sanitary arrangements will depend on the time the outpost position is likely to be occupied.

76. Position of the outposts.

1. When there is any possibility of a force coming in conflict with an enemy, its commander, when halting for the night, should first decide on his dispositions in case of attack, and then arrange the quartering of his command and the position of the outposts accordingly.

2. It is an advantage if an outpost position includes commanding ground from which a wide extent of country can, in clear weather, be kept under observation by day. Facilities for observation, however, are of less importance than facilities for protracted resistance, provided the ground in front be well patrolled. The distance of the outpost position from the main body is regulated by the time which the main body requires to prepare for action, and by the necessity of preventing the enemy's artillery from interfering with the freedom of movement of the main body. Commanding ground is advantageous, but by no means essential.

3. Command, co-operation, and intercommunication will be facilitated by placing the advanced troops along well-defined natural features, such as ridges, streams, the outer edges of woods, &c., or in the vicinity of roads, but this must not be allowed to outweigh the necessity for making the best tactical dispositions possible.

4. In enclosed country and at night, the movements of troops are generally confined to the roads and tracks, which should be carefully watched.

5. If the outpost position is extensive, it may be divided into sections, each section being allotted to a certain number of companies, sections being numbered from the right. The extent of a section depends upon the amount of ground which can be supervised conveniently by one commander.

The extent of frontage to be allotted to each company will depend on the defensive capabilities of the outpost position; and, where they exist, on the number of approaches to be guarded.

6. The outpost position will invariably be strengthened and communications improved where necessary. Piquets and supports will do this without waiting for definite orders.

77. *Composition of the outposts.*

1. In the case of large forces, or when a force is scattered, the outposts are usually furnished from each division or brigade in the front line. The commander of the force divides the ground to be covered between his subordinate commanders, who detail the commander of the outposts and the outpost troops for their portion. Under other circumstances the commander of the force may decide to detail the whole of the outpost troops, in which case he will also detail the commander of the outposts.

2. The outposts of a force of all arms consist of *Outpost Mounted Troops, Outpost Companies*, and, when necessary, *The Reserve*. Machine guns will generally be included and sometimes artillery.

Outpost mounted troops are usually provided by the divisional mounted troops (Sec. 65) and may be attached to sections of the outposts or to outpost companies for reconnoitring purposes, and to keep touch with the protective cavalry by day; but economy must be exercised in employing mounted troops for outpost duties.

3. When stationary, the duty of local protection by night will fall almost entirely on the infantry, most of the outpost mounted troops being withdrawn, their place in this case being with the reserve, if there be one. In certain cases, however, standing mounted patrols may be left out at night with advantage.

4. Artillery may be usefully employed with outposts if they occupy the ground which the main body is to hold in case of attack ; if there is limited ground over which the enemy must pass ; or if it is important to prevent the enemy from occupying artillery positions within close field artillery range of the outposts. Except when the outposts occupy the battle position more guns should not be employed than can be easily and rapidly withdrawn. Artillery will be withdrawn at night, except when with the reserve.

Machine guns with outposts may be employed to sweep approaches, and to cover ground which an enemy in advancing may be compelled to pass or occupy. •

5. When a force is on the march the troops for outpost duty should be detailed before the march is completed.

78. *Commander of the outposts.*

1. The commander of the outposts, who will be detailed in accordance with Sec. 12, 9, should be told, before the force has halted, what is known of the enemy, and of other bodies of our own troops ; the intentions of the commander who appoints him, if the enemy attacks ; where the force to be covered will halt ; the general position to be occupied by the outposts ; whether there are other outpost troops on his flanks ; the composition of the outposts, and the hour at which they will be relieved.

2. As soon as he has received his instructions he will give out either verbally or in writing such orders as are immediately necessary for the occupation of the outpost line. He will supplement these by detailed orders on the following points as soon as possible :—

- i. Information of the enemy and of our own troops so far as they affect the outposts.
- ii. General positions to be occupied by the outposts ; division into sections, if necessary ; frontage, or number of roads, allotted to each outpost company, or to each section ; and situation of the reserve.
- iii. Disposition of the outpost mounted troops (Secs 88 and 89).
- iv. Dispositions in case of attack. Generally the line of resistance, and the degree of resistance to be offered.
 - v. Special arrangements by night.
 - vi. Smoking, lighting fires, and cooking.
 - vii. The hour at which the outposts will be relieved.
 - viii. His own position.

3. As soon as the outposts are in position he will inform the commander who appointed him, and furnish him with a rough sketch showing his dispositions.

79. *Distribution of the outposts.*

1. The commander of the outposts will assign a definite part of the outpost position to each outpost company.* Should it be necessary to divide the outpost position into sections, the commander of the outposts will appoint commanders of sections, who will, in that case, divide their sections among their outpost companies. The limits of ground allotted to sections of the outposts or to outpost companies should be marked by some distinctive feature, such as trees, cottages, streams, &c. Each company should know what roads it is expected to guard, and the exact limits of the ground it is to patrol. Outpost companies provide piquets or detached posts and their supports.

* In the following sections, companies only are referred to. The principles are equally applicable to outpost squadrons, if squadrons have to do the work laid down for outpost companies, as would happen with mounted troops acting independently, or employed in front of the main outpost position

The line of resistance of the outposts should be selected with a view to obtaining sufficient time for the commander of the main body to put his plan of action into execution. Its position must therefore depend on the intention of the commander of the main body, upon the size of the main body, and the nature and position of its quarters, upon the character and proximity of the enemy, and also upon the ground.

Retirements of advanced troops upon a line of resistance are dangerous, especially at night. The line of resistance of the outposts should therefore usually be the piquet line.

2. The commander of an outpost company, having received his orders, will move his command with the usual precautions to the ground allotted to it, where the company will be halted under cover, the covering troops holding a line a short distance in advance of the most suitable position for the piquets.

He will then examine the ground, decide on the number and position of the piquets, and on the position of the support, which should, as far as possible, be composed of a complete command, *e.g.*, a half-company, or section. These will then be moved into their allotted positions, and the necessary groups and sentries posted and patrols sent out, after which the covering troops will be withdrawn.

He will give instructions to the commanders of piquets and detached posts, and will make arrangements for a protracted resistance by selecting a good defensive position which should, if possible, correspond with the line of resistance ordered by the outpost commander (*see* para. 1 above); it should support, and be supported by, the companies on either hand.

He will send out patrols to examine the country in front, and will communicate with the companies on the flanks of his position. He must ascertain the dispositions of those companies so as to ensure no ground being unprotected.

In allotting these various duties he must consider the degree of resistance which his company is required to offer. The patrols may if it is advisable be found from the supports.

80. *The reserve.*

1. A reserve will be used only when the outpost force is large, when the outposts hold the ground to be occupied by the main body in case of attack, or when the outposts are in contact with the enemy's outposts.

2. If required, it will be detailed by the commander who appoints the outpost commander, and should always be formed of a complete unit, with mounted troops and generally some guns attached.

3. It may often be advisable to divide the reserve into two or even more parts, when, for instance, the outpost position is very extensive or the country intersected or difficult.

4. If no reserve is specially detailed, an inlying piquet of the necessary strength will be found by the command which furnishes the outpost troops (Sec. 49).

81. *Piquets.*

1. As soon as a piquet commander has received his orders he will explain them to his piquet, and will detail the various duties and their reliefs. He will satisfy himself that every man knows the direction of the enemy, the position of the next piquets and of the support, what he is to do in case of attack by day or by night, whether there is any cavalry in front ; that commanders of sentry groups know what is to be done with persons who are found entering or leaving the outpost line (*see* Sec. 24), and that sentries know in addition the position of the sentries on their right and left, the position of the piquet and of any detached posts in the neighbourhood ; the ground they have to watch ; how they are to deal with persons approaching their posts ; the names of all villages, rivers, &c., in view, and the places to which roads and railways lead.

In order to avoid disturbing men unnecessarily, a piquet will always be arranged so that the non-commissioned officers and men

of each relief of the various duties bivouac together. All reliefs should know exactly where to find each other.

2. Sentries in the front line are posted in groups,* which consist of from three to six men, under a non-commissioned officer or the oldest soldier. These groups should be relieved every 8 or 12 hours. In open country one man is posted as a sentry, while the remainder lie down close at hand; but if the country is close, or special precautions are necessary, the sentry post may be doubled. A sentry post, as a general rule, should not be more than about a quarter of a mile from the piquet. Sentries should be placed so as to gain a clear view over the ground in their front, whilst concealed from the enemy's view. As all movement is likely to attract attention, it is generally inadvisable to permit sentries to move about. On the other hand, if permitted to lie down sentries may not remain sufficiently alert. Permission to lie down, except to fire, should only be given for special reasons.

One or more single sentries should be posted over the piquet itself for the purpose of communicating with the sentry groups and warning the piquet in case of attack.

3. A sentry will immediately warn his group of the approach of any person or party. When the nearest person is within speaking distance the sentry will call out "*Halt*," covering him with his rifle. The group commander will then deal with the person or party according to the instructions received by him. Any person not obeying the sentry, or attempting to make off after being challenged, will be fired upon without hesitation.

* If it is desired to retain more men with the piquet, sentries may be posted in pairs, the men of each pair being close to or within speaking distance of each other, according to the ground. There should be three reliefs for each double sentry, one on duty while the other two are with the piquet. This system has the disadvantage of causing more movement in the line of sentries, and of entailing more fatigue on the men.

82. Mounted piquets and vedettes.

In addition to the principles laid down in Secs. 75 to 81 the following apply to mounted troops :—

- i. Cossack posts are equivalent to sentry groups (Sec. 81, 2). They consist of three to six men (including the vedette), under a non-commissioned officer or senior soldier. The vedettes, as a rule, dismount. The reliefs of the vedette always dismount, and remain as close to the vedette as possible.
- ii. By night the vedette should be doubled and the post increased accordingly.
- iii. Cossack posts never off-saddle, and must be ready for instant action. Piquet commanders will arrange for the necessary feeding and watering of the horses of cossack posts. When there is no danger of surprise they may authorize the temporary removal of bits for this purpose from one-third of the horses at a time. Otherwise they should arrange for the temporary relief of a proportion of the horses.
- iv. Cossack posts are relieved every 6, 12, or 24 hours, according to weather, shelter, water, &c.
- v. Feeding and watering are to be carried out by one-third of a piquet or detached post at a time. Horses that are to be fed must be taken a short distance away from the others.
- vi. The horses of a piquet or detached post are never to be unsaddled or unbridled at night. During the day, when matters seem quiet, girths should be loosened, and saddles shifted, one-third at a time.

83. Detached posts.

1. Detached posts from an outpost company are sometimes unavoidable, but as there is always the danger of their being cut off, they should not be employed except in case of necessity.

2. They usually consist of from six to twelve men under a non-commissioned officer or officer, but may be stronger. Such posts may be placed in front of or in rear of the extreme flank of the outpost position, to watch some particular place or road by which the flank might be turned, or they may be placed in advance of the sentry line to watch, some spot where the enemy might collect preparatory to an attack, or which he might occupy for purposes of observation.

3. They should act in the same manner as laid down for piquets.

84. *Traffic through the outposts.*

1. No one other than troops on duty, prisoners, deserters, and flags of truce will be allowed to pass through the outposts either from within or from without, except with the authority of the commander who details the outposts, or of the commander-in-chief. Inhabitants with information will be blindfolded and detained at the nearest piquet pending instructions, and their information sent to the commander of the outposts.

2. No one is allowed to speak, otherwise than as directed in Sec. 81, 3, to persons presenting themselves at the outpost line except the commanders of the nearest piquet and outpost company, who should confine their conversation to what is essential, and the commander of the outposts. Prisoners, and deserters, will be sent at once, under escort, through the commander of the outpost company, to the commander of the outposts.

3. In civilized countries, when, for tactical reasons, no piquet is posted on a main line of traffic, a detached post should be posted specially to deal with traffic through the outposts. Such detached posts will be detailed by the commander of the outpost company in whose section the main line of traffic lies.

85. *Flags of truce.*

1. On the approach of a flag of truce, one sentry, or more if at hand, will advance and halt it at such distance as to prevent any of

the party who compose it overlooking the posts ; he will detain the flag of truce until instructions are received from the commander of the outpost company.

2. If permission is given for it to pass the outposts, the individuals bearing it must first be blindfolded, and then led under escort to the commander of the outposts. No conversation except by his permission is to be allowed on any subject, under any pretence, with the persons bearing the flag of truce.

3. If the flag of truce is merely the bearer of a letter or parcel, the commander of the outpost company must receive it, and instantly forward it to headquarters. The flag of truce, having taken a receipt, will be required forthwith to depart, and no one must be allowed to hold any conversation with the party.

86. *Intercommunication.*

Communication must be maintained at all times between all parts of an outpost position, and between the outposts and the main body. Communication may be by signal or by orderly (*see* Ch. II.).

The commander of the outposts is responsible for communication with the main body ; supports will keep up communication with their piquets, with the supports on either flank and with the reserve. Piquets or detached posts will maintain communication with the piquets or posts on either flank. Commanders of piquets will satisfy themselves that sentries are alert and understand their duties, but should limit, as much as possible, any movements in the line of sentries which might be visible to an enemy.

87. *Readiness for action.*

1. The commander of the outposts will decide whether the reserve is to occupy quarters or to bivouac, and whether the supports or reserves may take off accoutrements, off-saddle, unhook and unharness teams, &c.

2. Piquets will invariably be ready for action. The men must

never lay aside their accoutrements. Mounted men attached to an infantry piquet should, whenever possible, off-saddle; but one man should always be ready for instant action.

3. Not more than a few men should be allowed to leave the piquet for any purpose at one time. They should never be allowed to move about in or in front of the sentry line when seeking water, fuel, forage, &c.

4. The outposts will stand to arms one hour before sunrise, and remain under arms until the patrols, which should be sent out at that time, report that there is no sign of an immediate attack. Care should be taken that these patrols remain out till after daybreak. When the outposts are relieved in the morning, the relief should reach the outposts half an hour before sunrise. The troops relieved will not return to camp until the patrols report all clear.

88. Reconnoitring patrols.

1. Reconnoitring patrols are sent out from the outposts with the object of searching the country in front of the outpost position, or of watching the enemy if the opposing forces are in close touch. Their strength may be from two to eight men, under a non-commissioned officer. They may consist of mounted men, cyclists or infantry. Patrol leaders should be given instructions before they start as to how they are to deal with inhabitants whom they may meet, and be informed, if possible, of the movements of other friendly patrols.

2. When mounted patrols are employed they should move out before daylight and patrol all approaches which an enemy might use, within distant field artillery range of the position. When the opposing forces are in close touch, mounted patrols should maintain constant touch with the hostile force. When ordered to remain out in observation in front of the outposts they become *standing patrols* (Sec. 89).

3. In a country where the roads are good, cyclists may replace

mounted patrols, and by night they are especially suited for this work.

4. If mounted troops from the outpost line are patrolling to the front, it should seldom be necessary to send out infantry patrols by day, unless the country is very thick or the weather misty. At night the duty of patrolling will, as a rule, fall on the infantry. Such patrols should move along tracks or roads in the direction of the enemy for about a mile, and should search all ground where the enemy's scouts might conceal themselves. It may occasionally be advisable to leave out standing infantry patrols (Sec. 89) to watch certain points in front of the outpost position, instead of sending out patrols at stated periods.

5. An outpost patrol, when going out, informs the nearest sentry of the direction it is taking. In the event of a patrol not returning when expected, another should be immediately sent out. If a force halts for more than a day in one place, the hours at which the patrols go out (except those before sunrise), and also the direction of their route, should be changed daily.

89. *Standing patrols.*

Standing patrols are formed by two to eight mounted men or cyclists under a non-commissioned officer sent well in advance, to watch either the principal approaches, or some particular points where the enemy could concentrate unseen. Their positions are fixed, and they remain out for several hours. They are of the utmost value, especially at night, and spare the horses, as they are not constantly in movement. The rules for cossack posts regarding off-saddling apply to standing patrols (Sec. 82). Occasionally standing patrols are employed by infantry (Sec. 88).

The commander of the outposts will issue orders as to the employment of standing patrols

CHAPTER VI.

INFORMATION.

90. General principles.

1. **Timely information regarding the enemy's dispositions and the topographical features of the theatre of operations is an essential factor of success in war.** Systematic arrangements must always be made to ensure that every possible source of information is fully utilized, that all information received is immediately transmitted to the proper quarter, and that it is carefully sifted before any conclusions are formed. These are duties of the general staff.

2. Information in war may be obtained from maps and reports prepared in peace, by reconnaissance, by means of special agents, from statements of inhabitants, by tapping telephones or telegraphs, from newspapers, letters, telegraph files, and documents found in the area of operations, from statements of deserters, prisoners, and sick or wounded left behind by the enemy.

3. All documents captured from the enemy, or found in places recently occupied by the enemy, or by a hostile population, and any information obtained which may be of value, should be forwarded without delay to the nearest general staff officer. Should the captor or finder be unable to forward the documents immediately, he should make arrangements for their preservation and forward them as early as possible. The statements of inhabitants, deserters, and other persons bringing in information, should

be taken down and similarly forwarded and the persons themselves sent on as soon as possible.

4. Reconnaissance is the service of obtaining information with regard to :—

- i. The topographical features and resources of a country.
- ii. The movements and dispositions of an enemy.

In the latter case it may be strategical, tactical, or protective.

5. *Strategical reconnaissance* is required before the opposing armies are within striking distance of each other for the purpose of locating the hostile columns, ascertaining their strength and direction of march, and thus affording the commander-in-chief information on which to base his strategical plan of operations.

Tactical reconnaissance of the enemy is required when two forces are within striking distance of each other, for the purpose of discovering the tactical dispositions of the opposing force, and thus furnishing the commander with information on which to base his tactical plan of operations.

Information as to the positions and movements of the enemy, gained by strategical and tactical reconnaissances, affords the best guarantee against surprise; but to enable them to obtain the required information, bodies of troops employed on such reconnaissance must not be unduly restricted in their movements, and it will usually be necessary to supplement their efforts by *protective reconnaissance*,* which is required by every force at all stages of the operations, whether at the halt or on the move, to ensure the security of the force against hostile enterprises and prevent the enemy gaining information.

6. It is a principle of reconnaissance that touch with an enemy when once obtained should not be lost without orders from superior authority. This principle, however, cannot always be observed in the case of troops, especially patrols, charged with a special mission. It may then be impossible to keep hostile forces,

* Protective reconnaissance is dealt with in Chapter V, "Protection."
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encountered on the way, under observation without endangering the success of the special mission.

91. *Strategical reconnaissance.*

1. Normally, strategical reconnaissance will be carried out by the independent cavalry, supported and assisted, when necessary, by other troops specially detailed. The commander of the independent cavalry will receive from the commander-in-chief definite instructions as to the special mission which he is to fulfil, but should be allowed **complete freedom of action in accomplishing it.**

In carrying out a strategical reconnaissance the independent cavalry will often be detached to a considerable distance and may usually expect to meet the hostile cavalry in the area in which it will be operating. The problem will then arise whether the defeat of the hostile cavalry should be undertaken as a first step towards the end in view, or whether the object in view can be more surely attained by avoiding a collision.

If the enemy's cavalry can be defeated, as a first step, the independent cavalry will then be free to concentrate its efforts upon breaking through the hostile covering troops and discovering the dispositions of the enemy's main forces. On the other hand failure in a collision with the hostile cavalry may usually be expected to result in failure to carry out the special mission assigned to the independent cavalry, and it may appear that better chances of gaining the required information can be obtained by avoiding collision. The broad general principles applicable to solution of this problem are that the one object in view must always be the success of the special mission assigned; and that the defeat of the enemy's cavalry, if undertaken, must be undertaken only as the best means to the required end.

2. As much cavalry as possible should normally be detailed for these strategical missions, whilst for other purposes the number of squadrons should be reduced to what is actually necessary (Sec. 65). An efficient air service (Sec. 95) working in co-operation with the

independent cavalry will be able to contribute much towards the success of a strategical reconnaissance even in face of a superior force of hostile cavalry ; but in fog, wind, or darkness the air service can accomplish little or nothing, and it must be regarded as supplementing, and not as a substitute for, strategical reconnaissance by the independent cavalry.

3. To obtain the requisite information, the independent cavalry commander will despatch such patrols as he may consider necessary. The number and strength of these detachments will vary with the circumstances of each case. The most suitable unit for actual reconnaissance and for maintaining touch is a patrol of from ten to twelve strong ; larger units will find it difficult to escape observation.

When reconnoitring detachments have to proceed to considerable distances, and touch has to be maintained continuously for several days, it will be necessary to employ one or more **troops or squadrons** to furnish the necessary patrols and despatch riders. These units will then be strong enough to act as havens of refuge for patrols, and as collecting stations for information. While the commander of a reconnoitring detachment must use every endeavour to ensure the timely arrival of his information at headquarters, the commanders of larger units following in his rear must assist him by pushing forward **connecting posts** or other detachments as the situation demands (Sec. 98).

4. In country which is very enclosed or otherwise unfavourable to the employment of cavalry, detachments composed of infantry and cavalry will often give good results. The infantry is able to assist the cavalry in the actual fight, and affords the cavalry freedom to reconnoitre, even while its infantry is actually engaged with the enemy.

5. To enable commanders of detachments employed on this reconnaissance to distinguish between what is important and unimportant, they should be given all available information regarding the enemy, and be told the intentions of the superior commander.

92. *Tactical reconnaissance.**

1. Tactical reconnaissance is one of the most important duties of the protective cavalry, who when touch with the enemy is gained will assume a **vigorous offensive**, drive in the enemy's advanced troops, and discover his dispositions and intentions. It may be necessary for the protective cavalry to concentrate to carry out this duty, in which they will be supported by the advanced guards of columns. The extent to which the independent cavalry will be able to co-operate with the protective cavalry in breaking through the enemy's covering troops at this stage, or when the opposing armies are drawing near each other, will depend upon the situation and the commander's plans. It will often be advisable to support the protective cavalry with infantry and artillery, in addition to the support which it is the duty of the advanced guards of columns to render (Sec. 68), in order to tear aside the screen with which an enemy may have surrounded himself.

2. While the advanced troops are engaged with the enemy, information may also be obtained—

- i. By personal observation on the part of a commander.
- ii. By general staff or other officers, patrols, or scouts.
- iii. By the air service.

The success of each of these forms of reconnaissance will depend to a great extent upon the thoroughness and energy with which the protective cavalry and the advanced guards have acted on coming in contact with the enemy. Reliable information as to the enemy's main forces will rarely be obtained without fighting.

3. Though reconnaissance has been here considered chiefly from the point of view of the cavalry, it is equally the duty of infantry, when in touch with an enemy, to obtain all the information possible, both of the enemy and about the ground over which it may have to act.

* See Sec. 104. For the tactical reconnaissance by cavalry acting independently, see "Cavalry Training."

93. *Personal reconnaissance by a commander.*

1. The extent of ground occupied by a large force will often prevent its commander from personally reconnoitring the whole of the ground on which his troops may be engaged. When this is the case it may often be advisable that the personal reconnaissance by commanders should be limited to commanders of divisions and smaller units, and that the commander of the force should rely upon reports which have been rapidly transmitted from the front and prepared for him by his general staff. A personal reconnaissance which can only be partial may result in too much importance being attached to what has been seen at the expense of what has not been seen. A motor car will often enable a commander to reconnoitre rapidly an extended front, and a commander even of a large army should rarely omit to reconnoitre personally if it is possible for him to obtain thereby data for a comprehensive review of the situation.

2. **Time spent in reconnaissance is seldom wasted:** and unless the situation demands instant action, a commander of a division or of a smaller unit should never commit his troops to an engagement until he has made a personal survey of the ground before him.

94. *Tactical reconnaissance by patrols.*

1. As the commander of a force will form his plan of action on the result of the tactical reconnaissance, officers and scouts employed on it must be highly trained, have considerable technical knowledge, be quick and intelligent observers, be possessed of judgment and determination, and, if belonging to mounted arms, be well mounted.

2. The increased range of modern firearms compels scouts to keep further away from an enemy than formerly, thus making it more difficult to see and reconnoitre; whilst the introduction of smokeless powder makes it difficult to locate him, even when his fire has been drawn. But if patrols have been in touch with the

enemy during his march (when the number, strength, and distribution of his columns can be more readily ascertained), it should be possible, by comparing their reports with those of the scouts engaged in the tactical reconnaissance, to form a fairly accurate idea of the enemy's preliminary dispositions for battle.

3. General staff officers should be detailed to accompany the advanced troops in order to assist in the tactical reconnaissance, and provide the commander with such information on special points as he may require. Commanders of divisional artillery or their representatives should take part in this reconnaissance.

4. When the opposing forces are near each other, and particularly when the country is close, infantry may often be employed with advantage to attract the enemy's attention by means of surprise attacks, and so enable patrols to pass through his covering troops at other points. Cavalry should be used for these patrols when the country is suitable and mobility can be turned to good account. If the conditions are unsuited to the employment of cavalry, infantry patrols and scouts should take its place.

95. *The air service and air reconnaissance.*

(a) *Principles of employment of the air service.*

1. One of the most valuable means of obtaining information at the disposal of a commander is the air service. The air service will not, however, replace the other means of acquiring information described in Sec. 90, but will be used in conjunction with them, being employed in the work that can be undertaken by it to the greatest advantage, and used either to gain news of the enemy and of his dispositions, or to confirm the accuracy or falseness of the information obtained from other sources.

2. Field units of the air service will, as a rule, work under the direct orders of general headquarters as army troops, but aircraft may be detached to army or other headquarters as required, the principle being observed that the air service shall be so distributed that the units may be placed in the best positions not only to

obtain information, but to co-operate with the other arms, and especially with the cavalry, in this all-important service.

3. Generally speaking, whilst each aircraft, or group of aircraft, should be so disposed that it can at once put to air when required to do so, the commander of the air service, and if possible the officers who are to undertake reconnaissance or other duties, should be present at general (or other) headquarters, motor cars being at their service to take them to their vessels as required.

4. The commander or senior officer of the air service present should be in close touch with the operations section of the general staff, through which he should receive his orders and to which he should act as adviser on all technical matters: *e.g.*, as to the class of aircraft to be employed on each service, and as to how far weather conditions are favourable to flight, how many aircraft should be despatched, &c.

5. Reconnoitring officers should not only be given the fullest information as to the military situation, and provided with the best maps and field glasses, but should receive clear instructions as to the matters in respect of which information is required. They should also be given directions as to where and in what manner reports are to be made, and as to the measures that will be taken to render easily recognizable the locality where reports are to be delivered.

(b) *Method of obtaining information.*

6. The manner in which reconnaissance is to be carried out should, subject to instructions under the headings mentioned above, be left to the discretion of those who will actually undertake the duty.

7. It is, however, a principle that information can be obtained with greater certainty and less risk from positions behind rather than in front or to the flank of the enemy's fighting troops. The reason is that the enemy's dispositions will probably have been made with a view to concealment from observation from the front

and flanks rather than from the rear, whilst for fear of damaging his own troops he may hesitate to fire on aircraft sailing over the rear of his columns. Again, when so placed they may be thought to be friendly and so escape fire.

8. In clear weather and when at an altitude of 5,000-6,000 feet, the presence of troops, if in the open, can be observed within a radius of four to six miles from the aircraft; when nearer the earth objects will be rather more easily distinguished but will be for a shorter time in view, whilst the area under observation will be restricted. It is therefore best, when atmospheric conditions are favourable, to make reconnaissance from a height at which the vessels will be practically secure from fire from the ground. When the sky is wholly or partially overcast aircraft will, however, be obliged to descend near the earth for purpose of obtaining information.

(c) *Vulnerability.*

9. Dirigibles will be exposed to danger from hostile field artillery fire* when lower than 4,500 feet or within a range of 5,000 yards; and from rifle or machine-gun fire when at a height of less than 3,500 feet, or at ranges under 2,000 yards.

10. The fire of field artillery will rarely be effective against an aeroplane moving at a height of 4,500 feet, or at a range of 4,000 yards and upwards, whilst reasonable security from the effects of infantry fire may be expected when 3,000 feet from the earth, or at ranges of 2,000 yards and over.

11. High speed, frequent changes of direction and elevation, and movements in curves, and in a plane oblique to the horizontal, will in all circumstances reduce the probability that the enemy's guns and rifles will obtain hits. Cloud may also be used for purposes of concealment when approaching the enemy, or during

* Howitzers, owing to the greater elevation that can be obtained, will be most dangerous. Fire from heavy guns has not been taken into consideration, as it is thought that these are unlikely to engage aircraft.

reconnaissance. When resorting to such methods the pilot must always have before his mind, however, that to obtain and transmit accurate intelligence is the first consideration.

(d) *Transmission of information.*

12. Intelligence can be transmitted from dirigibles either by wireless, by signalling, or by carrier pigeon. The dirigible can also sail back to some point marked by day by a signal balloon, or by sheets or white bags of sand placed on an open piece of ground, and by night by a captive balloon, a searchlight beam, or some arrangement of lights on the earth. Here a descent can be made, or packets can be dropped containing written reports, marked maps, photographs, sketches, &c.

13. Owing to the difficulty of conveying messages from an aeroplane by signal, news will usually be brought direct to some suitable locality, which will be marked as suggested above, where a motor car will be waiting to convey the reconnoitring officer to the headquarters under whose orders he is working, or a representative of the headquarters will be present to receive the report and issue fresh instructions.

(e) *Intercommunication.*

14. Aircraft will be useful to supplement, in certain emergencies, other means of communication between the separated portions of an army.

When it is desired that the views of the commander-in-chief should be explained to a subordinate commander to whom direct access by road or rail is difficult or precarious, when the temporary presence is required at general headquarters of a representative of a command so situated, or when time is of importance, aircraft may also be employed for the rapid conveyance of officers between general and other headquarters.

(f) *Kites.*

15. In normal conditions of ground and weather a radius of four to six miles can be held under observation from a kite, whilst the effect of artillery fire can be observed at a distance of 7,000 yards, or even further in the case of heavy artillery.

16. Communication between a kite and the earth can be maintained by telephone or signal, or messages can be sent down by means of a light line connecting the car with the ground.

(g) *Action by troops against airships.*

17. In deciding whether it is advisable to open fire on airships, &c., the probability of escaping observation if fire is reserved should be considered.

18. In the case of large fortresses the general position and outline of which is obvious, or when the defence of docks, or of large groups of buildings such as arsenals, workshops, storehouses, &c., is in question, the object is not concealment but to drive or keep away the enemy. Fire should, therefore, be opened as soon as the hostile vessels are within range.

19. Troops in the field, however, disclose their presence by opening fire against dirigibles and aeroplanes; such action therefore may facilitate reconnaissance, and fire should consequently be opened only when the prospects of obtaining results are reasonably good. Movement is easily distinguished from above. If troops lie still and are not in regular lines they are difficult to observe even in the open.

20. Special observation parties of men skilled in distinguishing between friendly and hostile craft should be detailed to watch for hostile aircraft, and when the enemy's airships are observed in the distance, warning should be sent to all troops in the vicinity, who should, as far as cover is available, keep in woods or close alongside hedgerows and houses, in the hope that observers from

these vessels will overlook them, and that the dirigibles or aeroplanes will approach so close as to afford an easy target.

21. When engaging airships or aeroplanes the procedure recommended for action against moving targets should be followed, but ample allowance should be made for the rapidity of their movements, and to ensure effect fire should be of considerable volume. Before opening fire upon aircraft it is necessary to consider the possibility of damaging friendly troops.

96. *Reconnaissance of a position.*

1. In reconnoitring a position with a view to attack, information should be obtained on the following points:—

- i. The extent of the position.
- ii. The weak parts of the position.
- iii. Any point or points the capture of which will facilitate the development of a searching enfilade or reverse fire against a large extent of the position, and thus render it untenable; and to what extent such point or points have been strengthened.
- iv. The best line of attack, and the tactical points of which the possession will favour the development of an effective fire against the weak parts of the position.
- v. Localities from which covering fire can be directed.

2. When it is intended to occupy a defensive position, the chief points to be noted are:—

- i. The best distribution of the infantry, and the means of protecting the flanks.
- ii. The positions for the artillery.
- iii. The positions which the enemy may endeavour to seize in order to develop an effective fire against the position.
- iv. The probable positions of the enemy's artillery.

- v. Any points the possession of which might exert a decisive influence on the issue of the fight.
- vi. The most favourable lines of attack.
- vii. The most favourable ground for the counter-attack.
- viii. Ground to be occupied by the general reserve, by the cavalry, and by the other mounted troops.
- ix. Positions to be occupied in case of retreat.

97. *Reconnaissance during battle.*

When two forces are engaged the reconnaissance must be continued throughout the entire action, arrangements being always made for continuous observation of the enemy's movements and for the rapid transmission of reports. In addition to patrols working round his flanks and rear, to the work of infantry scouts, and to the cavalry action on the flanks, general staff officers, acquainted with the commander's intentions, should be posted at commanding points on the field of battle to communicate intelligence to headquarters.

98. *Transmission of information.*

1. The value of information depends to a great extent on the length of time that has elapsed since the events occurred to which it relates. It is of the first importance that information should be communicated with the least possible delay to the commanders for whose benefit it is intended. The authority sending out reconnoitring detachments of any kind must therefore see that the means of communication are so organized as to ensure the rapid transmission of any information which those detachments may obtain.*

* For the methods of transmitting information, see Chapter II.

An officer of the general staff with the independent cavalry should be specially charged with the duty of maintaining communication, under the direction of his commander, between the independent cavalry and army headquarters. But to save delay, arrangements should be made to transmit all really important information direct from the reconnoitring detachments to army headquarters as well as through the usual channel. It will often be found convenient to arrange for relays from the divisional cavalry for the conveyance of information from the protective cavalry (Sec. 21).

CHAPTER VII.

THE BATTLE.

99. *Considerations which influence a commander in offering battle.*

1. **Decisive success in battle can be gained only by a vigorous offensive.** Every commander who offers battle, therefore, must be determined to assume the offensive sooner or later. If the situation be unfavourable for such a course, it is wiser, when possible, to manœuvre for a more suitable opportunity; but when superiority in skill, *moral* or numbers has given a commander the initiative, he should turn it to account by forcing a battle before the enemy is ready. Superior numbers on the battlefield are an undoubted advantage, but skill, better organization, and training, and above all a firmer determination in all ranks to conquer at any cost, are the chief factors of success.

2. **Half-hearted measures never attain success in war, and lack of determination is the most fruitful source of defeat.** A commander, who has once decided either to give or to accept battle, must act with energy, perseverance, and resolution.

3. Time is an essential consideration in deciding whether an opportunity is favourable or not for decisive action. A commander who has gained a strategical advantage may have to act at once in order to prevent the enemy bringing about conditions more favourable to himself. On the other hand, ample time may be available before any change can occur in the strategical conditions, and it may then be more effective to act deliberately or to aim at manœuvring an enemy out of a strong position with a view to forcing him to fight under conditions which admit of more certain or more decisive results.

100. *The offensive and defensive in battle.*

1. Both opposing forces may endeavour to seize the initiative, or one may await the attack of the other. In the latter case, if victory is to be won, the defensive attitude must be assumed only in order to obtain or create a favourable opportunity for **decisive offensive action**. The original attacker may be thrown on the defensive at any time by a vigorous counter-attack; or it is open to both to fight a defensive action in one part of the field while endeavouring to force a decision by offensive action elsewhere. Thus each commander may employ defensive or offensive action to suit his requirements; the defensive being resorted to when and where it is desired to delay a decision, the offensive where it is desired to obtain one.

2. The defensive implies loss of initiative for the time being. Further, a wise choice of place and still more of the time for the eventual assumption of the offensive demands very high qualities of skill and resolution in the commander. For these reasons a defensive attitude at the outset of a battle should not be assumed except when it is advisable to gain time or to utilize advantages of ground for some special reason, *e.g.*, to compensate for inferiority of numbers. On the other hand, the commander of even a superior force may see his way to gain a decisive success with more certainty and less loss by awaiting an attack before assuming the offensive instead of attacking at once, especially if he has been able to choose and occupy deliberately a position in which he can induce the enemy to attack him. Such a position has its true value as a pivot of manœuvre. Once battle is joined the liberty of manœuvre which the initiative has conferred on the assailant is limited to what he can do with his general reserves. The defender should be able to retain equal liberty of manœuvre, if he makes skilful dispositions, resists the temptation to subordinate his movements to those of the enemy, and strikes on the first favourable opportunity. It is in the difficulty of doing this that the chief objection to allowing the enemy to take the initiative lies.

3. In the following pages the action of the two forces which meet in battle is considered under the headings, "Attack" and "Defence." It is not intended by this to imply that one force invariably attacks, and that the other invariably occupies a defensive position. Under the heading "attack" is considered the action of that force which has gained the initiative and assumes the offensive first. Under the heading "defence" is considered the action of that force which postpones the assumption of the offensive and awaits attack in the first instance. The action of a force which is content with warding off the enemy's blows, is not considered as an aspect of the battle. The methods of delaying an enemy, without seeking a decisive result, are considered under the heading "delaying action."

THE ADVANCE TO THE BATTLEFIELD.

101. *Action of a force on gaining contact with the enemy.*

1. An army advances covered by its tactical advanced guards, and by the protective cavalry or by a general advanced guard, of which the protective cavalry may form part (Sec. 65, 11). At this stage collisions may be expected to occur between the opposing protective troops covering the movements of the main forces behind them. By this time, too, the independent cavalry will probably have completed any special strategical missions assigned to it, and, if so, should usually be available to assist in defeating the hostile advanced troops, and in reconnoitring and hampering the enemy's main columns. Success in these preliminary combats will retain for a commander the initiative he has gained, or regain it for him if it has been lost; it will gain him strategic liberty of action, and will thereby enable him to act with certainty and impose his will upon the enemy. The defeat of the hostile advanced troops is, however, only a means towards the subsequent destruction of the enemy's main force on the battlefield, and this ultimate object must be held in view.

2. So soon as the cavalry, assisted, if necessary, by the other arms (Sec. 92), has driven in the enemy's advanced troops, the information thus obtained, combined with information received from other sources, should enable the commander of the force to review the strategical situation, and to decide definitely whether to manœuvre to gain time, avoiding an engagement; whether to attack the enemy; or whether to await attack.

3. When contact with the enemy is anticipated, it is advisable that commanders of columns should be well forward, usually with their advanced guards. They will then be in a position to obtain earlier and more accurate information regarding the enemy and the tactical features of the ground, to make the most rapid and suitable dispositions to meet tactical situations as they occur, to influence effectively the action of the advanced guard in accordance with the intentions of the commander of the force, and, in the case of a general engagement, to carry out the deployment with the least delay.

102. *Deployment for action.*

1. When the commander has decided to accept battle, the various columns composing the force will be directed, whilst still in their march formations, towards the area in which they are to act. As a rule the columns should not leave their march formations until the commander has formed his plan of battle, or until the action of the advanced troops shows that deployment is necessary (*see* Sec. 23).

2. Before deploying it will usually be desirable for each column to close up and assume a formation of assembly. When time presses it may be necessary to move units directly from the line of march into their position in the deployed line, but this is likely to result in troops being employed piecemeal, and the occasion must be very urgent to justify a commander in abandoning the advantages which systematic arrangements for a concerted advance confer. It is important that the deployment should be concealed

from the enemy by the action of the advanced troops. It will often be advisable to reinforce the latter with sufficient artillery to cover the deployment of the troops in rear.

3. The principles upon which the troops are disposed will depend upon the commander's plans. The first object of a commander who seeks to gain the initiative in battle is to develop superiority of fire as a preparation for the delivery of a decisive blow. The commander must decide whether the direction of the decisive blow is to be pre-determined or to be left open until the situation has been developed by preparatory action. Broadly speaking, success in battle may be sought by means of a converging movement of separated forces so timed as to strike the enemy's front and flank, or flanks, simultaneously, few, if any, reserves being retained in hand by the commander-in-chief; or a part of the force only may be employed in a preparatory action while the commander keeps a large reserve in his own hands with which eventually to force the decision.

A decisive attack against some portion of the enemy's front offers a possibility of breaking his army in two and may give great and far-reaching results. The long range, accuracy and rapidity of fire of modern weapons reduce, however, the chances of success of such an attack, while failure may result in the attacking force being enveloped and destroyed. It will usually, therefore, be wiser to direct the decisive effort against one of the enemy's flanks, the choice of objective being made either before or after deployment according to circumstances. The development of fire effect is usually facilitated when the plan of battle has for its object the envelopment of one or, if in very superior strength, of both the enemy's flanks.

The character of the opposing commander, the relative numbers, fighting value, and manœuvring power of the opposing forces, as well as the ground and the strategical situation, are all factors which must be weighed in determining the general form in which the battle is to be fought.

As a general principle the greater the fighting power and the

offensive spirit of his adversary, the more advisable will it be for a commander to engage him effectively along his whole front, while adequately covering his own communications, before attempting to force a final decision. Furthermore, any separation of forces in face of a skilful and resolute opponent will be dangerous unless in such strength that each of the separated portions can neither be overwhelmed by the enemy nor so delayed by a detachment as to give him an opportunity of attacking them in detail. On the other hand a commander may by skilfully disposing or manœuvring a reserve be able to strike successfully at his opponent's flank without separating his own forces during the advance to the battlefield and the deployment for action. With very small forces when both the battlefield and the reserve are proportionately small it may be possible to place the latter in a central position from which it can be brought into action at the right time and place. With large forces there can be little, if any, hope of being able to strike with the general reserve at the right moment unless the approximate area in which it is to be used is determined in time. In such circumstances, therefore, it will generally be necessary to decide, either at the time when the plans for the deployment are being formed, or, at any rate, soon after deployment, where the decision will be forced and to place the reserve accordingly.

THE ATTACK.

103. *General principles.*

1. It is seldom either possible or desirable to attempt to overwhelm an enemy everywhere. The object will usually be to concentrate as large a force as possible against one decisive point, to deliver the decisive attack, while the remainder is employed to prepare the way for this attack, by attracting the enemy's attention, holding him to the ground, and wearing down his power of resistance. The term decisive attack does not imply that the influence of other attacks is indecisive, but rather that it is the

culmination of gradually increasing pressure relentlessly applied to the enemy at all points from the moment when contact with him is first obtained.

2. The objective of the decisive attack should be struck unexpectedly and in the greatest possible strength.

104. *Preliminary measures.*

1. It will frequently happen that a suitable moment for the decisive attack will be found only after long and severe fighting. For this reason systematic arrangements for obtaining, sifting, and transmitting information throughout the battle are important. The information upon which the commander of the force will base his original deployment will usually be obtained by preliminary reconnaissance (Sec. 92), though it may be possible to obtain sufficient data as to an enemy's strength and intentions to enable the commander to decide approximately where eventually to launch his decisive attack before any tactical reconnaissance has been completed.

2. The commander of the force and subordinate commanders will be guided by the following principles in framing orders for an attack :—

- i. A definite objective or task should be assigned to each body of troops, the actual limits of frontage being specified as far as possible. Each body of troops thus assigned to a distinct tactical operation should be placed under one commander.
- ii. The direction of the attack to be made by each body of troops should be distinctly stated.
- iii. Most careful arrangements should be made to ensure that attacks intended to be simultaneous should be so in reality.
- iv. The choice of the manner in which the task assigned to each body of troops is to be performed should be left to its commander.

Each commander who issues orders should assemble his subordinate commanders, if possible, in view of the ground over which the troops are to operate, explain his orders, and satisfy himself that they thoroughly understand their respective tasks.

3. The conditions which affect the question of the frontage to be allotted to the various parts of an attacking force must vary with the circumstances of each battle. Ground, time conditions, the information available, the relative value of the opposing troops, the possibility of gaining a surprise, are some of the inconstant factors to be weighed. It is, therefore, neither possible nor desirable to give more than general indications as to how the problem is to be solved. The general principle is that the enemy must be engaged in sufficient strength to pin him to his ground, and to wear down his power of resistance, while the force allotted to the decisive attack must be as strong as possible. The higher the fighting qualities of the enemy are estimated, the more closely must he be engaged. It may be taken that against an enemy of approximately equal fighting value, where the attacking artillery is slightly superior, a force fully equal to that of the enemy holding the position* (excluding his probable general reserve) is the least that will suffice for this purpose. Such a force, which should ordinarily be divided into firing line and supports, with local reserves, would be disposed in unequal strength along the front, according to the nature of the ground, the frontage varying from one man to three or more men per yard. The decisive blow must be driven home. The latest experience goes to show that a smaller force than from three to five men per yard on the front on which the decisive attack is to be delivered will rarely prove sufficient, this force being distributed in such depth as circumstances make advisable.

4. As the opposing forces draw near, the cavalry will be unable to remain in the front line ; it will therefore be allotted one or more positions of readiness, where it can best act in accordance with the

* This force may be roughly estimated from the data given in Sec. 108.

commander-in-chief's plan, and from which it can easily deploy either to exploit a success gained by the other arms or to support them in case of a check. Artillery should be so distributed as to be able to support the infantry when required. Where artillery forms part of a unit allotted to the general reserve it will usually be given a special rôle by the commander-in-chief, except when the general reserve is required to carry out or complete a wide enveloping movement, when it will be accompanied by its complement of artillery.

5. During an engagement the position of a commander will depend a great deal on the size of the force he commands (*see* Sec. 93). With a small force it may be possible to exercise personal supervision, but with very large forces the commander-in-chief should usually be well in rear, beyond the reach of distraction by local events, and in signal communication with his chief subordinates (Sec. 17). Subordinate commanders should take up positions where they can obtain a good view of the area in which their commands are operating, and which admit of easy communication with their immediate superior and the units under their command. Should a commander leave the position to which he has directed that reports are to be sent, a staff officer must be detailed to receive and forward all reports and orders that may come in.

105. *The general conduct of the attack.*

1. Under the protection of the advanced guard, the artillery will take such preparatory steps as will enable it to support the advanced guard and open fire on such targets as the tactical situation demands. As a general principle, fire should not be opened with more guns than are necessary to accomplish the task in hand, the remainder being kept in positions of readiness.

2. Artillery will generally be protected by the distribution of the other arms. When, however, guns are in an exposed position, an escort should be detailed, and if this has not been done, it is the duty of the artillery commander concerned to apply to the

commander of the nearest troops, who will provide an escort. This escort, whose duty it is to protect the guns from surprise, should consist, when possible, of mounted men in the case of field artillery, and of infantry in the case of heavy and mountain artillery.

A superior officer who orders guns into action is responsible that they are provided with a suitable escort if the situation demands it. The senior officer present will issue the necessary instructions to the escort, but the commander of the escort will be given a free hand in carrying them out.

3. The object of artillery fire is to help the infantry to maintain its mobility and offensive power. Artillery commanders must therefore keep touch with the infantry commanders whose attack they are supporting, in order that the fire of their batteries may be directed against what, for the time being, are the most important targets from the infantry point of view. When a division is employed upon more than one tactical operation and the efforts of the whole cannot be directly combined, it will be advisable to form artillery and infantry temporarily into groups, under commanders each charged with the conduct of one distinct operation.

4. The advance of the firing line must be characterized by the determination to press forward at all costs. In order to prevent the enemy from thinning his line so as to reinforce the point against which he expects the decisive attack will be directed, and to force him to use up his reserves, it will be absolutely necessary for the troops to whom the rôle of wearing down the enemy's resistance is allotted to act with vigour. No half-measures will succeed. The enemy must be deceived, and this will call for as much self-sacrifice and devotion on the part of these troops as will be required from those taking part in the decisive attack. When once the firing line comes under effective fire, its further advance will be greatly assisted by covering fire from the rear, and by the mutual support which neighbouring units in the firing line afford one another. All leaders, down to those of the smallest units, must endeavour to apply, at all stages of

the fight, this principle of mutual support. The artillery fire must be distributed according to requirements on all objectives from which effective fire is being brought to bear on the attacking infantry. Quick-firing guns cannot maintain a rapid fire throughout a battle. Artillery should, therefore, use rapid fire when the infantry firing line is seen to be in need of assistance to enable it to advance; infantry should take advantage of periods of rapid artillery fire to gain ground. Aided in this way the infantry will fight its way forward to close range, and, in conjunction with the artillery and machine guns, will endeavour to gain superiority of fire. This will involve a gradual building up of the firing line in good fire positions, usually within close infantry range of the enemy. Here it is to be expected that there will be a prolonged and severe fire fight, during which each side will try to exhaust its opponent's power of endurance and force him to use up his reserves, while keeping its own intact.

5. The attack on each tactical point will constitute a distinct engagement in itself, and may require a large number of men and guns. Thus the attack, more often than not, will resolve itself into a series of distinct engagements, each raging round a different locality, and each possibly protracted over many hours. All important tactical points, such as suitable buildings, small woods, &c., should, when gained, at once be put in a state of defence, so that attempts on the part of the enemy to recapture them may be defeated, and they may be made to serve as supporting points to the attack. Local reserves will often find opportunities for strengthening localities or fire positions which have been gained by the firing line, and to assist them in this, detachments of engineer field companies may be attached to them with advantage. Machine guns will be specially valuable in bringing a sudden fire to bear from such positions, both in order to cover a further advance and to assist in defeating counter-attacks. Machine guns can normally support an attack most efficiently from well concealed positions provided with good cover, and within effective infantry range of the enemy. Occasionally, when good

opportunities for a concealed advance present themselves, they may be established within close infantry range of the objective.

6. During the process of establishing a superiority of fire, successive fire positions will be occupied by the firing line. As a rule, those affording natural cover will be chosen, but if none exist, and the intensity of the hostile fire precludes any immediate advance, it may be expedient for the firing line to entrench itself. This hastily constructed protection will enable the attack to cope with the defender's fire, and thus prepare the way for a further advance, but entrenching by infantry during an attack, when it involves any diminution in the volume of its fire, is only to be employed if further progress has become impossible, and an energetic advance must be resumed at the first possible moment.

106. *The decisive attack.*

1. The development of the battle should enable the commander to make up his mind when and where to deliver the decisive attack, if he has not done so before (*see* Sec. 102). The general reserve, if not already in position, will accordingly be moved there, **as secretly as possible**. The launching of the general reserve in the attack will be the signal for the application of the greatest possible pressure against the enemy's whole front; every man, horse, and gun, whether belonging to the general reserve or not, must co-operate in completing the enemy's overthrow.

2. As the crisis of the battle approaches, and the enemy becomes morally and physically exhausted, the chances of successful cavalry action increase. For effective intervention the concentration of as large a part of the cavalry as possible is required; the rest depends chiefly upon the cavalry commander, who should be where he can best watch the progress of events, keep in touch with other commanders, and carry out the instructions of the commander-in-chief, with whom he should be in signal communication (if possible by telephone). When a favourable opportunity for cavalry action arises, it must be seized at

once; but it is important that the result should promise to have a direct influence upon the decision of the battle, and that cavalry should not be exposed to heavy losses and horses be exhausted on minor enterprises. The attacking infantry should take immediate advantage of the results of the cavalry action.

3. In selecting the objective of the decisive attack, a commander must consider whether he can develop the full power of his artillery against it. An objective which may appear at first sight easy of access to the infantry, may prove in the end costly to attack, if it does not lend itself to the judicious application of artillery fire; and *vice versa*, localities which present difficulties to the infantry alone may, if it is possible to bring the converging fire of artillery to bear on them, be carried with comparatively little loss.

4. The principle of the employment of artillery in the battle is that the greater the difficulties of the infantry, the more fully should the fire power of the artillery be developed. As the infantry advances to the decisive attack, every effort should be made to bring a converging artillery fire to bear on its immediate objective, and artillery fire will be continued until it is impossible for the artillery to distinguish between its own and the enemy's infantry. The danger from shells bursting short is more than compensated for by the support afforded, if fire is maintained to the last moment; but in order to reduce this danger, it is the duty of artillery commanders to keep themselves informed as to the progress of their infantry, and to discontinue fire against the objective of the assault when the infantry is getting to close quarters if such fire cannot be readily observed and controlled. A portion of the artillery must be pushed forward so as to be able to deal with possible counter-attacks, and to give the infantry immediate assistance, when the fluctuations of the fight make this necessary.

5. The climax of the infantry attack is the assault, which is made possible by superiority of fire. The fact that superiority of fire has been obtained will usually be first observed from the firing line; it will be known by the weakening of the enemy's fire, and

perhaps by the movements of individuals or groups of men from the enemy's position towards the rear. The impulse for the assault must therefore often come from the firing line, and it is the duty of any commander in the firing line who sees that the moment for the assault has arrived, to carry it out, and for all other commanders to co-operate as soon as possible.

Should it be necessary to give the impulse for the assault from the rear, all available reinforcements will be thrown into the fight, and as they reach the firing line, will carry it with them and rush the position.

6. It will often happen that opportunities for closing with the enemy will arise at other points of the battlefield than where the decisive attack is being delivered. When such an assault is successful, troops on the flanks must endeavour at once to widen the breach made in the enemy's position and to confirm the advantage gained. Such an opening should be seized at once, and a local assault delivered. The result of effecting a lodgment in a portion of the position will be to weaken the defender's hold on the remainder, and may even force him to fall back along his whole line. Troops who have thus penetrated the line of defence must at once prepare to meet a local counter-attack, for the enemy will probably endeavour to recover the ground which has been lost.

7. If, during the attack, the enemy attempts to counter-attack, the troops threatened should hold on and endeavour to gain time. As a rule the most effective counter-measure will be to press the decisive attack with renewed vigour, for **success at the vital point will mean ultimate success at all points.**

8. It may be found impossible during one day to establish a sufficient superiority of fire to justify an assault being delivered. Should this be the case, the night should be employed in bringing artillery forward and providing cover for the guns, whilst the firing line should be re-organized, or relieved by fresh troops if possible, its cover improved, and, if necessary, a further advance made with a view to a resumption of the fight under more favourable conditions at dawn (Sec. 134). In continuous operations of

this nature, the powers of endurance of the troops must be considered.

9. After a successful assault the infantry should occupy the position that has been seized, pursue the enemy with its fire, and re-form in readiness either to follow up the retreating enemy or to repel an attempt to retake the position. Some artillery should be sent rapidly forward to the captured position in order to break down any resistance that may be offered from a second position, to support the pursuit, and to resist counter-attacks. Field companies of engineers should also be moved forward to strengthen the position against counter-attack or improve the communications in case of necessity. Meanwhile the cavalry should exploit to the full the opportunities created for it by the successful action of the other arms.

THE DEFENCE.

107. *General principles.*

1. It will depend largely upon the strategical situation how a commander who decides to await the enemy's attack, with a view to creating a favourable opportunity for offensive action, will be able to give effect to his decision. Where the nature of the theatre of war so narrows the possible lines of operation that the enemy's movements can be foretold within definite limits, positions may be prepared long in advance. Again, a commander may manœuvre so skilfully as to be able to occupy deliberately a position which the enemy is forced to attack, or he may lose the initiative unexpectedly and be compelled to deploy his troops to meet attack on whatever ground is to hand.

2. Whatever may be the strategical situation, the underlying principles of defensive action which aims at decisive results are constant. **No natural or artificial strength of position will of itself compensate for loss of initiative when an enemy has time and liberty to manœuvre.** The choice of a position and its pre-

paration must be made with a view to economizing the power expended on defence in order that the power of offence may be increased.

108. *Preliminary measures.*

1. The first requisite is information. The air service and the cavalry must discover the direction of march and the strength of the hostile columns, and until the former is known the force should not be deployed, even when the enemy's line of advance may be foreseen. A force which is kept in hand covered by the necessary protective troops is able to assume the offensive at once if a turn in the tide of events makes this advisable.

2. The amount of preparation possible depends on the time available, which in turn depends mainly on the strategical situation. The preliminary measures should be based upon as thorough a reconnaissance as is possible of the area which the plan of operations makes most suitable for accepting battle. Though the extent of ground actually held, when the direction of the enemy's advance is definitely known, must be strictly limited by the numbers available, the extent of ground reconnoitred and prepared for occupation may be much larger, and should admit of various alternative distributions of the force to meet the various courses of action open to the enemy. If the frontage occupied in battle is so great as to reduce the force kept in hand for the ultimate assumption of the offensive much below half the total force available, the position may be considered too extended to be held with a view to decisive action.

3. The influence of ground upon the effect of fire must be one of the first considerations in selecting a position. A clear field of fire, and ground on which artillery and infantry can act in combination, are of great importance, but this importance is relative to the ground over which the enemy must move; thus it is better for the defence to have moderate facilities for the co-operation of infantry and artillery fire, and for the attack to have none, than for the defence to have good ground, but the attack better.

The most favourable ground for counter-attack is that which lends itself most to the co-operation of all arms, and especially that which allows the advance of the counter-attack to be covered by artillery and infantry fire. Ground from which any portion of the front or flanks of a position can be enfiladed is dangerous to the defence.

4. The defence must have freedom of manœuvre, which demands sufficient depth in the position and good covered communications behind it. Concealment and cover from fire are important factors in defensive operations. The cavalry, supported by the other arms when necessary, may do much to screen the main position, to mislead the hostile commander as to its exact situation and extent, to induce him to deploy prematurely, and to fatigue his troops in groping for skilfully covered flanks, while his uncertainty will be prolonged if the troops occupying the main position are carefully concealed and withhold their fire until the last possible moment.

5. The troops will be divided into two main portions, one for the defence of the position, the other for the decisive counter-attack. The mounted troops will, as already described, be employed at first either in seeking out the enemy or in covering the main force. The artillery should be posted so as to command the enemy's lines of approach and his probable artillery positions. In distributing the artillery the combination of its fire with that of the infantry in the close defence, and also the importance of artillery support to counter-attacks, must be considered. Guns should usually be concealed as much as possible. The infantry allotted to the defence of the position will be divided into the firing line, with supports if required, and the local reserves.

6. When a position is extensive it should be divided into sections, each of which should be assigned to a distinct unit, and have its firing line and local reserve. The extent of a section depends on the power of control of one commander, and must therefore vary according to the nature of the ground. It will usually comprise one or more tactical localities (*see* para. 9). Supports to

the firing line should be close to it, have covered communication with it, and be under complete cover from shrapnel fire ; if this is not possible the firing line should be self-supporting. The local reserves should be placed where they have facilities for local counter-attack and good cover while waiting for an opportunity : the local reserves of flank sections should usually be écheloned in rear of the flanks, except when the flanks are otherwise secured.

7. The general reserve should usually be placed in rear of that portion of the position which, from the general situation and the nature of the ground, offers the best line of advance for the counter-attack. Should the situation, however, be so undeveloped that the direction in which the counter-attack can best be launched cannot be determined, the general reserve may be placed, until the situation develops, in rear of or near the flank on which the enemy's decisive attack is most likely to be made.

The commanders of the reserves, whether local or general, must make themselves acquainted with all ground over which they may have to act, and must keep a watch, by means of staff officers and patrols, on the progress of the engagement, so that they may anticipate orders, and have their troops formed up ready to move as soon as they are called for. For this purpose the general reserve should be given a proportion of mounted troops.

Part of the artillery should usually accompany the general reserve in the decisive attack, but this should not prevent the employment of those guns from the beginning of the battle if they are required. The number of guns which should accompany the general reserve will depend largely upon the extent to which it is possible to support the decisive counter-attack with artillery fire from the main position, but even when this can be done effectively it will generally be advantageous from the point of view of *moral* for some guns to accompany the infantry so as to be able to come into action at close artillery range.

The commander of the general reserve should be named in the orders for the occupation of the position, and, if not already provided, should have a sufficient staff allotted to him.

In distributing troops in a position, it must be remembered that, as a rule, some sections will be more easily defended than others. A careful reconnaissance will show where the front can be thinly held, but it is never safe to leave any ground altogether unprotected, however difficult it may appear. The defence of woods and other special tactical points should be entrusted to complete units.

8. The factors which affect the extent of frontage which may be held by the troops allotted to the defence of the position are as varied as those which affect the question of frontage in attack (Sec. 104). Subject to such modifications as a careful study of the ever varying conditions of each case shows to be necessary, it may be taken that when the utmost development of rifle fire is required, not more than one man per yard can be usefully employed in one line. When the ground is naturally very favourable to defence (Sec. 108, 3), or can be made so artificially (Sec. 108, 9, 10, 11), a less dense line should be sufficient. The strength of the supports, required to replace casualties and to infuse fresh vigour into the defence, must vary with the probable conditions of the battle, and may be roughly from one-fifth to half of the firing line. Portions of a position, where the conditions are unfavourable to defence, are usually better defended by means of local reserves than by strengthening the firing line. The strength of the local reserves may be estimated roughly at about that of the firing line with its supports.

9. Every position should be strengthened as far as time admits, with the object of reducing the number of men required to hold it, and of thereby adding to the strength of the general reserve. Defensive positions will normally include a number of localities of special tactical importance. The efforts of the defender will be directed in the first instance to occupying and securing these points, so that they may form pivots upon which to hinge the defence of the remainder of the position. The defences of these localities should be arranged so that they may give each other mutual support.

If these pivot points are naturally strong or can be made so artificially, and if they are adequately garrisoned, the defence of the intervening ground should not usually be arranged in a continuous line. The object should rather be to utilize this intervening ground for local counter attacks, while arranging for either direct or flanking fire, or both, within such ranges as may be decided on, to be brought to bear on all ground over which the enemy may advance. A defensive position prepared in this manner lends itself to local counter-attacks, which keep alive an offensive spirit in the defenders, exhaust the enemy's powers, draw in his reserves, and thus prepare the way for the assumption of the offensive. Salients and advanced posts which are held in order to deny ground to the enemy, and not merely as a screen to the main position, are a weakness if they are exposed to artillery fire which cannot be answered, and if they cannot be supported by effective infantry fire. As a general rule such positions had better be left unoccupied, and the ground between them and the main position be defended either by bringing a crossfire on to it from other parts of the position or by strong entrenchments, which are within supporting distance. On the other hand, advanced posts which can be supported effectively by fire from the main position often are of value in breaking up an attack.

Where a defensive position is to be held at night or during fog, it will usually be necessary to supplement the system of occupying localities, described above, by a more continuous line of defence in order to prevent the enemy from penetrating the position. When a battle begun in daylight is not decided at dusk, it may be justifiable to employ local reserves to occupy the gaps in a defensive line. In any case the arrangements suitable for day will rarely be equally suitable for night, and steps must be taken to rearrange the defence accordingly as may be judged necessary.

10. The first step in preparing a locality or position is to improve the field of fire, both by clearing the foreground and by taking ranges to all localities distant 500 yards or more where the attacker will be especially exposed, and to localities the possession

of which is likely to assist the enemy in the attack. These may be supplemented by fixing range marks, with which, as well as with the ranges taken, the troops should be made familiar.

The chief point to keep in view in providing cover is that the fire from it should be effective, but facilities for concealment, control, communication, and for the supply of ammunition, food, and water must also be considered.

The concealment of trenches usually requires special measures. They should not be sited in exposed positions, such as the tops of bare hills or of prominent salients, if this can be avoided, and the appearance of all excavations should be made to simulate the appearance of the background.

11. Generally speaking, it is easier to arrange covered communication with high-sited trenches, but these often entail a certain amount of dead ground in front of the position. It is often possible to avoid this by arranging for the fire from one trench to sweep the ground in front of another and *vice versa*. Trenches placed at the foot of slopes are easily concealed, and usually admit of a more grazing fire than high-sited trenches, but the supply of reinforcements, ammunition, food, and water to those under fire frequently involves difficulties. Trenches which can bring fire to bear at decisive range on to the ground over which the attack must pass, and which are themselves concealed from the attackers in the early stages, are most valuable in surprising the enemy at critical periods.

Deep trenches just in rear of the crest-line may be usefully provided to give cover to the supports or to the garrisons of the advanced trenches till they are required; communicating trenches will usually be a necessary addition, in order to ensure covered connection with the fire trenches. Alternative emplacements for guns, including positions from which they can bring fire to bear on the foreground during the later stages of the battle, may be prepared with advantage. Communications between these emplacements should be prepared or improved.

109. General conduct of the battle.

1. When the enemy's intention to attack is evident, the advanced troops who have been screening the position should be withdrawn in sufficient time to prevent them from becoming closely engaged and masking the fire from the main position, or from any advanced posts which are to be held. The mounted troops should be assembled in positions of readiness where they have scope for action and the ground is suitable; such positions will usually be found on the flanks. **As large a body of cavalry as possible should be concentrated under the cavalry commander**, whose duty it is to keep in touch with the course of the battle and seize opportunities as they arise for carrying out the commander-in-chief's instructions.

2. Until the attack is seen to be serious it will usually be advisable to form the firing line of a few observers or skirmishers, the remainder of the troops allotted to the defence of the position being kept under cover. As the attack develops the artillery and infantry must co-operate in crushing it with fire, and preventing it from establishing itself within close range. Enfilade fire brought against an enemy's firing line which is already engaged in front will be most effective, and for this machine guns, especially during the later stages of the attack, when firing from positions which have been carefully concealed and prepared beforehand, are of great value. Machine guns are best utilized to sweep with fire exposed spaces which an enemy must cross, or roads and defiles through which he must advance, and will also be of service to flank salients or advanced posts, and to assist in protecting the flanks.

3. The enemy will not ordinarily make a serious attempt to drive his attack home at all points (Sec. 103), and it is very important to discover, as soon as possible, where he intends to apply his main strength. This can usually be attained only by compelling him to employ his reserves earlier than he had intended. Before either side can deliver a decisive attack it is to be expected that there will be a prolonged fight for fire superiority (Sec. 105, 4).

During this struggle the object to be aimed at is not merely to wear down the enemy's firing line until it is incapable of further advance, but to drive it back so that the enemy may be forced to use up his local reserves to restore the battle. This can be done by means of vigorous local counter-attacks, delivered on the initiative of commanders of sections, whenever an opportunity offers. Such opportunities will occur, when the enemy's firing line comes within reach, without sufficient support, and when fire superiority, even though only temporary, has been gained. Skill and stratagem can do much to tempt the enemy to expose himself to local counter-attack. To achieve its purpose a local counter-attack should compel the enemy to expend more force than is involved in its delivery. Local counter-attacks against strong tactical points are, therefore, usually inadvisable, and for the same reason success should not be followed up too far. They should be covered by both artillery and infantry fire, enfilade fire being particularly effective, but the original firing line should not leave its trenches. If an enemy succeeds in penetrating the position at any point a local counter-attack should be launched against him. Local reserves should not be employed to reinforce the firing line; every man in the firing line should be made to understand that assistance will be given if required in the form of a local counter-attack.

When the enemy's infantry attack reaches a position from which an assault is possible no effort must be spared to increase the effect of the artillery fire. If the occupation of direct fire positions is likely to contribute to this result it must be undertaken without hesitation.

110. *The decisive counter-attack.*

1. To judge the right time for changing from the defensive to the offensive, which a commander usually effects by delivering a decisive counter-attack with his general reserve, is as difficult as it is important. The most favourable moment is when the enemy has expended his reserves in endeavouring to storm the entrenchments, but it is by no means always advisable to wait for this. If the

defending force is carefully screened by its covering troops, or if the enemy is led to believe that the front is much longer than it really is, he may commit mistakes, such as exposing a portion of his force without hope of support from the remainder, unduly extending his front, exposing his flanks, or posting his reserves in the wrong place; and these mistakes, all of which are favourable to the counter-attack, may occur at any period of the engagement, even at the very beginning.

2. The direction of the counter-attack may depend on the strategical situation, the dispositions of the enemy, or the nature of the ground, but although opportunities for breaking the centre may sometimes occur, the decisive counter-attack will usually be most effective if it be delivered against a flank, and in such a direction as to threaten the enemy's line of retreat.

The counter-attack should come in the form of a surprise. It should be carried through with the utmost vigour and resolution, and all ranks should understand that they must press forward until the enemy is driven from the field. The principles on which it should be carried out will be the same as in any other attack, but there will be less time for preparation. The advance should be covered by all the artillery available, which should at the same time keep a careful watch for the appearance of the enemy's reserves, so that they may be crushed without delay. The action of the artillery should be characterized by boldness. The moral effect of batteries advancing in support of the infantry may decide the issue when success or failure hangs in the balance.

3. The assumption of the offensive should not be confined to the advance of the general reserve; but any decisive success which this obtains should rather be the signal for the whole to press the enemy with the utmost vigour. Cavalry being essentially an arm of opportunity, it is not possible to limit its co-operation in the decisive counter-attack to the moment of the advance of the general reserve. It may well happen that the cavalry will be able to create, by its action, the occasion for launching the counter-

attack. The cavalry commander and the commander of the force must be in communication throughout the battle, so that the general reserve and the cavalry may each be prepared to seize an opportunity created by the other. The cavalry allotted to the general reserve will usually be employed in covering its flanks during the counter-attack.

4. It is possible that there will be little time for issuing detailed orders, but the direction and manner of carrying out the counter-attack should be carefully pointed out to all subordinate commanders, who will explain the same to the troops, and impress on them the importance of getting to close quarters as quickly as possible. The favourable opportunity will be fleeting, and when it comes there must be no delay in seizing it.

THE ENCOUNTER BATTLE.

111. *General principles.*

1. The unexpected is the rule in war, and when armies are in proximity, a battle is frequently brought about by the unpremeditated meeting of opposing forces. In such encounter battles the deliberate preparatory arrangements which precede an attack upon an enemy in position to a great extent disappear, and much depends upon the initiative and enterprise of commanders, and the degree in which all arms co-operate.

2. In order to obtain the initiative, it is essential to deploy before the enemy can do so, and it will depend to a great extent upon the action of the advanced troops whether this is possible or not. There will rarely be time for a complete preliminary reconnaissance, though cavalry commanders must, on meeting the enemy, do all that is possible in this direction. Detailed information as to the enemy and the ground will therefore usually be lacking. In these circumstances the general strategical situation becomes the deciding factor as to whether an attack shall be delivered or not. It is therefore of importance that the cavalry and advanced guard

commanders should be supplied with all available information on this point, and that the intention of the commander of the force should be communicated to them as rapidly as possible, if this has not been done already (Sec. 68). Commanders of protective troops must act on their own initiative, while considering the eventual employment of the troops they cover. It will usually be possible to push back the enemy's advanced troops, to gain ground for the deployment of the main body, and to hamper the enemy's deployment, without interfering with the liberty of action of the commander of the force.

3. The commander of the force should remember in coming to a decision—

- i. That the enemy will probably be in an equal state of uncertainty.
- ii. That when once two forces are in close contact it is usually difficult to avoid an engagement.
- iii. That the advantages of the initiative and of the offensive should only be abandoned for weighty reasons.

4. When he has decided to attack, **rapidity of action is of the utmost importance.** A formal issue of orders will seldom be possible. While it is desirable that that portion of the main body with which it is proposed to develop the attack should be brought into action as a whole, it will often be necessary to allot to each portion of the force its rôle in the battle as it deploys from column of route. It is, therefore, more than ever important that each unit should keep those on its flanks informed both of its own progress and of what it knows of the general situation. The conditions which give rise to encounter battles make it probable that flank guards, or columns of troops other than those in actual contact with the enemy, will be left without orders; it is the duty of the commanders concerned, on hearing the sounds of battle, to take steps to ascertain the situation, and to **co-operate in whatever way appears to them most suitable.**

When once the initiative has been secured, and the enemy has

been attacked along his whole front, the engagement will approximate more and more to the attack of an enemy in position. It should then be possible for the commander to obtain information as to the enemy's dispositions and strength, and he will be guided by the considerations contained in Sec. 106 in selecting the objective for the decisive attack.

5. Should it become clear that the enemy has succeeded, or probably will succeed, in deploying first, it is necessary to act with caution, for there is then a danger that a precipitate advance may give the enemy an opportunity to envelop the force before it has deployed, or to defeat the several parts of the force in detail as they reach the battlefield. In these circumstances the commander should endeavour to avoid becoming seriously engaged until his deployment is well advanced, and he should direct the advanced troops to delay and hold off the enemy, pending the development of sufficient force.

PURSUIT, RETREAT AND DELAYING ACTION.

112. *The pursuit.*

1. The enemy may elect to fight until his power of resistance is exhausted, and he is driven from the battlefield, or he may endeavour to break off the fight and withdraw before he has finally committed his whole force. In the former case, the infantry and artillery, which have penetrated his position, must follow him up and continue to press him to the utmost (Sec. 106, 9), but the exhaustion, both of *personnel* and of stores, at the end of a protracted battle, makes such a pursuit only temporary, and it will rarely lead to decisive results. In order that the pursuit may be continued until the enemy is finally crushed, it will usually be necessary to re-form a part of the force at least, and to replenish ammunition and supplies. The pursuit must, therefore, be taken up by as large a body of mounted troops as possible, so that the enemy may be allowed no respite while this is being done. It is

the duty of cavalry commanders to undertake this duty in default of special orders.

2. If any doubt exists as to the direction of retreat of the enemy's main body every road by which it could have retreated should be reconnoitred, a short delay being generally preferable to committing the cavalry in a wrong direction. When the direction of retreat is known, only sufficient mounted troops to keep touch with his movements should pursue the enemy directly, while the greater part of the cavalry and horse artillery should aim at the enemy's flanks, and also try to anticipate him at some defile, bridge, or other vital point on his line of retreat. The main body of the force will take up the direct pursuit at the earliest possible moment, and will continue it by day and night without regard to the exhaustion of men and horses so long as the enemy's troops remain in the field.

3. If the enemy succeeds in breaking off the fight before a definite decision has been reached, it is probable that both commanders will have a portion of their reserves in hand, and that the enemy will use his freshest troops to cover his withdrawal; he may even be prepared to sacrifice the troops on whom this duty devolves to ensure the safety of the remainder. Under these circumstances a direct pursuit by the main body will rarely lead to decisive results. The action of the mounted troops should be similar to that described in the preceding paragraphs, but such infantry and artillery as are in hand should be at once despatched to assist that body of cavalry which is directed against the flank of the enemy's main force with a view to completing its overthrow, while the remainder will continue to press the enemy's force which is covering the withdrawal.

4. All pursuing troops should act with the greatest boldness, and be prepared to accept risks which would not be justifiable at other times.

113. *The retreat.*

1. It is the duty of the commander of a force to be ready for any emergency which may arise during the course of the battle; his

general staff should, therefore, be prepared to submit to him at any time proposals for a retreat, and so allow him and his troops to devote their entire energies to the defeat of the enemy.

By selecting rallying positions, organizing a covering force, and arranging for the early withdrawal of all transport, a defeated army may to some extent be saved the demoralization which usually accompanies a retreat. It is of great importance to clear the roads chosen for the withdrawal of all vehicles which are not essential to the fighting troops, therefore in order to restore the *moral* and efficiency of the fighting troops supplies of ammunition and food should be deposited alongside these roads.

2. When retreat appears inevitable the routes to the rallying position should be communicated confidentially to commanders. The rallying position should never be so close to the battlefield as to come at once under the fire of the enemy. It should be occupied as soon as possible by some portion of the artillery, and by complete infantry units. The cavalry and other mounted troops, aided by a strong force of artillery, will meanwhile check the enemy's advance, and the remainder of the force, with the exception, if possible, of a rearguard in support of the mounted troops, will move as rapidly as possible to the shelter of the rallying position and there reorganize. Steps should be taken immediately to secure any bridges, defiles, or other vital points on the line of retreat, at which the enemy's mounted troops might intercept the force.

3. Commanders of retreating troops must recognize that their greatest danger will arise from attacks in flank delivered by the enemy's mounted troops and horse artillery; if possible, therefore, they should take precautions that all ground commanding their line of retreat is occupied by flank guards.

114. *The delaying action.*

A commander may decide to offer battle without aiming at a decisive result, either in order to await the arrival of some other portion of the army, or to cover a concentration in rear, or to gain

time for decisive action in some other part of the theatre of war. In the first case the principles of defensive action will be similar to those already described in Sec. 108, the force which is actually on the field when battle is accepted being considered as that which prepares the way for the assumption of the offensive, while the force whose arrival is expected may be looked upon as the general reserve with which the decisive blow is dealt.

When the object is to act as a covering force, or to gain time, a commander will be much influenced by the strategical situation and the nature of the country in which he is operating. The delaying power of a numerically inferior force is greatly affected by ground. When a force is occupying a strong position which cannot be turned, or can only be turned by a wide movement through difficult country, its delaying power is very great; and where a series of such positions exist, a comparatively small force, acting on the general principles described in Sec. 72 for the action of a rear guard, can exhaust the offensive energy of one which is much larger. On the other hand, if such a force accepts battle in a position which is liable to envelopment, or in a country and under conditions where an enemy has liberty to manœuvre, it can extricate itself only under cover of darkness, or by a successful counter-attack. Where it is possible for the delaying force to await an enemy, who is advancing through difficult country, on ground where it can manœuvre freely, it fulfils its rôle in a most effective manner by attacking the enemy's advanced troops as they emerge, and pushing them back on to their main body, which will thus have great difficulty in deploying. The guiding principle in all delaying action must be that when an enemy has liberty to manœuvre, the passive occupation of a position, however strong, can rarely be justified, and always involves the risk of crushing defeat; under these conditions a delaying force must manœuvre, so as to force an enemy to deploy as often as possible, but should rarely accept battle.

CHAPTER VIII.

SIEGE OPERATIONS.

115. *General description of land defences.*

1. Land defences of sufficient strength to demand attack by siege methods may be divided into—
 - i. Permanent defences which are constructed in peace and whose maintenance is part of the military policy of a nation.
 - ii. Provisional defences which are constructed, either during or in immediate anticipation of war, to supplement permanent defences or to extemporize fortresses at points of strategic importance.
2. Permanent defences comprise—
 - i. Girdles of mutually supporting works designed for the protection of some place of importance. These are known as fortresses.
 - ii. Coast defences, which consist of areas of land and sea provided at certain points or along selected lines with works of defence.
 - iii. Isolated self-contained forts or small groups of such forts designed to bar the passage of some defile or to command a railway or road junction. These are called barrier forts.
3. The circle of works which make up a fortress is of great extent in order to ensure the place protected against bombardment. The permanent works may be designed either to develop chiefly the

infantry power of the defence, the heavy artillery of the fortress being placed in the intervals between the works ; or to develop chiefly the artillery power of the defence ; or to develop both artillery and infantry fire. In the first case the invisibility of the works is an important feature, in the second and third cases invisibility is generally sacrificed to command. In each the permanent works are usually connected by provisional defences. The generally accepted principle in the design of modern fortresses is that the assault will be repulsed by the fire of infantry, quick-firing artillery, and machine guns from permanent works protected by deep ditches, and that the rôle of heavy artillery will be to assist in keeping the enemy at a distance, to disorganize his preparations, and to subdue his artillery.

THE ATTACK OF FORTRESSES.

116. *General principles.*

1. Since the object of war can only be attained by the destruction of the enemy's field armies, all fortress warfare must be considered as subsidiary to that end. A fortress may be masked, invested, or actively attacked.

Masking a place consists in detaching a force to prevent its garrison from interfering with the operations or communications of a field army.

Investment consists in cutting the place off from communication with the outside so that no supplies can be brought into it.

Active attack consists in compelling the fortress to surrender as quickly as possible.

2. The choice of methods will be made by a commander after a review of the strategic situation and a comparison of the enemy's circumstances with the means available have been prepared for him by his general staff. One of the chief objects of land defences is to detain as large a body of field troops as possible, for as long as

possible, in order to gain time for the development of other resources. It will therefore be for consideration whether the fortress should be neutralized by masking it with the smallest number of troops which can perform this duty effectively, whether it should be captured in the shortest possible time by applying to it the greatest pressure which can be usefully exerted, or whether an intermediate course should be adopted.

117. *Masking a fortress.*

1. A fortress may be masked either by keeping the garrison under such close observation that it cannot leave the fortress unobserved, and by meeting it with a mobile force when it has done so, or by strongly entrenching the masking troops in positions which must be attacked by any force which seeks to come out.

It will depend chiefly upon the character of the troops available and upon the nature of the country, which means of neutralizing a fortress is adopted. The first method demands a considerable proportion of mounted troops and good and numerous communications; the second method is suitable when the lines of operation open to the garrison are few, and the positions closing them are strong. The whole of the garrison will rarely be able to leave the place, and the armament and equipment of part at least of its troops will usually be unsuited for field operations. It will generally be possible therefore to mask a fortress with a force which is smaller than the strength of the garrison, and even under unfavourable conditions the masking force need rarely be the larger of the two.

INVESTMENT AND ACTIVE ATTACK.

118. *The reconnaissance.*

1. Whether a fortress is to be invested or attacked, the general principles which govern the preliminary measures will be the same. In either case the first object is to drive in the enemy's advanced

troops, to cut the lines of supply and communication on which the place ordinarily depends, to make as complete a reconnaissance of the place as possible, and to establish a preliminary investment. This work primarily falls upon the cavalry, who should be accompanied by general staff officers, and by artillery and engineer officers to act as technical assistants, and be supported by the other arms according as the resistance of the enemy makes this necessary. At this stage the air service should obtain valuable results, if the conditions are favourable to its employment.

2. The preliminary reconnaissance should provide information on the following points :—

- i. The best method of cutting off communication between the place and the outside.
- ii. The line upon which the sorties of the garrison will be met.
- iii. The position of the outposts.
- iv. The communications surrounding the fortress, and the means of improving, adding to, and protecting them.

3. As the garrison is able to concentrate the greater part of its strength against a part of the investors' extended line, it is important that suitable positions for the reserves should be selected as early as possible, that the communications between them should be improved and protected, and that the most efficient form of signalling should be arranged between all parts of the investing lines. It is the business of the general staff to collect information on these points from the outset.

The commander will usually decide from the results of the preliminary reconnaissance, combined with a general review of the situation, whether the place will be reduced by investment or by active attack.

119. *The investment.*

1. As the sole means of capturing a fortress, investment is slow and should be employed only when the number or the training

of the troops available for the siege is insufficient to admit of an active attack, or when time is of no importance. In the case of coast defences the command of the sea and the active co-operation of the Navy is essential.

2. Some form of investment, however, forms an important part of every regular siege (Sec. 124), since an active attack is rarely carried out on more than a small part of the circumference at any one period. An investment may be established most rapidly by a simultaneous converging movement, but in the case of an active and prepared enemy, careful communication must be arranged to ensure co-operation between the parts of the converging force, if the centrally situated garrison attempt to attack one of them in superior force. The investing force may also advance in échelon and gradually complete the investing line.

3. Every opportunity should be taken during the advance towards the place to be invested to engage the enemy, who cannot replace his losses in men and stores and will be hampered by wounded, while by so doing positions may be gained which would be more difficult to capture later on when the enemy has had time to strengthen them.

4. When the enemy's advanced troops have been driven in and the preliminary reconnaissance has enabled the general line of investment to be fixed, this line will be divided into sections, to which commanders will be appointed and troops allotted on the same principles as are described in Sec. 108, 6. Outposts will be established as closely as possible round the fortress in order to cut it completely off from outside communication, and to protect the operations in rear. The positions on which sorties of the garrison will be met will next be selected and strengthened, and the positions of local reserves and of the general reserve will be fixed accordingly. It then becomes the duty of commanders of sections and of the commander of the general reserve to improve existing and prepare new communications, fix guide posts, and by other means enable their commands to move rapidly and safely in any required direction either by day or by

night. The general staff of the command will at the same time supervise the preparation of an efficient system of observation, and of signal communication between all parts of the investing force.

5. The extent of modern fortresses may make it impossible to invest closely more than a part of the line, the remainder being watched by cavalry outposts or by mobile columns at convenient centres. In such cases it is more important that the garrison should be prevented from breaking out or from receiving substantial assistance than that its absolute isolation should be attempted.

120. *Outposts in siege operations.*

1. The duties of outposts in siege operations are even more important and exacting than they are in field operations; in the case both of an investment and of a regular siege the brunt of the work throughout will fall upon the outposts.

2. The general principles of protection are similar to those described in Chapter V, with the following exceptions.

In order to reduce the inevitably great extent of the outpost position it should be established as close to the enemy's positions as is compatible with suitable defensive arrangements, and no opportunity of gaining ground and drawing the outposts closer should be lost. The outposts will be continuously exposed to artillery fire and to the sallies of the garrison, who will try to harass them in every way. They must therefore have greater power of resistance than outposts in field warfare, in order to prevent the troops in rear from being disturbed by every skirmish. The outposts of a section which is maintaining a close investment should be about one-quarter of the total infantry allotted to the section, together with a proportion of artillery, machine guns, and engineers. This high proportion has not the objections which it would have in field warfare, as it is possible to arrange more complete rest for the troops not on outpost duty than can be done when a force is marching from day to day.

The line of resistance, which should usually be the piquet line, should be strengthened in every way, and bomb-proof cover should be provided for the piquets and supports. As the general position of the outposts must inevitably be known to the defenders, movements in the sentry line are less objectionable, while it is important that the power of resistance of the piquets should be as great as possible ; for these reasons the double sentry system will usually be preferable to the group system (Sec. 81, 2). As the whole of the ground, and not merely the main approaches, must be watched both by day and night, sentries should be close enough to allow of no one attempting to pass through them without attracting attention. Additional protection at night may be afforded by means of searchlights, spring guns, flares, electric alarms, &c. (See "Manual of Field Engineering" and "Military Engineering," Part I.)

3. Shelter from weather must be provided both for piquets and supports, and, if suitable buildings unexposed to artillery fire are not available, shelter must be constructed. It will lead to better knowledge of the ground, to the improvement of accommodation, and to sanitation, if sections or sub-sections of the outposts are allotted for fixed periods to the same units, which will then have about one-quarter of their strength on outpost at one time, while the remainder who form the reliefs are otherwise employed. Should the siege be protracted, it will be necessary to arrange for the periodical relief of units in the first line, by others from the local and general reserves.

121. *The active attack.*

A fortress may be actively attacked by direct attack, by bombardment, or by regular siege.

122. *The direct attack.*

Direct attack implies attack without recourse to siege operations. It should only be attempted against the main line of a fortress when

the strategical situation demands it and the prospects of success are good, *e.g.*, when the defenders are known to be demoralized either by the defeat of their field armies or by the disaffection of the civilian population. Direct attack may be used with success against isolated forts or advanced works, particularly if the assailant is able to approach unseen and to deliver his attack in the form of a surprise. Generally, it is advisable for the assaulting troops to move to a position of deployment under cover of darkness, and to deliver the assault at dawn or under cover of fog or of bad weather, in which case the precautions and general principles laid down for night operations in Chapter IX will be followed. Except when it is possible to overwhelm a work by greatly superior force a preliminary bombardment will usually only serve to announce to the enemy that an attack is impending, but artillery, machine guns, and infantry should invariably be brought into entrenched positions, from which the advance of the assaulting columns can be covered and supported if necessary.

The assault should be delivered against several points simultaneously. An engineer party should be at the head of each assaulting column to open a way through obstacles, and to provide means for the troops to cross them.

123. *The bombardment.*

By itself, bombardment should not succeed against a good garrison; but where it is possible to mount siege guns within range, the bombardment of a populous town may have great moral effect on the civilian inhabitants, who may bring pressure to bear on the governor to surrender. Small isolated forts which can be bombarded from all sides may also be subjected to this form of attack. It is usual before bombarding a place to summon the governor or commandant to surrender.

124. *The regular siege.*

1. The composition and strength of a force destined to undertake a regular siege must be adapted to the special work required

of it. The proportion of cavalry may be less than in the field army, while that of artillery and engineers must be largely increased.

In the case of the artillery, the increase is effected by adding to the normal establishment of a field army a certain number of siege artillery units. This number will be determined by the requirements of each case.

Similarly the number of engineers will be increased by the addition of units which have been specially trained in the work of sapping and mining.

2. The distribution of a besieging force is similar to that of a force which awaits attack in the field, except that the siege artillery is not allotted to sections but acts under the orders of an officer styled the officer commanding siege artillery. It is, therefore, divided into—

- i. The investing troops, who are divided into sections each with a local reserve.
- ii. The siege artillery.
- iii. The general reserve.

3. The *first phase* of a regular siege consists in establishing a line of investment (Sec. 119); when this is completed siege operations proper may be said to be entered upon and the *second phase* to begin.

To carry out an attack against the whole perimeter of the fortress would involve the employment of a force so large as to be prohibitive. Consequently, while pressure by the investing army is exerted against the whole line of defence, a portion only of this line is subjected to a vigorous attack pushed home by siege operations. This portion is termed the "front of attack," while the ground intervening between the front of attack and that portion of the investing line enveloping this front is termed the "zone of attack."

4. The front of attack will be selected by the commander of the besieging force, after consideration of the proposals prepared for

him by his general staff in consultation with the commanders of the siege artillery and of the engineers respectively. In drawing up these proposals it must be remembered that the goal of the attack is the assault, which will be delivered by the infantry, and that the infantry will be able to make progress only with the co-operation of the artillery and engineers.

The choice of the front of attack will therefore be regulated by the following considerations :—

- i. The general strategical situation should be considered, *e.g.*, possibilities of interruption, position of the besieger's field armies, and direction of his line of communication.
 - ii. Its capture should promise decisive results.
 - iii. The ground in the zone of attack should facilitate the co-operation of infantry, artillery and engineers.
 - iv. It should be chosen with reference to the delivery of the immense stores which a siege requires, and to the quartering of the besiegers.
5. The front of attack having been chosen, the positions for siege batteries will be finally selected, and the besieging troops will be pushed forward to secure the necessary ground. Owing to the great range of modern guns it is rarely necessary to move the siege artillery forward with the besieging troops. The infantry will make progress from the positions of the siege artillery by a succession of forward movements, such movements being usually the result of a successful assault prepared by combined infantry and artillery fire on some position of tactical importance within the zone of attack.

When owing to the fire of the defenders a further advance above ground is no longer possible, the *third phase* commences. Resort is made to sapping and mining until either the place capitulates or an assault on the main line of defence becomes practicable. When there is more than one line of defence, a *fourth phase*, similar to the third, will occur.

Siege operations differ from field operations in two main

particulars ; firstly, every day after the investment has been completed should alter the relative strength of the besiegers and besieged owing to the latter not being able to replace either their *personnel* or their material ; and secondly, the final combats resolve themselves into a series of independent frontal attacks on a well-defined and limited frontage.

6. The duties of the technical branches of the service in siege warfare, which come more particularly into play during the advance on the front of attack from the line of investment to the position from which the assault is to be delivered, are dealt with in "Garrison Artillery Training," Vol. II, and "Military Engineering," Part II.

7. When the siege operations have made sufficient progress to make the success of an assault probable, and definite information has been obtained as to the enemy's defensive arrangements at the objective point, a plan for the assault will be formulated.

To ascertain in the case of a permanent work the positions which the defenders would take up to repel an assault, and whether they have any guns which they may be able to unmask at the last moment, it will generally be advisable to deliver feigned assaults ; it may be possible by such feints or by a heavy bombardment with sudden pauses, as if for an assault, to induce the defenders to come out of their bomb-proofs and to betray their assigned positions.

Surprise is a very important factor in assault, especially where the approaches are so deep and well covered as to admit of a large number of men being assembled, unseen by the defender, for the short rush from the sap-heads to the works ; for this reason a bombardment should rarely directly precede the delivery of the assault, except when the course of the previous operations has been such that the bombardment will not serve as a warning to the enemy. Assaults against modern fortifications resolutely defended are unlikely to succeed, until the attackers have, by adequate preparation, seriously shaken the power of resistance of the defenders.

8. The power derived by the defender from searchlights, and the difficulty of recognising friend from foe, or of concerted action,

are great drawbacks to night assaults. The chief purpose of night operations, which is to place troops without loss within striking distance of the enemy, will already have been attained by means of sapping.

An attack delivered an hour or two before dark has much to recommend it, as the assault will be delivered during daylight, and the enemy will suffer all the disadvantages of hastily prepared night attacks if he attempts to recapture the work, whereas, should the assault prove a failure, the assaulting columns will more easily be able to withdraw under cover of darkness.

The attack will be made simultaneously along the whole front of attack so as to prevent the enemy from reinforcing the main objectives, which will usually be the forts.

In cases where bombardment is to precede the assault, the time taken by bombardment will be employed by the besieger in assembling his assaulting columns in the approaches, ready to dash out at the appointed moment, which may be arranged for either by carefully setting and comparing watches beforehand or by some signal visible to all concerned. The greatest care must be taken that there is no confusion as regards this fixed hour or signal. Telephonic communication between all points of assembly for assault will reduce the risk of mistake to a minimum.

9. The assault is carried out by assaulting columns composed of :—

- i. Storming parties.
- ii. Reserves.

The storming parties are advanced parties on whom will fall the task of securing the ditch, making good the paths through the obstacles and generally facilitating the advance of the remainder of the assaulting columns. The storming parties are composed of :—

The stormers.—Infantry with fixed bayonets, accompanied by a carrying party (with ladders, planks, bags of hay, shavings or wool, or other suitable materials for crossing obstacles).

The engineer party (to remove obstacles, mines, &c.).

An artillery party (to destroy guns, &c.).

A working party with tools and sandbags, for forming lodgments and improving communications.

The nature of the work to be done will determine whether the engineer or storming party will lead the way, but an engineer officer will always accompany the head of the column. No rule can be laid down as to the size of the assaulting columns, but bearing in mind the probable number of casualties, they should not err on the side of weakness.

Hand-grenades should only be given to men who have been instructed in their use.

10. Immediately the assault is launched, artillery fire will be directed against any supporting works which may bring a cross-fire on to the approaches to the objective, and against the ground in rear of the works to be assaulted over which the defender's supporting troops will have to pass, or where his reserves may be placed in readiness to reinforce the garrison. Machine gun and rifle fire from covering troops detailed specially for that purpose will be directed on the works to be attacked.

It will often occur that the storming parties may be able to seize the parapet but may then be checked by retrenchments within the work; in such an event it will be their duty to make good their ground until sufficient numbers can be brought up to renew the advance. Mountain and machine guns will, if necessary, be brought forward to overcome resistance which may be offered within the work. The reserves will usually remain in the trenches until the ditch has been captured, or until the storming party requires reinforcing.

The assaulting columns will invariably be composed of complete units and not of detachments of different units.

11. The orders for the assault will be framed on the general principles contained in Sec. 12, and will deal especially with the following points:—

- i. The works to be assaulted.
- ii. The distribution of troops to assaulting columns, giving the names of commanders of columns and the route and objective of each column.
- iii. The hour or signal for the assault.
- iv. Arrangement for the covering fire of siege artillery.
- v. The action to be taken if successful.

Should it be decided to precede the assault by a bombardment, the hour at which the latter will begin will be mentioned.

The general staff of the commander will be prepared with proposals for action in the event of the assault failing and these will be communicated confidentially, if the commander considers it desirable, to the commanders of assaulting columns.

12. Commanders of assaulting columns will, in turn, issue their orders for the assault. These orders will deal especially with the following points:—

- i. The distribution of the column, giving the names of officers to lead storming parties and to command reserves, its objective and route.
- ii. The position of the reserve.
- iii. Arrangements for covering fire.

125. *Action on the capture of a work.*

The moment the work is captured, the besiegers should entrench themselves and prepare to resist a counter-attack. Every man in the assaulting columns should carry several empty sand-bags, which can be easily filled from the smashed concrete, débris, and earth of the fort without using tools.

The troops should be warned against picking up anything, however harmless in appearance, that they may find inside a work, as it may be connected with a mine. It is the duty of the engineers to search for mines during and immediately after the assault. All prisoners taken inside a work should be kept there until the search for mines is completed.

It may sometimes be advisable to push straight on before the defender has had time to reorganize his forces, leaving a small party to hold the work until reinforced from the rear.

THE DEFENCE.

126. *General principles of organization.*

1. Permanent fortresses are under the command of fortress commanders and the organization of their defence is fixed in time of peace ; schemes of defence are drawn up in accordance with the regulations* on the subject and are revised periodically. In the case of an improvised fortress or entrenched camp, for which no scheme of defence has been elaborated and tested in peace, the senior combatant officer in the place becomes the fortress commander and is responsible for the organization of the defence. This will be arranged on the following general principles :—

A main line of defence will be chosen. It will consist of a series of strong natural positions, the intervals being defended by infantry trenches and redoubts, the whole being strengthened as far as time and material admit.

If the nature of the ground, the extent of the place, and the size and armament of the garrison permit, a second line of defence similar in character, and advanced positions in front of the main line of defence, will be constructed. The first advanced position should not be so far in advance of the main line of defence as to be beyond the support of the heavy guns, but sufficiently far, should its capture be effected by the enemy, not to compromise the safety of the main line. In accordance with the facilities offered by the ground, positions should be prepared between the first advanced positions and the main line of defence, each position being so arranged as to cover a retirement from the position in front. The natural features of the ground in the vicinity of the

* See " King's Regulations," paras. 71 to 82.

fortress, the position of the respective field armies of the attacker and defender, the direction of the lines of communication, and other factors will render an attack from certain directions more probable than from others, so that it will not be necessary to provide advanced positions all round. Care must be taken that the positions if captured shall not offer cover to the besieger.

The advanced positions will be held by infantry and field artillery, and will be similar in character to defensive positions prepared in the field, though the proximity of the fortress and length of time available for preparation may result in some of the works becoming almost of a permanent nature.

2. If the site of the fortress includes a town or any considerable civilian population, the following points should be considered in the preparation of the defence scheme :—

- i. The proclamation of martial law in the area in which the fortress is situated ; if martial law has not already been proclaimed the fortress commander should arrange to have this done at any moment, when, in his opinion, it is necessary.
- ii. The question of the expulsion from the fortress of undesirable persons and of such civilians as are not likely to assist in any way during the siege.
- iii. The organization of the civilians remaining in the fortress into corps of artificers, labourers, firemen, hospital attendants, transport drivers, &c. The employment of civilian labour in the execution of defence works.
- iv. The collection, storage, and distribution of all food supplies (including cattle), and the organization and supervision of bakeries, abattoirs, water, fuel and light supply, grazing grounds, and medical comforts. The control of the milk supply for hospitals and infants is also most important.
- v. The control of the water supply. Should the source of the water supply be without the area of the fortress.

special arrangements for storage of water must be made.

- vi. The registration and organization of all transport vehicles and animals.
- vii. The safeguarding, storage, and distribution of all arms and ammunition.
- viii. The registration and distribution of all tools and material likely to be of use during the siege.
- ix. Arrangements for the proper protection of the town by police, for fire precautions, and sanitary supervision. The civilian and military police duties must be co-ordinated, and it will be generally advisable to allow the civil power to carry out its usual procedure, strengthening it if necessary by special enactments and by military force. The utmost stress must be laid on sanitary precautions, for disease will spread rapidly under conditions so favourable to it. Ambulances and hospitals must be most carefully organized.
- x. The control of all means of communication and the censorship of the press.

3. The preparation of schemes of defence is the duty of the general staff, who will be given such assistance on technical points and on matters affecting the civilian population as the commander may consider necessary.

127. Distribution of the garrison.

The general principles of the distribution of the garrison are similar to those which govern the distribution of a force which awaits attack (Sec. 108).

Commanders of sections command all troops, including the fortress artillery, within their sections. The troops allotted to sections are divided into —

i. Mobile troops who are subdivided into—

(a) Outposts.

(b) Local reserves.

ii. Garrisons of forts and intermediate works.

The general reserve may conveniently contain, in addition to the mobile troops at the disposal of the fortress commander for offensive operations, an artillery and engineer reserve for the reinforcement of the sections of the fortress.

128. *Conduct of the defence.*

1. The general principle which governs the defence of fortresses is that the offensive is the soul of defence.

Directly a place is threatened with an attack, the fortress commander will despatch detachments in the direction of the enemy to obtain information and to gain contact with his troops. As soon as he has ascertained that the enemy is advancing, he will send out all the troops he can spare to delay and harass the enemy and to make him deploy on as wide a front as possible. The longer the enemy can be delayed the more time will the defender have to complete his preparations; the wider the circle of investment, the more vulnerable will it be, and the larger will be the area kept under the control of the fortress—an important matter especially as regard crops and grazing grounds.

The extent to which this preliminary delaying action is possible will depend chiefly on the size of the fortress and of its garrison, but under any circumstances the enemy must be kept under observation from the earliest possible moment.

The defender's troops, as they fall back, will destroy all bridges, railways, telegraphs, &c., that might be of assistance to the enemy, taking care not to injure those in the direction of the probable advance of any relieving force. Buildings also should be destroyed if they are likely to be of use to the besieger, and all wagons, forage, &c., removed to the fortress.

2. The defender, having been forced back to his first advanced

positions, will endeavour to prevent the completion of the line of investment, and when the enemy has effected this, will use all means to ascertain the front of attack selected by the besieger.

When reliable information as to this point has been obtained, the defender will reorganize his troops, reducing to a minimum the garrisons of sections outside the zone of attack, and will prepare to dispute every inch of the ground between the besieger's batteries and the fortress. Frequent sorties should be made on the besieger's works and depôts.

3. A portion, at any rate, of the heavy guns of a fortress should be able to support the troops holding the first advanced positions. As soon as the enemy's intentions regarding the front of attack become clear, the fortress artillery should attempt to prevent the formation of the besieger's depôts and magazines and to annihilate his batteries in detail as they are discovered. Every effort must be made to cope with the fire of the siege batteries in the first stages, in order to hinder them from obtaining accurately the ranges of the more important works. Any guns and howitzers that can be spared should be brought round from those portions of the fortress not threatened. If, however, the besieger has carried out his preliminary operations thoroughly, and if he has an adequate siege train, the fire from the siege batteries will ultimately assert its superiority, and it will then be better for the defender to withdraw some of his guns into a retrenchment or line of inner defences.

4. The use of counter-approaches and counter-mine galleries in checking an enemy's progress and the manner of constructing them are dealt with in "Military Engineering," Parts II and IV.

The most effectual means of defence is counter-attack. It imposes caution on the part of the besieger, and imparts an inspiring influence to the defender's troops, besides rendering them more fit for field operations in the event of the siege being raised. Counter-attacks may be divided into:—

- i. Sorties in force.
- ii. Small sorties.

Sorties in force are delivered with the whole of the available field troops of the garrison and do not differ from a decisive attack upon an enemy in position. The fortress commander should consider the general strategical situation and the prospects of success of such a sortie in the same way as does a commander who offers battle in the field.

Small sorties are made with the object of seizing a position important to the defence of the fortress, of delaying the enemy's works, or of destroying his material and stores. They must be prepared with secrecy and delivered suddenly, and will usually be made by night.

Attacks on sap-heads and approaches will be made by infantry supported by machine guns and by field and light fortress artillery. The troops will carry hand-grenades (Sec. 124, 9), and be accompanied by engineers with explosives.

It is generally advisable to describe precisely the objective of such a sortie, for even if it be successful and the objective gained the sortie should not be allowed to advance further than some prescribed limit.

CHAPTER IX.

NIGHT OPERATIONS.

129. General principles.

1. Night operations may be undertaken to out-manceuvre an enemy ; to avoid observation, particularly when the enemy is provided with aircraft ; to pass over an area of ground which it has been found difficult or impossible to traverse in daylight ; to continue or complete an attack begun before dark ; and to effect a tactical surprise. Night marches may also be used to avoid the heat of the day. Night operations may therefore be classified as *night marches*, *night advances*, and *night assaults*.

2. Surprise in some form is usually an object of night operations, secrecy of preparation is therefore important, but this should not be allowed to interfere with the thoroughness and care with which the preliminary arrangements are made. Upon this care and thoroughness, and particularly upon the completeness of the preliminary reconnaissance, the success of night operations is, next to the special training of the troops to work in darkness, chiefly dependent. Ample time must be allowed for the necessary preparations.

3. With the above proviso, night marches and night advances may be undertaken successfully by large bodies of troops. Night assaults, that is to say, assaults delivered in the dark, should rarely be attempted by a force larger than an infantry brigade against a single objective unless the conditions are exceptionally favourable (Sec. 135).

4. In all night operations the maintenance of connection is of the first importance. It is the duty of every commander who furnishes connecting files to keep a reserve of these in his hands so as to supplement those already sent out whenever necessary.

130. *The reconnaissance.*

1. A thorough reconnaissance is an essential prelude to a night advance or to a night assault, and should rarely be dispensed with in the case of a night march. Under exceptionally favourable conditions, *e.g.*, when good roads, reliable guides, and good maps are available, a night march may be successfully carried out without this preliminary, but every commander who orders a night operation which is not preceded by a complete reconnaissance increases the risk of failure and incurs a heavy responsibility.

2. In a reconnaissance for a night march the route should be examined both by day and by night. The best method of protecting the march of the column should be ascertained (Sec. 132, 3). All points where checks are likely to occur, the position of branch roads or of places where the column might go astray and the best method of marking them should be noted (Sec. 132, 10). The general compass direction of the march should be taken and should be mentioned in the operation orders. It is often difficult for a column to know when it has reached its destination in the dark; this should be some easily recognizable landmark or should be marked in some prearranged manner; its appearance by night should be noted, and a description of it should be inserted in the operation orders, or, if it is desired to keep it secret, communicated confidentially to the commanders concerned.

3. In the case of a night advance or of a night assault, reconnaissance from a distance is insufficient. Information should be obtained as to:—

- i. The distribution of the enemy's forces as far as possible and the position of his outposts.
- ii. The nature and position of his entrenchments.
- iii. Whether there are any obstacles either natural or artificial which might hinder the advance.
- iv. The position of any landmarks which might assist the advance (Sec. 136).

It will rarely be possible to obtain this information without fighting, which will usually fall to the advanced troops and take place in daylight (Sec. 92).

Subordinate commanders and regimental officers who are immediately responsible for the leading of the troops should carefully study the ground over which they will have to move, subject to such limitations as the commander of the force may impose. When in proximity to the enemy, advantage should be taken by all officers of pauses in the operations, to gain knowledge of ground over which they may at any time be required to lead their men by night.

Selected scouts from the units to take part in the operation should usually be sent out in the direction of the proposed advance, to study the ground and to note the position of the enemy's outposts and of any defences or obstacles he may have erected. These scouts should assist in guiding their units in the subsequent advance.

131. *Night marches.*

1. A night march, with the exception of one undertaken because of the weather conditions, is either strategical or tactical; each is a valuable weapon in the hands of a skilful commander, who will use it to outwit, deceive, and surprise his enemy. By a strategical night march an enemy may be outflanked or anticipated at an important strategical point, an army may be placed in such a position that the enemy is forced to accept battle under conditions unfavourable to himself, or a commander may extricate himself

from an embarrassing situation. By a tactical night march superior strength may be secretly concentrated at a decisive position, troops may be transferred unknown to the enemy from one point of a battlefield to another, or an inferior force engaged in delaying a superior force may avoid a decisive engagement (Sec. 114).

2. A tactical night march will usually be made under cover of outposts or advanced troops, either pushed forward at dusk or already in contact with the enemy, and will often culminate in an assault. In the case of bodies of troops larger than an infantry brigade such an attack will usually be delivered at dawn or in daylight, and in the case of smaller bodies, the march will frequently be for the purpose of making a night attack. **Night assaults should, however, rarely be the sequel to a long night march, owing to the difficulty of obtaining definite information as to the enemy's dispositions, and making the essential preparations from a distance.** When a night march is made for the purpose of an attack its immediate objective is the position of assembly (Sec. 136, 2), where the ordinary march formation is to be abandoned.

132. *General rules for night marches.*

1. Local guides should be procured as a rule.

2. As secrecy is usually of the greatest importance the outposts should not be withdrawn till the last possible moment. They should be left in position till daylight, and should follow the column when convenient. Bivouac fires should be left burning, and arrangements should be made for keeping them alight. Orders should be issued as late as possible, and all preparations be made quietly. All horses and vehicles should be kept well in rear. Precautions should be taken to prevent accoutrements and wheels of vehicles rattling. Horses likely to neigh should be left with the second line transport.

3. The march should generally be protected by small advanced and rear guards, which, except in the case of columns composed entirely of mounted troops, will consist of infantry. In enclosed country,

the flanks are best protected by piquets posted by the advanced guard and withdrawn by the rear guard (Sec. 144); in open country, either by piquets or by flanking patrols, but the latter, unless accustomed to night work, are liable to lose direction (*see* 8 below).

4. When a column is formed of all arms, mounted troops, artillery, and machine guns will usually march at the least exposed portion of the column (*see* 2 above). If it is anticipated that obstacles may be met with, engineers with the necessary tools and materials for clearing the obstacles should accompany the advanced guard.

5. All ranks should be previously informed what they are to do in case of an alarm or attack.

6. Every commander should have a fixed place in the column, where he should remain. An orderly officer for the commander will be detailed from each unit to convey instructions.

7. The method of marking the starting point in the dark is described in Sec. 30, 3.

8. The regulation distances between units (Sec. 25) should be reduced or omitted, and the column must be kept closed up. An officer should invariably march in rear of each unit. Connection must be maintained throughout the column.

The distance of the advanced, flank, and rear guards from the column must be small, close connection being maintained by means of connecting files.

9. The march formations will be normal, unless tactical exigencies make a change necessary.

10. To prevent the troops in rear from going astray, the advanced guard, under instructions from the commander of the column, should block all branch roads that are not to be used by posting men at them, or by placing branches of trees or lines of stones across them. These men will be withdrawn by the rear guard. After crossing an obstacle or defile where opening out is likely to occur, the column should advance about its own length and then be halted until the rear is reported to be closed up. Staff officers should be

detailed by the commanders of the column to superintend this, wherever necessary.

11. Rifles should not be loaded, but magazines should be charged. No firing is to take place without orders. Absolute silence must be maintained, and no smoking or lights are to be allowed, except with the permission of the commander of the force.

12. The hours and periods of halts should be arranged before starting. Units must not halt till they have regained any distance which they may have lost.

During halts men may lie down, but must not leave the ranks; mounted men retaining hold of their horses.

13. The pace must be uniform. It is not safe to calculate on a force of the size of a division marching on a road faster than two miles an hour. The darker it is, the slower will be the pace.

133. *Guiding columns by night in open country.**

1. The route should be fixed by compass bearings; the points where any change of direction is necessary should be noted; the distances between these points should be clearly defined, and, when practicable, the distances between easily recognizable points should also be measured.

2. The general direction can be effectively kept by means of stars. It is, therefore, important that an officer should acquire sufficient knowledge of the stars to enable him to ascertain his bearings by them (*see* "Manual of Map Reading and Field Sketching").

3. An officer, other than the one guiding the column, should invariably be detailed to check the distance marched.

4. When troops are in column, distances from front to rear may be best preserved by means of knotted ropes; intervals by the extension of men (Sec. 129, 4).

* The Service prismatic compass, Mark V, has a luminous dial for night work. For instructions for the use of instruments by night, *see* "Manual of Map Reading and Field Sketching."

134. *Night advances.*

1. The purpose of a night advance is to gain ground from which further progress will be made in daylight and not to deliver a decisive assault during darkness. Night advances are usually of two kinds. They may be used as a preliminary to opening a battle or to continue an engagement already begun, with improved prospects of success. In either case the protective cavalry or outposts will usually be in contact with the enemy. A night advance is a forward movement by a force which is deployed; it may be the sequel to a night march, but more usually the advance is made with the force deployed from the outset. The advance is generally followed by an attack at or soon after dawn, and is undertaken either with the object of surprising the enemy or of gaining ground which could only be covered in daylight under conditions unfavourable to the attacker.

2. A night advance during a battle may be made when it has not been found possible to gain a sufficient superiority of fire during daylight to justify an assault, for the purpose of renewing the fight under more favourable conditions at dawn. Night advances of this nature will often be advantageous against a strongly posted enemy who offers such stubborn resistance as to cause the operations to extend over a period of more than one day. The objective of the advance when gained should be entrenched so that it may afford a point of support to further progress in daylight. Occasionally it may happen that an enemy has occupied a position which leaves the assailant little or no scope for manœuvre and has been strengthened to such an extent as to make the success of an attack in daylight doubtful. Under these circumstances a series of advances on successive nights, from one fire position to another, may be advisable, each advance being for a few hundred yards only and each position when gained being entrenched. Such operations approximate to siege warfare and should rarely be necessary or advisable in field warfare except in country where freedom of manœuvre is very

limited. When the ground in the vicinity of the objective of a night advance is likely to be difficult to entrench, the troops should carry empty sand bags, which can be quickly filled and placed in position in darkness.

135. *Night assaults.*

1. Assaults delivered during darkness may be undertaken in order to gain a point of support for further operations in daylight, to drive in an enemy's advanced troops, to secure an outpost position as a preliminary to an attack at dawn, or to surprise an ill trained, ill disciplined or semi-civilized enemy.

Though such assaults should rarely be attempted by a force larger than an infantry brigade against one objective, in the case of a force deployed on an extended front several distinct objectives may be attacked simultaneously with advantage. As in the case of a night advance the attackers should at once entrench the positions they secure. It may be anticipated that the enemy will attempt to regain what he has lost, usually by a counter-attack at dawn. It is therefore advisable to time the delivery of the assault so that the attackers may have two or three hours of darkness in which to prepare and organize their defence. When one or more night assaults are delivered by part of a force, the remainder should always be in readiness to take advantage at daylight of any success obtained during darkness.

2. Night assaults may not infrequently be forced on an assailant by the fact that the conditions of the fire fight have been or are certain to be adverse. Circumstances may prevent the successful co-operation of the attacker's artillery, or it may be important to neutralize the effect of the defender's artillery. A night assault may then be justified as the only possible solution of a difficult situation, but when the conditions of the fire fight are likely to be favourable it will probably be better to accept the inevitable casualties that must result from a struggle for fire supremacy in preference to the undoubted hazards of a night assault.

PREPARATIONS FOR NIGHT ADVANCES AND NIGHT ASSAULTS.

136. *Preliminary measures.*

1. The preliminary measures necessary both for night advances and for night assaults are similar and may be considered together. (For the reconnaissance *see* Sec. 130.)

2. When a movement in march formation precedes a night advance or a night assault (Sec. 131, 2), a *position of assembly* must be selected beforehand where the normal march formation is to be abandoned (Sec. 25). The distance of the position of assembly from the objective depends on the nature of the country, the enemy's vigilance, the possibilities of discovery, and the size and composition of the attacking force.

3. It is also necessary to decide beforehand the place where the columns are to deploy for attack. This place is termed the *position of deployment*. It must be so situated that the force, while there, is secure from interruption. It will frequently be possible to push forward outposts at dusk or during light to within a comparatively short distance of the objective of a night advance and to deploy under their protection.

In certain circumstances, *e.g.*, in very open and level country, or when the opposing forces are in close touch, the position of deployment may coincide with the position of assembly.

4. Both the position of assembly and the position of deployment should be easy to recognize at night. From the former position to the latter, and from it again to the points selected for attack, compass bearings should be carefully taken and noted. The distances between these points must also be ascertained as accurately as circumstances admit.

5. If two or more points are to be assaulted simultaneously, care must be taken, in selecting the positions of assembly and the positions of deployment, that the various forces advancing from

them will not converge towards one another to such an extent that there is a danger of their meeting or crossing one another.

6. A distinguishing mark should be ordered for the troops, and a watchword decided on. The commander of the force and his staff should wear easily distinguishable badges.

7 The materials necessary for surmounting or cutting through obstacles, and for entrenching the position when captured, must be arranged for.

8. Rockets, flares, or bonfires may usefully be employed as the signal for assault.

137. Composition and formation of columns.

1. The troops employed for night advances or night assaults should as a rule be infantry, with the addition of engineers to assist in the maintenance of communication, in removing obstacles, and in preparing the objective for defence.

2. Artillery can rarely be of assistance during the hours of darkness, and in the case of a night attack may prove a serious danger to its own troops if thorough preparations have not been made in daylight. If the operations are protracted, the positions of the artillery have been previously taken up, and the ranges of the objectives are known, guns may occasionally be able to assist an attack upon a strongly entrenched position. In this case careful arrangements are necessary to ensure the cessation of artillery fire when the infantry are close to their objective. Artillery may often be moved with advantage into positions, which can be entrenched during darkness, whence it can support an attack in daylight.

3. At the position of assembly, the normal march formation will usually be changed for a preparatory formation which will bring the force more directly under its commander's control, and from which deployment for attack will be easy.

It is important that the formation adopted should facilitate the guidance of the troops across country.

4. Lines of scouts, at about 80 yards in advance and on the flanks of the column, usually afford the best protection to troops advancing across open country in a preparatory formation.

5. It is not safe to count on troops moving in a preparatory formation faster than one mile an hour.

6. At the position of deployment the formation will be adopted in which the remainder of the advance is to be made. It is an advantage if the force can move from the first in this formation, but when troops advance for long in fighting formations by night control is more difficult and the fatigue caused to the troops is increased.

7. The formations to be adopted must vary with the ground and with the special circumstances of each case. The following formations have proved suitable :—

The force may be divided into three lines. The first line, which should be preceded at from 50 to 80 yards by a line of scouts, may move in line, in line of half-company columns at deploying interval, or in line of company columns at deploying interval; in the last two cases lateral connection should be maintained by connecting files at about 10 paces interval (Sec. 129, 4). The second line may move in similar formation to the first at about 100 to 150 yards' distance. The third line should follow at about 200 yards' distance in quarter column, lines of quarter columns, or any other convenient close formation.

The second and third lines may conveniently move on one or both flanks of the first line, so as to avoid fire suddenly directed at the latter. The rôle of the second line is to act as an immediate support to the first, and of the third to serve as a reserve; any tools or special appliances required to place the objective in a state of defence should accompany the latter.

The above formations are intended as a general guide, the only rule to be followed is that the formation chosen must be adapted to the particular case. When an advance or an assault is made simultaneously against several distinct objectives, a general reserve to the whole should be detailed.

138. *The advance.*

1. Before the troops move off from the position of assembly it is essential that the orders should be clearly explained to all ranks, so that everyone may know:—

- i. The object in view and direction of the objective.
- ii. The formation to be adopted at the position of deployment.
- iii. The part he has to play.
- iv. His action in case the enemy is not surprised.

2. The following instructions should be repeated two or three times to the men by the company officers:—

- i. Rifles should not be loaded, magazines should be charged and cut-offs closed, and no one is to fire without a distinct order.
- ii. Until daylight, bayonets only are to be used.
- iii. Absolute silence is to be maintained until the moment of assault. The troops will march as quietly as possible. Accoutrements must not be allowed to rattle.
- iv. No smoking is to be allowed, nor are matches to be struck.
- v. If obstacles are encountered which cannot be readily traversed or removed, the troops will lie down till a passage has been cleared.

3. The maintenance of lateral communication between different columns must be arranged so that the assaults may be delivered simultaneously. Communication between columns, and with the general reserve, is best secured by telephone. Visual signalling is very unreliable shortly before and after dawn.

4. The force should occasionally be halted for a short time, to enable the formation to be corrected.

5. If hostile patrols, scouts, or advanced parties are encountered, they must be captured without noise. They must be rushed in silence with the bayonet without hesitation.

6. If, after the position of deployment has been left, the enemy opens fire, all ranks should understand that it is their duty to press forward at once, cost what it may. No movement to the rear should be permitted, even to correct mistakes which may have been made, so long as it is intended to continue the advance. When two forces are in close contact it will rarely be possible to surprise a civilized and disciplined enemy completely. Night assaults must, therefore, be prepared to receive fire before closing with the enemy.

7. If an assault at dawn succeeds, the mounted troops should push forward with all speed and endeavour to get round the flank of the retreating foe. If it fails, they will do their utmost to protect the retiring infantry while the artillery takes up a rallying position.

139. *Orders for night assaults and for night advances.*

1. In framing orders for night operations it may be necessary to deal with the following points in addition to those considered in Secs. 12 and 104, 2 :—

- i. Time of assembly at, and departure from, the position of assembly. Description of the position of assembly.
- ii. Order of march, and formations on leaving the position of assembly. Distances and intervals. Maintenance of communication.
- iii. The bearing of the route.
- iv. Time and duration of halts.
- v. If possible, the position of deployment should be described, and its distance from the position of assembly and from the point selected for attack notified.
- vi. Formation to be adopted at the position of deployment.
- vii. Special instructions for the assault, and the signal for it (Sec. 136, 8).
- viii. Short description of the ground to be crossed.
- ix. Description of the position to be assaulted.

- x. Conduct of troops during the advance (Sec. 138, 2).
- xi. Action in case the enemy opens fire.
- xii. Action after the position is captured to resist counter-attack.
- xiii. Extent to which the captured position is to be fortified and the detail of troops who are to perform this duty.
- xiv. Action of reserves or neighbouring troops against positions likely to entlade the captured position.
- xv. Distinctive marks and watchword.
- xvi. Place of the commander at the position of assembly, during the march thence, and at the position of deployment.

2. Orders will usually be communicated beforehand to those officers only from whom action is required, so that timely arrangements may be made. Until the troops reach the position of assembly, no more should be made known to them than is absolutely necessary. It may be advisable, in order to deceive spies, that misleading orders should be given out.

140. THE DEFENCE.

The general principles of defence by night differ little from those of defence by day, except that a decisive counter-attack should rarely be attempted outside the limits of the position, since its direction must depend upon the enemy's movements and it cannot therefore be prearranged in daylight. When, however, an enemy has succeeded in establishing himself in the position at night he should be attacked as soon and in as great strength as possible. Artillery may assist the defence effectively when the front to be defended is narrow, and there is limited ground over which the enemy must pass if he wishes to attack; under these circumstances field search lights will be of value. Search lights should not usually be exposed until the attacking force is reported

by the outposts or patrols to be advancing to the attack ; otherwise they betray the position and serve to guide the attacker. Those search lights intended especially to assist the artillery should be under the orders of the artillery commander, and should be at least 400 yards on the flank of the artillery whose target they are to illuminate. All search lights should be well entrenched, usually low down on the forward slope of the position. The whole area of the front should be illuminated by beams directed from the flanks across the front of the position, or when the hilly and broken nature of the ground makes this impossible, by a large number of small lights with dispersed beams at close interval.

CHAPTER X.

WARFARE AGAINST AN UNCIVILIZED ENEMY.* |

141. *General principles.*

1. In campaigns against savages, the armament, tactics, and characteristics of the enemy, and the nature of the theatre of operations demand that the principles of regular warfare be somewhat modified; the modifications in this chapter are such as experience has shown to be necessary.

2. **Self-reliance, vigilance, and judgment** are the chief requisites for overcoming the difficulties inherent in savage warfare. Discipline and organization are powerful aids; but unless both officers and men are well trained, capable of adapting their action to unexpected conditions, and of beating the enemy at his own tactics the campaign will be needlessly long and costly.

3. The nature of the objective will differ considerably according to circumstances. In the case of peoples with some settled form of government, an advance against their capital will probably be opposed; its fall will follow the defeat of the enemy, and will bring all organized resistance to an end. Similarly, in dealing with independent fanatical tribes, an advance against a sacred town or shrine may have the same effect. If no such objective be available, the enemy may be brought to oppose the advance by a movement against his wells or sources of supply. Should the enemy refuse to make any organized resistance, the occupation of his country, the

* The rules for transport and convoys in Sec. 33 apply equally to warfare in uncivilized countries.

seizure of his flocks and supplies, and the destruction of his villages and crops may be necessary to obtain his submission.

4. The susceptibility of this class of enemy to moral influences is a most important factor in the campaign. Hesitation, delay, or any retrograde movement will at once be interpreted as signs of weakness, and while the braver of the enemy will be encouraged, the waverers, always to be found amongst undisciplined forces, will be tempted to throw in their lot with what appears to be the winning side. **A vigorous offensive, strategical as well as tactical, is always the safest method of conducting operations.**

The most complete preparations, which should include a careful study of the topography of the country and of the mode of fighting, habits, and characteristics of the enemy, should be made, to ensure the campaign being carried through to its conclusion without a check. Success is to be achieved by discipline and vigour rather than by force of numbers.

5. The local resources being small, all supplies will, as a rule, have to be carried; owing to the absence of good roads it will usually be impossible to use wheeled transport. Pack animals or porters will therefore be employed, and these will often be unable to move on a wide front. Supply and baggage columns will therefore be both long and vulnerable; and as there is a limit to the number of men and animals which it is possible to move over one road during the hours of daylight, a force may have to be broken up into small and compact columns, moving in several lines, or on the same road at a day's interval. Against a badly organized enemy this is not so dangerous as it would be in other circumstances.

6. The freedom of an uncivilized enemy from the complicated organization of regular armies, his individual independence, and his ability to disperse at will, necessitates a crushing blow being delivered against him, if the result of an action is to be decisive. Care should therefore be taken not to induce him to abandon a position by too great a display of force, or to manœuvre him out of it, unless it be too strong to be taken without undue loss. When

once beaten he should be followed up and given no respite until all resistance is at an end. Natural obstacles will often render pursuit a difficult undertaking, but to facilitate it, a portion of the force, at least, should be thoroughly mobile and independent; the question of supply and transport being carefully worked out beforehand.

7. As such people are usually adepts in laying ambushes and effecting surprises, vigilance and precautions should never be relaxed. Reconnaissances, even when everything appears to be absolutely secure, should be pushed out as far as prudence permits, and every endeavour made to preclude all possibility of surprise.

8. In open country a badly armed enemy has but small chance against regular troops, but in bush, or very broken country, their superior activity, recklessness, and knowledge of the ground make them formidable foes. Such ground should, therefore, be avoided, especially as a halting-place or bivouac.

9. It must not be thought that the precautions regarding secrecy laid down in Chapter V can be relaxed because the enemy is uncivilized. Many such races are adepts in the arts of obtaining and utilizing information, and the strictest vigilance must be observed. Individuals who may come in to volunteer information, as well as messengers from the enemy, should be seen at some place well outside the camp, and every care must be taken to prevent them obtaining any information whatever. The interior of camps should be a *terra incognita* to the enemy.

MOUNTAIN WARFARE.

142. *General principles.*

1. These sections deal with such modifications as are referred to in Sec. 141, 1, as far as mountain warfare is concerned.

2. The leading consideration in mountain warfare is to leave no higher ground within effective ranges open to the enemy from which fire can be brought to bear. This is a precaution which

must never be neglected, even when the country is to all appearance unoccupied. At the same time, in applying this principle, commanders must guard against being led into climbing higher and higher in order to obtain a better field of fire or greater command of ground, if by so doing they would make it difficult to extricate their command.

3. The principle of always having bodies of men in rear, or on the flanks, covering by their fire the advance or retirement of the troops nearest the enemy, is especially important in hill fighting. On nearly every ridge and spur positions will be found where this can be done, and advantage can also often be taken of parallel or converging features from which covering and cross fire may be used with effect.

4. As a general rule salients should be used both for advances and retirements, rather than re-entrants. Ravines should be avoided unless their exact course is known and the heights on either side are held. Preparations to meet a counter-attack should always be taken when the summit is approached, and as soon as a crest is occupied an immediate and rapid fire should be opened upon any of the enemy within range.

5. In mountain warfare the withdrawal of troops in the presence of an enterprising enemy is always a most difficult operation. It is of first importance that all retirements be commenced in ample time to ensure their being completed before dark, and that the ground over which the retirement is to be effected should have been previously reconnoitred. If this latter precaution is neglected there is every probability of the troops falling into an ambuscade, or finding themselves involved in difficult ground from which they can only be extricated with heavy loss.

6. All retirements must be conducted by bodies of troops in succession. The rearmost troops retire through the successive supporting lines, the latter covering the withdrawal and holding on to their ground until their own retirement can be similarly covered by other troops in positions in rear. In the same manner, when a retirement from foot hills is contemplated, the commander

should arrange in good time to send back some portion of his force to a position some distance from the foot of the heights, whence a good field of fire can be obtained, to cover the withdrawal on to the plain. The principal point to be borne in mind is the absolute necessity of rapidity of movement. Such rapidity can be combined with precision of movement and complete subordination to the will of the commander, but to ensure this on service frequent practice in peace is necessary.

7. When the enemy is seen to be following up the main body, a strong party may often be sent to prepare an ambush at some point through which the column will pass, but arrangements must be made to give this party support if required.

8. In dealing with an enemy who gives no quarter, it is necessary to arrange for the withdrawal of all wounded men. In the event of a casualty in the rear fighting line, the retirement must therefore be stopped at once, and a counter-attack delivered if necessary to prevent the enemy concentrating fire on the party carrying down the wounded. All the ranks should be trained in the various methods of carrying wounded men, as stretchers are not always suitable for steep slopes, and offer a conspicuous target.

9. *Cavalry*.—In mountain warfare the opportunities for cavalry action will be few ; but, since horsemen are dreaded by hill people, they should be employed whenever occasion offers. Chances for an effective charge or pursuit often present themselves in the more open valleys and foothills, while the arm can take advantage of its mobility to act dismounted in the more difficult ground, provided that men and horses have been properly trained for such work.

In view of the considerations given in Sec. 141, 7, cavalry waiting for the opportunity to pursue must be carefully concealed.

10. *Artillery*.—For the same reason the premature action of artillery in an advance must be avoided. It is generally desirable, however, to have a few guns with the advanced guard, as they are of great assistance in clearing hills for piqueting.

In a retirement the conditions are very different. This is the occasion on which a hill enemy is most active and dangerous. The

object of the artillery is then not so much to inflict loss as to prevent casualties, for the wounded cannot be left to an enemy who gives no quarter. A few shells fired at an enemy pressing hard on an infantry piquet will disconcert and check him, even though it does him no actual damage, and will greatly assist the piquet in making good its withdrawal. Consequently moral and actual effect are of almost equal importance, and some guns should always be in action so that fire can be directed on the enemy whenever he can be seen.

11. *Infantry*.—In advancing up hill, the pace should be slow, so as not to distress the men, and they should be accustomed to form themselves rapidly into groups while advancing for resisting a sudden charge, and to extend again without delay. Bayonets should be invariably fixed on approaching the summit of any ridge, whether it appears to be occupied or not, and at the same time the supports should be pushed up so as to be in a position to aid the advanced sections. Dead ground may generally be found just before the final ascent to the summit of a knoll, and men should always be collected under such cover so as to form a solid front to oppose a sudden charge. Straggling up hill without such precautions invites disaster.

In retiring the last section or sections will be disposed so as to cover as large an extent of front as possible, and will use individual fire. The decision as to when these sections are in their turn to start their retirement will be given by the senior officer on the spot, on which section commanders will name each man who is to move. The named men will creep back until out of sight, and then retire at top speed, avoiding the sky line, to the spot previously pointed out to them by their section commander. In order to deceive the enemy the flank men should be left until the last, and should increase their rate of fire. When a few men only remain they will all leave together, moving as fast as possible. Men should be trained to carry out these movements so that they cannot be observed by the enemy, as a single man may give away the situation and thus cause the company to be hampered in its retirement.

12. *Scouts.*—In very exceptional circumstances advantage may be taken of the superior activity of infantry scouts to employ them for such action as would be allotted to mounted troops were the ground suitable. Similarly scouts may be used to lay ambushes at night, or to stalk snipers, but their employment on such missions, except on very special occasion, should be very sparingly resorted to, since it interferes with their proper duty of reconnaissance. Constant night work, moreover, soon breaks men down.

143. *Camps and bivouacs.*

1. The shape of a camp should be as nearly as possible rectangular, the corners being blunted. If the perimeter is very irregular, there is a risk of troops firing into each other at night. It is of importance in fixing a camping ground to consider the exits for the next day's movement, and, if necessary, to have them improved.

2. Tents and bivouac shelters should be pitched parallel to the perimeter, and from 5 to 10 yards from it, in order to give men room to fall in in case of alarm. Cooking places and latrines for use by day should be outside the perimeter; those for use by night inside and within the camping grounds of units. Particular attention should be paid to the communications within a camp, in order to avoid confusion in the dark. There should be a central road with branch roads at right angles to it, at suitable intervals.

3. The sanitation of camps is specially important in mountain warfare since space is usually very restricted, and the same ground will probably have to be used by successive forces. Not only must all ordinary precautions be carefully observed, but the fullest information as to sources of water supply, sites of latrines, &c., must be communicated to incoming units.

144. *Protection on the march.*

1. The usual method of protection adopted is to piquet the heights which command, and the ravines which open into, the line

of march, but it may occasionally be necessary, in addition, to detail a special party to guard a threatened flank. In all movements involving subsequent retirements, such as reconnaissances, foraging, &c., no defile through which the troops will have to pass in returning, and no commanding point from which an enemy could harass the retirement, should be left unguarded.

2. Piquets are normally furnished by the advanced guard, the strength of which therefore will largely depend upon the number and nature of the heights which it may have to piquet. When, however, the nature of the country necessitates a large number of piquets it may be found preferable to detail special troops, other than those of the advanced guard, for piquet duties. In this case the piquets will be posted by the officer commanding these troops under the direction of the commander of the advanced guard. In some cases a large portion of the whole fighting force of a column may have to be employed to piquet heights in this way.

3. Supports should be left at suitable points to cover and regulate the withdrawal of the piquets. Piquets should be in sight of the supports, or of the main column, or when this is not possible, connecting files should be posted, one of whom should be able to communicate with the piquet and the column by signal. In cases such as those referred to in para. 1 above, where piquets are left out after the column has passed, these connecting files should be temporarily withdrawn.

4. When all the men of a company, or larger unit, detailed to furnish piquets are used up, the commander should go to the point from which he can best supervise the withdrawal of his piquets, and ensure that no men are left behind when the rear-guard passes. When the unit is again assembled it will remain with the rear guard, or make its way to the main body, as may be ordered by the rear guard commander.

5. In deciding on the distance between the advanced guard and the main body, the advanced guard commander should remember that the enemy is not as a rule provided with artillery, and that

the process of piqueting heights is slow. If many piquets have to be posted, it will often be advisable that the troops detailed for piqueting duty should start some time before the main body.

6. The rear guard commander is responsible for withdrawing the piquets. It may be sometimes of great assistance in this if a large distinctive flag is carried by the main guard of the rear guard, on which the piquets should direct their retirement. Piquets posted on a hill running parallel to the route of the main body should avoid retiring along the crest unless the ground is known to be favourable. It is generally best to retire direct on the rear guard down the slopes and spurs of the hill.

7. If the rear guard commander considers it impossible to reach camp before nightfall, it will generally be advisable for him to halt and bivouac for the night in the most favourable position for defence, informing the commander of the force of his action. It is important that this decision be arrived at in time to allow of the necessary dispositions for defence being completed before dark.

8. A rear guard must be accompanied by a medical officer and a proportion of ambulance transport sufficient to deal with casualties among the baggage guards and followers as well as those in the rear guard itself.

9. It is of the first importance that the main body should keep touch with, and regulate its pace by, the rear guard.

10. *Lines of communication.*—In mountain warfare it will usually be necessary to adopt the system of piquets described above for the protection of the lines of communication, which are specially liable to attack. In addition to the regular garrisons of posts established on the line of communication, troops are allotted to these posts to furnish road piquets, and are, as a rule, responsible for the safety of the road half way towards the two adjoining posts. The usual procedure is for this force to move out, putting out piquets as it goes, and for the balance not required for the actual piquets to take up a position in reserve, between

the post and the limit of its responsibility. The convoy then only requires a very small escort to guard against parties of the enemy which may get through the piquet line, and to police the actual convoy. It is not desirable to send guns with the piqueting columns each day, unless the piquets are always opposed. In difficult country, or to command bridges or gorges, intermediate posts may be necessary, which may contain troops for road piqueting or may be of the nature of block houses.

145. *Protection when at rest.*

1. It is laid down in Chapter V that, if an enemy is so continuously watched that he can make no movement without being observed, surprise is impossible; and that the *first* duty of the outposts is therefore *reconnaissance*, resistance being only the *second*. But in mountainous country and against an enemy who is thoroughly familiar with the ground besides being superior in numbers, mobility, and cunning, reconnaissance by the outposts is usually impracticable. The system adopted both by day and night is therefore that of establishing an outer and inner line of defence.

2. *The outer line* consists of piquets placed so as to deny to the enemy ground from which he could fire into camp. These piquets are furnished by the units to whose front they are posted, their position should be known to all units in camp and to each other, and they should be in signalling communication. No commander of the outposts is appointed. If the enemy is armed with a long range rifle it may be necessary to deny to him the occupation of any commanding positions up to a distance of 2,000 yards. On the other hand, the number of piquets may be much reduced if ground can be found for the camp, the formation of which lends itself to the defilade of the interior, such as a hollow between undulations the crests of which are suitable for the perimeter, or a commanding bluff, along which the perimeter can run.

3. *The inner line* consists of a defensive perimeter, which must be clearly defined round the whole encampment by some obstacle, or breastwork, and which is manned by all troops not told off for other duties. Men should be told off in each unit to stand to all animals, and a general reserve should be detailed; special places should also be allotted to the followers in the camping grounds of units. All troops and followers should be assembled on their alarm posts daily. After dark no one should on any pretext go outside the perimeter unless specially ordered to do so, in which case the sentries should be previously warned. If guns are on the perimeter their frontage should be limited, and half interval should not as a rule be exceeded, *i.e.*, a frontage of 50 yards for a six-gun battery. Then if one or two sections have to be moved to another part of the camp the battery can still provide sufficient rifle fire to defend its own front. **The salients should each be held by one unit.**

4. All camps and posts must be so arranged as to be defensible with the smallest possible garrison. When the force of combatants is insufficient to provide for an all-round defence (as in the case of convoys, standing camps, or posts on the line of communication), the perimeter must be defended by flanking fire, and must itself be made as formidable an obstacle as circumstances permit. Detached posts should be avoided when possible, since they involve larger garrisons, but in some sites they may be indispensable.

5. At the end of a march the staff officer deputed for the purpose will point out the ground selected for the camp or bivouac to the advanced guard commander. The latter will then put out piquets for its temporary protection, pending the final arrangements of the commander of the force, to whom he will report his dispositions.

6. The following principles should be observed in relieving outposts:—

For a force halted.—When the outposts are relieved in the morning, the relief should never leave camp till daylight. When

the reliefs take place in the evening, the troops relieved should be allowed ample time to reach camp before dusk.

For a force marching in the morning.—The rear guard commander is responsible for relieving the outposts with troops from the rear guard. In this case also reliefs should not leave camp till daylight. The numbers to be employed and the ground to be occupied will be at the discretion of the rear guard commander. The troops relieved will rejoin their corps as soon as possible.

7. In the event of a genuine night attack, controlled and preconcerted measures will be taken to repel it. Star shell, rockets, etc., may be usefully employed for discovering the enemy when it will become possible for infantry and even guns to fire. Fires may also be lighted outside the camp for this purpose, care being taken that they are so placed that the smoke is not blown towards the defenders.

Individual firing into the dark at "snipers" must be strictly forbidden. Their object is threefold :—

To ascertain from the return fire the position of piquets, sentries, and perimeter.

To disturb the whole force.

To inflict loss.

If their fire is not returned they fail in the first two of these objects, and of the third they are never certain. They then probably begin to fear a trap and make off, and the camp is left in peace. If, however, their fire is returned, the position of the camp and piquets is disclosed to the enemy, and the troops are deprived of rest, while the chance of doing any damage to the snipers is small, since they always take care to get behind good cover, and nothing can be seen beyond the flash of their rifles. A successful ambush has, however, a very deterrent effect.

146. *Piquets.**

1. All piquets are self-contained. Outlying sentries should not be posted, but if ground has to be watched which cannot be seen from the piquet, a detached piquet should be formed for the purpose. Piquets usually vary in strength from a few rifles to a strong section, but on occasion may be as much as a company. They should be as small as is compatible with the object for which they are posted.

2. Piquets must invariably exercise every military precaution in taking up their positions, and should at once entrench themselves, even when posted for a very short time. The quickest and most effective way of doing this will usually be by piling up stone walls or "sangars." These sangars should have irregular tops so that the heads of men looking over them may not be plainly discernible. Any obstacles which can be made available should also be utilized in order to check a rush. For night defence the sangars should be breast high, be solidly built, and be provided with head cover, and precautions should be taken to prevent the enemy collecting under the walls, by arranging for flanking fire or loopholes placed low down. If there is any danger of their being fired into from camp, protection from reverse fire must also be provided. Fatigue parties may often be employed with advantage during the day to assist the piquets in constructing their sangars.

3. If attacked piquets hold on to their positions at all costs, and this should be thoroughly understood by all. Each man in the piquet should be told off to his alarm post, and it may often be necessary for a portion of the piquet to remain awake. The commander should invariably sleep alongside a sentry so that he may be quietly and quickly roused.

4. The ascent from warm valleys to piquet wind-swept heights, and the arrival in a state of perspiration, is a constant source of severe chill, and it is essential that men on piquet should take

* This section applies to the piquets used both for "Protection on the march" (Sec. 144) and "Protection when at rest" (Sec. 145).

warm coats or blankets with them. It is to meet such cases that, in India, the great coats on summer scale, and a blanket per man on winter scale (the great coats being then on the person) are carried on the same class of animal as first line transport, so that it may accompany the latter.

5. When successive forces occupy the same camping ground, or piquet the same road, it is important that steps should be taken to ensure all information as to the best position for the piquets being communicated to the incoming force.

147. *Information.*

1. The general principles laid down in Chapter VI apply equally to mountain warfare, but they must be modified to suit the terrain and the character of the enemy.

2. Strategic reconnaissance will seldom be possible, and the work of tactical reconnaissance will fall chiefly on the infantry, though cavalry should be employed whenever the ground permits. Against an enemy who gives no quarter small reconnoitring parties cannot be employed, and scouts must therefore have supports on which to rally. The early communication of any information gained (Sec. 98) is of special importance, and for this purpose signals must be freely used.

3. An enemy who intends to attack after dusk usually moves fairly close to camp during daylight, and his intention of effecting a surprise may often be frustrated, if the adjacent country is reconnoitred during the afternoon, the troops remaining out as late as is compatible with their safe return to camp. This is a duty on which cavalry may often be employed.

4. Advantage should be taken of the possession of commanding heights to search thoroughly all the country within sight, and for this purpose as many men as possible should be trained in the use of telescopes and field glasses. It should also be impressed on all troops, and particularly on those on piquet, that it is their duty to report immediately any movements of the enemy and especially any indications of hostile gatherings towards dusk.

5. It is obvious that in a mountainous country thorough *ground* reconnaissance is essential.

BUSH FIGHTING.

148. *Characteristics of bush tribes.*

1. The fighting value of bush races may be roughly estimated by the methods they employ for protecting their villages, crops, and sacred places. The Asiatic depends more on his villages for protection, and accordingly makes them his chief point of defence and concentration. The African frequently leaves his villages unprotected but guards his crops, and still oftener selects the densest forest or bush near a main road or path as his fighting ground. In the thick bush of Somaliland and in parts of the Soudan the water supply alone indicates the possible fighting-ground of the enemy. A knowledge of the characteristics of the enemy is therefore of great value in arranging a plan of action.

2. The Burmese and the races of our Indian North-Eastern Frontier build stout stockades and trust to these defences mainly; their attacks are more or less spasmodic and ill executed.

The Somalis and Soudanese fight frequently in thick bush, and their onslaught must be met with well disciplined troops. A considerable proportion of these races are usually armed with rifles.

Some West African tribes build very strong stockades, needing powerful mountain guns to destroy them. They seldom attack except from ambush, but are most tenacious in holding their stockades.

It is by study of the many variations of bush warfare in different parts of the world that British officers, who are by nature endowed with jungle instincts beyond other European races, can ensure success. The chief weapons must be common sense, energy, self-reliance, and readiness to assume any and every rôle which the conditions of this service present.

149. *Composition of columns.*

1. As a force operating in bush country will often have to move in single file, it is a sound principle not to employ larger columns than are absolutely necessary. At the same time every effort should be made, by carefully selecting routes and by a free use of axes, to move on a broader front. The more compact the force is the better, as a lengthy baggage column is a source of danger and causes fatigue and delay.

To avoid long columns, it is often necessary to move by more than one route. In such cases inter-communication is frequently impossible, and therefore if the enemy is likely to know how to take advantage of this dispersion, each column must be sufficiently strong to be self-contained. A knowledge of the enemy's tactics will be the best guide to the strength and composition of columns.

2. A punitive column generally consists of infantry, with a proportion of mountain guns. In countries where cavalry or mounted infantry can act, the presence of these is much dreaded by savages. Against an enemy who fights outside stockades, machine guns are very efficacious; and in any case against all uncivilized people a sudden burst of fire from these is often most paralyzing.

150. *Marches.*

1. In bush it is rarely possible to march before daylight, and it has been found in hot climates that distances can be covered with the greatest ease to the troops by marching as soon as it is light and continuing up to midday with the usual short halts, and then halting for about three hours to enable the men to cook a meal and the animals to graze. The afternoon march should not be more than two to two and a-half hours' duration, so as to allow of an hour's daylight in which to form a zareba and to distribute rations and water.

2. In all bush countries camp should be reached in time to make defensive and other preparations for the night before darkness sets

in. In tropical climates sanitary precautions are of the greatest importance, and time should be allowed for these. Near the equator all days are practically the same length.

3. The distances which should divide the parts of a column cannot be fixed. It is important to keep as closed up as possible in dense bush, or the enemy may interpose between the various parts of the column. In less dense country the advanced guard may be from 100 yards or more to the front. Turns in a path are sometimes frequent and very erratic, and it is only by keeping well closed up that all parts of a column can maintain their cohesion and act more or less in concert.

4. When the nature of the bush admits and the enemy is likely to adopt offensive tactics, the best formation for the main body on the line of march is an elastic square.

Too much stress cannot be laid on the importance of taking the offensive in bush warfare. This can rarely be done if the transport is with the fighting troops at the moment of collision. Whenever possible a column should park and form a zareba round its transport before coming into action. Bold scouting and an intelligent use of friendly natives will usually afford the column sufficient warning to enable this to be done.

5. When it is necessary to march in file or single file halts should be frequent. During these the men composing various units or parts of the column should close up at once, and distances should then be corrected between units.

6. The guns should be near the head of the main body. The baggage guard should be sufficient to hold its own in case of any temporary separation from the remainder of the force and should be under a specially appointed officer.

151. *The advanced guard.*

1. Against an enemy unprovided with artillery or modern rifles in any numbers, as is usually the case in bush warfare, the main body is able to march so close to the advanced guard as to be able to

support it immediately. The advanced guard should be strong enough to brush aside minor opposition and to hold its own till supported. Whether the advanced guard should move out to a distance from camp before the column leaves depends on the character of the enemy, but in any event the advanced guard must be ready for action while camp is being broken, and the whole circuit of the camp should be patrolled to give warning of any enemy collecting in its immediate neighbourhood (Sec. 153, 2).

2. Scouts precede the advanced guard, and even in the densest bush should be not less than 80 yards on either side of the path; they should carry their rifles ready for immediate use. Close behind these come the point, the remainder of the van guard follows. The scouts and flankers will work in complete silence, using whistles if necessary as signals. None but well trained men can perform these duties, untrained men will soon be lost in the bush. As soon as they observe anything suspicious they should remain perfectly still and call up their comrades by whistle. If the enemy is discovered and offers a good mark, rifle fire may be used. When a scout has fired he should at once report what he has fired at.

No villages, open spaces, streams, nullahs, or knolls should be crossed or approached before being thoroughly examined.

3. Where the country permits, the route may be piqueted as described in Sec. 144. When such piquets are placed in jungle, all ranks should be informed of their exact position. To avoid accidents one or two men should be placed on a path opposite the spot and wara passing troops.

4. The advanced guard should see that all paths leading off the line of advance are carefully closed. This can be done by marking the wrong paths by cut branches, or by grass placed a little beyond the proper path to prevent them from being displaced; trees may be blazed; or where an important turning exists two men may be left on the path. After dark this latter is the only method, and if not adopted great confusion and delay may be caused in a column.

152. *Flankers.*

Every column in addition to its other precautions must have flankers at varying distances along its route to protect it from surprise.

Savages who adopt offensive tactics usually make the baggage their objective; partly in the hope of loot but also because they know that this is, as it were, the defensive as opposed to the offensive portion of the force.

If attacked on a flank, the advanced guard should halt and throw out extra flankers or piquets. Mountain guns should be prepared for action. If firing continues for long a portion of the main body may be sent back to assist in repelling the attack.

153. *The rear guard.*

1. The rear guard must be strong enough to act independently or to assist the baggage guard at any time. Many savage races make a point of attacking the rear guard, thinking themselves safe from attack in so doing. In such cases ambuscades, if successfully planned, will often so disconcert the enemy as to stop all further attempts for the time being.

2. Just before daylight the rear guard for the day will relieve the outposts. Piquets and sentries round camp should be doubled and not withdrawn till the camp is clear; the commander of the rear guard will then inform the commander of the force that all is ready for the advance.

The covering of the movement out of camp is one of the most important duties of the rear guard.

154. *Protection when at rest.*

1. In bush warfare it is necessary to adopt special systems of outposts, which will vary according to the nature of the country and the enemy. The degree of security will depend more on the

common sense employed in improvising it than on any rules. Savages see further by night, are endowed with cunning, and are generally superior in numbers; they move silently and know the bush. Against them, therefore, vigilance by night is of the greatest importance.

2. Camps should be formed on the perimeter system; well guarded by obstacles, for which barbed wire is of value; in easy soil trenches will be useful. Much clearing has generally to be done, and may conveniently be commenced by several parties working outwards from the centre of the camping ground. A second series of parties follows the first, to collect the material and form it into abattis. Sufficient branches for hutting should be left. Large trees should not be cut down, as while standing they take up little room, and if felled require much labour and time to remove.

Protection must be provided for the working parties.

At sunset all paths in the vicinity of camp should be blocked by obstacles, which should be removed next morning. One or two single strands of wire run round the camp through the brushwood and firmly fixed about two feet from the ground, will usually stop a savage rush.

3. The troops should be placed on the perimeter. All shelters should open outwards. Piquets will be told off at special points on the perimeter. Camp followers should be thoroughly drilled in what they have to do in case of attack. A clear space should be left immediately behind the firing lines all round the perimeter, to facilitate communication and control in the event of attack.

4. Patrols should search the surrounding ground by day. Paths should be constructed between all units, and the better and neater they are, the easier will it be to avoid all confusion in case of alarm.

By day, piquets should be posted some way out, watching paths, open clearings, and nullahs leading to camp; these should be withdrawn at night. If for any special reason a piquet is left out at night, it should be made safe from fire from the camp, and also from surprise. In no case should it fall back on camp during an

attack. It can sometimes be arranged for native scouts to remain out all night in small groups, at a sufficient distance from the camp to give timely warning of an enemy's approach. Such scouts should make a prearranged signal when returning to camp with information, and all sentries should know the signal agreed upon. The natives employed on such duties are the best judges as to when and where they are feasible.

5. The guns should always be ready to use star shell and case, and must be prepared to move at once to any part of the perimeter. Machine guns should be placed so as to enfilade the front. Star shell are the dread of savages, and if supplemented by some form of small portable searchlight will generally stop all attempts at night attacks.

155. *Precautions in camp and bivouac.*

1. It is advisable to place troops in camp on the same system daily, the advanced guard always forming the front face and the rear guard the rear face; men and followers soon learn to move into their proper places immediately they reach the bivouac.

2. The smoke from fires is often most trying in close bivouac; fires should be limited to absolute requirements and placed as far as possible to leeward. In countries where there is thorn bush or long grass, it is of great importance to guard against fire during the dry season. No fires are to be lighted save on properly cleared spaces set apart for the purpose.

3. The baggage should be so arranged as to avoid confusion in loading at dawn. Baggage guards should be distributed before a start is made. Where animals are used as transport it is necessary to form a zareba round them not only as a precaution against the enemy but to prevent them being stampeded or straying.

4. The position of night latrines must be arranged in accordance with the requirements of the tactical situation, but whenever possible they should be outside the perimeter, under charge of sentries. Day latrines must be further away but within the line of piquets.

156. *Convoy camps.*

1. With a view to utilizing wagons or the loads of pack animals as a means of defence, convoy camps are sometimes advantageous in warfare against savages.

2. Other considerations being favourable, the best formation for a convoy camp is that of a square, the wagons being arranged axle to axle as closely as possible. Except on the rear face, poles and shafts should face outwards, to facilitate driving off next morning. If, however, the wagons thus arranged do not afford a sufficient area for the animals, they may be placed end on, the poles or shafts of each being secured under the body of the one in its front. In either case, openings must be left on each face by drawing forward or backward one or more wagons, which, in case of attack, can at once be run into place. If rapidity of forming the camp is an object, the wagons may be drawn up in either a triangular or a diamond form.

3. Where the site is favourable and the convoy and escort large, two convoy camps may be formed, care being taken to avoid risk of their firing into each other in the event of a night attack. When the escort is small and the convoy large, a cattle camp may be formed with two small camps at opposite corners of the cattle camp for the escort.

4. With pack transport the loads of animals may be used to form a defensive perimeter on the same principles, being supplemented by abattis, sangars, or trenches.

CHAPTER XI.

CONVOYS.

157. *General principles.*

1. The senior combatant officer with a convoy will command both the transport and its escort. He will consult the senior transport officer on all matters which affect the welfare and convenience of the transport, will avoid all interference with his technical functions, and will give effect to his wishes unless, by so doing, the safety of the convoy would be endangered.

2. Commanders of fighting troops are responsible for the security of all supply units whose movements they regulate, and will detail such escorts for them as the situation may demand. The commander of line of communication defences is responsible for the security of supply columns, mechanical transport parks and convoys, which are controlled by the inspector-general of communications.

It will rarely be possible to provide for the security of fast-moving motor transport by means of escorts accompanying the transport. Usually, troops must be disposed so as to secure the roads by which the transport will move. The destruction even of small bridges may delay mechanical transport greatly, and special measures to protect them may be necessary.

The system of supply by mechanical transport is described in "Field Service Regulations," Part II.

3. Horsed convoys may be worked on any of the three following systems:—

- i. Through convoys.
- ii. Staging system.
- iii. Meeting system.

The through convoy system consists in the same animals and vehicles being employed from the start of the convoy until its arrival at its destination.

The staging system consists in the division of the road into stages, the same section of the transport working over the same ground, proceeding laden and returning empty.

The meeting system is that by which two sections, one laden and the other unladen, meet daily at a fixed point between two stages, when loads are transferred or vehicles exchanged, each section returning to its respective stage.

The through convoy system is generally adopted in front of the advanced depôt, and the staging or meeting systems on the lines of communications.

4. The success of an attack upon a convoy usually depends upon the defeat of the protecting troops. This will involve a combat, which will be governed by the principles already laid down in these regulations.

5. If convoys move frequently along a line of communication, the route should be piqueted daily by troops sent out from the posts on the line.

Should it be necessary to send a horsed convoy along a route which cannot be protected in this way, and is liable to attack, a special escort must be provided. In civilized warfare the escort should not be distributed along the convoy, but after small advanced and rear guards have been provided for the latter and sufficient men have been posted along it to ensure order and easy communication, the main portion of the escort should move with the usual precautions and in a handy formation on that flank of the convoy from which attack is anticipated.

6. The special business of the commander of a convoy is to conduct the convoy safely to its destination. Secrecy is most important. If fighting is inevitable, the enemy should be engaged as far from the convoy as possible.

7. Early information about the enemy and the roads ahead is essential, and the escort should be strong in mounted men or

cyclists. Secrecy in movement being important, the escort and its scouts should be specially warned to avoid attracting the enemy's attention. If the enemy is near, silence should be enforced in the convoy itself.

8. If attacked, a convoy should not be halted and parked except as a last resource.

9. If the attitude of the drivers is doubtful, adequate police measures must be taken to prevent their deserting in the event of an attack.

10. Should the whole or part of a convoy be in danger of falling into the enemy's hands, it should be either destroyed or rendered unserviceable. The transport animals should at least be either carried off or killed.

CHAPTER XII.

AMMUNITION SUPPLY.

158. *General principles.*

1. The administrative services deliver ammunition at certain points beyond the advanced base called refilling points, where it is taken over by the fighting troops.

2. The reserves of ammunition with the fighting troops are divided into three lines, viz. :—

- (a) Divisional ammunition column reserves (except in the cases of the cavalry division and of army troops).
- (b) Artillery brigade ammunition column reserves.
- (c) Regimental reserves.

Commanders of divisional ammunition columns demand the ammunition required to replenish their columns from the ammunition parks (mechanical transport) allotted for this purpose by the inspector-general of communications. These parks are line of communication units. During an action they are sent forward to rendezvous as directed by the inspector-general of communications under instructions from general or army headquarters. These rendezvous will usually be placed within easy reach of divisional ammunition columns, but sufficiently far behind the fighting troops to ensure that the freedom of movement of the latter is not curtailed. Sections or smaller portions of the parks are sent forward to refilling points to replenish divisional ammunition columns as required. The position of these refilling points is normally fixed by divisional commanders, but circum-

stances may make it advisable for general or army headquarters to fix the refilling points of all or some of the divisions. Similarly, general or army headquarters may delegate to a divisional commander the power to fix the rendezvous for his division, in which case the latter is responsible for keeping the inspector-general of communications informed and for notifying to general or army headquarters the arrangements made. The headquarters of divisional ammunition columns will usually be at refilling points, whence sections will be sent forward to get in touch with artillery brigade ammunition columns.

The supply of the cavalry division and of army troops is arranged on similar principles, but in these cases the cavalry and army troops ammunition parks carry the ammunition direct to the brigade ammunition columns or to regiments, battalions, &c., as may be convenient.

3. Indents on an ammunition column are unnecessary. Receipts will be prepared by the officer handing over the ammunition for the number of full wagons or carts issued from the column, and will be signed by the officer receiving them; no other vouchers are required. Officers receiving ammunition and stores from a column should see that they are what they require.

The account of rounds fired by any unit during an action is not the affair of the brigade ammunition column commander. Such accounts must be kept under the orders of the commander of the unit.

The supply from ammunition columns is not necessarily restricted to troops of their own division or brigade, &c.; any troops are to receive ammunition on demand, during an action, from any column which may be at hand.

159. *Divisional ammunition columns.*

A divisional ammunition column forms part of the divisional artillery; it consists of four sections. The first three sections carry small-arm and 18-pr. ammunition to replenish the three field

artillery brigade ammunition columns of the division. The fourth section carries a reserve for the howitzer brigade and heavy battery ammunition columns.

During an action sections of the divisional ammunition columns will be sent on to form reserves at convenient points off the road. The position of these points will be fixed by divisional commanders, if necessary under instructions from general or army headquarters ; they will normally be from one to two miles in rear of the brigade ammunition columns, but this will depend on the conditions under which battle has been accepted. Commanders in making their plans for battle must keep in view the importance of having the communications immediately in rear of the fighting troops clear of vehicles, and of having ammunition when and where it is required. The officer in charge of each section sent forward will at once notify his arrival and position to the divisional artillery commander and to the brigade ammunition column commanders.

Ammunition is sent forward to the brigade ammunition columns in the vehicles belonging to the divisional columns. Empty vehicles are sent back to the refilling points.

160. *Brigade ammunition columns.*

1. Brigade ammunition columns form part of an artillery brigade.

A field artillery brigade ammunition column normally provides ammunition for the batteries of its own brigade, for one of the infantry brigades of the division, and for a proportion of the divisional troops.

A horse artillery brigade ammunition column provides ammunition for the batteries of its own artillery brigade, for two brigades of cavalry and for a proportion of the cavalry divisional troops. This column is divisible into two equal sections, each carrying ammunition for a cavalry brigade and one battery, to meet

occasions when it becomes necessary to split the cavalry division temporarily into self contained cavalry brigades.

A mounted brigade ammunition column provides ammunition for the units of a mounted brigade.

The ammunition columns of howitzer brigades and heavy batteries provide ammunition for their batteries only, and carry no small-arm ammunition.

2. The position of brigade ammunition columns during a battle will normally be regulated by artillery brigade commanders in accordance with the plans of their superior commanders, who should issue such instructions as may be necessary to ensure connection between ammunition columns and the troops to be supplied by them. Occasionally, when there are special reasons for keeping the communications in rear of the fighting troops clear of vehicles, it may be necessary for the higher commanders (army and divisional) to issue special orders as to the position of these columns.

3. On arriving at the position allotted him, a brigade ammunition column commander will at once place himself in communication with the units he has to supply. He will provide the commander of infantry brigade ammunition reserves and each of the commanders of battery wagon lines with an orderly, who is to be used only in connection with ammunition supply to enable those commanders to notify their requirements to him.

4. If troops are scattered, brigade ammunition columns may be distributed into two or more sections in order to bring the reserves of ammunition nearer to the troops engaged. Commanders of sections will then deal direct with commanders of battery wagon lines or of infantry brigade reserves, reporting issues of ammunition to the brigade ammunition column commander.

5. On receipt of a message that ammunition is wanted, the brigade ammunition column commander sends forward under an officer the number of wagons or carts demanded. The latter, guided by the orderly who has brought the message, leads the wagons or carts to the battery wagon line or infantry brigade

ammunition reserve, as the case may be. The ammunition is then transferred from the full to the empty vehicles, and the former, when emptied, return to the brigade ammunition column and are refilled from the general service wagons. When the position of the wagon line or infantry brigade ammunition reserve is much exposed it is advisable to withdraw the empty vehicles to some covered position in the vicinity, and there effect the transfer of ammunition; or the horses may be unhooked from the empty wagons or carts and hooked into the full ones, the ammunition column horses taking the empty wagons or carts to the rear; but in the case of artillery wagons, on which men's cloaks, &c., are carried, it will be necessary to transfer these articles from one set of wagons to the other, otherwise there is a risk, in the event of an advance, that they will not be at hand when required.

APPENDIX I.

MEANS OF SIGNAL COMMUNICATION AVAILABLE WITH, AND THE NORMAL DUTIES OF, A SIGNAL UNIT.

Unit.	Means of signal communication available with unit.	Normal duties of unit.
Signal squadron— "A" troop ...	2 wireless (wagon) detachments	Intercommunication between cavalry divisional headquarters and general headquarters.
"B" troop ...	2 cable detachments, having 28 miles of cable and 8 vibrator offices	To keep divisional headquarters in touch with wireless stations serving it, or with the permanent telegraph system of the country; also can be used for general intercommunication within the division.
"C" troop ..	1 wireless (wagon) detachment 3 wireless (pack) detachments	Intercommunication between divisional headquarters and brigades or reconnoitring detachments.
"D" troop ...	12 mounted men ... 28 bicyclists ... 6 motor cyclists ... 2 motor cars... ..	For visual signalling and despatch riding purposes in conjunction with other means of intercommunication.
Signal troop with cavalry brigade	11 mounted men 6 bicyclists 3 motor cyclists	For visual signalling and despatch riding as required.

Unit.	Means of signal communication available with unit.	Normal duties of unit.
Signal troop with cavalry brigade (<i>contd.</i>)	7½ miles of cable ... 8 portable telephones	For use when the brigade is at rest or employed in dismounted action, also for connecting with permanent lines in the theatre of operations.*
Signal troop with mounted brigade	11 mounted men ... 6 bicyclists ... 3 motor cyclists ... 7½ miles of cable ... 8 portable telephones	As for signal troop with cavalry brigade.
Signal company with division— Headquarters and No. 1 section	2 wireless (pack) detachments	For intercommunication with general and cavalry divisional headquarters.
Signal company with division— Headquarters and No. 1 section	3 cable detachments having 30 miles of cable and 9 vibrator offices 4 mounted men ... 8 bicyclists ... 9 motor cyclists ...	For intercommunication within the division, or as required. For visual signalling or despatch riding in conjunction with, or alternative to, the cable communication.
Nos. 2, 3, and 4 sections	Each section has 2 telephone detachments, having in all 8 miles of cable and 10 portable telephones 8 bicyclists ...	For intercommunication within the infantry brigades, or between them and the artillery. For visual signalling or despatch riding as required.

* The signallers and despatch riders of the troop will lay and operate the telephone lines when used. A separate telephone detachment is not provided.

Unit.	Means of signal communication available with unit.	Normal duties of unit.
Signal company (Wireless)	3 wireless (wagon) detachments 9 motor cyclists	For intercommunication between general headquarters and cavalry divisional headquarters and mounted brigades. For despatch riding purposes.
Signal company (Cable) (a)	9 cable detachments, each with 10 miles of cable and 3 vibrator offices 13 motor cyclists	For intercommunication between general headquarters and army or divisional headquarters as required. For despatch riding purposes.
Signal company (Air-Line) (a)	6 air-line detachments, each having 10 miles of air-line and 2 second-class offices, also 2½ miles of cable and 6 vibrator offices	For intercommunication between general or army headquarters and the advanced base.
Signal company (Lines of Communication)	100 miles of air-line and 10 offices; but equipment varies to suit local conditions 9 motor cyclists	For intercommunication on the lines of communication. For despatch riding purposes.

(a) The unit for employment is the section of two detachments. The headquarters of the company provides the *personnel* for administrative purposes at general and army headquarters.

APPENDIX II.

DEFINITIONS AND NAVAL TERMS AND ORDERS.

1. *Definitions.*

When combined naval and military operations take place, special duties, involving the use of unfamiliar titles, will devolve on officers of both services. These definitions explain the meaning with which the following terms are used in such circumstances:—

Principal Naval Transport Officer.—A flag officer or Captain Royal Navy appointed, in charge of Sea Transport duties, to assist the Senior Naval Officer in preparing the necessary naval orders and under his direction to conduct the disembarkation, &c.

Divisional Transport Officer.—A naval officer responsible for the efficient working of the transports and boats of the division under his charge.

Sub-divisional Transport Officers.—Naval officers appointed to assist the Divisional Transport Officer.

Naval Transport Officer.—A naval officer responsible to the Divisional Transport Officer for the safe and rapid discharge of the transport to which he is appointed, and the medium of all communications between the master of the ship and the officer commanding the troops on board.

Military Transport Officer.—A military officer appointed to co-operate with the Naval Transport Officer.

Principal Military Landing Officer.—A military staff officer appointed to assist the Principal Naval Transport Officer.

Beach.—The stretch of shore allotted for the disembarkation of troops and material from one or more transports.

Beach Master.—A naval officer responsible for the rapid and safe

clearing of the boats of the division of transport to which he is appointed.

Military Landing Officer.—A military officer appointed to assist the Beach Master.

Forming-up place.—A place of assembly for the smaller units clear of but close to the beach, to which troops proceed directly they land.

Rendezvous.—A place of assembly for the larger units to which the smaller units proceed from the "Forming-up place."

Covering Position.—A position to be occupied by an advanced detachment of troops at such distance from the selected landing that neither anchorage, beach, nor forming-up place are exposed to shell fire from the enemy's land forces.

A tow.—The number of boats, barges, or lighters, secured to one another, that can be towed by one steamboat.

A trip.—The passage of a tow from a transport to the landing place.

A round trip.—The time taken to load, tow ashore, and unload a tow, as well as to return to the transport in readiness for the next trip.

2. Naval terms.

When naval and military forces are associated in combined operations all military ranks must be made familiar with the meaning of the following naval terms:—

A ship or a boat is divided lengthwise into the *fore part*, or *bows*; *midships*, or *waist*; *after part*, or *stern*.

The right is the *starboard*, the left the *port* side, looking forward.

Forward.—Towards the bows.

Aft or *abaft.*—Towards the stern.

Fore and aft.—Lengthways of the vessel.

Thwartships.—Across.

Alongside.—By the side.

Foc'sle.—In the fore part of the ship.

(B 10204)

- Quarter-deck*.—A portion of the deck reserved for officers.
- Accommodation ladder*.—A ladder-way or staircase for entering a boat lying alongside a ship, and *vice versa*.
- Gangway*.—A term indicating passage way.
- Gang board or gang plank*.—A special form of gangway for embarking or disembarking on or from a boat on an open beach.
- Sea gangway*.—The gangway used when the ship is at sea.
- Gunwale*.—A term used in a general way for the top of the sides of a boat.
- Freeboard*.—The distance between the water and the gunwale.
- Lanyard*.—A short piece of cord for tying on a knife, oar, &c.
- Thwarts*.—Seats for rowers in a boat.
- Stretchers*.—Rests for feet of rowers.
- Stern sheets*.—The space between the after thwart and the stern, fitted with seats for passengers and steersman.
- Rowlocks*.—The part of a boat's gunwale in which the oar rests in rowing.
- Poppits*.—Pieces of wood which fit into the rowlocks when the boat is under sail.
- Crutch*.—A metal swivel rest for the oar to fit into when rowing ; they are usually removable but secured to the boat by a lanyard.
- Halliards, stays, guys*.—Names for ropes. *Halliards* are used for hoisting purposes ; *stays* to support masts, &c. ; *guys* for working derricks or other moving spars.
- Purchase or Tackle*.—An arrangement of ropes and pulleys for raising or lowering weights.
- Fall*.—The rope of a purchase or tackle.
- Cleats*.—Pieces of wood or metal round which halliards, &c., are secured.
- Painter*.—A rope fastened to the bows of a boat with which to tow or fasten it.

3. Naval words of command.

All ranks of the army must also understand the following words of command :—

Ship or unship.—Fix or unfix ; put into place or take out of place.

Back starboard.—Reverse the oars on the starboard side and back water.

Back port.—Reverse the oars on the port side and back water.

Lay on your oars, or Oars.—Cease rowing, place the oars in a horizontal position with blades feathered.

Toss your oars.—Lift oars to a perpendicular position and retain them there.

Boat your oars.—Place all oars i side the boat, blades forward.

Belay.—Make fast.

Ease off.—Slacken off.

Handsomely.—Gently, easily.

Stand by.—Be ready.

Walk back.—After hoisting a weight with a purchase, walk towards the weight with the fall of the purchase in hand to keep control over the weight when lowering.

Light to.—Let go the fall of the purchase.

When leaving a ship or pier :—

Shove off.—Push off from the ship's side.

Oars down.—Place oars in the water.

Give way together.—Commence rowing.

When approaching a ship or pier :—

Bows.—Bow oar “boats” his oar and prepares to use his boat-hook.

Way enough.—After the bow oars are laid in, this is the order given to the rowers at which they stop rowing, taking one stroke after the order, and toss and boat their oars ; or in a gig or boat fitted with “crutches” (from which oars cannot conveniently be “tossed”), stop rowing and allow their oars to swing free, fore and aft.

APPENDIX III.

(a) BILLETING DEMAND ON CIVIL AUTHORITIES.

As an Officer of the British Army, I, acting under powers conferred upon me, hereby direct the Local Authorities of _____ to supply billets for :—

Officers.			Warrant Officers.	Staff Serjeants and Serjeants.	Rank and File.	Horses, &c.	Subsistence required. (Insert number of meals per day, number of days, &c. If no subsistence is required insert the word "none.")
Generals.	Field Officers.	Captains and Lieutenants.					

* In the event of subsistence being demanded and provided the question of payment therefor will be taken up on production of the requisition receipt notes, which must be transmitted to the officer in command of the nearest British garrison.

In case of any disobedience on the part of the inhabitants in complying with the demands, the Local Civil Authorities will address the undersigned without loss of time in order that military force may be applied if necessary.

Place

Date

Signature of Officer

* Alter as necessary if payment is to be made on the spot.

Army Form F 789.

(b) BILLETING ORDER ON INHABITANTS.

(Issued by the mayor, magistrate, chief police officer, or other local authority.)

Number of the Billeting Demand.....

(1) Quarters for—

Generals,
Field Officers,
Captains and Lieutenants,
Warrant Officers,
Staff Serjeants and Serjeants,
Rank and File,
Horses, &c.,

are to be provided, * together with subsistence as follows :—

by..... (Name)at No.
.....Street.

Place and date

Signature of the Head of the
Community.

* Strike out if no subsistence is to be provided

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